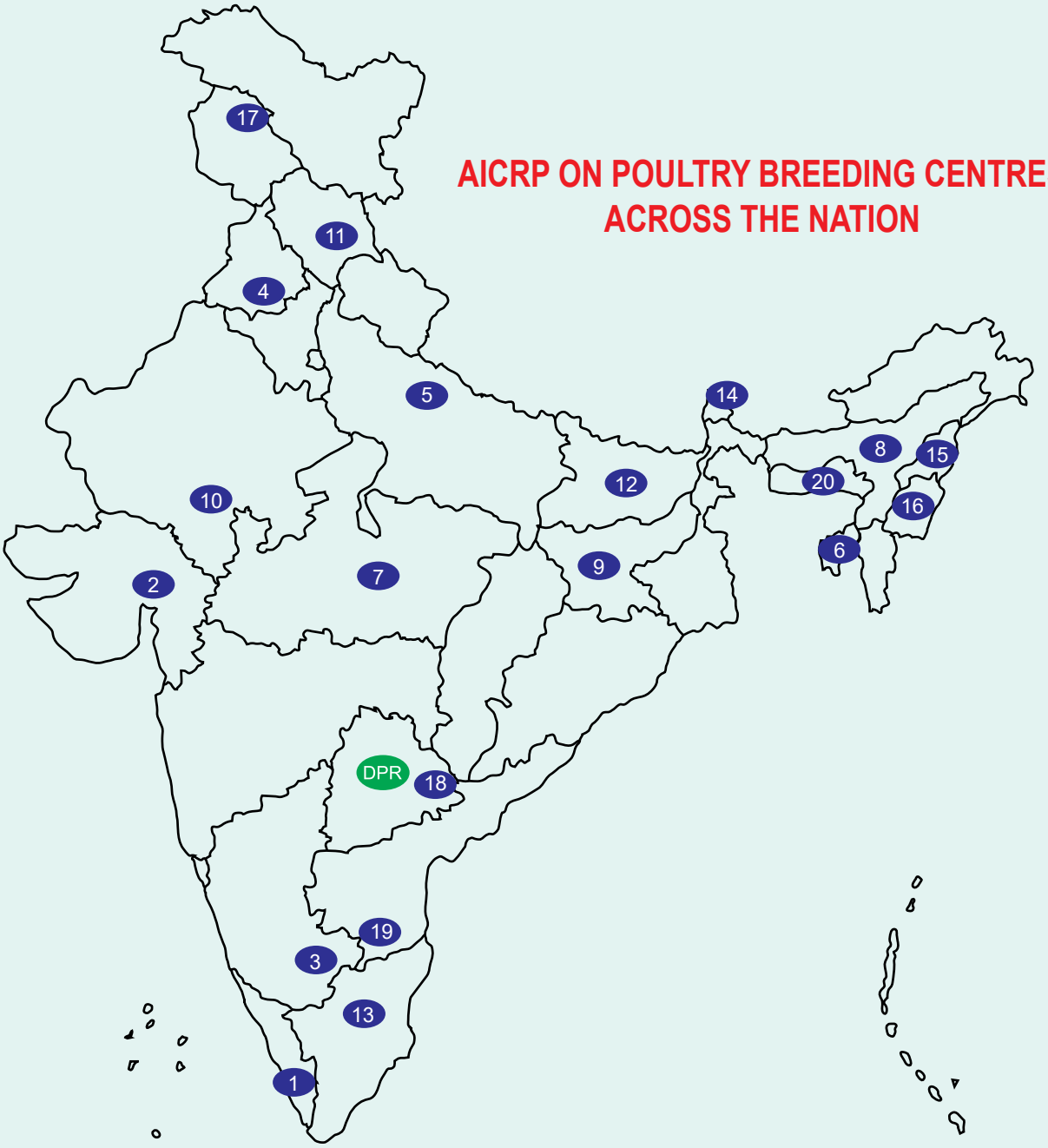
वार्षिक प्रतिवेदन
2024-25

ANNUAL REPORT
2024-25

AICRP ON POULTRY BREEDING

भाकृअनुप - कुक्कुट अनुसंधान निदेशालय
ICAR-DIRECTORATE OF POULTRY RESEARCH
ISO 9001-2015
Rajendranagar, Hyderabad-500 030, Telangana, India

AICRP ON POULTRY BREEDING CENTRES ACROSS THE NATION



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AICRP ON POULTRY BREEDING ANNUAL REPORT 2024-25

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Golden Jubilee Celebrations of AICRP on Poultry Breeding

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Annual Report

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ICAR-Directorate of Poultry Research

ISO 9001:2015

Rajendranagar, Hyderabad - 500 030, Telangana, India

www.pdonpoultry.org

PREFACE

ICAR-Directorate of Poultry Research (ICAR-DPR) is a premier research institute under the aegis of Indian Council of Agricultural Research which was established with the vision of enhancing chicken productivity for household nutritional security, income and employment generation. In order to achieve this, the institute is coordinating a highly successful All India Coordinated Research Project on Poultry Breeding (AICRP-PB) which has recently completed fifty glorious years. The location-specific chicken varieties and improved germplasm developed as a part of AICRP-PB are truly contributing in boosting farmer livelihoods and welfare by providing the fruits of technology from lab to land. The success stories documented over the years reflect upon the nutritional and livelihood security provided by the project in rural and tribal areas across the country. The AICRP - PB has been instrumental in earlier days in the spectacular growth of poultry industry in the country with its widespread network across the length and breadth of the country. It gives me immense pride to present the Annual Report of AICRP on Poultry Breeding for the year 2024-25.

AICRP-PB is aimed at rural poultry development by developing and propagating location-specific rural chicken varieties suitable for different parts of the country. In this regard, layer and broiler pure lines selected for economic traits are being continuously maintained and genetically improved to develop the location-specific varieties and improve the terminal crosses. Also, native chicken breeds are being used for the development of these varieties so as to conserve the indigenous gene pool and harbour its genetic potential. This has greatly sped up the work on identification and characterization of native chicken germplasm, thus contributing to the zero non-descript mission. In fact, in February, 2025, we celebrated the completion of fifty glorious years of All India Coordinated Research Project on Poultry Breeding which was followed by Annual Review Meeting at ICAR-DPR, Hyderabad. The staff of AICRP-PB deserves special credit for all the ground work and significant achievements leading to the effective propagation of improved chicken varieties in the backyard production systems of the country and for conserving the indigenous genetic diversity. During 2024-25, a total of 12.02 lakhs of improved chicken germplasm has been distributed to the farmers by different AICRP centres across the country. As a result, Rs. 405.71 lakhs was generated as revenue through distribution and propagation of improved chicken germplasm. A total of fourteen (14) success stories have been documented during the year and eighteen (18) research publications have been published.

I express my heartfelt gratitude to Dr. Mangi Lal Jat, Secretary, DARE and Director General, ICAR and Dr. Himanshu Pathak, Former Secretary, DARE and DG, ICAR for all the support and encouragement extended for the effective functioning of the AICRP on Poultry Breeding during the period. I am extremely grateful to Dr. Raghavendra Bhatta, Deputy Director General (Animal Science) for his keen interest and guidance. I am thankful to the Secretary, ICAR and Financial Adviser, ICAR for their continuous support to the Directorate. I am thankful to Dr. G.K. Gaur, ADG (AP&B) and other scientific and administrative staff of the ICAR (HQ) for their unhindered help and unwavering support. The research progress achieved could not have been possible without the support and contribution of the scientists of AICRP cell at the Institute and all the PIs of AICRP Centres, who all deserve heartfelt appreciation. I also thank all other staff for supporting the scientists in their research endeavours. The editorial committee deserves a special mention for bringing out this report in an appreciable manner.

(R.N. Chatterjee)
Director

Date: 20-08-2025

ABBREVIATIONS

AFE	Age at first egg
ASM	Age at sexual maturity in days
BW16	Body weight at 16 weeks of age
BW40	Body weight at 40 weeks of age
BW64	Body weight at 64 weeks of age
BW72	Body weight at 72 weeks of age
EP40	Egg production number up to 40 weeks of age
EP64	Egg production number up to 64 weeks of age
EP72	Egg production number up to 72 weeks of age
EW28	Egg weight at 28 weeks of age
EW40	Egg weight at 40 weeks of age
EW64	Egg weight at 64 weeks of age
EW72	Egg weight at 72 weeks of age
FC	Feed consumption
FCR	Feed conversion ratio
FES	Fertile eggs set
TES	Total eggs set
Gen.	Generation
HH	Hen housed
HHEP	Hen housed egg production
HD	Hen day
HDEP	Hen day egg production
S	Survivors’
Wks	Weeks

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1 कार्यकारी सारांश

परियोजना (एआईसीआरपी)

कुक्कुट प्रजनन पर एआईसीआरपी (एआईसीआरपी-पीबी) भाकृअनुप की सबसे सफल परियोजनाओं में से एक है, जो वर्तमान में बीस केंद्रों पर संचालित की जा रही है, केवीएएसयू, मन्नुथी; कामधेनु विश्वविद्यालय (केयू), आनंद; केवीएएफएसयू, बेंगलुरु; जीएडीवीएएसयू, लुधियाना; भाकृअनुप-सीएआरआई, इज्जतनगर; भाकृअनुप क्षेकें एनईएच क्षेत्र, अगरतला; एनडीवीएसयू, जबलपुर; एएयू, गुवाहाटी; बीएयू, रांची; एमपीयूएटी, उदयपुर; सीएसकेएचपीकेवी, पालमपुर; बिहार पशु विज्ञान विश्वविद्यालय (बीएएसयू), पटना; भाकृअनुप-एनईएच क्षेत्र के लिए अनुसंधान परिसर, झरनापानी, नागालैंड; भाकृअनुप-एनईएच क्षेत्र के लिए अनुसंधान परिसर, गंगटोक, सिक्किम; भाकृअनुप-एनईएच क्षेत्र के लिए अनुसंधान परिसर, इंफाल, मणिपुर; तमिलनाडु पशु चिकित्सा एवं पशु विज्ञान विश्वविद्यालय (टीएएनयूवीएएस), होसुर; शेर-ए-कश्मीर कृषि विज्ञान एवं प्रौद्योगिकी विश्वविद्यालय (एसकेयूएएसटी), श्रीनगर; पीवीएनआर तेलंगाना पशु चिकित्सा विश्वविद्यालय (पीवीएनआरटीवीयू), वारंगल; श्री वेंकटेश्वर पशु चिकित्सा विश्वविद्यालय (एसवीवीयू), तिरुपति एवं भाकृअनुप - एनईएच क्षेत्र के लिए अनुसंधान परिसर, उमियाम, मेघालय। अंतिम नौ केंद्र पहले पूर्ववर्ती कुक्कुट बीज परियोजना (पीएसपी) का ही भाग थे, जिसे भाकृअनुप ने 11 वीं पंचवर्षीय योजना के दौरान देश के दूरदराज क्षेत्रों में ग्रामीण कुक्कुट जर्मप्लाज्म की उपलब्धता बढ़ाने के उद्देश्य से विकसित किया था। वर्ष 2023 में, कुक्कुट बीज परियोजना (पीएसपी) का कुक्कुट प्रजनन पर एआईसीआरपी में विलय कर दिया गया। जीबीपीयूएटी, पंतनगर को 2024-25 से एआईसीआरपी-पीबी के एक गैर-वित्तपोषित केंद्र के रूप में जोड़ा गया। ओयूएटी, भुवनेश्वर; भाकृअनुप-सीसीएआरआई,गोवा; भाकृअनुप-सीआईएआरआई,पोर्टब्लेयर एवं डब्ल्यूबीयूएएफएस, कोलकाता सहित चार केंद्रों को 30 सितंबर, 2024 से बंद कर दिया गया।

परियोजना के मुख्य उद्देश्य स्थान-विशिष्ट कुक्कुट किस्मों का विकास; स्थानीय मूल, उत्कृष्ट लेयर एवं ब्रॉयलर जर्मप्लाज्म का संरक्षण, सुधार, लक्षण-निर्धारण एवं अनुप्रयोग; ग्रामीण, आदिवासी एवं पिछवाड़े क्षेत्रों में ग्रामीण कुक्कुट पालन एवं उद्यमिता के लिए प्रथाओं के पैकेजों का विकास करना है। इसके अतिरिक्त, केवीएएसयू, मन्नुथी एवं केयू, आनंद केंद्र दो उत्कृष्ट लेयर जर्मप्लाज्म (आईडब्ल्यूएन एवं आईडब्ल्यूपी) का रख-रखाव करते हैं। केवीएएफएसयू, बेंगलुरु एवं जीएडीवीएएसयू, लुधियाना, भाकृअनुप-सीएआरआई, इज्जतनगर चार (प्रत्येक केंद्र द्वारा दो) उत्कृष्ट ब्रॉयलर जर्मप्लाज्म (पीबी-1, पीबी-2, सीएसएमएल एवं सीएसएफएल) का रख-रखाव करते हैं।

हैदराबाद स्थित भाकृअनुप-कुक्कुट अनुसंधान निदेशालय में यादृच्छिक वंशावली प्रजनन नियंत्रण कुक्कुट जीव (लेयर के लिए एक एवं ब्रॉयलर के लिए एक) रखी जाती हैं। इन आबादियों से निकले अंडों के नमूने नियमित रूप से अखिल भारतीय कुक्कुट अनुसंधान परियोजना (एआईसीआरपी) के विभिन्न केंद्रों को आनुवंशिक प्रगति मापने के लिए भेजे जा रहे हैं। परिषद द्वारा लिए डीपीआर में रखे गए उपभेदों को विभिन्न एआईसीआरपी केंद्रों पर दोहराया गया ताकि आवश्यकता पड़ने पर केंद्र द्वारा तीन एवं चार-मार्गीय संकर उत्पादन के लिए संसाधन आबादी के रूप में इनका उपयोग किया जा सके। विभिन्न एआईसीआरपी केंद्रों पर दोहराए जा रहे उपभेदों में लेयर उपभेद, आईडब्ल्यूडी एवं आनंद स्थित आईडब्ल्यूके सम्मिलित हैं।

वर्ष के दौरान देश भर के विभिन्न केंद्रों से 16110 किसानों को कुल 12,02,131 कुक्कुट जर्मप्लाज्म वितरित किए गए। उन्नत कुक्कुट जर्मप्लाज्म के वितरण एवं प्रसार से रू 405.71 लाख की आय प्राप्त हुई।

केवीएएसयू, मन्नुथी केंद्र ने 2024-25 के दौरान 16 सप्ताह की आयु तक देशी कुक्कुटों के जर्मप्लाज्म की एस-8 पीढ़ी का मूल्यांकन किया। केंद्र ने 29 से 72 सप्ताह की आयु तक व्हाइट लेगॉर्न के आईडब्ल्यूएन एवं आईडब्ल्यूपी उपभेदों की एस-34 पीढ़ी का भी मूल्यांकन किया। पिछली पीढ़ी की तुलना में एस-34 पीढ़ी में आईडब्ल्यूएन एवं आईडब्ल्यूपी उपभेदों में 40 सप्ताह की आयु पर अंडों का वजन क्रमशः 0.56 एवं 0.58 ग्राम बढ़ा। केंद्र ने वर्ष के दौरान रू 23.50 लाख का राजस्व अर्जित किया एवं 1,38,500 जर्मप्लाज्म की आपूर्ति की। चालू वर्ष के दौरान केंद्र से जर्मप्लाज्म आपूर्ति से लाभान्वित होने वाले किसानों की संख्या 827 रही।

केयू, आनंद केंद्र ने कुक्कुट की अंकलेश्वर नस्ल की एस-5 पीढी का 40 सप्ताह की आयु तक मूल्यांकन किया। अंकलेश्वर कुक्कुट (एस-5 पीढ़ी) का 40 सप्ताह की आयु तक अंडा उत्पादन 87.62 रहा, जो एस-4 पीढ़ी (84.92) की तुलना में अधिक था। अंकलेश्वर कुक्कुट की एस-6 पीढ़ी का उत्पादन किया गया एवं उसका मूल्यांकन किया जा रहा है। आईडब्ल्यूएन एवं आईडब्ल्यूपी उपभेदों की एस-4 पीढ़ी का 72 सप्ताह की आयु तक मूल्यांकन किया गया। 72 सप्ताह की आयु तक अंडा उत्पादन आईडब्ल्यूएन में 304.05 एवं आईडब्ल्यूपी उपभेद में 301.05 रहा। आईडब्ल्यूडी एवं आईडब्ल्यूके उपभेदों की एस-11 पीढ़ी का 64 सप्ताह की आयु तक मूल्यांकन किया गया, समीक्षाधीन अवधि के दौरान केंद्र ने 538 किसानों को कुल 54,337 अंडे एवं चूजे उपलब्ध कराए। समीक्षाधीन वर्ष के दौरान केंद्र ने रू 33.52 लाख का राजस्व अर्जित किया।

केवीएएफएसयू, बेंगलुरु केंद्र ने वर्ष के दौरान देशी कुक्कुट, पीबी-1 एवं पीबी-2 वंशों के साथ-साथ नियंत्रण ब्रॉयलर का मूल्यांकन किया। पीबी-1 एवं पीबी-2 वंशों में पाँच सप्ताह का शारीरिक भार क्रमशः 1318 एवं 1291 ग्राम रहा। पीबी-1 एवं पीबी-2 वंशों में 40 सप्ताह की आयु तक अंडा उत्पादन क्रमशः53.62 एवं 56.90 अंडे रहा। 20 सप्ताह की आयु में देशी कुक्कुट (एस-8) के नर एवं मादा का शारीरिक भार क्रमशः 1498 एवं 1135 ग्राम रहा। देशी कुक्कुट में 40 एवं 52 सप्ताह तक अंडा उत्पादन क्रमशः 34.74 एवं 58.92 अंडे रहा। एक संकर के किशोर विकास प्रदर्शन का मूल्यांकन फार्म पर किया गया। पीबी-1

में 5 सप्ताह के शारीरिक भार की फेनोटाइपिक एवं आनुवंशिक प्रतिक्रिया क्रमशः 12.9 एवं 12.1 ग्राम रही, जबकि पीबी-2 में यह मान क्रमशः 10.6 एवं 9.03 ग्राम रहा। 829 किसानों को कुल 1,80,737 कुक्कुट जर्मप्लाज्म वितरित किए गए। केंद्र ने वर्ष के दौरान रू 49.60 लाख का राजस्व अर्जित किया।

जीएडीवीएएसयू, लुधियाना केंद्र ने वर्ष के दौरान पंजाब-ब्राउन, पीबी-1 एवं पीबी-2 वंशों एवं एक द्वि-उद्देश्यीय त्रि-मार्गी संकर का मूल्यांकन किया। पीबी-1 एवं पीबी-2 वंशों में पाँच सप्ताह का शारीरिक भार क्रमशः 1138 एवं 1083 ग्राम रहा, जिनका संगत एफसीआर क्रमशः 1.89 एवं 1.90 रहा। पीबी-1 एवं पीबी-2 वंशों में 40 सप्ताह की आयु तक अण्डा उत्पादन क्रमशः 65.02 एवं 68.27 अण्डे रहा। पंजाब-ब्राउन में, 8 सप्ताह का शारीरिक भार नर में 785.4 ग्राम एवं मादा में 676 ग्राम रहा, जिनका एफसीआर 3.4 रहा। पंजाब ब्राउन में 52 सप्ताह की आयु तक अण्डा उत्पादन 109.2 अण्डे रहा। 40 सप्ताह की आयु में अंडे का वजन 50.13 ग्राम रहा। द्वि-उद्देशीय त्रि-मार्गी संकरण आरआईआर x (पीबी-2 x पंजाब-ब्राउन) का फार्म और क्षेत्र में मूल्यांकन किया गया एवं 20 सप्ताह की आयु में शरीर का वजन फार्म और क्षेत्र में क्रमशः 1811 ग्राम एवं 1708 ग्राम था। 36 सप्ताह की आयु तक, संकरण में फार्म और क्षेत्र में अंडा उत्पादन क्रमशः 60.08 ग्राम एवं 55.11 ग्राम रहा। केंद्र ने 605 किसानों को 75,478 जर्मप्लाज्म इकाइयाँ वितरित कीं एवं रू 19.38 लाख का राजस्व अर्जित किया।

भाकृअनुप-सीएआरआई, इज्जतनगर केंद्र ने स्थानीय देशी कुक्कुट (एस-9) जर्मप्लाज्म का मूल्यांकन किया एवं 1,832 स्वस्थ्य चूजे उत्पन्न किए। देशी कुक्कुट में 16 सप्ताह की आयु में शरीर का वजन 1302 ग्राम रहा। रैंडम मैटिंग के माध्यम से एस-22 पीढ़ी में सीएसएमएल, सीएसएफएल एवं नियंत्रण वंशावलियों के कुल 3,484, 4,208 एवं 911 स्वस्थ्य चूजे उत्पन्न किए। एस-22 पीढी में सीएसएमएल, सीएसएफएल एवं नियंत्रण वंशावलियों में 5 सप्ताह की आयु में शरीर का वजन क्रमशः 1055, 1050 एवं 795.7 ग्राम रहा। 35 किसानों एवं अन्य हितधारकों को कुल 24,856 जर्मप्लाज्म इकाइयाँ प्रदान की गयी। समीक्षाधीन अवधि के दौरान केंद्र द्वारा अर्जित कुल राजस्व रू 22.35 लाख रहा।

भाकृअनुप अनुसंधान केंद्र, एनईएच, त्रिपुरा केंद्र ने वर्ष के दौरान त्रिपुरा-ब्लैक, डाहलेमरेड, सीएसएफएल एवं उनके संकर का मूल्यांकन किया। टोकबारी (बीएनडी क्रॉस) का ई-8 मूल्यांकन फार्म और क्षेत्र की स्थितियों में 72 सप्ताह तक पूरा किया गया। टोकबारी के ई-8 मूल्यांकन में, फार्म और क्षेत्र की स्थितियों में 72 सप्ताह का अंडा उत्पादन क्रमशः 169.23 एवं 142.75 अंडे रहा। कुक्कुट पालन पर चार (04) प्रशिक्षण कार्यक्रम आयोजित किए गए, जिनसे कुल 130 ग्रामीण किसानों को लाभ हुआ। 267 किसानों को कुल 20,432 कुक्कुट जर्मप्लाज्म की आपूर्ति की गयी, जिससे रू 17.13 लाख की राजस्व की प्राप्ति हुई।

एनडीवीएसयू, जबलपुर केंद्र ने जबलपुर-कलर एवं कड़कनाथ की जी-5 पीढ़ी का 52 सप्ताह की आयु तक मूल्यांकन किया। जबलपुर-कलर के कुक्कुटों का 20, 40 एवं 52 सप्ताह की आयु में शरीर का वजन क्रमशः 1603.3, 2089.0 एवं 2191 ग्राम दर्ज किया गया, जबकि कड़कनाथ कुक्कुटों का वजन 20, 40 एवं 52 सप्ताह की आयु में क्रमशः 1097.6, 1619 एवं 1710 ग्राम रहा। जबलपुर-कलर में 40 एवं 52 सप्ताह की आयु तक कुक्कुट प्रति दिन अंडे का उत्पादन क्रमशः 99.56 एवं 163.5 अंडे एवं कड़कनाथ में 64.2 एवं 93.2 अंडे रहा। नर्मदानिधि कुक्कुटों का 8 एवं 20 सप्ताह की आयु में शरीर का वजन क्रमशः नर में 1022.4 एवं 1507.5 ग्राम एवं मादा में 733.2 एवं 1384.2 ग्राम रहा। नर्मदानिधि का 40 एवं 52 सप्ताह तक अंडा उत्पादन क्रमशः 58.6 एवं 110 अंडे एवं 40 सप्ताह की आयु में अंडे का औसत वजन 49.4 ग्राम रहा। 928 किसानों को कुल 44,432 कुक्कुट जर्मप्लाज्म वितरित किए गए, जिससे रू 30.66 लाख की राजस्व प्राप्त हुआ। भाकृअनुप-डीएपीएससी एवं भाकृअनुप-डीएपीएसटी योजनाओं के अंतर्गत, कुल 04 प्रशिक्षण (अनुसूचित जाति के लिए 02 एवं अनुसूचित जनजाति के लाभार्थियों के लिए 02) आयोजित किए गए, जिनसे 75 अनुसूचित जाति एवं 51 अनुसूचित जनजाति के लाभार्थियों को लाभ पहुँचा है।

एएयू, गुवाहाटी केंद्र ने 72 सप्ताह की आयु तक देशी, डाहलेमरेड, दाओथिगिर एवं बीएन आबादी का मूल्यांकन किया, जबकि कामरूपा का भी 72 सप्ताह की आयु तक खेत एवं क्षेत्र की स्थितियों में मूल्यांकन किया गया। सभी झुंडों की औसत प्रजनन क्षमता 87.15% पाई गयी। सभी वंशाविलयों में ब्रूडिंग एवं बढ़ने की अवधि के दौरान मृत्यु दर 3.87% से कम रही। 5 सप्ताह का शरीर का वजन देशी में 186.17 ग्राम एवं डाहलेमरेड में 443.03 ग्राम रहा। पिछली पीढ़ी की तुलना में देशी कुक्कुट 0.19 दिन पहले एवं डाहलेमरेड कुक्कुट 0.27 दिन पहले परिपक्वता प्राप्त की है। देशी जीवों में, 72 सप्ताह की आयु तक अंडे का वजन एवं अंडे का उत्पादन क्रमशः 42.47 ग्राम एवं 112.30 अंडे रहा। बीएन संकर में पाँच सप्ताह का शारीरिक भार 399.66 ग्राम एवं एफसीआर 2.89 था। कामरूपा में यौन परिपक्वता की आयु फार्म में 148.18 दिन एवं क्षेत्र में 168.96 दिन रही । कुक्कुट घर में 40, 52 एवं 72 सप्ताह की आयु तक अंडा उत्पादन क्रमशः 51.85, 93.32 एवं 156.21 अंडे रहा एवं क्षेत्र में इसी प्रकार के मान क्रमशः 46.24, 76.28 एवं 124.94 अंडे रहा। दाओथिगिर में यौन परिपक्वता की आयु 197.96 दिन रही, कुक्कुट घर में 72 सप्ताह की आयु तक अंडा उत्पादन 116.98 अंडे रहा एवं 72 सप्ताह में अंडे का भार 42.19 ग्राम रहा। रिपोर्टिंग वर्ष के दौरान केंद्र ने 687 किसानों को 51,020 यूनिट जर्मप्लाज्म की आपूर्ति की एवं रु 10.91 लाख राजस्व प्राप्त किया।

बीएयू, रांची केंद्र ने विभिन्न आर्थिक लक्षणों के लिए 72 सप्ताह की आयु तक देशी कुक्कुट, डाहलेमरेड एवं झारसिम का मूल्यांकन किया। देशी कुक्कुट में 8 एवं 12 सप्ताह की आयु में शरीर का वजन क्रमशः 357.58 ± 0.51 एवं 556.12 ± 0.27 ग्राम रहा। मुर्गों में 20 सप्ताह का शरीर का वजन 1298.06 ± 0.53 ग्राम एवं कुक्कुटों में 1091.64 ± 0.87 ग्राम रहा। कुक्कुट प्रति दिन के आधार पर वार्षिक अंडा उत्पादन (72 सप्ताह) देशी एवं डाहलेमरेड कुक्कुट में 128 एवं 183 अंडे रहा। छोटानागपुरी क्षेत्र के एक कुक्कुट इकोटाइप खुखरी को रूपात्मक, शारीरिक, प्रजनन, विकास एवं उत्पादन प्रदर्शन के संबंध में लक्षण वर्णन किया गया एवं नस्ल के पंजीकरण के लिए भाकृअनुप-एनबीएजीआर, करनाल को आवेदन प्रस्तुत किया गया। केंद्र ने 438 किसानों को 47522 जर्मप्लाज्म वितरित कर रु 10.17 लाख का राजस्व प्राप्त किया है।

एमपीयूएटी, उदयपुर केंद्र ने रिपोर्टिंग वर्ष के दौरान मेवाड़ी, सीएसएफएल, आरआईआर एवं प्रतापधन जीवों का मूल्यांकन किया।

मेवाड़ी मादाओं में 20 एवं 40 सप्ताह की आयु में शरीर का वजन 1447 एवं 1661 ग्राम रहा। मेवाड़ी कुक्कुट में 40 एवं 52 सप्ताह की आयु तक अंडा उत्पादन 43.92 एवं 65.18 अंडे रहा जबकि पिछली पीढ़ी में वार्षिक अंडा उत्पादन 103.88 रहा। 20 सप्ताह की आयु में आरआईआर मादाओं का शरीर का वजन 1536 ग्राम रहा जबकि सीएसएफएल एवं बीएन संकर नर के लिए संबंधित मूल्य क्रमशः 2842 एवं 2204 ग्राम रही। आरआईआर में कुक्कुट के घर, कुक्कुट के प्रति दिन एवं जीवित बचे लोगों का अंडा उत्पादन 40 एवं 52 सप्ताह की आयु तक क्रमशः 78.41, 79.20, 79.93 एवं 113.24, 115.40, 117.72 अंडे रहा। प्रतापधन मादाओं का 20 सप्ताह की आयु में औसत शारीरिक भार 2041.87 ग्राम रहा। प्रतापधन में 40, 52 एवं 72 सप्ताह की आयु तक अंडा उत्पादन क्रमशः 67.36, 99.90 एवं 167.75 ग्राम रहा। रिपोर्ट अवधि के दौरान पाँच प्रशिक्षण कार्यक्रम आयोजित किए गए, जिनसे परियोजना के जनजातीय उप-योजना घटक के अंतर्गत 287 जनजातीय किसानों को लाभ पहुँचा है। रिपोर्ट अवधि के दौरान लगभग 446 किसानों को कुल 61,699 उन्नत कुक्कुट जननद्रव्य वितरित किए गए। केंद्र को जननद्रव्य के वितरण से रू 16.42 लाख की आय की प्राप्ती हुई।

सीएसकेएचपीकेवी, पालमपुर केंद्र ने रिपोर्ट वर्ष के दौरान देशी कुक्कुट जर्मप्लाज्म की एस-2 पीढ़ी, डाहलेमरेड एवं हिमसमृद्धि की जी-3 पीढ़ी का मूल्यांकन किया गया। देशी जर्मप्लाज्म का मूल्यांकन 40 सप्ताह की आयु तक 44.59 अंडों के एचडीईपी के साथ किया गया। डाहलेमरेड जीवों का मूल्यांकन जी-3 पीढ़ी में 72 सप्ताह तक किया गया एवं 40, 52 एवं 72 सप्ताह में एचडीईपी क्रमशः 83.21, 138.36 एवं 190.97 अंडे रहा। डाहलेमरेड x देशी (डीएन) कुक्कुटों का भी उत्पादन एवं 72 सप्ताह की आयु तक मूल्यांकन किया गया। 40, 52 एवं 72 सप्ताह तक एचडीईपी क्रमशः 62.65, 105.49 एवं 169.31 अंडे रहा। हिमसमृद्धि, स्थान-विशिष्ट कुक्कुट किस्म का प्रसार राज्य के विभिन्न क्षेत्रों में दूरदराज के क्षेत्रों में किया जा रहा है। कृषि परिस्थितियों में हिमसमृद्धि (डीएनडी) का 40वें, 52वें एवं 72वें सप्ताह तक एचडीईपी क्रमशः 71.73, 121.72 एवं 184.79 अंडे रहा एवं पिछले मूल्यांकन की तुलना में इसमें सुधार देखा गया। वर्ष के दौरान, केंद्र ने 799 किसानों को हिमसमृद्धि (डीएनडी क्रॉस), देशी एवं अन्य संकर के 73,945 चूजे/उत्पादक उपलब्ध कराए एवं रू 20.27 लाख राजस्व प्राप्तियाँ प्राप्त हुई। समीक्षाधीन अवधि के दौरान पाँच प्रशिक्षण कार्यक्रम (1-3 दिवसीय) एवं पच्चीस अग्रिम पंक्ति प्रदर्शन भी आयोजित किए गए।

बीएएसयू, पटना केंद्र में, वनराजा वंश के एक समूह का पालन-पोषण किया गया। 40 सप्ताह की आयु में नर वंश में शरीर का भार 3708.44±41.22 एवं मादा वंश में 2549.42±47.65 रहा। 40-41 सप्ताह की आयु में कुक्कुटों ने 66.55% का अधिकतम उत्पादन प्राप्त किया। प्रजनन क्षमता 75.67% एवं कुल अंडों के समूह में 67.05% रही। 1940 किसानों को कुल 80,768 जर्मप्लाज्म वितरित किए गए। केंद्र ने 2024-25 के दौरान कुल रू 12.67 लाख का राजस्व अर्जित किया।

भाकृअनुप अनुसंधान केंद्र, उत्तर पूर्वी हिमालय, झरनापानी केंद्र में, श्रीनिधि के मूल स्टॉक का एक बैच खरीदा गया एवं वनराजा के दो पूर्व बैचों एवं श्रीनिधि के एक बैच के साथ डीपलिटर सिस्टम के तहत उसका रखरखाव किया गया। नागालैंड एवं पड़ोसी राज्यों के किसानों, कृषि विज्ञान केंद्रों, गैर-सरकारी संगठनों सहित 1249 लाभार्थियों को कुल 81,663 चूजे वितरित किए गए एवं समीक्षाधीन अवधि के दौरान रू 54.18 लाख का राजस्व प्राप्त हुआ।

भाकृअनुप क्षेकें, एनईएच, सिक्किम केंद्र ने 2024-25 के दौरान वनराजा कुक्कुटों के एक समूह को पाला है। केंद्र ने 1097 किसान लाभार्थियों के बीच 35,453 चूजे वितरित किए। रिपोर्ट अवधि के दौरान जर्मप्लाज्म की आपूर्ति से रू 25.63 लाख का राजस्व प्राप्त हुआ।

रिपोर्ट अवधि के दौरान, श्रीनिधि के मूल स्टॉक के एक बैच को भाकृअनुप क्षेकें एनईएच, मणिपुर केंद्र में डीप लिटर सिस्टम के अंतर्गत रखा गया। मणिपुर के विभिन्न भागों में 253 किसानों को कुल 18,395 चूजे वितरित किए गए एवं रू 4.32 लाख राजस्व प्राप्तियाँ प्राप्त की।

तनुवास, होसुर केंद्र में, वनराजा एवं ग्रामप्रिया पैतृकों के एक-एक समूह को 72 सप्ताह की आयु तक पाला गया। 19-71 सप्ताह की आयु के बीच, वनराजा में कुक्कुट पालन गृह में क्रमशः 179 अंडे एवं ग्रामप्रिया में 199 अंडे का वार्षिक उत्पादन हुआ। पूरे तमिलनाडु में 897 किसानों एवं उद्यमियों को कुल 68,756 उन्नत ग्रामीण कुक्कुट जननद्रव्य वितरित किए गए। केंद्र ने 2024-25 के दौरान कुल रू 18.29 लाख का राजस्व अर्जित किया।

एसकेयूएएसटीके, श्रीनगर केंद्र ने वनराजा पैतृकों एवं कश्मीरी फेवरेला कुक्कुटों का एक-एक बैच रखा है। कश्मीर भर में 3,057 किसानों को कुल 40,343 चूजे वितरित किए गए। इस अवधि के दौरान जर्मप्लाज्म की बिक्री से रू 8.95 लाख का राजस्व प्राप्त हुआ।

पीवीएनआरटीवीयू, वारंगल केंद्र ने रिपोर्टिंग अवधि के दौरान निकोबारी, असील, वनश्री, कड़कनाथ एवं घाघस के पैतृकों का रखरखाव किया। 20 सप्ताह के मुर्गों का शारीरिक भार 1965±20.6 ग्राम एवं असील कुक्कुटों का 1360±18.1 ग्राम रहा । चालू वर्ष के दौरान किसानों को कुल 16,381 जर्मप्लाज्म की आपूर्ति की गई एवं रू 11.17 लाख का राजस्व प्राप्त हुआ।

वर्ष 2024-25 के दौरान, एसवीवीयू, तिरुपति केंद्र ने वनराजा मूल कुक्कुटों के दो बैचों का पालन-पोषण किया एवं उनके प्रदर्शन का मूल्यांकन किया। केंद्र द्वारा कुल जर्मप्लाज्म आपूर्ति 61,641 थी, लाभान्वित किसान 323 रहा तथा कुल राजस्व रू 6.66 लाख प्राप्त हुआ।

भाकृअनुप क्षेकें एनईएच, मेघालय केंद्र ने रिपोर्ट अवधि के दौरान उन्नत किस्म के मूल स्टॉक के दो बैच तैयार किए। राज्य में 635 लाभार्थियों को कुल 25,773 उन्नत कुक्कुट जर्मप्लाज्म की आपूर्ति की गई। इस अवधि के दौरान केंद्र ने कुल रू 10.43 लाख का राजस्व अर्जित किया। केंद्र ने मेघालय की स्वदेशी कुक्कुट नस्ल के लक्षण-निर्धारण पर भी काम आरंभ किया।

जीबीपीयूएटी, पंतनगर केंद्र को 2024-25 में एक गैर-वित्तपोषित केंद्र के रूप में आरंभ किया गया। परियोजना के एसटीसी घटक के अंतर्गत, केंद्र ने चार प्रदर्शन भ्रमण एवं पाँच प्रशिक्षण कार्यक्रम आयोजित किए, जिनसे 260 किसान लाभान्वित हुए। स्वदेशी उत्तरा जर्मप्लाज्म के रखरखाव एवं प्रसार पर भी कार्य आरंभ किया गया।

वर्ष 2024-25 के दौरान जर्मप्लाज्म आपूर्ति एवं राजस्व सृजन

केंद्र	जर्मप्लास्म	लाभान्वित किसान	राजस्व (लाखों में)
केवीएएसयू, मन्नुथी	138500	827	23.50
केयू, आनंद	54337	538	33.52
केवीएएफएसयू, बेंगलुरु	180737	829	49.60
गडवासु, लुधियाना	75478	605	19.38
भाकृअनुप-सीएआरआई इज्जतनगर	24856	35	22.35
भाकृअनुप क्षेकें एनईएच, त्रिपुरा	20432	267	17.13
एनडीवीएसयू, जबलपुर	44432	928	30.66
एएयू, गुवाहाटी	51020	687	10.91
बीएयू, रांची	47522	438	10.17
एमपीयूएटी, उदयपुर	61699	446	16.42
सीएसकेएचपीकेवी, पालमपुर	73945	799	20.27
बीएएसयू, पटना	80768	1940	12.17
भाकृअनुप क्षेकें एनईएच, नागालैंड	81663	1249	54.18
भाकृअनुप क्षेकें एनईएच, सिक्किम	35453	1097	25.63
भाकृअनुप क्षेकें एनईएच, मणिपुर	18395	253	4.32
तनुवास, होसुर	68756	897	18.29
एसकेयूएएसटीके, श्रीनगर	40343	3057	8.95
पीवीएनआरटीवीयू, वारंगल	16381	0	11.17
एसवीवीयू, तिरुपति	61641	323	6.66
भाकृअनुप क्षेकें एनईएच, मेघालय	25773	635	10.43
जीबीपीयूएटी, पंतनगर		260	
कुल	**12,02,131**	**16,110**	**405.71**

2 EXECUTIVE SUMMARY

All India Coordinated Research Project on Poultry Breeding (AICRP-PB) is one of the most successful projects of ICAR which is currently being operated at twenty one centres *viz*., KVASU, Mannuthy; Kamdhenu University (KU), Anand; KVAFSU, Bengaluru; GADVASU, Ludhiana; ICAR-CARI, Izatnagar; ICAR RC for NEH Region, Agartala; NDVSU, Jabalpur; AAU, Guwahati; BAU, Ranchi; MPUAT, Udaipur; CSKHPKV, Palampur; Bihar Animal Sciences University (BASU), Patna; ICAR - Research Complex for NEH Region, Jharnapani, Nagaland; ICAR - Research Complex for NEH Region, Gangtok, Sikkim; ICAR - Research Complex for NEH Region, Imphal, Manipur; Tamil Nadu Veterinary and Animal Sciences University (TANUVAS), Hosur; Sher-e-Kashmir University of Agricultural Sciences and Technology (SKUAST), Srinagar; PVNR Telangana Veterinary University (PVNRTVU), Warangal; Sri Venkateswara Veterinary University (SVVU), Tirupati and ICAR - Research Complex for NEH Region, Umiam, Meghalaya. The last nine centres were a part of the erstwhile Poultry Seed Project (PSP) which was evolved by ICAR during the XI five-year plan with an objective to increase the availability of rural chicken germplasm in remote areas of our country. In 2023, PSP was merged with AICRP on Poultry Breeding. GBPUAT, Pantnagar was added as a non-funded centre of AICRP-PB from 2024-25. Four centres including OUAT, Bhubaneswar; ICAR-CCARI, Goa; ICAR-CIARI, Port Blair and WBUAFS, Kolkata were discontinued with effect from 30th September, 2024.

The main objectives of the project are development of location specific chicken varieties; conservation, improvement, characterization and application of local native, elite layer and broiler germplasm; development of package of practices for village poultry and entrepreneurships in rural, tribal and backyard areas. Additionally, KVASU, Mannuthy, and KU, Anand centres maintain two elite layer germplasm (IWN and IWP). KVAFSU, Bengaluru, and GADVASU, Ludhiana, ICAR-CARI, Izatnagar maintain four (two by each centre) elite broiler germplasm (PB-1, PB-2, CSML and CSFL).

Pedigreed random bred control populations (one for layer and the other for broiler) are maintained at ICAR-Directorate on Poultry Research, Hyderabad. Samples of hatching eggs from these populations are being regularly sent to different centres of AICRP on Poultry Breeding to measure the genetic progress. As per the decision taken by the Council, the strains maintained at different AICRP centres and ICAR-DPR were duplicated at various AICRP centres to be utilized in case of exigencies and as a resource population by the centre for production of three and four way crosses.

During the year, a total of **12,02,131** chicken germplasm was distributed from different centres to **16,110** farmers across the country. An amount of Rs**. 405.71** lakhs was generated as revenue through distribution and propagation of the improved chicken germplasm.

KVASU, Mannuthy centre evaluated the S-8 generation of native chicken germplasm up to 16 weeks of age during 2024-25. The centre has also assessed the S-34 generation of IWN and IWP strains of White Leghorn from 29 to 72 weeks of age. The egg weight at 40 weeks of age increased by 0.56 and 0.58g in IWN and IWP strains, respectively, in the S-34 generation compared to the last generation. The centre has generated a revenue of Rs. 23.50 lakhs and has supplied 1,38,500 germplasm during the year. The number of farmers benefited from the germplasm supply from the centre during the current year were 827.

KU, Anand centre evaluated the S-5 generation of *Ankleshwar* breed of chicken up to 40 weeks of age. Egg production of *Ankleshwar* chicken (S-5 gen) up to 40 weeks of age was 87.62, which was higher as compared to S-4 generation (84.92). The S-4 generation of IWN and IWP strains was evaluated up to 72 weeks of age. Egg production up to 72 weeks of age was 304.05 in IWN and 301.05 in IWP strain. The S-11 generation of IWD and IWK strains was evaluated up to 64 weeks of age. Egg production up to 64 weeks of age was higher in IWD (217.48) than IWK (211.78) strain. The center has supplied a total 54,337 number of hatching eggs and chicks to 538 farmers during the reporting period. The center has generated the revenue of Rs. 33.52 lakhs during the year.

KVAFSU, Bengaluru centre evaluated native chicken, PB-1 and PB-2 lines along with broiler control during the

year. The five-week body weight was 1318 and 1291g in PB-1 and PB-2 lines, respectively. The egg production up to 40 weeks of age in PB-1 and PB-2 lines was 53.62 and 56.90 eggs, respectively. The body weight of native chicken (S-8) at 20 weeks of age in males and females was 1498 and 1135g, respectively. The egg production up to 40 and 52 weeks in native chicken was 34.74 and 58.92 eggs, respectively. The phenotypic and genetic response of 5-week body weight in PB-1 was 12.9 and 12.1g, respectively and corresponding values in PB-2 was 10.6 and 9.03g, respectively. A total of 1,80,737 chicken germplasm was distributed to 829 farmers. The centre generated revenue of Rs. 49.60 lakhs during the year.

GADVASU, Ludhiana centre carried out the evaluation of *Punjab Brown*, PB-1 and PB-2 lines and a dual-purpose three way cross during the year. The five-week body weight was 1138 and 1083g in PB-1 and PB-2 lines, respectively with FCR of 1.89 and 1.90, respectively. The egg production up to 40 weeks of age was 65.02 and 68.27 eggs in PB-1 and PB-2 lines, respectively. In *Punjab Brown*, the 8-week body weight was 785.4g in males and 676g in females with FCR of 3.4. The egg production up to 52 weeks of age was 109.2 eggs in *Punjab Brown.* The egg weight at 40 weeks of age was 50.13g. Farm and field evaluation of a dual purpose three way cross RIR x (PB-2 x *Punjab Brown)* was undertaken and the body weight at 20 weeks was 1811 and 1708g, respectively in farm and field. Egg production up to 36 weeks of age was 60.08 and 55.11 eggs in the cross in farm and field respectively. The centre distributed 75,478 germplasm units to 605 farmers and generated a revenue of Rs.19.38 lakhs.

ICAR-CARI, Izatnagar centre evaluated the local native chicken (S-9) germplasm. The body weight at 16 weeks of age in native chicken was 1302g. A total of 3,484, 4,208 and 911 good chicks of CSML, CSFL and control lines were produced in S-22 generation through random matting. The body weight at 5 weeks of age in CSML, CSFL and control lines was 1055, 1050 and 795.7g, respectively in S-22 generation. A total of 24,856 germplasm units were supplied to 35 farmers and other stakeholders. The total revenue generated by the centre during the report period was Rs.22.35 lakhs.

ICAR RC NEH, Tripura centre evaluated the *Tripura Black*, *Dahlem Red*, CSFL and their crosses during the year. E-8 evaluation of *Tokbari* (BND cross) was completed up to 72 weeks under farm and field conditions. In the E-8 evaluation of the Tokbari, the 72 weeks egg production was 169.23 and 142.75 eggs under farm and field conditions, respectively. Four training programmes were organized on poultry farming benefitting 130 rural farmers. A total of 20,432 improved poultry germplasm was supplied to 267 farmers with a revenue receipt of Rs. 17.13 lakhs.

NDVSU, Jabalpur centre evaluated G-5 generation of *Jabalpur colour* and *Kadaknath* up to 52 weeks of age. Body weight of *Jabalpur colour* birds at 20, 40 and 52 weeks of age was recorded as 1603.3, 2089.0 and 2191g, respectively whereas, *Kadaknath* birds weighed 1098, 1619, and 1710 g, respectively at 20, 40 and 52 weeks of age. Hen day egg production up to 40 and 52 weeks age was 99.56 and 163.5 eggs in *Jabalpur colour* and 64.2 and 93.2 eggs in *Kadaknath*. The body weight of *Narmadanidhi* birds at 8 and 20 weeks were 1022.4 and 1507.5g in males and 733.2 and 1384.2g in females, respectively. Egg production of *Narmadanidhi* up to 40 and 52 weeks was 58.6 and 110 eggs, respectively and average egg weight was 49.4g at 40 weeks of age. A total of 44,432 chicken germplasm was distributed to 928 farmers with revenue receipts of Rs. 30.66 lakhs. Under ICAR-DAPSC and ICAR-DAPST schemes, a total of 04 training (02 for SC and 02 for ST beneficiaries) were organized benefitting 75 SC and 51 ST farmers.

AAU, Guwahati centre evaluated Native, *Dahlem Red*, *Daothigir* and BN populations up to 72 weeks of age while *Kamrupa* was also evaluated up to 72 weeks of age under farm and field conditions. The mortality during brooding and growing period was below 3.87% in all the lines. The 5 week body weight was 186.17g in indigenous and 443.03g in *Dahlem Red*. In native population, the egg weight and egg production up to 72 weeks of age was 42.47g and 112.30 eggs, respectively. The five weeks body weight was 399.66g and FCR was 2.89 in BN cross. For *Kamrupa*, the age at sexual maturity was 148.18 days in the farm and 168.96 days in the field. The hen housed egg production up to 40, 52 and 72 weeks of age in *Kamrupa* was 51.85, 93.32 and 156.21 eggs in the farm and corresponding values in the field were 46.24, 76.28 and 124.94 eggs, respectively. For *Daothigir*, the age at sexual maturity was 197.96 days, hen housed egg production up to 72 weeks of age was 116.98 eggs and egg weight at 72 weeks was 42.19g. The centre supplied 51,020 units of germplasm to 687 farmers and realized receipts of Rs. 10.91 lakhs during the reporting year.

BAU, Ranchi centre evaluated the native chicken, *Dahlem Red* and *Jharsim* up to 72 weeks of age for different economic traits. The body weight at 8 and 12 weeks of age in Native chicken were 357.58±0.51 and 556.1±0.27 g, respectively. The 20 week body weight was 1298±0.53 g in cocks and 1092±0.87g in hens. The annual egg production (72 wks) on hen day basis was 128 and 183 eggs in Native and *Dahlem Red* chicken. Khukhri, a chicken ecotype of Chotanagpuri

are was characterized with respect morphological, physical, reproductive, growth and production performance and the application was submitted to ICAR-NBAGR, Karnal for registration of the breed. The centre has distributed 47522 germplasm to 438 farmers with a revenue of Rs. 10.17 lakhs.

MPUAT, Udaipur centre evaluated *Mewari*, CSFL, RIR and *Pratapdhan* populations during the reporting year. The body weight at 20 and 40 weeks of age were 1447 and 1661g in *Mewari* females. The egg production was 43.92 and 65.18 eggs up to 40 and 52 weeks of age in *Mewari* chicken. The body weight of RIR females at 20 weeks of age was 1536g while the corresponding values for CSFL and BN cross males were 2842 and 2204g, respectively. The hen housed, hen day and survivors' egg production up to 40 and 52 weeks of age in RIR were 78.41, 79.20, 79.93 and 113.24, 115.40, 117.72 eggs, respectively. Mean body weights at 20 weeks of age in *Pratapdhan* females was 2042g. The egg production up to 40, 52 and 72 weeks of age was 67.36, 99.90 and 167.75 respectively in *Pratapdhan*. Five training programmes were organized during report period, benefitting 287 tribal farmers under TSP component of the project. A total of 61,699 improved chicken germplasm was distributed to about 446 farmers during the report period. The centre realized Rs 16.42 lakhs revenue from the distribution of germplasm.

CSKHPKV, Palampur centre evaluated the S-2 generation of native chicken germplasm, G-3 generation of *Dahlem Red* and *Himsamridhi* during the report year. Native germplasm was evaluated up to 40 weeks of age with HDEP of 44.59 eggs. The *Dahlem Red* population was evaluated up to 72 weeks in G-3 generation and HDEP at 40, 52 and 72 weeks was 83.21, 138.36 and 190.97 eggs respectively. The *Dahlem Red* x Native (DN) birds were also produced and evaluated up to 72 weeks of age. HDEP up to 40, 52 and 72 weeks was 62.65, 105.49 and 169.31 eggs, respectively. *Himsamridhi*, location-specific poultry variety is being propagated in different regions of state including far flung areas and was evaluated under farm and field conditions. HDEP of *Himsamridhi* up to 40, 52 and 72 weeks was 72, 122 and 185 eggs respectively under farm conditions and showed improvement in comparison to the previous evaluation. During the year, the centre supplied 73,945 chicks/growers of *Himsamridhi*, native and other crosses to 799 farmers and revenue receipts of Rs. 20.27 lakhs was realized. Five training programs and twenty five Front line demonstrations were also organized during the reporting period.

BASU Patna centre one batch of parents were reared. The body weight at 40 weeks of age was 3709±42 in male parent and 2550±48 in female parent line of *Vanaraja*. The birds reached peak production of 66.55 % at 40-41 weeks of age. The fertility was 75.67% and the hatchability was 67.05% on total egg set. A total of 80,768 germplasm was distributed to 1940 farmers. The centre generated a total of Rs. 12.67 lakhs revenue during 2024-25.

At **ICAR RC NEH, Jharnapani centre** one batch of parent stock of *Srinidhi* was procured and maintained under deep litter system along with two earlier batches of *Vanaraja* and one batch of *Srinidhi*. A total of 81,663 chicks were distributed to 1249 beneficiaries including farmers, KVKs, NGOs in Nagaland and neighbouring states and Rs. 54.18 lakhs was generated as revenue during the reporting period.

ICAR RC NEH, Sikkim centre raised one batch of *Vanaraja* birds during 2024-25. The centre distributed 35,453 chicks amongst 1097 farmer beneficiaries. Revenue amounting to Rs. 25.63 lakhs was generated by supply of germplasm during the report period.

During the report period, one batch of parent stock of *Srinidhi* was maintained under deep litter system at **ICAR RC NEH, Manipur centre** A total of 18,395 chicks were distributed to 253 farmers in different parts of Manipur and the revenue receipts amounted to Rs. 4.32 lakhs.

TANUVAS, Hosur centre reared one batch each of *Vanaraja* and *Gramapriya* parents up to 72 weeks of age. The annual hen housed egg production was 179 eggs in *Vanaraja* and 199 eggs in *Gramapriya*, respectively between 19-71 weeks of age. A total of 68,756 improved rural chicken germplasm were distributed to 897 farmers and entrepreneurs throughout Tamil Nadu. The Centre has generated total revenue of Rs. 18.29 lakhs during 2024-25.

SKUAST K, Srinagar centre maintained one batch each of *Vanaraja* parents and Kashmir favorella birds. A total of 40,343 chicks were distributed to 3,057 farmers across Kashmir. An amount of Rs. 8.95 lakhs revenue by sale of germplasm during the period.

PVNRTVU, Warangal centre maintained parents of *Nicobari*, Aseel, Vanashree, Kadaknath and Ghagus for the reporting period. The 20 week body weight was 1965±20.6 g in cocks and 1360±18.1 hens of Aseel chicken. A total of 16,381 germplasm supplied to farmers and a revenue of Rs. 11.17 lakhs was generated during the current year.

SVVU, Tirupati centre raised two batches of *Vanaraja* parent birds and evaluated their performance. The total germplasm supply by the centre was 61,641, farmers benefitted were 323 and the total revenue generated was Rs. 6.66 lakhs.

ICAR RC NEH, Meghalaya centre raised two batches of

improved variety parent stocks during the report period. A total of 25,773 units of improved chicken germplasm were supplied to 635 beneficiaries in the state. The centre has generated total revenue of Rs. 10.43 lakhs during the period. The centre also started work on the characterization of the indigenous chicken breed of Meghalaya.

GBPUAT, Pantnagar centre was started as a non-funded centre in 2024-25. Under the STC component of the project, the centre carried out four exposure visits and five training programs benefitting 260 farmer beneficiaries. Work on maintenance and propagation of indigenous *Uttara* germplasm was also started.

Germplasm distribution and revenue generation during 2024-25

Centre	Supply	Farmers benefitted	Revenue (in lakhs)
KVASU, Mannuthy	138500	827	23.50
KU, Anand	54337	538	33.52
KVAFSU, Bengaluru	180737	829	49.60
GADVASU, Ludhiana	75478	605	19.38
ICAR-CARI, Izatnagar	24856	35	22.35
ICAR RC NEH, Tripura	20432	267	17.13
NDVSU, Jabalpur	44432	928	30.66
AAU, Guwahati	51020	687	10.91
BAU, Ranchi	47522	438	10.17
MPUAT, Udaipur	61699	446	16.42
CSKHPKV, Palampur	73945	799	20.27
BASU, Patna	80768	1940	12.17
ICAR RC NEH, Nagaland	81663	1249	54.18
ICAR RC NEH, Sikkim	35453	1097	25.63
ICAR RC NEH Manipur	18395	253	4.32
TANUVAS, Hosur	68756	897	18.29
SKUAST K, Srinagar	40343	3057	8.95
PVNRTVU, Warangal	16381	0	11.17
SVVU, Tirupati	61641	323	6.66
ICAR RC NEH, Meghalaya	25773	635	10.43
GBPUAT, Pantnagar		260	
Total	**12,02,131**	**16,110**	**405.71**

3 BUDGET

(Rs. in Lakhs)

AICRP Centre	Actual budget released (ICAR share)	Budget for (State share)	* Total expenditure	Expenditure on feed	Receipts
KVASU, Mannuthy	85.74	28.58	114.32	11.97	23.50
KU, Anand	80.95	26.98	107.93	43.83	33.52
KVAFSU, Bengaluru	88.74	29.58	118.32	38.46	49.60
GADVASU, Ludhiana	85.74	28.58	114.32	24.5	19.38
OUAT, Bhubaneshwar**	20.10	6.70	26.80	-	-
NDVSU, Jabalpur	98.00	32.67	130.67	-	30.66
CSKHPKV, Palampur	82.75	27.58	110.33	27.30	20.27
ICAR, RC NEH, Agartala	48.00	0.00	48.00	16.62	17.13
AAU, Guwahati	81.78	27.26	109.04	24.97	10.91
MPUAT, Udaipur	100.48	33.49	133.97	21.03	16.42
BAU, Ranchi	65.74	21.91	87.65	NA	10.17
BASU, Patna	63.00	0.00	63.00	NA	12.17
ICAR RC NEH, Jharnapani	109.25	0.00	109.25	NA	54.18
ICAR RC NEH, Gangtok	91.25	0.00	91.25	NA	25.63
ICAR RC NEH, Imphal	23.50	0.00	23.50	NA	4.32
TANUVAS, Hosur	61.10	0.00	61.10	NA	18.29
ICAR-CCARI, Goa**	2.50	0.00	2.50	NA	-
ICAR-CIARI, Port Blair**	2.50	0.00	2.50	NA	-
SKUAST-K, Srinagar	36.00	0.00	36.00	NA	8.95
PVNRTVU, Warangal	47.00	0.00	47.00	NA	11.17
SVVU, Tirupati	41.00	0.00	41.00	NA	6.66
ICAR RC NEH, Umiam	63.00	0.00	63.00	NA	10.43
Total	**1378.12**	**263.33**	**1641.45**		**405.71**

* Indicated total expenditure figure is released figure inclusive of ICAR share and state share
** Discontinued

4 HISTORY

The Directorate of Poultry Research had a modest beginning during the IV five-year plan with two coordinated projects entitled "All India Coordinated Research Project on Poultry for Egg" and "All India Coordinated Research Project on Poultry for Meat" to evolve suitable strains of egg and meat type chicken that combine well for production of commercial layer and broiler crosses. Both these projects were merged into a single project namely "All India Coordinated Research Project on Poultry Breeding" during the V plan. This was elevated to the status of a Project Directorate during the VII plan period. Besides AICRP on Poultry Breeding, Project Directorate also encompassed another two coordinated projects i.e. AICRP on Poultry Nutrition and AICRP on Poultry Housing and Management, which were subsequently phased out during 1992-93.

The 'Rural Poultry' component of the project was initiated with one centre at Agartala in 2001. Subsequently, it was expanded to six centres during XI plan with the sole objective of development of location-specific rural poultry varieties.

The head quarter of the Project Directorate on Poultry was established at Andhra Pradesh Agricultural University Campus, Rajendranagar, Hyderabad with effect from 1st March, 1988. Coordination and monitoring had been assigned to the Directorate (Coordination Cell), to start with. Subsequently, Nucleus Stock Production Unit as a centre of AICRP on Poultry Breeding was established at the Project Directorate for multiplication and supply of the parents and their commercial crosses released from the centres. The Directorate was also entrusted with the additional responsibilities of maintenance, evaluation, production and supply of control populations of egg and meat (previously assigned to HAU, Hissar and UAS, Bangalore respectively) to the centres from 1st April, 1990. Also, the Directorate was given the task of evaluating the commercial layers and broilers developed at different centres of the project vis-à-vis those available in the market from other hatchery sources and maintenance of the elite stocks of layers and broilers available in the country/to be imported from abroad in future and to undertake their genetic description and characterization with respect to bio-chemical, immunological, cytogenetic and disease resistance traits. Research was also envisaged in the areas of poultry nutrition, poultry housing and management, and poultry health. Identification of alternative feed resources and their chemical and biological evaluation and development of least cost poultry rations was the priority of poultry nutrition research.

Location of the centres of AICRP on Poultry Breeding

Sl. No	Name of the Centre	Period
1	Kamdhenu University, Anand (earlier Anand Agricultural University)	06-07-1977 to 31-03-2025
2	Kerala Veterinary and Animal Science University, Mannuthy	19-02-1977 to 31-03-2025
3	Karnataka Veterinary, Animal and Fishery Sciences University, Bengaluru	14-01-1970 to 31-03-2025
4	ICAR-Central Avian Research Institute, Izatnagar	01-04-1970 to 31-03-2025
5	Guru Angad Dev Veterinary and Animal Science University, Ludhiana	26-02-1977 to 31-03-2025
6	Orissa University of Agriculture and Technology, Bhubaneswar	21-01-1971 to 1990 and 01-09-1991 to 30-09-2024
7	ICAR Research Complex for NEH region, Agartala	01-08-2001 to 31-03-2025
8	Nanaji Deshmukh Veterinary Science University, Jabalpur	11-06-1970 to 31-03-2025
9	Assam Agricultural University, Guwahati	23-03-2009 to 31-03-2025
10	Birsa Agricultural University, Ranchi	23-03-2009 to 31-03-2025

Sl. No	Name of the Centre	Period
11	Maharana Pratap University of Agriculture & Technology, Udaipur	23-03-2009 to 31-03-2025
12	CSK Himachal Pradesh Krishi Viswavidyalaya, Palampur	23-03-2009 to 31-03-2025
13	Bihar Animal Sciences University, Patna	15-85-2009 to 31-03-2025
14	West Bengal University of Animal and Fishery Sciences, Kolkata	15-85-2009 to 30-09-2024
15	ICAR Research complex for NEH Region, Nagaland Centre, Jharnapani	15-85-2009 to 31-03-2025
16	ICAR Research complex for NEH Region, Sikkim Centre, Gangtok	15-85-2009 to 31-03-2025
17	ICAR Research complex for NEH Region, Manipur Centre, Imphal	15-85-2009 to 31-03-2025
18	Tamil Nadu Veterinary and Animal Sciences University, Hosur	1-04-2014 to 31-03-2025
19	ICAR-Central Coastal Agricultural Research Institute, Panaji	1-04-2014 to 30-09-2024
20	ICAR-Central Island Agricultural Research Institute, Port Blair	1-04-2014 to 30-09-2024
21	Sher-e-Kashmir University of Agricultural Sciences and Technology, Srinagar	1-04-2014 to 31-03-2025
22	PVNR Telangana Veterinary University, Warangal	1-04-2017 to 31-03-2025
23	Sri Venkateswara Veterinary University, Tirupati	1-04-2017 to 31-03-2025
24	ICAR Research Complex for NEH Region, Umiam	1-04-2017 to 31-03-2025
25*	ICAR-Directorate of Poultry Research, Hyderabad	

*Control Population Unit

In the context of poultry housing and management, biological efficiency of different management practices for economic poultry rearing was intended to be determined. Surveillance and monitoring of poultry diseases and development of kits for quick diagnosis of diseases was proposed to be the main objective of poultry health research. Presently, the Directorate is operating its research programs within the frame work of the approved perspective Plan. During the year 2014-15, the Project Directorate on Poultry was upgraded to *Directorate of Poultry Research*.

The AICRP on poultry breeding was further strengthened with the merger of Poultry Seed Project with the objective of efficient dissemination and propagation of improved chicken varieties from the year 2023-24. GBPUAT, Pantnagar was added as a non-funded centre of AICRP-PB from 2024-25.

Objectives

During the year 2014-15, AICRP on Poultry Breeding was reoriented towards Rural Poultry. The objectives of AICRP on Poultry Breeding are as follows.

- To develop location specific chicken varieties and their dissemination for village poultry.
- Conservation, improvement, characterization and application of local native and elite layer and broiler germplasm.
- To develop package of practices for village poultry and entrepreneurships in rural, tribal and backyard areas etc.

Monitoring role of the coordinating unit/ Directorate

- Organization of Review Committee meeting/ scientists meet/workshops
- Compilation of periodical reports received from indi vidual centres for submission to ICAR and preparation of Annual Report
- Verification and scrutiny of proposals received from different centres in all aspects relating to budget, release of funds and in all other matters relating to the functioning of various centres and their onward trans mission to ICAR
- Preparation of EFC proposals
- Preparation of DARE's Report and Research Highlights
- Compilation of report for answering the parliament questions
- Visit to different centres of the project for review of progress

5 TECHNICAL PROGRAMME

Technical Programme in brief for the year 2024-2025

- Pedigreed hatching and evaluation of the local native chicken.
- Procurement and evaluation of improved chicken germplasm in the local climatic condition and for development of cross.
- Production and evaluation of crosses of local native birds with improved germplasm.
- Development and evaluation of terminal crosses (lo-cation specific germplasm)

Native chickens

Genetic improvement of native chicken for body weight as well as egg production may be practiced for bringing faster genetic gain in the terminal crosses.

Selection criteria: Mass selection for higher 16-week body weight and independent culling level for 40-week egg production

- Regeneration in pedigreed mating with 50 sires and 250 dams
- Production of about 1500 chicks
- Selection for body weight at 16 weeks: Mass Selection
- About 400-500 females and 200-250 males will be housed Selection for egg production at 40 weeks: IndependentCulling Level
- About 250 dams and 50 sires will be selected as parents for next generation.

If there is demand for new type of variety (cross), the centre should conduct survey and establish the need for second variety before starting the work. The centres are strictly instructed to start the work only after the approval of the competent authority.

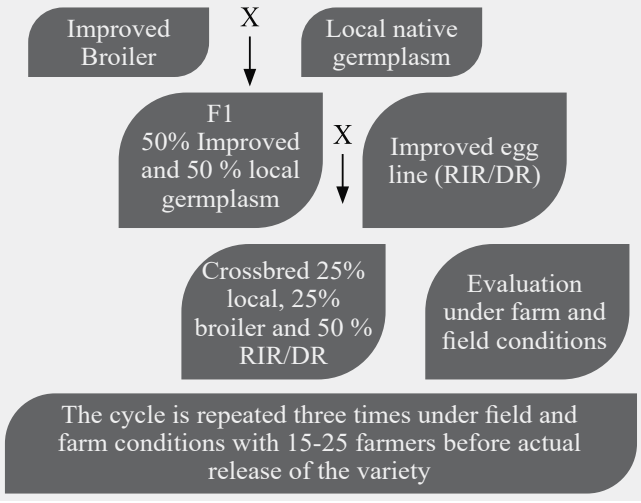
Traits to be recorded

- Body weight at 20 and 40 wks
- ASM
- Egg weight at 28 and 40 wks
- Egg production to 72 wks
- Mortality - 0-6, 7-20, 21-40 and 41-72 wks
- Field evaluation of about 250 birds under backyard/ free range

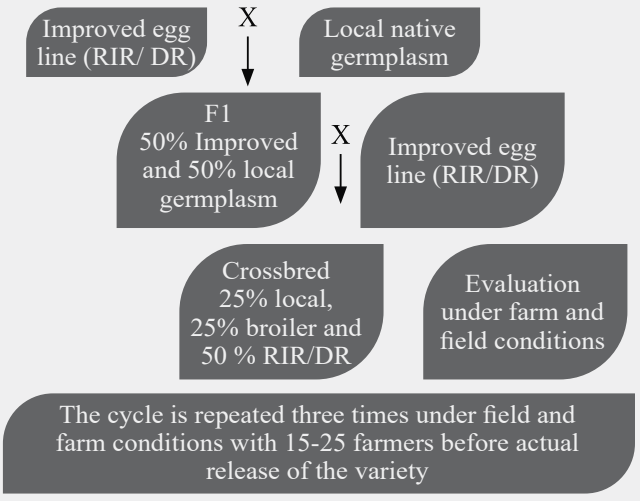
Development of crosses

The centre needs to conduct a survey in the region for consumer preference and acceptability for the type of variety. Based on the survey, a decision is to be taken about the type of chicken variety either dual or egg type, to be developed by the centre

Technical program: Dual Type chicken



Technical program for Egg type chicken



Flocks to be selected for Rural Poultry

- Local native chicken (with better phenotypic performance) in the respective agro-climatic zonesImproved egg type or meat type chicken developed by ICAR/ SAUs to be procured.

Conservation of elite germplasm

A. Technical programme for layers

1. Layer centres will work on maintenance of elite layer populations.
2. Collection, characterization and conservation of local native germplasm.
3. Production and evaluation of crosses under farm and field conditions.
4. Development of location-specific varieties.
5. Impact assessment
6. The strains that are being maintained at present, will be continued. IWH, IWI, IWD, IWF and IWK will be maintained at ICAR-DPR, Hyderabad. IWN and IWP, strains will also be maintained at the institute since they have been identified as the most promising lines.
7. To maintain the pure line performance, the selection programme currently under progress in the AICRP will be continued with lesser intensity of selection. The entire flock of each population will be maintained till 64 weeks of age. The following traits will be measured:
    - Age at first egg (AFE)
    - Body weight at 16, 40 and 64 weeks of age.
    - Egg weight at 28, 40 and 64 weeks of age.
    - For those populations having low egg weight, the first ten eggs also need to be measured.
    - Egg production to 40 and 64 weeks of age both hen housed and hen day production needs to be calculated.
    - A random sample of 100 eggs will be utilized at 40 weeks of age to measure albumen height and index, yolk height and index and shell thickness and Haugh unit score. The percentage of blood and meat spots will also be recorded.
    - Percent fertility and percent hatchability on total and fertile eggs set will be measured. The minimum expectation will be more than 90% fertility and 80% hatchability on fertile eggs set.
    - Mortality during the following periods will be recorded: 0-8, 9-16, 17-40, 41-64 and 17-64 weeks of age. The minimum expectation will be less than 6% mortality during 0-8 weeks. Less than 5% mortality during 9-16 weeks. Less than 1% mortality per month during the period of 17-64 weeks in the layer house.
    - Among the selected breeders, three eggs from each female will be broken for measuring the shell thickness. Breeders with very thin shell eggs will be discarded.
8. All centres will maintain all the surviving birds of first hatch to record egg production till 72 weeksof age.
9. Only 350 females and 50 males will be selected from each population to reproduce next generation (only by artificial insemination). It is expected that in fourhatches of 10 days interval, a total of 1400 female chicks and 500 male chicks will be retained in eachpopulation.
10. A total of at least 600 pullets in each population willbe housed at 16 weeks of age in individual laying cages for generating the data. The desired numberof males will have to be housed for each population.
11. Only 300 males will be retained at 16 weeks of age at the rate of six males per sire family. They may behoused either in cages or on deep litter in floor pensdepending on the available facilities (all care should be taken to prevent mortality in the males, saved at 16 weeks, as it will affect the selection differential from the male side and also the average selection dif-ferential).
12. The hen housed egg production up to 64 weeks of age will be the criterion of selection.
13. The selection will be practiced in both the sexes for 64 weeks hen housed egg production and 28 weeks egg weight. Selection for egg production will be carried out on the basis of an index that takes into account individual production and its sire and dam family averages (Osborne, 1957 a and b). The selec- tion for egg weight, obtained at 28 weeks, will be utilized as independent culling level selection to be superimposed over the selection for 64 weeks egg number. For giving due weightage to viability, in selection programme, only hen housed family aver- age need to be used in computation of Osborne indexvalues.
14. Based on the index values, only 450 pullets will be selected on the basis of egg production. Out of these 450 pullets, based on the low early egg weight and shell thickness, 100 pullets will be rejected. Thus, fi- nally only 350 pullets and 50 males will be selected based

on high egg production with better eggweight and good shell thickness.

15. The chicks will be sexed at hatching, in all layer-populations and 1400 females and 500 males at the rate of 10 males per sire family will be saved. All male chicks will be dubbed.
16. All centres will keep a sample of layer control fe- males hatched from the hatching eggs received from ICAR-Directorate of Poultry Research (at least 200 females will have to be housed at 16 weeks of age). They will also be evaluated along with the selected populations.
17. Uniform reporting of the data by all the centres.
18. Maximum publicity through media for popularizing high yielding strains/varieties developed by AICRP on Poultry Breeding.
19. Each centre will record rate of lay and persistency of peak production.
20. The layer control will be supplied by ICAR-DPR to all the centres.

Programme for Layer Control population

The technical programme currently under progress for control populations for egg will be continued. Each population will be reproduced using 50 sires, each sire mating to 4 dams and 4 progeny per dam are to be studied for various growth, production and reproduction traits. In order to obtain 4 progenies for each dam at the time of housing, the suitable numbers of chicks are to be hatched. The following traits are to be measured in case of layer control population.

1. Body weight at 16, 40 and 64 weeks of age
2. Age at first egg
3. Egg weight at 28 and 40 weeks of age
4. Egg production to 40 weeks of age and 64 weeks of age
5. Per cent fertility and hatchability on total and fertile eggs set
6. Egg quality traits like albumin index, yolk index, shell thickness and percentage blood and meat spot on a sample of 100 eggs at 40 weeks of age.
7. Mortality during the following period 0-8, 9-16, 17 to 40, 40-64 and 17-64 weeks.
8. About 500 eggs are to be supplied to each egg centre from the Project Directorate for evaluation of environmental trends.

B. Technical programme for Broilers Development

of sire and dam line population

1. Broiler centres will work on maintenance of elite broiler populations.
2. Collection, characterization and conservation of lo-cal native germ plasm.
3. Production and evaluation of crosses under farm and field conditions.
4. Development of location specific varieties and im-pact assessment
5. The centres will continue to develop the existing fe-male line available with them.
6. Centres involved in development of dam line popu-lation will produce 3,500 chicks in each generation.
7. It is expected that at least 3000 chicks will contributeto data at 5 weeks for making necessary selection.
8. Between 5th and 6th week, a total of 1200 females will be selected based on five weeks body weight.
9. A total of 250 best males will also be selected on body weight at 5 weeks.
10. At the age of 12 weeks, a physical selection will be taken up and 1000 females without any physical de-fects will be retained and 200 males will also be re- tained after screening them for satisfactory physical appearance.
11. About 500 females will be housed in individual cages.
12. Simultaneously, 150 best males out of the 200 maleswill also be housed in cages or on deep litter.
13. The females will be evaluated for dam line traits till the time the youngest hatch attains 40 weeks of age and sire family selection will be practiced.
14. Out of the surviving females, a total of 350 females will be selected and will be mated to 70 best males selected from the available 200 males housed at 18 weeks of age to obtain replacement progeny (The ar-tificial insemination is mandatory to reproduce the next generation so as to ensure high percentage fer- tility and good number of chicks).
15. It is estimated that in 4 to 5 hatches of 7 to 10 days interval, the required number of chicks can be repro-duced from the 350 selected female breeders mated to 70 selected male breeders.
16. The females will be retained based on the sire means for settable egg production. Similarly, the males from the sire families from which females have been chosen will be selected as male parents.

17. The shape index of the eggs needs to be measured at 32 weeks of age by measuring the length and width of egg. It is desirable to measure the shape index for five consecutive days. The acceptable shape index is suggested as 1.30 to 1.50.

Restriction programme: Since the birds are selected at 5 weeks of age, a graph has to be generated assuming a target body weight of 2150 to 2200g at 20 weeks of age in dam line and 2400g at 20 weeks in sire line. Assuming linearity, a graph has to be developed starting from the mean weight of the selected birds at 5 weeks of age and the expected body weight at bi-weekly interval need to be identified as applicable to populations at each centre. The trend of the body weight at different ages during the restriction program needs to be plotted along with the expected line. The feed needs to be increased or retained the same according to the adjustment needed for matching with the proposed graph. The allowance arrived, as per the graph, at different ages can be increased by 10 percent in case of males for achieving similar trend of body weight during the restriction period.

Feed formulation: To keep the nutrient content uniform at all the centres, the following recommendations as given in Table 1 are followed.

ICAR-DPR, Hyderabad

1. This centre will maintain the pure lines that are being withdrawn from different centres as nucleus stock.
2. Regeneration and supply of control population to different centres for evaluation of selected lines.

Programme for Broiler Control population

The technical programme currently under progress for control populations for meat will be continued. Each population will be re-produced using 50 sires, each sire mating to 4 dams and 4 progeny per dam are to be studied for various growth, production and reproduction traits. In order to obtain 4 progenies for each dam at the time of housing, the suitable number of chicks is to be hatched.

In case of broiler control population, the following traits are to be measured:

1. Body weight at day old 5, 20 and 40 weeks of age
2. Feed consumption to 5 weeks of age
3. Age at first egg
4. Egg production to 40 weeks of age
5. Egg weight at 40 weeks of age
6. Per cent fertility and hatchability on total and fertile eggs set
7. Mortality during the following periods: 0-5 weeks,6-20 weeks, 21-40 weeks
8. Restricted feeding programme is to be practiced from 6^{th} to 20^{th} week.
9. About 300 to 400 hatching eggs of Control line are to be supplied to each of the broiler centres of the ICAR-Directorate of Poultry Research during their hatching season for evaluation of environmental trends.

Nutrient formulations at different stages in case of broilers

Nutrient	Chicks 0-5 weeks	Growers 6-18 weeks	Prebreeders19-23 weeks	Breeders 24-54 weeks
Energy (kcal/kg)	2800-2850	2750-2800	2750-2800	2800
Protein (%)	20	16	16	17
Lysine (%)	1.00	0.80	0.80	0.75
Methionine (%)	0.52	0.41	0.41	0.35
Calcium (%)	1.0	1.0	2.00	3.5
Phosphorus (%)	0.45-0.50	0.45	0.45	0.45
Choline Chloride 50% (%)	0.1	0.1	0.1	0.1
Sodium Chloride (%)	0.4	0.4	0.4	0.4

Propagation of improved chicken varieties

The technical program for erstwhile PSP Centre will be continued during the 2023-24.

- Technical program envisaged for all the centres is same except for the target of supplying chicks/fertile eggs.
- All the centres will procure parents (males of male line and females of female line) of improved chicken germplasm (*Vanaraja*, *Gramapriya* and *Srinidhi*) from the ICAR-Directorate of Poultry Research, Hyderabad. Day old parent chicks will be reared under standard management practices as per guidelines provided in the breeder manual supplied by the Directorate at the respective centre.
- Adult male and female birds will be reared to produce fertile hatching eggs. Day old chicks of the improved germplasm will be hatched and reared in the nursery unit or sold to NGOs/ KVKs/farmers for nursery rearing up to 6 weeks of age. The chicks in the nursery unit will be provided with feed, medication, vaccination, brooding, and health care. After the nursery phase, the chicks will be distributed to the individual farmers on cost basis. Wherever possible, the day old chicks / fertile eggs of improved chicken varieties may be distributed to the individual farmers / extension agency / NGO / KVK, who has the facility to grow the birds up to 6 weeks of age in the nursery unit. These birds may be further distributed to the individual farmers at the rate of 10-15 birds per person.
- To know the performance of the birds at farmer's field, recording of body weight at 4 weeks intervals during growing period (7-20 weeks), Egg production and egg weight at every 14 day intervals during egg laying period (21-72 weeks) will be recorded.
- Analysis, documentation and reporting of the data at regular intervals.

Targets for germplasm supply for different centres

Centre	Target (nos.)	Achievement
KVASU, Mannuthy	1,00,000	138500
KU, Anand	1,00,000	54337
KVAFSU, Bengaluru	1,00,000	180737
GADVASU, Ludhiana	1,00,000	75478
ICAR-CARI, Izatnagar	1,00,000	24856
ICAR RC NEH, Tripura	60,000	20432
NDVSU, Jabalpur	1,00,000	44432
AAU, Guwahati	50,000	51020
BAU, Ranchi	70,000	47522
MPUAT, Udaipur	70,000	61699
CSKHPKV, Palampur	70,000	73945
BASU, Patna	70,000	80768
ICAR RC NEH, Nagaland	1,00,000	81663
ICAR RC NEH, Sikkim	1,00,000	35453
ICAR RC NEH Manipur	50,000	18395
TANUVAS, Hosur	1,00,000	68756
SKUAST K, Srinagar	50,000	40343
PVNRTVU, Warangal	50, 000	16381
SVVU, Tirupati	50, 000	61641
ICAR RC NEH, Umiam	50,000	25773
Total		**12,02,131**

6 PERFORMANCE APPRAISAL OF CENTRES

Kerala Veterinary and Animal Sciences University, Mannuthy (Kerala)

Activities assigned

- Conservation, characterization and improvement of the native chicken germplasm.
- Improvement of IWN and IWP strains for higher egg production up to 64 weeks.
- The centre will maintain all the surviving birds of first hatch to record egg production till 72 weeks of age.
- Participation in RSPP tests being conducted by Govt. of India each year with IWN x IWP cross
- The centre would supply only a single sex of the pure line parent chicks or the female chicks of IWN X IWP cross for commercial exploitation.
- Development and evaluation of three-way/four-way crosses.

Action taken

- The S-8 generation of native chicken was produced and evaluated up to 16 weeks of age.
- The S-34 generation of IWN and IWP strain of White Leghorn was evaluated from 29-72 weeks of age.
- The IWN X IWP birds, native chicks and their crosses were supplied to farmers and institutions.

Achievements

A. Development of location specific rural germplasm (egg type)

Evaluation of performance of native chickens (Tellicherry)

Incubation records

The S-8 generation of native chicken was produced by pedigree mating and its performance was evaluated up to 16 weeks of age. The number of sires and dams used for breeding to produce the S-8 generation was 50 and 250 (1:5). Fertility and hatchability rates were higher at S-8 generation as compared to the previous generation (Table 1).

Table 1. Summary of incubation records for last three generations of native chicken

Gens.	No. of hatches	Eggs set (Nos.)	Fertility (%)	Good chicks (Nos.)	Hatchability (%)	
					TES	FES
S-6	3	3058	89.33	2485	82.80	92.75
S-7	3	3722	81.95	2359	63.38	77.34
S-8	**4**	**2354**	**82.58**	**1623**	**68.95**	**91.23**

Growth and production traits of native chickens

The S-8 generation of native chicken was produced and evaluated up to 16 weeks of age and the performance of females were presented in Table 2.

Table 2. Growth performances in S-8 generation of female native chickens (Females)

Traits	N	Mean ±SE
Body weight (g)		
0 day	623	31.29±0.55
4 wks	608	241.0±3.22
8 wks	578	482.7±4.07
12 wks	562	772.8±5.44
16 wks	544	988.0±6.20

Results of body weight recorded at various intervals of both male and female birds, ASM and egg weight recorded at 28 and 40 weeks of age were presented in Table 3.

Table 3. Summary of growth and production performances of native chicken for last three generations

Traits	Females			Males		
	S-8	S-7	S-6	S-8	S-7	S-6
Body weight (g)						
0 day	**31.29**	30.93	31.53	**32.06**	31.63	32.17
4 wks	**241.0**	223.2	254.3	**254.6**	252.6	264.6
8 wks	**482.7**	455.7	549.3	**515.2**	485.5	638.3
12 wks	**772.8**	770.2	736.3	**922.4**	883.8	1079
ASM (d)		141.72	159.1	-	-	-

Table 4. Mortality records of native birds for last three generations

Gen.	0-8 wks			9-16 wks			17-40 wks		
	No. Housed	No. Died	Mortality (%)	No. Housed	No. Died	Mortality (%)	No. Housed	No. Died	Mortality (%)
S-6	1565	37	2.36	1523	55	3.60	625	39	6.24
S-7	1456	94	6.46	1355	141	10.41	504	45	8.93
S-8	**1259**	**76**	**6.04**	**1183**	**101**	**8.54**	**-**	**-**	**-**

Table 5. Summary of selection records of IWN and IWP strains for last three generations

Strains	Gen.	Sires	Dams	Ne (Contributed)	SD in females	SI (σ)
IWN	S-31	50	280	169.7	8.46	0.42
	S-32	49	219	160.2	12.14	0.48
	S-33	**50**	**200**	**150.2**	**13.64**	**0.44**
IWP	S-31	50	282	169.9	11.58	0.58
	S-32	50	199	159.8	16.88	0.61
	S-33	**50**	**206**	**146.5**	**30.27**	**0.48**

Mortality

The mortality during 0-8 and 9-16 weeks in S-8 generation of native birds was little higher that the permissible level (Table 4).

B. Improvement of IWN and IWP strains of White Leghorn

Selection records

The summary of selection records for last three generations is presented in Table 5

Incubation records

The results of incubation records of IWN and IWP strains during the last three generations are presented in Table 6. Fertility and hatchability in IWN and IWP strains have come down in the latest generation as compared to previous generations.

The centre has evaluated the S-34 generation of IWN and IWP strains of White Leghorn from 40 to 72 weeks of age (Table 7).

Table 6. Summary of selection records of IWN and IWP strains for last four generations

Gens.	Strains	No. of hatches	No. of eggs set	Fertility (%)	No. of good chicks	Hatchability (%)	
						FES	TES
IWN	S-32	2	5091	89.13	4038	87.17	79.32
	S-33	2	3569	80.10	2496	85.84	65.24
	S-34	**3**	**3735**	**67.50**	**1838**	**73.02**	**49.21**
IWP	S-32	2	4631	84.30	3258	85.65	70.35
	S-33	2	3320	81.08	1869	78.16	60.70
	S-34	**3**	**3748**	**68.56**	**1903**	**73.24**	**50.77**
Control	S-32	1	605	29.09	174	51.03	28.76
	S-33	1	612	85.30	400	77.52	65.36
	S-34	**1**	**622**	**90.50**	**500**	**88.80**	**80.00**

Table 7. Growth and production performances in S-34 generation of IWN and IWP strains and control layer population

Traits	IWN		IWP		Control	
	N	Mean ± SE	N	Mean ± SE	N	Mean ± SE
Body weight (g)						
16 wks	529	1057±6.69	433	955.8±7.87	187	974.6±7.40
40 wks	**447**	**1397±6.94**	**391**	**1399±6.5**	**181**	**1294±7.15**
64 wks	**426**	**1447±7.24**	**368**	**1475±10.7**	**176**	**1398±7.94**
ASM (d)	**511**	**146.5±0.59**	**414**	**154.4±0.72**	**185**	**156.6±0.82**
EP 40 wks (Nos.)						
Hen housed	**494**	**106.2±1.26**	**411**	**98.5±1.3**	**187**	**81.74±0.43**
Survivors'	**451**	**112.5±0.83**	**392**	**101.4±1.1**	**181**	**83.73±1.72**
Hen day		**110.4**		**100.4**		**83.40**
EP 64 wks (Nos.)						
Hen housed	**448**	**248.8±1.81**	**380**	**233.3±2.1**	**187**	**161.4±0.86**
Survivors'	**428**	**252.7±1.59**	**362**	**237.3±2.0**	**175**	**169.1±3.49**
Hen day		**252.2**		**237.0**		**167.0**
Egg weight (g)						
28 wks	463	48.84±0.17	388	49.34±0.17	176	47.51±0.26
40 wks	**439**	**52.04±0.20**	**375**	**52.6±0.2**	**146**	**52.64±0.36**
64 wks	**383**	**53.35±0.21**	**345**	**55.7±0.2**	**125**	**57.62±0.48**
EP 72 wks (Nos.)						
Hen housed	**448**	**276.9±2.18**	**380**	**261.7±2.6**		**-**
Survivors'	**420**	**282.0±1.89**	**354**	**267.5±2.4**		**-**
Hen day		**282.0**		**267.3**		**-**

Age at sexual maturity

The age at sexual maturity in IWN and IWP strains and control population was increased in the S-34 generation (Table 8). It increased by 17.1 and 22.4 days, respectively in IWN and IWP strains.

Egg weights

The egg weight at 40 weeks of age increased by 0.56 and 0.58g in IWN and IWP strains respectively in S-34 generation. At 64 weeks of age the egg weight decreased by 0.66g in IWN and increased by 0.58g in IWP strains respectively in S-34 generation compared to last generation. (Table 9).

Production performance

Least square means for different economic traits up to 64 weeks of age in both selected strains (IWN and IWP) and in control population during the S-34 generation is presented in Table 10. The hen day, hen housed and survivors' egg production up to 64 weeks of age decreased in IWN and IWP strains, respectively when compared to previous generation. The same trend was observed in the control population also.

Frequency distribution

The frequency of egg production up to 64 weeks of age in IWN and IWP strains at S-34 generation was maximum in the class interval of 261-280 and 240-260 respectively while same was maximum in the class interval of 221-240 in control population (Table 11). The trend was similar to that of earlier generation in IWN strain.

Heritability estimates

In IWN strain, the heritability estimate (sire) for BW40, BW64, EW28, EW40 and EW64 were high in magnitude and was very low in magnitude for ASM, BW16, EP40 and EP64 traits. In IWP strain the heritability estimate (sire) for BW40, EW28, EW40 and EW64 were high in magnitude whereas it was moderate for BW64, EP40 and EP64 and low for ASM and BW16 traits (Table 12).

In IWN strain, heritability estimate (sire+dam) of EP40, BW16, BW40, BW64, EW28, EW40 and EW64 were high in magnitude (Table 13). However, the heritability estimates (sire+dam) for ASM was moderate and EP64 was low in magnitude. In IWP strain, the heritability estimates (sire+dam) were high in magnitude for BW40, EW28 and EW64. However, heritability estimate (sire+dam) of ASM, EP40 and EW40 were moderate whereas BW16, BW64 and EP64 exhibited low in magnitude.

Table 8. ASM and body weights at 64 weeks of age in last three generations in different strains

Gens.	IWN		IWP		Control	
	ASM (d)	BW64 (g)	ASM (d)	BW64 (g)	ASM (d)	BW64 (d)
S-32	141.9	1558	140.8	1471	147.8	1306
S-33	129.5	1643	132.0	1634	142.8	1472
S-34	146.6	**1447**	154.4	**1475**	156.6	**1398**

Table 9. Mean egg weights at various ages in last three generations in different strains

Strains	Gens.	Egg weight (g)		
		28 wks	40 wks	64 wks
IWN	S-32	49.47±0.10	51.61±0.11	51.83±0.17
	S-33	48.01±0.12	51.48±0.13	54.01±0.15
	S-34	48.84±0.17	**52.04±0.20**	**53.35±0.21**
IWP	S-32	48.91±0.1	51.61±0.11	51.06±0.21
	S-33	48.73±0.11	52.02±0.14	55.12±0.17
	S-34	49.34±0.17	**52.60±0.20**	**55.70±0.20**
Control	S-32	46.28±0.40	50.79±0.53	51.32±0.64
	S-33	46.20±0.30	50.11±0.50	55.52±0.41
	S-34	47.51±0.26	**52.64±0.38**	**57.62±0.41**

Table 10. Egg production up to 64 weeks of age over last three generations in different strains

Gens	IWN			IWP			Control		
	HH64	HD64	Sur64	HH64	HD64	Sur64	HH64	HD64	Sur64
S-32	262.4	267.8	268.0	249.6	256.8	257.1	172.2	179.6	180.7
S-33	256.2	279.5	283.1	248.9	260.3	262.2	199.7	213.1	214.5
S-34	**248.8**	**252.2**	**252.7**	**233.3**	**237.0**	**237.3**	**161.4**	**167.0**	**169.1**

Table 11. Frequency distribution of egg production up to 64 weeks of age (S-34 generation)

Class interval	IWN	IWP	Control
<100	0.00	0.00	0.123
101 – 120	0.022	0.024	0.075
121 – 140	0.009	0.026	0.018
141 – 160	0.013	0.037	0.018
161 – 180	0.025	0.050	0.166
181 – 200	0.027	0.050	0.128
201 – 220	0.076	0.084	0.171
221 – 240	0.089	0.150	**0.175**
241 – 260	0.268	**0.297**	0.027
261 – 280	**0.326**	0.253	0.00
281 – 300	0.145	0.029	0.00
>300	0.00	0.00	0.00

Phenotypic and genetic response

The phenotypic response realized in S-34 generation when compared with the previous generation for hen-housed, hen-day and survivors' egg production up to 64 weeks of age were -7.96, -26.34 and -30.34 eggs in IWN strain. The respective values for IWP strain were -15.7, -35.15 and -39.6 eggs. (Response was negative for all the values in both strains) (Table 13).

The genetic response for egg weight at 28 weeks and hen housed, hen day and survivors' egg production up to 64 weeks was positive in both IWN and IWP strains in S-34 generation. The body weight at 40 weeks was positive in IWP where as it remained negative in IWN. The hen housed, hen day and survivors' egg production up to 40 weeks was negative in both strains in S-32 generation (Table 13).

Table 12. Heritability estimates of different traits in IWN and IWP strains (S-34 gen.)

Strains	Traits	Sire	Dam	Sire+Dam
IWN	ASM	0.004±0.001	0.625±0.255	0.314±0.255
	BW16	0.031±0.005	0.988±0.430	0.510±0.404
	BW40	0.876±0.127	0.001±0.000	0.439±0.127
	BW64	0.970±0.140	0.093±0.038	0.531±0.145
	EW28	0.956±0.138	0.251±0.103	0.604±0.172
	EW40	0.846±0.122	0.465±0.190	0.655±0.226
	EW64	0.933±0.135	0.410±0.167	0.671±0.215
	EP40	0.082±0.012	0.813±0.332	0.448±0.332
	EP64	0.063±0.009	0.179±0.073	0.121±0.074
IWP	ASM	0.081±0.012	0.361±0.147	0.221±0.148
	BW16	0.182±0.026	0.125±0.051	0.154±0.057
	BW40	0.555±0.079	0.360±0.147	0.458±0.167
	BW64	0.293±0.042	0.082±0.033	0.187±0.054
	EW28	0.651±0.093	0.544±0.222	0.597±0.241
	EW40	0.565±0.081	0.177±0.072	0.371±0.108
	EW64	0.620±0.089	0.529±0.216	0.574±0.233
	EP40	0.306±0.044	0.347±0.142	0.327±0.148
	EP64	0.224±0.032	0.014±0.006	0.119±0.033

Table 13. Phenotypic and genetic response (gain) in primary and various correlated traits in S-34 generation

Traits	Phenotypic		Genetic	
	IWN	IWP	IWN	IWP
ASM (d)	17.1	21.9	3.3	8.1
Body weight (g)				
16 wks	-123	-157.2	-74.6	-108.8
40 wks	-127	-89.1	-22.4	15.5
64 wks	-196	-159	-123.8	-86.8
Egg weight (g)				
28 wks	0.83	0.61	2.12	1.9
40 wks	0.56	0.58	-1.97	-1.95
64 wks	-0.66	0.58	-2.76	-1.52
EP 40 wks (Nos.)				
Hen Housed	-21.3	-26.1	-5.44	-10.24
Hen Day	-22.2	-28.0	-5.34	-11.1
Survivors'	-22.2	-28.9	-5.27	-11.93
EP 64 wks (Nos.)				
Hen Housed	-7.96	-15.7	30.37	22.63
Hen Day	-26.3	-35.1	19.01	10.2
Survivors'	-30.3	-39.6	15.2	5.94

Table 14. Mortality percentage of IWN and IWP strains at different ages in last three generations

Gens.	Strains	0-8 wks	9-16 wks	17-40 wks	17-64 wks
S-32	IWN	3.97	0.97	2.29	5.45
	IWP	5.82	1.41	3.67	12.67
	Control	4.59	0.00	5.48	4.35
S-33	IWN	3.89	1.51	3.53	8.72
	IWP	6.87	1.53	5.83	13.64
	Control	4.00	0.64	5.65	12.09
S-34	IWN	8.12	16.88	12.5	4.69
	IWP	7.96	18.04	9.6	5.88
	Control	15.50	0.03	3.2	2.76

Mortality

The mortality of IWN and IWP was 4.69 and 5.88% respectively during 17-64 weeks which was in the permissible level (Table 14). The mortality during 40 to 64 weeks was 8.7, 7.5 and 3.2%, respectively in IWN, IWP and control populations. The mortality during 17 to 40 weeks of age in IWN and IWP strains during S-34 generation was higher than the permissible limit.

Implementation of DAPSC (SCSP) Component

The Scheduled Caste Sub-Plan project, funded by the ICAR through the AICRP on Poultry Breeding at the Mannuthy centre was implemented in collaboration with the National Service Scheme (Jeevanam Jeevadhanam) of Kerala Veterinary and Animal Sciences University and the Vocational Higher Secondary Education, Kerala. A total of 52 Scheduled Caste families with interest and experience in poultry rearing were selected as beneficiaries. The distribution program was held on 7-12-2024. Each beneficiary received six numbers of 6-month-old layer chickens and 5 kg of chicken breeder feed free of cost. During the occasion, a training session on scientific poultry management was conducted.

Supply of germplasm

Total germplasm supply from the centre was 1,38,500 and 827 farmers were benefitted through the supply of germplasm during 2024-25.

Revenue generation

The centre has generated Rs.23.50/- lakhs during 2024-25 which was 196.32% of the total recurring expenditure of Rs. 11,97,901.

Kamdhenu University, Anand (Gujarat)

Activities assigned

- Conservation, characterization and improvement of *Ankleshwar* breed of chicken.
- Improvement of IWN and IWP strains for higher egg production up to 64 weeks.
- To maintain all the surviving birds of first hatch to record egg production till 72 weeks of age in IWN and IWP strains.
- To participate with IWN X IWP cross in RSPP tests being conducted by Govt. of India.
- Development of location specific chicken variety (egg type).

Action taken

- The S-5 generation of *Ankleshwar* chicken was evaluated from 17 to 40 weeks of age.
- The S-4 generation of IWN and IWP strains were evaluated from 17 to 72 weeks of age.
- The S-11 generation of IWD and IWK strains were evaluated from 17 to 64 weeks of age.

Achievements

A. Development of location specific rural germplasm (egg type)

Evaluation of *Ankleshwar* chicken germplasms (S-5 gen)

During the reporting period, S-5 generation of *Ankleshwar* breed was evaluated up to 40 weeks of age. A total of 1,250 pullets of *Ankleshwar* chicken were housed individually at 16 weeks of age.

Production performance

Age at sexual maturity was almost similar in S-5 and S-4 generations of Ankeshwar chicken. Body weight at 16 weeks of age was almost similar in S-5 and S-4 generations. Egg production up to 40 weeks of age was increased in S-5 generation as compared to S-4 generation. Egg weight at 28 weeks of age was almost similar in S-3, S-4 and S-5 generations, while egg weight at 40 weeks of age was decreased in S-5 generation as compared to S-4 generation (Table 15).

Table 15. Production performance of *Ankleshwar* breed (Females)

Traits	S-5 Gen.		S-4 Gen.		S-3 Gen.	
	N	Mean ± S.E.	N	Mean ± S.E.	N	Mean ± S.E.
No. of pullets housed	1250	-	1256	-	1300	-
ASM (d)	1247	152.9±0.36	1249	152.3±0.28	1295	151.1±0.36
Body weight (g)						
16 wks	1250	993±2.81	1256	992±3.40	1300	962±2.69
40 wks	1213	1482±7.58	979	1551±7.43	1119	1556±5.71
EP 40 wks (Nos.)						
Survivors'	1197	87.62±1.79	968	84.9±0.69	1119	83.3±0.45
Hen housed	1250	84.79±1.74	1256	80.7±2.15	1300	79.4±1.25
Hen day	-	85.87	-	83.99	-	82.85
Egg weight (g)						
28 wks	1151	38.23±0.11	1075	38.91±0.08	1206	38.24±0.10
40 wks	1144	43.05±0.09	843	44.13±0.11	934	42.92±0.12
Feed cons./bird (kg) 17-40 wks	-	17.85	-	17.57	-	16.85

Table 16. Selection records of Ankleshwar breed in S-5 to S-6 generation

Sr. No.	Particulars	*Ankleshwar*
1	No. of sires used	120
2	No. of dams used	480
3	No. of sires contributed to the next generation	120
4	No. of dams contributed to the next generation	456
5	Effective Nos. using Sr. No.3 & 4	380
6	Rate of inbreeding	0.00131
7	Expected S. D. in females of S-5 generation for TEN40	12.57
8	Phenotypic standard deviation of S-5 generation for TEN40	16.99
9	Intensity of selection for TEN40	0.73
10	Heritability of 40 weeks egg production of S-5 generation	0.199
11	Expected response for TEN40	2.50
12	Actual selection differential for TEN40	12.56

Selection records

As there is no Control population for *Ankleshwar* breed, genetic response was not estimated. The selection criterion in Ankleshwar breed was total egg production up to 40 weeks of age (TEN40) (Table 16).

Mortality

Mortality of birds during 0-8, 9-16 and 17-40 weeks of age was within permissible range in S-5 generation (Table 17).

Genetic Parameters

The heritability estimates of various economic traits in *Ankleshwar* (S-5 gen) were presented in Table 18. Heritability estimate of egg weight at 28 and 40 weeks of age was low in magnitude. Heritability estimate of body weight at 40 weeks of age, age at first egg and egg production up to 40 weeks of age was moderate in magnitude, whereas, it was higher for body weight at 16 weeks of age.

Table 18. Heritability estimates (Sire component) up to 40 weeks of age in Ankleshwar breed (S-5 gen.)

Trait		***Ankleshwar* (S-5 gen)**
Body weight at	16 wks	0.508±0.107
	40 wks	0.167±0.073
Age at first egg		0.108±0.066
Egg production up to 40 wks		0.199±0.076
Egg weight at	28 wks	0.019±0.055
	40 wks	0.056±0.060

Genetic and phenotypic correlations

The genetic and phenotypic correlations of 40 weeks egg production with various economic traits in Ankleshwar (S-5 gen) have been presented in Table 19. The genetic correlation of 40 weeks egg production with age at first egg and egg weight at 28 and 40 weeks of age was negative and high. The genetic correlations of 40 weeks egg production with body weight at 16 and 40 weeks of age was positive and low. The phenotypic correlation of 40 weeks egg production with age at first egg was negative and high. The phenotypic correlations of 40 weeks egg production with body weight at 16 weeks of age was positive and low. The phenotypic correlations of 40 weeks egg production with body weight at 40 weeks of age, egg weight at 28 and 40 weeks of age was negative and low.

Phenotypic response

Phenotypic response estimated in various traits from S-1 to S-5 generations was presented in Table 20. Significant improvement was observed in body weight at 16 weeks (13.79 g; $R^2 = 0.870$) and in egg production up to 40 weeks (2.59 eggs; $R^2 = 0.946$). However, age at first egg showed a slight increase (1.09 days) with moderate R^2 (0.344) and

Table 17. Mortality in Ankleshwar breed during different periods

Gens.	0-8 wks			9-16 wks			17-40 wks		
	No. Housed	No. Died	Mortality (%)	No. Housed	No. Died	Mortality (%)	No. Housed	No. Died	Mortality (%)
S-3	3972	135	3.40	2932	34	1.16	1300	53	4.08
S-4	3698	60	1.62	3028	20	0.66	1256	42	3.34
S-5	**3169**	**61**	**1.92**	**3108**	**16**	**0.51**	**1250**	**40**	**3.20**

Table 19. Genetic (rG) and Phenotypic (rP) correlations for 40 weeks egg production with other production traits in Ankleshwar breed (S-5 gen)

40 weeks egg production with	*Ankleshwar* (S-5 gen)	
	rG	rP
Age at first egg	-0.534 ±0.436	-0.335
Body weight at 16 wks	0.134 ± 0.212	0.036
Body weight at 40 wks	0.025 ± 0.295	-0.019
Egg weight at 28 wks	-0.934 ± 1.493	-0.029
Egg weight at 40 wks	-0.560 ± 0.514	-0.009

was non-significant. Body weight at 40 weeks declined slightly (-15.25 g; R^2 = 0.483) and egg weight at both 28 and 40 weeks showed minimal improvement with low to moderate R^2 values (0.442 and 0.315), none of which were significant.

S-6 Generation

Incubation Records

Chicks of S-6 generation of *Ankleshwar* chicken were produced and are being evaluated. Fertility was lower in S-6 generation as compared to S-5 generation. Hatchability was higher in S-6 generation as compared to S-5 generation (Table 21).

Table 20. Phenotypic response in important economic traits from S-1 to S-5 generations in Ankleshwar breed

Trait		*Ankleshwar*		
		Phenotypic response	R^2	p-value
Age at first egg (days)		1.09	0.344	0.296
Body weight (g)	16 wks	13.79	0.870	0.021
	40 wks	-15.25	0.483	0.193
Egg production (No.) up to 40 wks		2.59	0.946	0.004
Egg weight (g)	28 wks	0.23	0.442	0.214
	40 wks	0.21	0.315	0.334

Table 21. Incubation records of Ankleshwar breed

Gen.	Eggs set (Nos.)	Good chicks (Nos.)	Fertility (%)	Hatchability (%)	
				TES	FES
S-4	5528	3698	88.55	70.17	79.24
S-5	4691	3169	85.89	69.13	80.49
S-6	**5344**	**3739**	**82.80**	**70.80**	**85.51**

B. Improvement of IWN and IWP strains of White Leghorn

The summary of selection records of IWN and IWP strains (S-4 to S-5 gen.) is presented in Table 22. The selection criteria was total egg production up to 64 weeks of age (TEN64).

Incubation records

The summary of incubation records of IWN and IWP strains were presented in Table 23. Fertility and hatchability were lower in both the strains in S-5 generation as compared to S-4 generation.

Because of unavoidable circumstances, hatching eggs of Layer Control population were not provided by ICAR-DPR, Hyderabad. Therefore, incubation records were not given in the Table 23.

Mortality

Mortality in IWN and IWP strains was under permissible limit. Mortality was higher during 17-64 weeks of age in Control birds (S-4 gen.) due to heat stress (Table 24).

Production performance of IWN, IWP and Control population (S-4 gen.)

Egg production performance of IWN, IWP & control population during last three generations is presented in Table 25. The production performance of IWN, IWP and control population during S-4 generation is presented in Table 26. A total of 355, 355 and 185 pullets of IWN, IWP and control population, respectively, were housed individually at 16 weeks of age in S-4 generation (Table 26). The IWN and

Table 22. Selection records of IWN and IWP strain in S-4 to S-5 generation

Sr. No.	Particulars	IWN	IWP
1	No. of sires used	50	50
2	No. of dams used	250	250
3	No. of sires contributed to the next generation	50	50
4	No. of dams contributed to the next generation	229	231
5	Effective Nos. using Sr. No.3 & 4	164.1	164.4
6	Rate of inbreeding	0.003	0.003
7	Expected S. D. in females of S-4 generation for TEN64	6.91	7.48
8	Phenotypic standard deviation of S-4 generation for TEN64	20.44	20.05
9	Intensity of selection for TEN64	0.338	0.373
10	Heritability of 64 weeks egg production of S-4 generation	0.15	0.23
11	Expected response for TEN64	1.04	1.72
12	Actual selection differential for TEN64	6.93	7.48

IWP strains of S-4 generation were evaluated from 29 to 72 weeks of age during the reporting period.

Egg production performance

Egg production up to 72 weeks of age was almost similar in IWN and IWP strains in S-4 generation as compared to S-3 generation (Table 25).

Growth performance

Body weight recorded at 16, 40 and 64 weeks of age was almost similar among IWN, IWP and control population in S-4 generation (Table 26).

Age at sexual maturity and egg weight

Age at sexual maturity was almost similar in IWN and IWP strains. It was higher in Control population in S-4 (Table 26). Egg weight at 28, 40 and 64 weeks of age was almost similar in IWN, IWP and Control birds in S-4 generation (Table 26).

Feed consumption

Feed consumption during all the stages in IWN, IWP and Control population in S-4 generation was almost similar (Table 26).

Frequency distribution

The frequency distribution of egg production up to 64 weeks of age in IWN and IWP strains in S-4 generation was maximum in the class interval of 261-280, while in control population, it was maximum in the class interval of 221-240 (Table 27).

Table 23. Incubation records of IWN, IWP and control population over the generations

Gens.	Strains	Eggs set (Nos.)	Good chicks (Nos.)	Fertility (%)	Hatchability (%)	
					FES	TES
IWN	S-3	1603	1105	83.78	85.11	71.30
	S-4	1288	862	87.03	79.13	68.67
	S-5	**2576**	**1361**	**80.32**	**68.29**	**54.85**
IWP	S-3	1337	780	74.50	84.04	62.60
	S-4	1214	783	84.60	78.77	66.64
	S-5	**2819**	**1447**	**71.30**	**73.73**	**52.57**
Control	S-3	809	654	87.52	93.93	82.20
	S-4	812	638	90.89	88.09	80.05

Table 24. Mortality of IWN, IWP and Control population over the generations

Gens.	Strains	0-8 wks	9-16 wks	17-40 wks	41-64 wks	17-64 wks
IWN	S-2	4.15	10.30	4.01	3.90	7.75
	S-3	2.44	0.51	2.29	8.77	10.86
	S-4	**2.78**	**0.60**	**3.10**	**2.33**	**5.35**
IWP	S-2	7.31	1.91	4.51	9.44	13.52
	S-3	8.59	0.54	0.00	9.14	9.14
	S-4	**2.55**	**0.66**	**3.10**	**1.74**	**4.79**
Control	S-2	4.30	7.27	5.56	6.47	11.67
	S-3	3.36	1.04	1.62	4.94	6.49
	S-4	**2.35**	**0.00**	**8.11**	**4.11**	**11.89**

Table 25. Egg production in IWN, IWP and Control population over generations

Traits	Gens.	IWN	IWP	Control
EP40	S-2	126.7	124.9	108.6
	S-3	121.5	126.6	101.0
	S-4	**117.4**	**116.7**	**96.04**
EP64	S-2	264.5	261.6	222.5
	S-3	257.6	258.0	215.1
	S-4	**261.1**	**258.6**	**206.9**
EP72	S-2	303.4	301.7	-
	S-3	306.0	302.3	-
	S-4	**304.0**	**301.0**	**-**

Table 26. The performance of IWN, IWP and Control population (S-4 gen)

Traits	IWN		IWP		Control	
	N	Mean ± S.E.	N	Mean ± S.E.	N	Mean ± S.E.
No. of pullets housed	355	-	355	-	185	-
ASM (d)	354	149.8±0.63	352	147.8±0.62	183	157.0±0.50
Body weight (g)						
16 wks	350	1055±4.39	350	1100±4.24	185	1077±6.89
40 wks	342	1460±7.55	348	1493±8.16	171	1466±12.06
64 wks	339	1634±9.65	337	1611±9.32	165	1680±17.11
72 wks	335	1638±10.01	337	1669±9.40	-	-
EP 40 wks (Nos.)						
Survivors'	342	117.4±0.69	348	116.7±0.77	171	96.0±1.36
Hen housed	355	112.5±1.03	355	113.0±0.93	185	91.8±1.87

Traits	IWN		IWP		Control	
	N	Mean ± S.E.	N	Mean ± S.E.	N	Mean ± S.E.
Hen day	-	113.9	-	114.8	-	94.6
EP 64 wks (Nos.)						
Survivors'	339	261.1±1.11	337	258.6±1.09	165	206.9±3.15
Hen housed	355	245.4±2.47	355	244.5±2.08	185	192.8±4.47
Hen day	-	252.6	-	251.6	-	206.5
EP 72 wks (Nos.)						
Survivors'	335	304.0±1.31	337	301.0±1.27	-	-
Hen housed	355	286.9±2.95	355	284.8±2.36	-	-
Hen day	-	296.5	-	293.9	-	-
Egg weight (g)						
28 wks	345	50.17±0.14	337	50.49±0.19	172	50.07±0.22
40 wks	343	52.08±0.14	348	52.62±0.13	163	52.08±0.16
64 wks	331	54.08±0.19	330	54.63±0.16	159	55.12±0.19
72 wks	317	55.37±0.24	322	55.65±0.18	-	-
Feed consumption / bird (kg)						
0-8 wks	-	1.57	-	1.59	-	1.51
9-16 wks	-	3.38	-	3.40	-	3.24
17-40 wks	-	17.46	-	17.58	-	17.87
17-64 wks	-	36.66	-	36.75	-	36.88
17-72 wks	-	42.15	-	42.33	-	42.36
Mortality (%)						
0-8 wks	-	2.78	-	2.55	-	2.35
9-16 wks	-	0.60	-	0.66	-	0.00
17-40 wks	-	3.10	-	3.10	-	8.11
17-64 wks	-	5.35	-	4.79	-	11.89
17-72 wks	-	5.63	-	5.07	-	-

Genetic Parameters

Heritability estimates of various traits of IWN and IWP strains (S-4 gen.) were presented in Table 28. In IWN strain, heritability estimates of egg weight at 28 and 40 weeks of age was low in magnitude. Heritability estimate of egg production up to 64 weeks of age and egg weight at 64 weeks of age was moderate. Heritability estimate of age at first egg, body weight at 16, 40 and 64 weeks of age as well as egg production up to 40 weeks of age was high.

In IWP strain, heritability estimate of egg weight at 64 weeks of age was low. Heritability estimate of body weight at 64 weeks of age, egg production up to 64 weeks of age and egg weight at 40 weeks of age was moderate. Heritability estimate was high for age at first egg, body weight at 16 and 40 weeks of age and egg production up to 40 weeks of age.

Genetic and Phenotypic correlations

The genetic and phenotypic correlations of 64 weeks egg production with various economic traits in IWN and

Table 27. Frequency distribution of egg production up to 64 weeks of age in S-4 generation

Class Interval	IWN		IWP		Control	
	No	%	No	%	No	%
<120	0	0.00	0	0.00	05	3.03
121-140	0	0.00	0	0.00	02	1.21
141-160	0	0.00	1	0.30	07	4.25
161-180	2	0.59	0	0.00	12	7.27
181-200	3	0.88	2	0.60	28	16.97
201-220	7	2.08	13	3.85	40	24.24
221-240	32	9.43	39	11.57	**49**	**29.70**
241-260	100	29.50	111	32.94	20	12.12
261-280	**152**	**44.84**	**133**	**39.46**	02	1.21
281-300	38	11.21	37	10.98	00	0.00
>300	5	1.47	01	0.30	00	0.00
Total	**339**	**100.00**	**337**	**100.00**	**165**	**100.00**

Table 28. Heritability estimates (Sire component) up to 64 weeks of age in S-4 generation

Sr. No.	Trait		Strain	
			IWN	IWP
1	Age at first egg		0.31±0.17	0.32±0.17
2	Body weight at	16 wks	0.77±0.22	0.78±0.23
		40 wks	0.50±0.20	0.54±0.20
		64 wks	0.40±0.19	0.25±0.16
3	Egg production	up to 40 wks	0.39±0.18	0.36±0.18
		up to 64 wks	0.15±0.15	0.23±0.16
4	Egg weight at	28 wks	0.03±0.13	-
		40 wks	0.07±0.14	0.18±0.15
		64 wks	0.21±0.16	0.02±0.13

IWP strains (S-4 gen) have been presented in Table 29. The genetic correlation of EP64 with BW16, BW40 and BW64 was positive and high in IWN strain. The genetic correlations of EP64 with EW28 and BW40 was negative and low in IWN strain.

The genetic correlation of EP64 with AFE and EW40 was negative and high in IWP strain. The genetic correlation of EP64 with BW16, BW40 and BW64 was negative and low in IWP strain. The genetic correlation of EP64 with EW64 was positive and low in IWP strain.

The phenotypic correlation of EP64 with AFE was negative and high in IWN strain. The phenotypic correlation of EP64 with BW40, BW64 and EW64 was negative and low in IWN strain. The phenotypic correlations of EP64 with EW28 and EW40 was positive and low in IWN strain. The phenotypic correlations of EP64 with BW16 and EW40 was positive and high in IWN strain. The phenotypic correlation of EP64 with AFE was negative and high in IWP strain. The phenotypic correlation of EP64 with BW40, BW64, EW28 and EW40 was negative and low in IWP strain. The phenotypic correlation of EP64 with BW16 and EW64 was positive and low in IWP strain. The phenotypic correlation of EP64 with EP40 was positive and high in IWP strain.

Table 29. Genetic (r_G) and phenotypic (r_P) correlations of 64 weeks egg production with other production traits in S-4 generation

64 weeks egg prod. with	IWN Strain		IWP Strain	
	r_G	r_P	r_G	r_P
Age at first egg (AFE)	-1.03 ± 0.89	-0.402	-0.95 ± 0.65	-0.439
Body weight at 16 wks	0.83 ± 0.39	0.252	-0.09 ± 0.34	0.099
Body weight at 40 wks	0.65 ± 0.51	-0.015	-0.13 ± 0.38	-0.005
Body weight at 64 wks	0.78 ± 0.58	-0.060	-0.18 ± 0.49	-0.027
Egg production up to 40 wks	1.03 ± 0.16	0.821	1.05 ± 0.09	0.805
Egg weight at 28 wks	-0.71 ± 2.39	0.022	-	-0.117
Egg weight at 40 wks	-0.58 ± 1.14	0.004	-0.56 ± 0.60	-0.094
Egg weight at 64 wks	1.01 ± 0.76	-0.031	0.11 ± 1.47	0.023

- Could not be estimated

Genetic and Phenotypic response

Genetic and phenotypic responses estimated in various traits from S-1 to S-4 generations were presented in Table 30. Genetic response estimated for AFE, BW40w and EW40w was positive in IWN strain. Genetic response estimated for BW64w, EP40w, EP64w and EW64w was negative in IWN strain. Genetic response estimated for AFE and BW40w was positive in IWP strain. Genetic response estimated for BW64w, EP40w, EP64w, EW40w and EW64w was negative in IWP strain.

Phenotypic response estimated for AFE was positive in IWN and IWP strains. Phenotypic response estimated for BW40w, BW64w, EP40w, EP64w, EW40w and EW64w was negative in IWN and IWP strains.

C. Maintenance and evaluation of IWD and IWK strains of White Leghorn

Production performance of IWD and IWK strains (S-11 gen.)

Performance of IWD and IWK strains in S-11 generation was evaluated from 33 to 64 weeks of age during the reporting period and the results were presented in Table 31. Age at sexual maturity in IWD was lower as compared to IWK strain. Body weight at 16, 40 and 64 weeks of age in IWD and IWK strains was almost similar. Egg production up to 64 weeks of age was higher in IWD strain as compared to IWK strain. Egg weight at 40 and 64 weeks of age was almost similar in IWD and IWK strains. Feed consumption was almost similar in both the strains. Mortality was higher

Table 30. Genetic and phenotypic response in primary and correlated traits from S-1 to S-4

Trait	Genetic response		Phenotypic response	
	IWN	IWP	IWN	IWP
Age at first egg (days)	1.05	1.51	5.33	5.79
Body weight at 40 wks (g)	37.10	28.04	-23.03	-32.09
Body weight at 64 wks (g)	-5.21	-17.06	-17.32	-29.18
Egg prod. up to 40 wks (No)	-0.23	-0.75	-4.49	-5.01
Egg prod. up to 64 wks (No)	-1.03	-2.40	-2.91	-4.28
Egg weight at 40 wks (g)	0.02	-0.06	-0.02	-0.10
Egg weight at 64 wks (g)	-0.57	-0.33	-0.28	-0.04

during 0-8 weeks of age in both the strains due to incidence of Coccidiosis.

Incubation records

The summary of incubation records of IWD and IWK strains during last three generations were presented in Table 32. Fertility and hatchability results were higher in IWD as compared to IWK strain in S-12 generation.

Table 31. Production performance of IWD and IWK strains (S-11 gen.)

Traits	IWD		IWK	
	N	Mean±S.E.	N	Mean±S.E.
No. of pullets housed	220	-	212	-
ASM (d)	217	146.7±0.96	211	155.3±1.10
Body weight (g)				
16 wks	220	1083±7.46	212	1039±8.93
40 wks	**209**	**1480±10.55**	**201**	**1470±8.45**
64 wks	**196**	**1628±13.90**	**188**	**1682±14.69**
EP 40 wks (Nos.)				
Survivors'	**209**	**102.7±1.35**	**201**	**100.0±0.86**
Hen housed	**220**	**100.4±1.53**	**212**	**96.8±1.04**
Hen day	**-**	**102.6**	**-**	**97.9**
EP 64wks (Nos.)				
Survivors'	**196**	**217.5±2.80**	**188**	**211.8±1.79**
Hen housed	**220**	**204.9±3.76**	**212**	**200.3±2.26**
Hen day	**-**	**216.9**	**-**	**208.3**
Egg weight (g)				
28 wks	210	50.13±0.23	199	50.09±0.19
40 wks	**199**	**53.12±0.23**	**184**	**52.62±0.26**
64 wks	**170**	**54.31±0.28**	**164**	**54.51±0.24**
Feed consumption / bird (kg)				
0-8 wks	-	1.61	-	1.59
9-16 wks	-	3.42	-	3.39
17-40 wks	**-**	**17.84**	**-**	**17.95**
17-64 wks	**-**	**37.11**	**-**	**37.16**
Mortality (%)				
0-8 wks	-	20.34	-	21.67
9-16 wks	-	4.11	-	3.31
17-40 wks	**-**	**5.91**	**-**	**3.30**
17-64 wks	**-**	**10.9**	**-**	**8.49**

Table 32. Incubation records of IWD and IWK strains during last three generations

Gens.	Strains	Eggs set (No.)	Good chicks (No.)	Fertility (%)	Hatchability (%)	
					TES	FES
IWD	S-10	1067	791	89.32	78.91	88.35
	S-11	1098	703	86.61	65.57	75.71
	S-12	**1057**	**699**	**86.38**	**67.08**	**77.66**
IWK	S-10	981	756	89.91	80.73	89.80
	S-11	911	540	83.75	61.14	73.00
	S-12	**862**	**509**	**81.55**	**59.98**	**73.54**

Implementation of DAPSC (SCSP) Component

A total of 20 beneficiaries of nearby Taluka of Anand District were selected. They were briefed about the objectives of DAPSC component of AICRP on Poultry Breeding, benefits to be given to them by this centre and their responsibilities regarding related aspects of rearing and maintenance of birds. “Training and Kit Distribution Programme” under SCSP component of AICRP on Poultry Breeding (ICAR) was organized on 28/01/2025 at Poultry Research Station, VASRE Unit, Kamdhenu University, Anand (Gujarat). Each beneficiary was given one unit as input. One unit included 30 numbers (55 days old) chicks of “*Ankaleshwar*” breed, one feeder, one drinker, one catching crate (as Night Shelter), 50 kg poultry feed (Grower mash), 10 plastic egg trays, vitamin supplements and one text book of "Poultry Production" in Gujarati language.

Germplasm supply

The centre has supplied a total of 54,337 numbers of hatching eggs (1,530) and day-old chicks (52,807) during the year 2024-25. A total of 538 farmers were benefited, among them, 95 farmers were directly benefited and 443 farmers were benefited through KVK and NGO.

Revenue generation

The centre has generated the revenue of Rs. 33.52 lakhs during the reporting period, which was 76.48% of the total expenditure on feed (Rs. 43.83 lakhs).

Karnataka Veterinary, Animal and Fishery Sciences University, Bengaluru (Karnataka)

Activities assigned

- Evaluation of local native chicken germplasm
- To improve PB-1 and PB-2 lines for growth and production traits
- To evaluate the control population to measure environmental trend
- Farm and field evaluation of the crosses

Action taken

- Local native chicken was evaluated for growth and production in S-7 generation
- Production traits of PB-1 (S-16), PB-2 (S-29) and Control lines were evaluated.
- The S-17 and S-30 generations of PB-1 and PB-2, respectively along with Control lines were regenerated and evaluated for juvenile traits.
- Farm evaluation of PB-1 X Native cross was undertaken.

Achievements

Collection, conservation and evaluation of native germplasm

Purification of native chicken germplasm was completed for six generations. The S-7 generation was evaluated for growth and production traits. The average body weights (g) of male birds at 20, 40, and 52 weeks of age were 1,498, 1,920, and 2,001g, respectively. Corresponding weights in female birds were 1,135, 1,343, and 1,349g respectively. The age at first egg, an indicator of sexual maturity, was 160.48 days. The Hen housed and survivors' egg production up to 40 weeks of age was 34.74 and 34.96 eggs, respectively (Table 33).

Performance of native chicken under field conditions

To evaluate the performance of native chickens under field conditions, a total of 300 day-old chicks were distributed to farmers with brooding facilities. The chicks were fed commercial layer starter feed up to 5 weeks of age, during which the average body weight reached 345g. After 5 weeks, the birds were reared under a scavenging system with night shelter. Supplementary feeding included broken cereals, leftover vegetables and green fodder. The average body weights (combined sexes) recorded at 8, 12, and 20 weeks of age were 480, 740, and 1,130g, respectively. Birds were marketed at 5 months of age. At marketing, the average body weight of males was 1,413g (n=35), while females averaged 1,162g (n=58).

Table 33. Production performance of native birds (S-7)

Traits	Sex	Mean ± SE	(No.)
Body weight (g) at			
20 weeks	Male	1,498±11.63	(70)
	Female	1,135± 4.02	(1397)
40 weeks	Male	1,920± 30.54	(52)
	Female	1,343±9.87	(355)
52 weeks	Male	2,001± 10.45	(48No)
	Female	1349±9.45	(345)
ASM, d		160.5±0.47	(430)
HHEP, no.	40 wks	34.74	(2069)
	52 wks	58.92	(2069)
SEP, no.	40 wks	34.96	(2054)
	52 wks	59.64	(2044)
Egg weight (g) at	28 wks	40.31±0.23	(100)
	40 wks	44.17±0.28	(100)
	52 wks	45.34±0.21	(100)

Performance of F1 cross (PB-1 X Native)

A total of good chicks of 214 PB-1, 212 native and 210 F1 cross (PB-1 X native) were hatched and simultaneously evaluate the growth performance of the F1 cross. The day-old body weights of PB-1, native and cross were 40.59, 30.31 and 35.20g, respectively. In PB-1, male and female body weights of chicks at 8 weeks were 2230±28g and 2084 ± 42g, respectively. The body weight of male and female native chicks at 8 weeks of age was 510±12g and 412 ± 22g, respectively. The corresponding weights in crossbred chicks were 880.24 ± 22.42g for males and 772 ± 28g for females. The feed efficiency (up to 8 weeks) in PB-1, native and cross were 2.12, 3.42, and 2.98, respectively

Conservation and utilization of elite germplasm

Selection records

The number of sires and dams used in regeneration were 32 and 256 in PB-1, 26 and 205 in PB-2. The effective number of parents was 114 in PB-1 and 78 in PB-2. Single sire mating was followed with a ratio of one sire to eight dams in a pen. Selection record summaries for PB-1 and PB-2 was given in Table 34. To maintain an optimum effective population size, it is necessary to increase the number of sires and dams in the breeding program.

Table 34. Summary of selection records

Parameters	PB-1		PB-2	
	S-16	S-17	S-29	S-30
Sires	21	32	17	26
Dams	168	256	136	205
Sires contributed	21	32	17	26
Dams contributed	168	251	136	203
Effective number	75	114	60	78
Rate of Inbreeding	0.007	0.005	0.008	0.006
SD for male (g)	172.0	205.4	167.23	183.4
SD for female (g)	32.64	58.41	29.00	68.96
Average selection differential (g)	102.3	131.9	98.12	126.2
Selection intensity (σ)	0.42	0.68	0.54	0.59

Incubation records

The fertility and hatchability records of PB-1, PB-2 and control populations were presented in Table 35. During the current year, a total of 1,423, 1,017 and 150 good chicks were hatched in PB-1, PB-2 and Control population, respectively. There was reduction in hatchability parameters of PB-1 and PB-2 lines and efforts may be made for improvement. Efforts may be made to increase the number of chicks in PB-1 and PB-2 lines, to perform optimum performance evaluation and selection.

Table 35. Incubation records for PB-1, PB-2, and control line

Gen.	Eggs set (Nos.)	Fertility (%)	Good chicks (Nos.)	Hatchability (%)	
				TES	FES
PB-1					
S-16	1721	83.27	1200	72.17	86.67
S-17	2062	83.85	1423	72.11	86.00
PB-2					
S-29	1422	82.42	934	70.04	84.98
S-30	1469	86.18	1017	71.34	82.78
Control					
2023-24	206	75.24	132	66.01	87.74
2024-25	215	80.47	150	72.09	89.60

Mortality

The mortality in the present generation during 0 to 5 weeks was 4.43, 4.03 and 7.33 in PB-1, PB-2 and Control lines, respectively. Mortality during 6-16 weeks was 1.99, 2.46 and 0.72, respectively in parents and control lines (Table 36).

Table 36. Mortality (%) for PB-1, PB-2 and control line

Gen.	0-5 wks	6-16 wks	17-40 wks
PB-1			
S-16	3.58	3.37	3.33
S-17	**4.43**	**1.99**	**NC**
PB-2			
S-29	4.39	3.47	3.97
S-30	**4.03**	**2.46**	**NC**
Control			
2023-24	3.79	5.51	2.08
2024-25	**7.33**	**0.72**	**NC**

Juvenile body weight and feed efficiency

The day-old body weight recorded in PB-1, PB-2 and control lines were 44.53, 44.04 and 42.50g, respectively. There was a significant improvement in five weeks body weight in both PB-1 and PB-2 lines as compared to previous generation. In the current year, there was an improvement in feed conversion efficiency in PB-2 as compared to previous generation (Table 37).

Table 37. Juvenile traits over last two generations in PB-1, PB-2 and Control line

Gen.	Body weight, g		Feed efficiency (0-5 wks)
	Day old	5 wks	
PB-1			
S-16	41.59 (1200)	1303±5.6± (1157)	2.15
S-17	44.53 (1423)	1318±5.9± (1360)	2.16
PB-2			
S-29	39.91 (934)	1283±6.50 (893)	2.26
S-30	44.04 (1017)	1291±5.9 (976)	2.18
Control			
2023-24	36.32 (132)	987.6±12.2 (127)	2.49
2024-25	42.50 (150)	990.2±8.72 (139)	2.22

* Figures in parenthesis indicate number of observations

Frequency distribution of 5 weeks body weight

Frequency distribution for body weight at 5 week of age in both the lines were presented in graphical form below (Fig 1)

Production performance

The production performance in PB-1, PB-2 and control lines up to 52 weeks of age over last two generations were presented in Tables 38, 39 and 40. The average body weight of PB-1 (S-16) at 20 week of age was 2365g. Corresponding value in PB-2 (S-29) was 2188g.

Table 38. Adult body weight at 20 and 40 wks of females in different lines

Gen.	Body weight, g	
	20 wks	40 wks
PB-1		
S-14	2027±30.94 (223)	3152±32.34 (186)
S-15	2127±29.34 (216)	3398±37.83 (165)
S-16	2365±14.57 (261)	2922±16.94 (251)
PB-2		
S-27	2086±28.23 (192)	2894±29.26 (183)
S-29	2084±32.59 (167)	3249±39.18 (139)
S-29	2188±16.02 (245)	2988±23.77 (203)
Control		
2023-24	1502±30.06 (107)	2797±68.66 (46)
2024-25	1645±37.16 (48)	2424±40.51 (46)

* Figures in parenthesis indicate number of observations

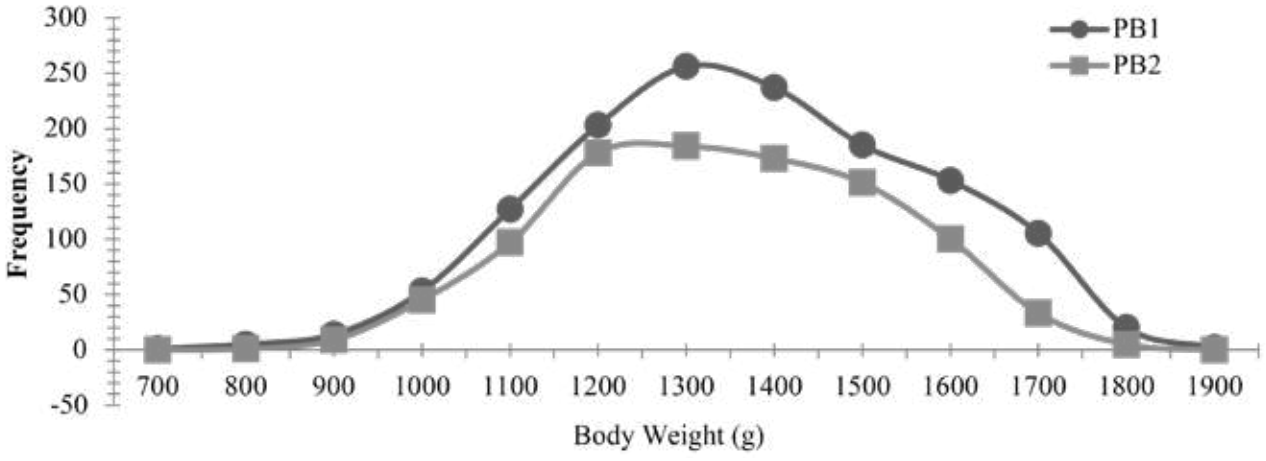


Fig 1. Frequency distribution of 5 wk body weight in PB-1 and PB-2 lines

Table 39. Age at sexual maturity and egg weights in different lines

Gen.	ASM (d)	Egg weight (g)	
		32 wks	**40 wks**
PB-1			
S-15	199.20±0.90 (169)	53.41±0.44 (120)	60.69±0.28 (150)
S-16	**199.48±0.49 (256)**	**56.29±0.58 (120)**	**62.22±0.51 (115)**
PB-2			
S-28	203.28±1.11 (142)	52.55±0.58 (110)	59.40±0.67 (150)
S-29	**198.90±0.83 (205)**	**57.70±0.68 (100)**	**63.29±0.51 (105)**
Control			
2023-24	201.08±1.03 (48)	49.20±0.83 (50)	57.89±0.58 (45)
2024-25	**199.72±0.76 (46)**	**51.00±0.61 (30)**	**54.17±0.62 (30)**

* Figures in parenthesis indicate number of observations

The ASM recorded in S-16 of PB-1, S-29 of PB-2 and CB lines were 199.48, 198.90 and 199.72 days, respectively. A decrease in ASM was observed in the PB-2 line. There is increase in egg weight at 40 weeks of age in both the parent lines as compared to previous generation.

The average egg production at 40 weeks of age (survivor basis) in PB-1, PB-2 and CB lines in the latest generation were 53.62, 56.90 and 48.28 eggs, respectively. Corresponding production at 52 weeks of age were 90.34, 92.63 and 80.13 eggs, respectively. The egg production up to 40 and 52 weeks of age increased in all two parent lines as compared to previous generation.

Table 40. Production performance of females

Gen.	Egg production, Nos.	
	40 wks	52 wks
PB-1		
S-15	40.07±0.74 (165)	69.02±1.26 (163)
S-16	**53.62±0.55 (251)**	**90.34±0.84 (247)**
PB-2		
S-28	37.16±0.94 (139)	68.66±1.87 (119)
S-29	**56.90±0.95 (203)**	**92.63±1.06 (203)**
Control		
2023-24	41.82±0.97 (46)	74.55±1.83 (45)
2024-25	**48.28±1.00 (46)**	**80.13±1.74 (46)**

* Figures in parenthesis indicate number of observations

Genetic parameters

The heritability for 5th week body weight in PB-1 and PB-2 lines was estimated using animal model with fixed effects of hatch and sex. The estimates of heritability (h^2) were 0.291±0.115 and 0.151±0.0.78 respectively for PB-1 (S-17) and PB-2 (S-30).

Response

The average phenotypic and genetic response of 5 weeks body weight in PB-1 was 12.89 and 12.13 g (17 generations), respectively. Corresponding values for egg production up to 40 weeks of age in PB-1 was -2.04 and -0.94 eggs (16 generations) (Fig 2 and 4). The average phenotypic and genetic response of 5 weeks body weight in PB-2 was 10.56 and 9.04 g (18 generations), respectively (Fig 3 and 5). Corresponding values for egg production in PB-2 up to 40 weeks was -1.67 and -0.52 eggs (17 generations).

Field Evaluation of PB-1 X PB-2 Cross Breeds

Raja –II (PB-1 x PB-2 cross) was evaluated under field condition. A total of 250 *Raja II* chicks were reared under intensive management. The chicks were incubated using battery brooder, and were fed with commercial broiler starter for first four weeks and grower feed for last two weeks. The body weight at 6 weeks was 1500g with 2.2 FCR (up to 6 weeks) and 96% survivability. The farmer got a net profit of Rs. 18,754 by rearing a unit of 250 *Raja-II* birds.

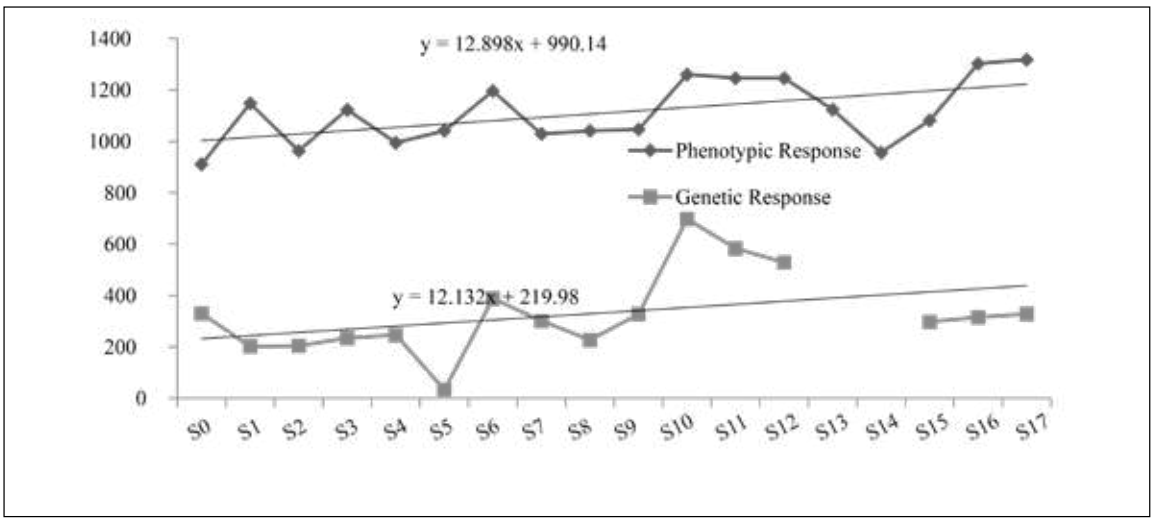


Fig 2. Genetic and phenotypic response to 5 weeks body weight in PB-1

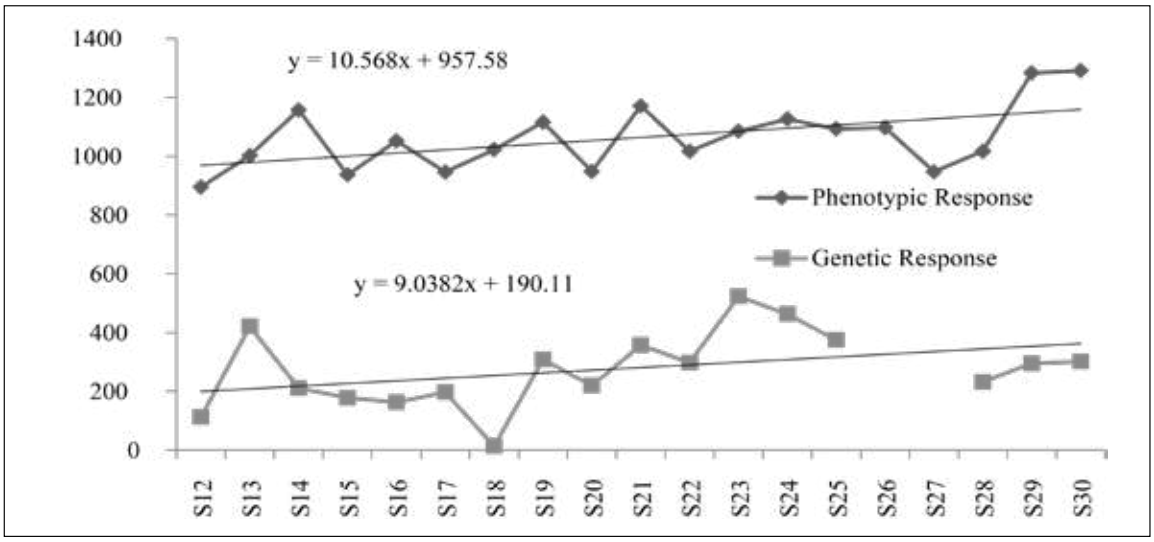


Fig 3. Genetic and phenotypic response to 5 weeks body weight in PB-2

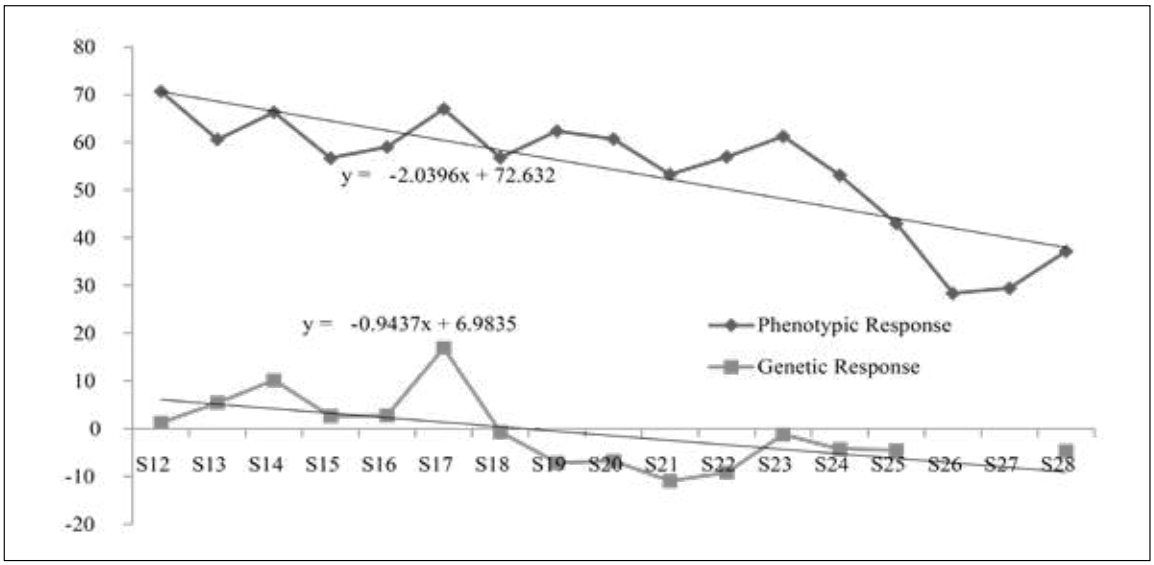


Fig 4. Genetic and phenotypic response of egg production up to 40 wks in PB-1

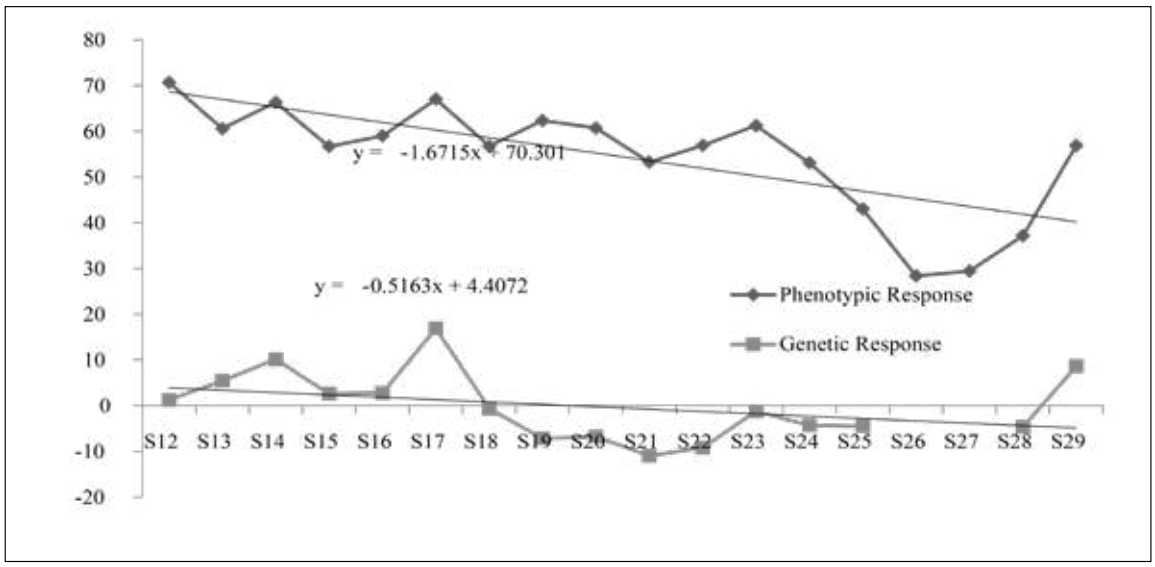


Fig 5. Genetic and phenotypic response of egg production up to 40 wks in PB-2

Economics of rearing commercial *Raja II* (PB-1 & PB-2) birds at field level

No. of chicks reared : 250

Average 7th week body weight : 2.00 kg

FCR : 2.25

Survivability : 96%

1.	Expenditure (in Rs)	
	Cost of chick 250 X Rs.25	6,250
	Cost of feed (approx) up to 7 weeks 250 birds X 4.50 kg feed X Rs.38	42,750
	Other expenditure 250 birds X Rs.10	2,500
	Total Expenditure	51,500
2.	**Income (Rs)**	
	240 birds X 2.0 kg X Rs.180	86,400
	Profit (approx., (in Rs) 86,400- 34,900	34,900

Participation in RSBPT for broilers

The centre participated in the 59th RSBPT for Broilers (2024) at CPPTC, Gurgaon. The average body weight at 7 weeks of age was 1987g in Raja - II (PB1 x PB2). The feed efficiency was 2.4 between 0 - 7 weeks.

Implementation of DAPSC component

Under DAPSC (Scheduled Caste Sub Plan – SCSP) component, a five days training program on Poultry Entrepreneurship training for Rural Youth was conducted. A total of six trainings were conducted and inputs like chicks (2,490), adult birds (1,620) feeders (47), waterers (47) and 3.8 tons of chick feed were given to 223 SC beneficiary farmers.

Germplasm supply

A total of 1,80,737 numbers of germplasm (1,78,779 day old chicks, 338 hatching eggs and 1620 grown up birds) were supplied to farmers and other stakeholders (829 beneficiaries) during the period under report.

Revenue generation

The centre generated revenue of Rs. 49.60 lakhs which was 128% of expenditure on feed cost (Rs. 38.46 lakhs).

Guru Angad Dev Veterinary and Animal Sciences University, Ludhiana (Punjab)

Activities assigned

- Evaluation of *Punjab Brown* germplasm.
- Evaluation of a dual cross.
- To evaluate and improve the PB-2 and PB-1 populations as a broiler dam and sire lines.
- To evaluate a control population for evaluating the environmental fluctuations.

Action taken

- Centre evaluated the S-9 generation of *Punjab Brown* chicken germplasm.
- A dual cross evaluated at farm.
- The centre regenerated S-17 generation of PB-1 and S-49 generation of PB-2 population.

Achievements

Evaluation of *Punjab Brown* germplasm

S-9 generation was regenerated by utilising 50 sires and 250 dams. A total of 1,950 fertile eggs of *Punjab Brown* were set for hatching. The fertility rate was 86%. The hatchability percent on TES and FES were 85.15 and 73.23%, respectively. There was a marginal increase in the fertility and hatchability parameters as compared to the previous generation. A total of 1,428 good chicks were hatched. The body weight of *Punjab Brown* chicks at 4 and 8 weeks of age were 378.1, 785.4g in males and 323.6, 676.0g in females, respectively (Table 41). The mortality percent observed in native chicken at different age groups of 0-8, 9-20, 21-40 were 5.67, 4.09 and 2.45%, respectively. The primary trait of selection in native *Punjab Brown* chicken is body weight at 8 weeks.

The ASM of *Punjab Brown* was 157.45 days and it reduced by 5.75 days, as compared to the previous generation. The egg production up to 36 weeks was 55.51 eggs. Egg weight at 40 weeks of age was 50.13g. Egg production up to 52 weeks of age was 109.23 eggs. There was a decline in egg production at 36 and 52 weeks as compared to previous generation. The heritability estimates for body weight at 8 weeks, 20 weeks, ASM and 40 weeks egg production were 0.25±0.13, 0.29±0.11, 0.15±0.09 and 0.33±0.05, respectively.

Evaluation of cross

Farm and field evaluation of dual-purpose three-way cross RIR X (PB-1 x *Punjab Brown*) was undertaken. RIR chicks were purchased from CPDO, Chandigarh and the adult males were used in the cross and mated with females PB-1 x *Punjab Brown*. A total of 550 fertile eggs were set and 410 good chicks were hatched. The body weight of cross at 4, 8, 16 and 20 weeks of age were 231.9, 678.1, 1503 and 1811g, respectively at the farm. The body weight of cross at 8, 16 and 20 weeks of age were 631.9, 1339 and 1708g, respectively in the field. The mortality percentage recorded in dual purpose cross in age groups of 0-8, 9-20, 21-40 was 5.85, 3.67 and 2.40%, respectively in farm.

ASM and egg production up to 36 weeks was 158.7 days and 60.08 eggs, respectively at the farm. Egg production up to 36 weeks was recorded as 55.11 eggs in field. Egg weight at 40 weeks of age was 49.26g at farm and 50.11g at field. Egg production up to 52 weeks of age was 134 eggs. There was a reduction in egg production as compared to previous evaluation. The growth performance of the cross is lower than the performance of the parents used in the cross (PB-1 and native).

Conservation and utilization of elite germplasm

Selection records

The summary of selection records over the last two generations for PB-1 and PB-2 are presented in Table 42. The PB-1 and PB-2 populations were reproduced utilizing 70 sires and 350 dams during S-17 and 80 sires and 400 dams during S-49 generations, respectively.

Incubation records

During the current generation, a total of 3,225 and 4,439 good chicks were hatched in PB-1 and PB-2 populations, respectively (Table 43). The broiler control was not hatched simultaneously. The fertility was 85.98 and 87.82%, respectively in PB-1 and PB-2 lines and was reduced as compared to the previous year. The hatchability on total eggs set was 71.67 and 72.00% in PB-1 and PB-2 lines, respectively. The hatchability percent was reduced as compared to last generation in PB-2 line.

Table 41. Comparative Performance of *Punjab Brown* (S-9) and dual purpose cross

Traits	*Punjab Brown* (Farm)				Dual purpose cross RIR x (PB1 x *Punjab Brown)*			
	N	Male	N	Female	N	Farm	N	Field
Body weight, g								
4 wks	150	378.1±4.34	630	323.6±4.23	350	231.9±4.13	-	-
8 wks	110	785.4±27.44	420	676.0±12.26	300	678.1±14.27	150	631.9±33.23
16 wks	90	1686±15.07	350	1311±13.34	260	1503±30.32	115	1339±44.89
20 wks	88	1909±13.74	315	1664±11.09	250	1811±22.39	90	1708±27.18
40 wks	80	2718±17.44	290	2338±14.33	200	2608±27.77	65	2643±30.05
FCR (0-8 wks)	-	3.40 (M+F)			-	3.30	3.50	
ASM, d	-	-	300	157.4±1.05	120	158.7±2.15	-	-
EP36, Nos	-	-	290	55.51±1.92	200	60.08±1.17	65	55.11±1.84
EW40, g	-	-	160	50.13±0.22	150	49.26±0.89	35	50.11±0.65
EP52, Nos.	-	-	255	109.2±9.37	-	-	-	-

Table 42. Summary of selection records in last two generations in PB-1 and PB-2

Parameters	PB-1		PB-2	
	S-16	S-17	S-48	S-49
Sires	70	**70**	70	**80**
Dams	350	**350**	350	**400**
Sires contributed	70	**70**	70	**80**
Dams contributed	350	**350**	350	**400**
Effective number	233.3	**233.3**	233.3	**266.7**
Rate of inbreeding	0.002	**0.002**	0.002	**0.002**
Average Expected selection differential	158.4	**116.2**	75.27	**111.3**
Expected response	20.59	**20.9**	11.14	**10.02**

Table 43. Incubation records for PB-1, PB-2 and control line

Gen./ year	Eggs set (Nos.)	(%)	Good chicks (Nos.)	Hatchability (%)	
				TES	FES
PB-1					
S-16	5220	86.69	3653	69.98	80.73
S-17	**4500**	**85.98**	**3225**	**71.67**	**83.35**
PB-2					
S-48	4550	89.32	3446	75.74	84.79
S-49	**6165**	**87.82**	**4439**	**72.00**	**81.99**

Mortality

The mortality reported in PB-1 and PB-2 lines were 6.36 and 6.65%, respectively during 0-5 week (Table 44). During grower period, the mortality of 6.94 and 7.22% was recorded in PB-1 and PB-2, respectively.

Body weight

During the present generation, the average body weight at 5 weeks of age was 1138 and 1083g in PB-1 and PB-2 lines, respectively (Table 45). The body weight at 5 weeks of age in males and females were 1219 and 1107g, respectively in PB-1 and corresponding weights in PB-2 were 1163 and 1032g, respectively. The feed efficiency up to 5 weeks of age was maintained in both the lines. The body weight at 5 weeks of age decreased in both the lines as compared to previous generation.

Frequency distribution of 5 weeks body weight

The frequency distribution of 5 weeks body weight (frequency on Y axis and body weight on X axis) has been depicted in Fig 1. In PB-1, the body weight at 5 weeks ranged from 200 to 2000g. Similarly, in PB-2 range was from 100 to 1900g.

Production traits

The production traits were recorded up to 52 weeks of age in PB-1 and PB-2. The body weight of PB-1 and PB-2 lines at 20 weeks of age (Table 46) were near to the optimum body weight. There is a need to evaluate the control line simultaneously.

The age at sexual maturity decreased in PB-1 and PB-2 lines as compared to previous generation (Table 47). The egg weight at 40 weeks of age was 55.37 and 52.23g, respectively in PB-1 and PB-2 lines. Egg weights at 40 weeks decreased in both PB-1 and PB-2 lines. There was a decline in the egg production up to 40 weeks and 52 weeks of age in PB-2 line as compared to last generation (Table 48).

Table 44. Mortality percentage at different ages in PB-1, PB-2 and control lines

Gen.	Mortality (%)		
	0-5 wks	6-20 wks	21-40 wks
PB-1			
S-16	5.25	6.43	4.03
S-17	**6.36**	**6.94**	**4.57**
PB-2			
S-48	4.73	5.72	4.43
S-49	**6.65**	**7.22**	**4.93**

Table 45. Body weight, g and feed efficiency at 5 weeks during last two generations

Gen./year	Body weight at 5 wks	Feed efficiency (up to 5 wks)
PB-1		
S-16	1148±5.29 (3461)	1.91
S-17	**1138±6.76 (3020)**	**1.89**
PB-2		
S-48	1103±6.67 (3283)	1.90
S-49	**1083±5.43 (4144)**	**1.90**

* Figures in parenthesis indicate number of observations

Table 46. Adult body weight in PB-1 and PB-2 lines

Gen./ year	Body weight (g)	
	20 wks	40 wks
PB-1		
S-16	2225±11.24 (772)	2782±16.37 (516)
S-17	**2257±12.34 (765)**	**2761±9.92 (470)**
PB-2		
S-48	2207±9.79 (655)	2802±15.59 (466)
S-49	**2238±13.81 (815)**	**2845±12.19 (496)**

* Figures in parenthesis indicate number of observations

Table 47. ASM and egg weights performance at different ages

Gen./ year	ASM, d	Egg weight, g	
		40 wks	52 wks
PB-1			
S-16	173.2±1.73 (766)	56.27±0.42 (477)	64.05±1.34 (355)
S-17	158.3±0.36 (755)	55.37±0.17 (450)	62.14±0.77 (325)
PB-2			
S-48	167.3±1.05 (644)	57.84±0.42 (405)	62.11±2.41 (390)
S-49	157.4±0.44 (792)	52.23±0.18 (485)	63.25±0.89 (375)

* Figures in parenthesis indicate number of observations

Table 48. Egg production performance at 40 and 52 weeks of age

Gen./year	Egg production (Nos.)	
	40 wks	52 wks
PB-1		
S-16	62.21±1.01 (510)	121.0±1.23 (368)
S-17	**65.02±0.50 (450)**	**115.2±0.55 (325)**
PB-2		
S-48	71.91±2.37 (462)	123.7±1.77 (405)
S-49	**68.27±0.84 (485)**	**120.5±1.15 (375)**

Egg quality traits

The egg quality traits measured at 36 weeks of age in PB-1, PB-2 lines and *Punjab Brown* native have been presented in Table 49.

Genetic parameters

The heritability estimates for five weeks body weight, BW20, ASM, egg production up to 40 weeks and egg production up to 52 weeks were 0.26, 0.34, 0.11, 0.33 and 0.34, respectively in PB-1. Corresponding estimates in PB-2 line were 0.21, 0.35, 0.09, 0.30 and 0.23, respectively.

Genetic and phenotypic response

The genetic and phenotypic response over the generations in PB-1 and PB-2 is presented in Fig 2, 3, 4 and 5. The phenotypic response for 5 weeks body weight was 3.97g in PB-1 over the last 17 generations. The phenotypic response of egg production up to 40 weeks of age was -0.48 eggs over 16 generations in PB-1 line. The phenotypic response was 0.84g for 5 weeks body weight and -1.32 eggs for 40 weeks egg production, respectively in PB-2 population over the last 17 generations.

Table 49. Mean and SE for egg quality traits at 36 weeks of age (n=30)

Egg quality traits	PB-1	PB-2	*Punjab Brown*
Egg weight (g)	54.98± 0.72	53.05 ± 0.62	48.70 ± 0.55
Egg length (cm)	55.64 ± 0.54	53.70 ± 0.52	50.77 ± 0.58
Egg width (cm)	41.93 ± 0.31	40.81 ± 0.20	39.44 ± 0.22
Shape index	75.60 ± 1.01	76.19 ± 0.80	77.97 ± 0.99
Shell thickness (mm)	0.38 ± 0.002	0.37 ± 0.001	0.39 ± 0.001
Albumen height (mm)	7.49 ± 0.23	6.65 ± 0.29	7.65± 0.28
Yolk height (mm)	18.44 ± 0.19	18.11 ± 0.19	18.02 ± 0.13
Yolk diameter (mm)	35.57 ± 0.93	31.86 ± 0.96	34.37 ± 0.65
Yolk index	54.70 ± 1.83	58.45 ± 1.96	52.53 ± 1.01
Haugh unit	87.55 ± 1.29	83.87 ± 1.85	90.85 ± 1.53
Shell Strength (Kg)	3.58 ± 0.15	3.97 ± 0.17	4.48 ± 0.14

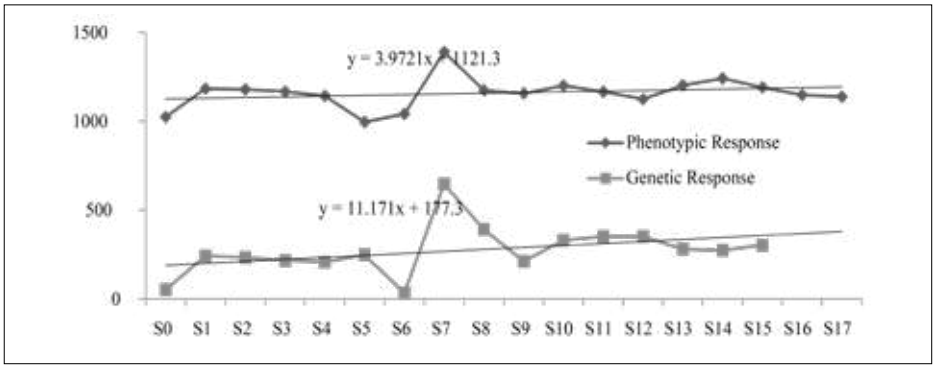


Fig 2. Genetic and phenotypic response to 5 week body weight in PB-1 at Ludhiana

Evaluation of IBL-80

A total of 100 day old chicks of IBL-80 (PB-1x PB-2) birds were reared on intensive farming up to 5 weeks of age. The net profit was Rs.38.40 per bird.

Average body weight (g) per bird	:	1,440
Total feed consumed per bird (g)	:	3,000
Cost of feed @ Rs.40 per Kg	:	120.00
Receipts (sold at Rs.110/kg live wt.)	:	158.40
Profit per bird (Rs.)	:	38.40

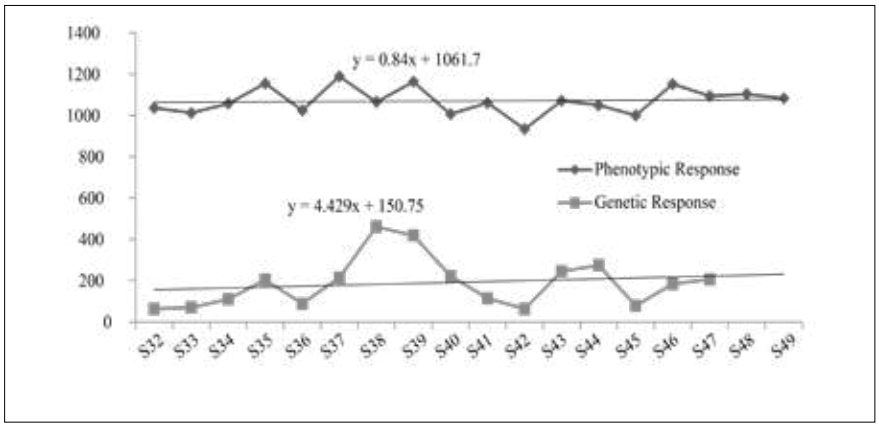


Fig 3. Genetic and phenotypic response to 5 week body weight in PB-2 at Ludhiana

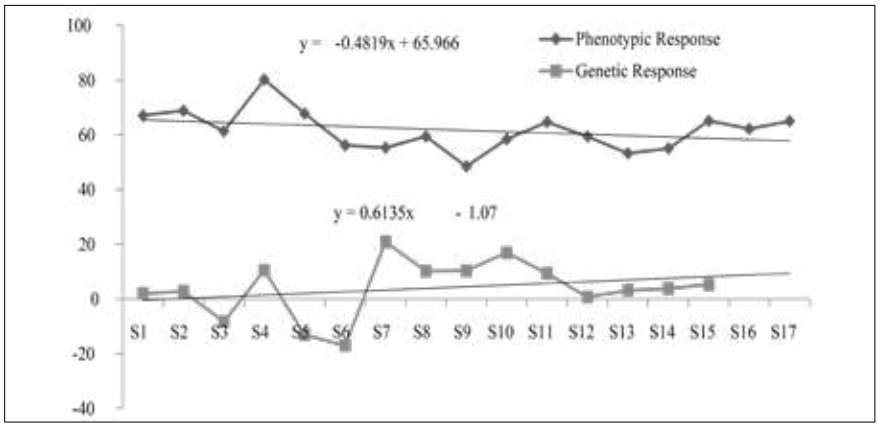


Fig 4. Genetic and phenotypic response to EP 40 wks in PB-1 at Ludhiana

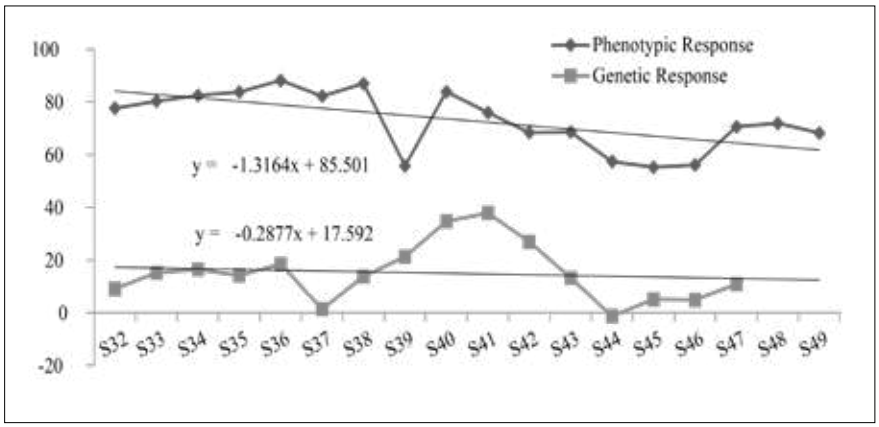


Fig 5. Genetic and phenotypic response to EP 40 wks in PB-2 at Ludhiana

Participation in RSBPT for broilers

The centre participated in the 59th Random sample broiler performance test (RSBPT) at CPPTC Gurgaon which commenced on 1st September, 2024. Live body weight at 7th week was 1,617g and FCR at 7th week was 2.49 in IBL-80 (PB-1x PB-2).

Implementation of DAPSC component

A total of 206 SC beneficiaries were provided with 18,110 chicks/ grownup birds. A total of 498 poultry feeders & drinkers were distributed to 81 beneficiaries. Three training programmes were conducted for 70 SC beneficiaries. The feedback was collected and it was found that farmers sold the birds at Rs. 600 to 700 after rearing them for a month at their backyards.

Germplasm supply

A total of 75,478 germplasm units were supplied to 605 farmers.

Revenue generation

The centre generated the revenue of Rs. 19.38 lakhs which was 79.1% of expenditure on feed (Rs. 24.5 lakhs).

ICAR - Central Avian Research Institute, Izatnagar (Uttar Pradesh)

Activities assigned

- Evaluation of local native chicken germplasm and developing crosses.
- To improve and evaluate CSML and CSFL lines.
- To maintain a control population simultaneously to measure the genetic trends.

Action taken

- Regenerated and evaluated S-9 generation of local native chicken.
- Regenerated and evaluated the 22nd generation of CSML and CSFL lines.
- Maintained and evaluated a random breed control line.
- Production and evaluation of cross (*Desi* x CSFL).

Achievements

Evaluation of native germplasm

The S-9 generation of the native chicks (*Desi*) was regenerated using 48 sires and 144 dams. Mass Selection for higher 16 weeks body weight and mild culling based on egg production in 40 weeks was practiced in local native chicken. A total of 1,832 healthy chicks were hatched with fertility, hatchability on TES and on FES of 74.86, 64.60 and 78.76%, respectively. Fertility and hatchability performance declined as compared to the previous generation. Average body weight at 16 weeks of age was 1302±4.93g. Age at Sexual Maturity was recorded as 183 days, with a cumulative egg production up to 40 weeks of 58.25 eggs. The average egg weight at 40 weeks of age was 48.00g.

Evaluation of native x CSFL cross at farm and field conditions

Conservation and utilization of elite germplasm

Selection records

The CSML and CSFL lines have reached 22nd generation of selection based on body weight at 5 weeks of age. In CSML and CSFL, 34 sires and 160 dams were used under random breeding. In the control lines, 36 sires and 108 dams were used.

Incubation records

The incubation records for the CSML, CSFL and the control lines over last two generations have been presented in Table 50. A total of 4,158, 5,287 and 1,117 eggs were set in CSML, CSFL and control lines and out of which 3,484, 4,208 and 911 good chicks were obtained. There is an improvement in hatchability (TES & FES) in both CSML and CSFL lines as compared to previous generation.

Mortality

The mortality reported in CSFL, CSML and control lines were 8.24, 9.43 and 7.78%, respectively during 0-5 weeks period and during the grower period (6-20 weeks), mortality of 7.38, 6.94 and 7.45% was recorded in CSFL, CSML and control, respectively.

Table 50. Summary of incubation and hatching results during last two generations

Gen.	Eggs set (Nos.)	Fertility (%)	Good Chicks (Nos.)	Hatchability (%)	
				TES	FES
CSML					
S-21	5698	82.78	4028	71.81	86.75
S-22	**4185**	**89.53**	**3484**	**83.93**	**93.73**
CSFL					
S-21	4043	88.42	3097	77.71	87.89
S-22	**5287**	**88.99**	**4208**	**80.99**	**91.01**
Control					
S-21	1110	92.79	789	71.98	77.57
S-22	**1117**	**82.05**	**911**	**74.92**	**91.31**

Body weights

The body weight at 5 weeks of age recorded in CSML, CSFL and control lines over last two generations is presented in Table 51. The body weight at 5 weeks of age in CSML, CSFL and control lines recorded during 2024-25 (S-22) was 1055, 1050 and 795.7g, respectively. There was an improvement in body weights in both the parent lines as compared to the previous generation. The FCR up to 5 weeks was 1.77, 1.82 and 1.91, respectively in CSML, CSFL and control lines.

Production performance

The egg weight at 40 weeks of age was 64.9 and 63.0 g, respectively in CSML, CSFL lines in S-22 generation.

Germplasm supply

A total of 24,856 germplasm were supplied to the 35 farmers and other stakeholders.

Revenue generation

The centre generated a revenue of Rs 22.35 lakhs during 2024-25.

Table 51. Body weight at 5 weeks during the last two generations

Gen.	Body wt. 5 wks (g)
CSML	
S-21	946.2±7.08
S-22	**1055±6.44**
CSFL	
S-21	957.6±5.58
S-22	**1050± 7.52**
Control line	
S-21	735.1±5.19
S-22	**795.7±6.96**

ICAR Research Complex for NEH Region, Agartala (Tripura)

Activities assigned

- Collection and evaluation of the local native chicken.
- Procurement and evaluation of improved chicken germplasm in the local climatic conditions.
- Production and evaluation of cross of local native chickens with improved germplasm

Action taken

- During the present year, the centre evaluated *Tripura Black, Dahlem Red*, Coloured Synthetic Female Line (CSFL), BN cross and *Tokbari* (BND cross).
- Three way cross (*Tokbari*) was evaluated in E-8 generation under farm and field condition.
- Pedigree hatching in native chicken (*Tripura Black*) started.

Achievements

During the period under report, the centre hatched 5,792 nos. of good chicks of *Tripura Black* and evaluated up to 52 weeks of age. *Dahlem Red*, Coloured Synthetic Female Line (CSFL) and BN cross was also evaluated up to 52 weeks of age at farm. The body weight at 40 weeks was 1525, 1724, 2814 and 1945g in *Tripura Black, Dahlem Red*, Coloured broiler dam line and BN cross respectively. E-8 evaluation of *Tokbari* was completed under farm and field conditions. In E-8 evaluation of *Tokbari* (BND cross), the 72 weeks egg production was 169.23 eggs and 142.75 under farm and field conditions respectively.

Incubation and hatching

A total of 20,721 chicks of different varieties / lines of chicken were produced. The overall average fertility rate was estimated as 83.76% in different breeds/varieties/ lines of chicken. The fertility rate was ranged from 81.91% to 88.41%. Better fertility rate was observed in *CSFL*, BN Cross and *Dahlem Red* compared to previous generation. The overall hatchability percentage on fertile egg set (FES) and total egg set (TES) basis ranged from 66.87% to 72.40%

Table 52. Summary of incubation and hatching of different populations

Strains	Year	Eggs set (Nos.)	Fertile eggs (Nos.)	Fertility (%)	Hatchability (%)		Good Chicks (Nos.)
					TES	FES	
Tripura Black	2022-23	3689	3230	87.55	64.70	73.90	2387
	2023-24	15151	12761	84.22	64.09	76.09	9711
	2024-25	**10016**	**8205**	**81.91**	**57.82**	**70.59**	**5792**
CSFL	2022-23	1228	1027	83.63	66.36	79.35	815
	2023-24	1857	1584	85.29	53.74	63.00	998
	2024-25	**1903**	**1678**	**88.17**	**63.84**	**72.40**	**1215**
Dahlem Red	2022-23	3561	2987	83.88	64.64	77.06	2302
	2023-24	6776	5516	81.40	48.12	59.11	3261
	2024-25	**1886**	**1603**	**84.99**	**56.83**	**66.87**	**1072**
BN cross (50%)	2022-23	1878	1586	84.45	64.74	76.67	1216
	2023-24	3169	2706	85.38	62.48	73.17	1980
	2024-25	**5129**	**4535**	**88.41**	**61.80**	**69.90**	**3170**
Tokbari	2022-23	27028	22672	83.88	64.58	76.98	17455
	2023-24	35096	29554	84.20	58.53	69.86	20647
	2024-25	**15840**	**13108**	**82.75**	**59.79**	**72.26**	**9472**

Activities assigned

- Collection and evaluation of the local native chicken.
- Procurement and evaluation of improved chicken germplasm in the local climatic conditions.
- Production and evaluation of cross of local native chickens with improved germplasm

Action taken

- During the present year, the centre evaluated *Tripura Black, Dahlem Red*, Coloured Synthetic Female Line (CSFL), BN cross and *Tokbari* (BND cross).
- Three way cross (*Tokbari*) was evaluated in E-8 generation under farm and field condition.
- Pedigree hatching in native chicken (*Tripura Black*) started.

Achievements

During the period under report, the centre hatched 5,792 nos. of good chicks of *Tripura Black* and evaluated up to 52 weeks of age. *Dahlem Red*, Coloured Synthetic Female Line (CSFL) and BN cross was also evaluated up to 52 weeks of age at farm. The body weight at 40 weeks was 1525, 1724, 2814 and 1945g in *Tripura Black, Dahlem Red*, Coloured broiler dam line and BN cross respectively. E-8 evaluation of *Tokbari* was completed under farm and field conditions. In E-8 evaluation of *Tokbari* (BND cross), the 72 weeks egg production was 169.23 eggs and 142.75 under farm and field conditions respectively.

Incubation and hatching

A total of 20,721 chicks of different varieties / lines of chicken were produced. The overall average fertility rate was estimated as 83.76% in different breeds/varieties/ lines of chicken. The fertility rate was ranged from 81.91% to 88.41%. Better fertility rate was observed in *CSFL*, BN Cross and *Dahlem Red* compared to previous generation. The overall hatchability percentage on fertile egg set (FES) and total egg set (TES) basis ranged from 66.87% to 72.40% and 56.83% to 63.84% respectively in different lines/ breeds/varieties. The hatchability on fertile egg set and total egg basis was decreased in *Tripura Black* populations as compared to previous generation. The highest hatchability on FES and TES was recorded in *CSFL.* The lowest hatchability on FES and TES basis was found in *Dahlem Red* (Table 52).

Mortality

The mortality during brooding period was lowest in BN cross (50%) and highest in CSFL. Mortality during growing period was higher while with in the standard range during laying phase (Table 53).

Performance of *Tripura Black*, *Dahlem Red* & CSFL

The performance of *Tripura Black (G-13 generation), Dahlem Red (2023-24)* and Coloured Synthetic Female Line (2023-24) was evaluated up to 52 weeks of age at the institute farm during the period. *Tripura Black* is being maintained in random mating. In G-13 generation of *Tripura Black*, the body weight of male, female and pooled sex at 40th week during 2024-25, was less than previous generation *(G-12).* In present generation of *Dahlem Red and CSFL,* the body weight of male, female and pooled sex at 40 weeks was less as compared to previous generation (2022-23). During G-13 generation, egg production up to 40 weeks and 52 weeks of age slightly increased in *Tripura Black* than previous generation (G-12). The egg production in *Dahlem Red* up to 52 weeks of age was increased as compared to the previous generation (2022-23) whereas egg production in CSFL up to 52 weeks of age showed slight reduction when compared to the previous generation (2022-23). The egg weight of *Tripura Black*, *Dahlem Red* and CSFL at 40 weeks of age, reduced as compared to the previous generation (Table 54).

Performance of BN Cross

The performance evaluation of BN cross populations of 2023-24 was completed up to 52 weeks of age at farm during the period. The body weight of female at 40 weeks was 1720g which was slightly lower as compared to the previous generation and body weight of male and pooled sex at 40 weeks of age was higher as compared to the previous generation. The age at first lay and age at sexual maturity was more than the previous generation. The egg weight at 40 weeks of age was also slightly more than the previous generation (Table 55).

Performance of Three Way Cross (*Tokbari*)

E-8 evaluation of *Tokbari* (BND cross) was completed and 72 weeks egg production was 169.23 and 142.75 eggs under farm and field conditions, respectively. The egg production in E-8 evaluation was increased under both farm and field condition in comparison to E-7 evaluation. The body weight of male, female and pooled sex at 40 weeks of age under farm was increased in comparison to previous evaluation (E-7). The age at sexual maturity was slightly less than previous (E-7) evaluation under farm and it was almost similar to (E-7) evaluation under field condition. The egg weight at 40 weeks of age was slightly more than previous (E-7) evaluation under farm as well as field condition (Table 56).

Economic impact and livelihood benefits of *Tokbari* poultry farming

The economic benefits of rearing *Tokbari* birds compared to native breeds are substantial and compelling for small-scale farmers. An economic assessment based on farmer feedback provides clear evidence of the financial advantages. The calculations assume a unit of 20 birds with an average mortality of 20%, selling price of males at Rs. 280 per kg, and eggs at Rs. 10 per egg.

As illustrated in Table 56, a unit of 20 Tokbari birds generates a net profit of Rs. 18,844 as compared to Rs. 10,124 for native birds, representing an additional profit of Rs. 8,720 or Rs. 436 per bird. This substantial economic advantage stems from higher meat production and significantly increased egg yields.

Conformation traits of *Tripura Black* (Native poultry) of Tripura

Conformation traits like shank length and keel length were recorded for the native birds under farm condition (Table 58).

Implementation of ICAR- DAPST component

Under ICAR-DAPST schemes, four (4) training programmes on poultry farming for 130 tribal farmers were organized at different places of Tripura to improve the skills for augmenting poultry production. One awareness program was also conducted benefitting 25 farmers. Inputs including *Tokbari* chicks, poultry feed, feed supplements and medicines were distributed among the tribal farmers for poultry rearing.

Germplasm supply

A total of 20,432 germplasm was supplied to the 267 farmers during the reporting period.

Revenue generations

The centre realized overall receipt of Rs. 17.13 lakhs which was 103.09% of the expenditure on feed cost (Rs. 16.62 lakhs).

Constraints

- Hatchery unit building is in very pathetic condition and it requires major renovation. Also, irregular power supply throughout the year affects hatchery operation.
- Higher rate of chick mortality during rainy and winter season.

Table 53. Mortality (%) at different ages in different populations

Strain	Year	0-6 wks	7-20 wks	21-40 wks	41-72 wks
Tripura Black	2022-23	14.91	0.94	2.1	1.69
	2023-24	14.45	5.87	0	0.49
	2024-25	**11.49**	**23.05**	**0**	**0.60**
Tripura Black	2022-23	12.11	6.21	1.36	1.13
	2023-24	26.82	0	0	0.74
	2024-25	**14.41**	**50**	**2.94**	**1.15**
CSFL	2022-23	20.59	4.9	0	0
	2023-24	21.74	2.33	1.08	1.06
	2024-25	**15.41**	**100**	**0**	**1.50**
BN cross (50%)	2022-23	17.60	8.97	4.34	5.99
	2023-24	26.81	8.92	0	0.86
	2024-25	**8.83**	**88.7**	**0**	**1.95**
Tokbari	2022-23	11.75	4.3	2.25	1.46
	2023-24	11.06	9.94	0	0.55
	2024-25	**11.17**	**12.52**	**6.25**	**0.81**

Table 54. Performance of different pure lines at the institute farm

Traits	N	Tripura Black		N	*Dahlem Red*		N	CSFL	
		G-13	G-12		2023-24	2022-23		2023-24	2022-23
Body weight (g)									
Day old	326	26.85±0.20	29.37±0.17	154	35.93±0.33	34.10±0.14	188	41.07±0.29	40.31±0.37
4 wks	221	128.4±2.85	142.8±2.76	149	142.7±2.44	137.5±1.62	128	334.9±8.27	316.5±6.47
8 wks	183	394.2±10.88	349.9±12.9	141	515.4±10.33	461.2±6.47	99	812.7±22.82	707.1±26.8
12 wks	153	533.4±14.78	552.4±16.8	133	582.6±11.69	812.7±7.94	89	1395±27.67	1400±38.6
20 wks	143	1267±20.16	1223±28.7	122	1439±36.93	1422±25.96	72	2578±40.21	2703±39.7
Males	35	1585±43.58	1473±73.6	27	2114±52.67	2370±21.56	28	2786±50.82	2879±40.4
Females	108	1163±10.53	1132±18.4	95	1246±16.27	1215±9.26	44	2446±47.86	2501±20.5
40 wks	119	1525±20.70	1587±28.02	112	1724±27.97	1902±29.95	66	2814±60.08	2848±56.36
Males	32	1777±32.69	1807±63	24	2160±47.24	2345±24.92	27	3248±73.85	3435±69.46
Females	87	1432±17.08	1511±24.00	88	1605±18.71	1701±20.65	39	2514±45.37	2623±38.15
AFE in the flock (d)	98	148.1±1.52	143.7±1.52	95	131.7±1.48	122.2±1.40	44	151.5±0.87	154.2±0.88
ASM (d)	98	177.5±1.53	174.8±1.75	95	161.1±0.92	159.6±0.92	44	180.3±0.60	183.5±0.73
EP40 (Nos.)									
HH	108	43.10±2.39	41.76±3.48	95	68.53±0.83	73.89±1.71	44	48.25±1.03	56.62±3.25
HD		46.19±2.57	43.57±3.45		72.41±1.59	75.57±1.82		50.13±1.68	60.77±4.13
Survivors'	87	53.51±2.97	45.48±3.69	88	73.98±2.02	77.36±2.18	39	54.44±1.79	64.87±5.58
EP52 (Nos.)									
HH	108	70.11±3.57	67.28±4.29	95	117.5±2.69	106.3±3.63	44	68.75±1.10	73.25±1.76
HD		73.14±3.63	69.43±4.39		121.4±2.61	108.9±3.72		72.38±2.13	76.15±2.02
Survivors'	53	79.22±3.78	72.14±4.63	81	127.6±1.73	111.7±4.13	34	78.85±2.70	79.53±2.89
EW40 (g)	**77**	**40.71±0.33**	**43.36±0.33**	**112**	**55.47±0.34**	**59.15±0.24**	**63**	**58.90±0.33**	**59.75±0.47**

Table 55. Performances of BN cross at the institute farm

Traits	N	2023-24	2022-23
Body weight (g)			
Day old	92	32.40±0.45	34.29±0.22
4 wks	81	235±4.53	230.7±3.68
8 wks	72	715.9±12.59	714.3±11.3
12 wks	68	1231±21.97	1235±17.8
20 wks			
Males	25	2217±54.75	2042±30.6
Females	38	1550±29.61	1624±21.9
40 wks			
Males	25	2224±70.66	2014±50.67
Females	31	1720±29.82	1808±43.21
AFE in the flock (d)	38	135.8±1.82	128.3±1.40
ASM (d)	38	164.5±1.86	160±1.26
EP40 (Nos.)			
HH	38	40.67±0.84	42.16±1.01
HD		44.00±1.32	43.25±1.12
Survivors'	31	49.83±1.90	44.08±1.60
EP52 (Nos.)			
HH	38	63.00±3.36	64.33±4.64
HD		65.10±2.37	66.01±4.44
Survivors'	30	65.10±2.37	67.41±4.06
EW40 (g)	59	52.12±0.41	51.31±0.56

Table 56. Performance of BND cross *(Tokbari)*

Traits	***Tokbari* (E-8)**				***Tokbari* (E-7)**	
Body weight (g)	**N**	**Farm**	**N**	**Field**	**Farm**	**Field**
Day old	420	35.59±0.20	-		35.12±0.12	-
4 wks	318	183.1±3.09	310	163.8±2.79	177.5±2.99	167.3±2.32
8 wks	282	467.4±8.80	299	351.4±5.17	454.3±4.19	362.2±8.02
12 wks	267	767.0±8.24	286	710.7±10.16	763.2±5.73	729.4±23.41
20 wks						
Males	50	2039±18.74	41	1803±33.95	2059±38.83	1809±98.11
Females	137	1549±9.77	144	1414±18.76	1573±16.80	1423±38.80
40 wks						
Males	40	2391±32.37	35	2366±39.35	2327±26.73	2365±38.04

Traits	*Tokbari* (E-8)				*Tokbari* (E-7)	
Females	112	1766±29.87	98	1592.±15.52	1679±13.75	1600±28.34
AFE (d)	130	135.9±1.10	122	139.8±1.31	136.5	139
ASM (d)	123	161.9±0.76	122	167.4±1.34	162.2±1.03	168±1.14
EW40 (g)	127	54.47±0.33	86	49.03±0.52	53.04±0.45	48.81±0.46
Egg production (Nos.)						
40 wks	112	65.64±1.25	98	55.04±1.46	64.38±0.80	54.12±1.46
52 wks	103	98.05±2.18	86	82.50±2.11	93.35±1.53	78.97±1.94
72 wks	86	169.2±2.77	73	142.7±2.48	161.5±3.09	136.5±3.49

Table 57: Economic assessment of *Tokbari* birds compared to native birds (unit of 20 birds)

Particulars	Native birds	***Tokbari* birds**
Income (₹)		
Sale of males	3,360	5,600
Sale of eggs	4,800	11,200
Sale of females	2,464	3,584
Total income (₹)	**10,624**	**20,384**
Expenditure (₹)		
Cost of chicks	500	500
Labor and rearing cost under free range	--	--
Supplementary feeding etc.	--	1,040
Net profit (₹)	10,124	18,844
Additional profit compared to native (₹/unit)	--	8,720
Additional profit compared to native (₹/bird)	--	436

Table 58. Shank length and Keel length of native chicken (*Tripura Black*) reared under farm condition

Traits	N	Mean ± S.E.
Shank length (mm)		
8 wks	102	51.55±0.64
40 wks (M)	32	77.91±0.65
40 wks (F)	66	70.71±0.42
40 wks (Pooled Sex)	98	73.06±0.49
Keel length (mm)		
8 wks	102	64.28±0.79
40 wks (M)	32	109.2±0.71
40 wks (F)	66	101.5±0.58
40 wks (Pooled Sex)	98	104.0±0.58

Nanaji Deshmukh Veterinary Science University, Jabalpur (Madhya Pradesh)

Activities assigned

- Evaluation and improvement of the *Kadaknath* breed of chicken and to maintain it as a pure line.
- Evaluation of improved chicken germplasm (*Jabalpur colour*) in the local climatic conditions for development of cross.
- Evaluation of terminal cross (*Narmadanidhi*) in different Agro-climatic conditions.
- Conducting training programme for farmers under TSP and SCSP component of the project and supply of improved germplasm to the farmers.

Action taken

The centre maintained *Kadaknath*, *Jabalpur colour* and *Kadaknath* cross populations.

- During the current year, the centre evaluated G-5 generation of *Kadaknath* and *Jabalpur colour* population up to 52 weeks of age.
- *Narmadanidhi* commercial bird evaluated under farm conditions up to 52 weeks age.
- Under TSP and SCSP component of the project, trainings were conducted for rural farmers and chicks/ germplasm was supplied round the year to the farmers.

Achievements

Improvement and maintenance of *Jabalpur colour*, *Kadaknath* and *Kadaknath* cross birds

Jabalpur centre is maintaining and improving local native *Kadaknath* and *Jabalpur colour* birds' population, under technical guidance of ICAR-DPR, Hyderabad. The G-5 generation of *Kadaknath* and *Jabalpur colour* population was evaluated from 0 weeks to 52 weeks of age.

Fertility and hatchability

The G-5 generation of *Kadaknath* and *Jabalpur colour* birds was produced by pedigreed mating. The number of sires and dams used for breeding to produce the G-5 generation was 60 and 300 (1:5). Improvement in fertility and hatchability percentage (both on total egg set and fertile egg set basis) was observed in both the populations as compared to the previous generations (Table 59).

Mortality and disease incidence pattern

The percent mortality was recorded in different intervals in Jabalpur colour and Kadaknath in fifth generation. The percent mortality was within the permissible range among all age groups in both the germplasms and no specific disease was reported (Table 60).

Table 59. Summary of incubation records of *Jabalpur colour* and *Kadaknath* for last three generation

Breed/variety/ Cross	Gens.	Total eggs set (Nos.)	Fertile eggs (Nos.)	Fertility (%)	Total chicks hatched (Nos.)	Hatchability (%)	
						TES	FES
Jabalpur colour	G-2	5198	4525	87.03	3186	61.22	70.42
	G-3	5590	4980	89.01	3624	64.83	72.76
	G-4	5630	5023	89.22	3780	67.14	75.26
Kadaknath	G-2	1690	1451	85.85	1007	59.58	69.40
	G-3	1836	1656	90.02	1266	68.95	76.44
	G-4	2340	2112	90.25	1819	77.74	86.15

Table 60. Mortality record in *Jabalpur colour*, and *Kadaknath* for last three generation

Breed/ variety/cross	Year	Mortality (%)			
		0-6 wks	**6-20** wks	**20-40** wks	**40-52** wks
Jabalpur colour	G-3	6.03	4.21	3.68	4.76
	G-4	6.05	4.43	3.54	4.12
	G-5	6.07	4.35	3.89	4.92
Kadaknath	G-3	6.01	4.01	3.36	4.68
	G-4	5.74	3.35	3.65	5.12
	G-5	5.88	3.38	3.27	5.01

Growth and Production performance of *Jabalpur colour* population

Body weight of *Jabalpur colour birds* recorded at different intervals, body conformational traits at 6 weeks of age, age at first egg (AFE), egg production up to 40 (EP40) and 52 weeks (EP52) and egg weight (EW) at 28, 40 and 52 weeks is given in Table 61. Slight improvement was observed in body weight than the previous generations. Age at first egg was similar to previous generations. Egg weight at 40 weeks of age and egg production up to 52 weeks in G- 5 was better than previous generations (Table 61).

Frequency distribution of egg production

The frequency of egg production up to 52 weeks of age in *Jabalpur colour birds* was maximum in the class interval of 150-160 (Table 62).

Table 61. Growth and Production Performance of *Jabalpur colour* population

Traits	2024-25		2023-24		2022-23	
	G-5 generation		G-4 generation		G-3 generation	
	N	Mean±SE	N	Mean±SE	N	Mean±SE
Body weight (g)						
6 wks	3421	710.2 ± 71	3226	709.1 ± 78	3158	705.3 ± 83
20 wks	636	1603 ± 13.2	618	1602 ± 12.4	624	1563 ± 17.4
40 wks	601	2089 ± 13	598	2087 ± 11.3	600	2004 ± 14.5
52 wks	591	2191 ± 15	587	2190 ± 13.2	588	2140 ± 15.3
72 wks	-	-	-	-	571	2761 ± 20.1
AFE (days)	636	154.2 ± 2.1	615	155 ± 1.1	630	155 ± 1.5
Confirmation traits at 6 wks of age						
Shank length (mm)						
M	1623	76.1± 0.23	1465	75.8± 0.12	1428	76.5± 0.04
F	1798	70.3±0.11	1761	70.2±0.04	1730	70.9±0.03
Keel length (mm)						
M	1623	81.7± 0.31	1465	81.7± 0.23	1428	81.8± 0.05
F	1798	77.9±0.12	1761	78.9±0.02	1730	78.7±0.02
Breast angle length (°)						
M	1623	61.32 ±1.1	1465	61.20 ±1.08	1428	60.80 ± 1.23
F	1798	58.79 ±1.03	1761	58.87 ±1.13	1730	58.50 ±1.07

Egg weight (g)						
28 wks	636	47.6 ± 0.12	618	48.1 ± 0.32	624	48.6 ± 0.41
40 wks	601	57.2 ± 0.14	598	57 ± 0.35	600	55.6 ± 0.35
52 wks	591	57.34 ± 0.05	587	56.89 ± 0.15	-	-
EP 40 wks (Nos.)						
Hen housed	601	97.28 ±1.14	618	96.88 ±1.61	600	97.10 ±1.46
Hen day	-	99.56 ± 1.21	-	99.3 ± 1.32		99.8 ± 2.31
Survivors'	594	102.6 ± 1.11	598	102.4 ± 1.13	-	-
EP 52 wks (Nos.)						
Hen housed	591	158.2 ± 1.21	618	157.0 ± 1.12	588	156.0 ± 1.34
Hen day	-	163.5 ± 1.33	-	163.2 ± 1.53		162.0 ± 1.45
Survivors'	590	167.6 ± 1.32	587	167.1 ± 1.21	-	-

Table 62. Frequency distribution of egg production of Jabalpur colour birds up to 52 weeks

Class Interval	<80	80-90	90-100	100-110	110-120	120-130	130-140	140-150	150-160	>160
J CB	0.01	0.01	0.03	0.02	0.02	0.03	0.04	0.36	0.43	0.05

Growth and Production performance of *Kadaknath* population

Body weight of *Kadaknath* recorded at different intervals, body conformational traits at 6 weeks of age, egg production at 40 and 52 weeks and egg weight at 28, 40 and 52 weeks is given in Table 5. Slight improvement was observed in body weight and AFE than previous generations. Egg weight at 28, 40 and 52 weeks of age in G-5 was found almost similar to G-4. Also, egg production up to 40 and 52 weeks was comparable to the previous generation (Table 63).

Table 63. Performance of Kadaknath population

Traits	2024-25		2023-24		2022-23	
	G-5 generation		G-4 generation		G-3 generation	
	N	Mean ± SE	N	Mean ± SE	N	Mean ± SE
Body weight (g)						
6 wks	3250	404.2 ± 4.2	3200	403.5 ± 6.3	975	402.3 ± 7.4
20 wks	634	1097 ±1.4	629	1098 ±21.1	341	1123 ±12.3
40 wks	601	1619 ±1.2	598	1610 ±11.3	328	1514 ±17.3
52 wks	590	1710 ± 1.4	589	1701 ± 2.4	322	1690 ± 11.1
72 wks	-	-	-	-	316	2016 ± 18.4
AFE (days)	634	165.2 ± 1.36	627	166.3 ± 1.36	341	167 ± 2.40
Confirmation traits at 6 wks of age						
Shank length (mm)						
M	1650	67.1 ± 0.08	1577	67.1 ± 0.08	435	67.6 ± 0.08
F	1600	58.8 ± 0.05	1623	58.8 ± 0.05	540	59.7 ± 0.05

Traits	2024-25		2023-24		2022-23	
	G-5 generation		G-4 generation		G-3 generation	
	N	Mean ± SE	N	Mean ± SE	N	Mean ± SE
Keel length (mm)						
M	1650	73.4 ± 0.12	1577	73.2 ± 0.07	435	73.0 ± 0.07
F	1600	70.9 ± 0.11	1623	70.9 ± 0.03	540	70.5 ± 0.03
Breast angle length (º)						
M	1650	54.52 ±1.08	1577	54.53 ±1.08	435	55.20 ±1.08
F	1600	51.53±0.07	1623	51.11±1.07	540	51.31±1.07
Egg weight (g)						
28 wks	630	40.8 ±0.03	605	40.9 ±0.13	341	40.8 ±0.13
40 wks	601	49.2 ±0.22	598	49.0 ±0.17	328	48.7 ±0.34
52 wks	590	49.4 ±1.23	589	49.3 ±1.12	-	-
EP 40 wks (Nos.)						
Hen housed	601	60.2 ± 1.13	605	60.1 ± 1.11	328	59.0 ± 1.11
Hen day	-	64.2 ± 1.11	-	64.2 ± 1.31	-	64.0 ± 2.12
Survivors'	598	66.3 ± 1.23	598	67.2 ± 1.22		
EP 52 wks (Nos.)						
Hen housed	590	93.1± 1.13	605	93.2± 1.10	322	92.8 ± 2.30
Hen day	-	93.2± 1.11	-	93.6± 1.21	-	94.4 ± 2.40
Survivors'	588	96.2± 1.11	589	95.6± 1.14	-	-

Frequency distribution of egg production

The frequency of egg production up to 52 weeks of age in *Kadaknath* was maximum in the class interval of 90-95 (Table 64).

B. Evaluation of location-specific dual type rural germplasm – *Narmadanidhi*

A commercial dual purpose colour variety (*Narmadanidhi*) has been developed for rural poultry production by the centre by crossing and back crossing of *Jabalpur colour* and *Kadaknath*. The centre is working on the continuous improvement of *Narmadanidhi* for rural poultry production.

During the report period, *Narmadanidhi* (75% *Jabalpur colour* and 25% *Kadaknath*) birds were evaluated up to 52 weeks of age.

Growth and Production performance of *Narmadanidhi* (Commercial dual-purpose colour bird)

Narmadanidhi birds were evaluated up to 52 weeks of age by evaluating body weight at 8 weeks and 20 weeks, egg production up to 40 weeks and 52 weeks and egg weight at 28 weeks, 40 weeks and 52 weeks along with other traits (Table 65).

Table 64. Frequency distribution of egg production of Kadaknath up to 52 weeks

Class Interval	<50	50-55	55-60	60-65	65-70	70-75	75-80	80-85	85-90	90-95	>95
Kadaknath	0.01	0.02	0.03	0.03	0.03	0.03	0.04	0.03	0.33	0.38	0.07

Table 65. Performance of *Narmadanidhi* (2024-2025)

Particulars		2024-25		2023-24		2022-23
	N	**Mean ± SE**	**N**	**Mean ± SE**	**N**	**Mean ± SE**
Body weight at 8 wks (g)						
M	785	1022 ± 1.3	120	1021 ± 11.3	95	1010 ± 20.3
F	755	733.2 ± 1.1	146	730 ± 1.5	155	725 ± 11.5
Body weight at 20 wks (g)						
M	54	1508 ± 3.2	90	1507 ± 23.3	90	1506 ± 23.3
F	216	1384 ± 2.1	110	1383 ± 20.4	145	1384 ± 20.4
AFE (d)	216	166.1 ± 1.2	145	167 ± 1.3	145	168 ± 1.3
Egg production (Nos.)						
40 wks	205	58.6 ± 1.1	108	58 ± 1.6	140	58 ± 1.6
52 wks	197	110.3 ± 1.1	104	109 ± 1.9	136	109 ± 1.9
Egg Weight (g)						
28 wks	214	48.3 ±1.21	110	48.5 ±1.09	-	-
40 wks	205	49.4 ± 1.2	108	49.0 ± 0.2	140	49.0 ± 0.2
52 wks	197	49.1 ± 0.12	104	49.0 ± 0.2	-	-
Shell colour		Brown		Brown		Brown

Implementation of ICAR-DAPSC/ DAPST component

Under ICAR-DAPSC and ICAR-DAPST schemes, a total of 04 training programmes (02 for SC and 02 for ST beneficiaries) were organized at villages viz., Silua (01), Kailwas (01) and Poultry Farm Adhartal (02) Jabalpur. A total of 75 SC and 51 ST farmers participated in these programmes and inputs including Narmadanidhi chicks, feed, medicines and equipment (feeders & waterers and night shelter etc.) were provided to the farmers for poultry rearing.

Germplasm supply

A total of 44,432 germplasm units including 17,658 fertile eggs, 15,294 chicks, 8,030 grower birds and 3,450 breeder birds were supplied to 928 backyard /small farmers during 2024-25.

Revenue generation

During the report period, centre realized receipts of Rs. 30.66 lakhs from sale of germplasm, table eggs, spent birds and manure.

Assam Agricultural University, Guwahati (Assam)

Activities assigned

- Evaluation and improvement of the local native chicken germplasm and to be maintained as pure line.
- Procurement and evaluation of improved chicken germplasm in the local climatic condition.
- Evaluation of *Kamrupa* variety in different agro climatic conditions.

Action Taken

- Native chicken were evaluated under farm conditions.
- A cross (PB-2 x Native chicken) was evaluated up to 72 weeks.
- *Kamrupa* was evaluated in the farm and field conditions up to 72 weeks of age
- Performance of *Daothigir* birds procured originally from Kokrajhar district is under evaluation.

Achievements

A total of 250 native birds are kept in the farm and their performance is under evaluation. A flock of 200 BN crossbred (PB-2 x Indigenous) birds have been maintained in the centre and their performance was studied. The performance of 870 *Dahlem Red* birds procured from ICAR-DPR, Hyderabad was evaluated up to 72 weeks. A flock comprising of 1500 *Kamrupa* birds has been kept in the centre and their performance was evaluated in the farm and field condition up to 72 weeks. Performance evaluation of a flock of 150 *Daothigir* birds procured originally from Kokrajhar district is also underway.

Incubation records

The summary of incubation records has been presented in Table 66. The average fertility of all the flocks was found to be 87.15 %. The hatchability on total eggs set basis ranged from 63.52 to 79.08%.

Table 66. Summary of incubation and hatching

Strain	Year	Total no of eggs set	No. of infertile	Fertility (%)	Total No. of fertile egg	No. of dead germ/ Weakling	Total No. good chicks	Hatchability (%)	
								TES	FES
Indigenous	2023-24	832	161	80.64	671	202	469	56.37	69.90
	2024-25	**715**	**112**	**84.34**	**603**	**70**	**533**	**74.55**	**88.39**
BN cross	2023-24	542	171	68.45	371	63	308	56.82	83.02
	2024-25	**521**	**78**	**85.03**	**443**	**31**	**412**	**79.08**	**93.00**
BND cross	2023-24	37798	3693	90.23	34105	2682	31423	83.13	92.14
	2024-25	**52457**	**4102**	**92.18**	**48355**	**7287**	**41068**	**78.29**	**84.93**
Daothigir	2023-24	568	132	76.76	436	48	388	68.31	88.99
	2024-25	**625**	**81**	**87.04**	**544**	**147**	**397**	**63.52**	**72.98**

Mortality

The mortality during the current year is presented in Table 67**.** The mortality in Kamrupa was the highest acroos the brooding, growing and laying phases during the year

Performance evaluation of pure bred germplasm

The juvenile and production traits in indigenous and *Dahlem Red* were presented in Table 68. The 5 weeks body weight was 186.17g in indigenous and 443.03g in *Dahlem Red.* The ASM was lowest in *Dahlem Red* (156.98 days) and highest in *Daothigir* (197.96 days). *Dahlem Red* pullets matured late by 0.27 days as compared to previous generation. In native population, the egg weight and egg production up to 72 weeks was 42.47g and 112.30 eggs, respectively. In *Dahlem Red*, egg production improved by 0.10 eggs up to 52 weeks.

Table 67. Mortality at different periods (weeks)

Strain	Year	0-5	6-20	21-40	41-52
Native	2023-24	12	10	7	4
	2024-25	**6**	**7**	**4**	**2**
Dahlem Red	2023-24	38	37	16	7
	2024-25	**17**	**9**	**21**	**5**
BN cross	2023-24	7	4	8	3
	2024-25	**6**	**5**	**4**	**3**
Kamrupa	2023-24	67	40	42	16
	2024-25	**58**	**34**	**31**	**14**
Daothigir	2023-24	17	13	14	5
	2024-25	**11**	**5**	**5**	**2**

Table 68. Juvenile and production traits in pure lines

Traits		Indigenous		*Dahlem Red*	
		N	N	N	Mean ± SE
Body weight (g) at					
Day old		200	36.15 ± 0.02	200	39.89 ± 0.26
5 wks		196	186.1 ± 1.04	187	443.0 ± 4.18
20 wks	Male	40	1375 ± 2.69	172	1410 ± 9.00
	Female	144	1090 ± 4.63		
40 wks	Male	29	1884 ± 13.18	157	1756 ± 11.17
	Female	135	1436 ± 6.48		
FCR up to 5 weeks		196	3.07	187	2.56
Conformation traits at 5 week of age					
Shank length (mm)		196	49.92 ± 0.62	187	61.41 ± 0.32
Keel length (mm)		196	51.69 ± 0.55	187	55.49 ± 0.40
Breast Angle (°)		196	56.99 ± 0.70	187	62.05 ± 0.37
Average age at sexual maturity (days)		20	172.0 ± 0.93	20	156.9 ± 1.59

Traits	Indigenous		*Dahlem Red*	
	N	N	N	Mean ± SE
Egg weight (g) at				
32 wks	150	38.08 ± 0.33	150	50.09 ± 0.40
40 wks	150	38.24 ± 0.33	150	59.10 ±0.29
52 wks	150	41.84 ± 0.33	150	62.59 ± 0.24
72 wks	150	42.47 ± 0.32	150	62.68 ± 0.27
Egg production to 40 weeks of age				
Hen housed	144	41.01	172	64.10
Hen day	-	42.98	-	67.02
Survivor	135	43.96	157	69.03
Egg production to 52 weeks of age				
Hen housed	144	70.90	172	122.5
Hen day	-	72.48	-	124.0
Survivor	126	75.71	145	127.2
Egg production to 72 weeks of age				
Hen housed	144	112.30	172	216.3
Hen day	-	113.97	-	218.3
Survivor	109	116.71	130	222.1

The juvenile and production traits in *Daothigir* is presented in Table 69. The 20 weeks body weight was 1315.45g and 1016.82g and 40 weeks body weight was 1935.38g and 1470.79g, respectively for males and females. Age at sexual maturity was 197.96 days. The egg weight and egg production up to 72 weeks was 42.19g and 116.98 eggs, respectively.

Performance evaluation of crosses

The five weeks body weight was 399.66g and FCR was 2.89 in BN cross. The age at sexual maturity was 163.95 days and remained almost similar as the previous generation. The hen housed egg production up to 72 weeks was 124.78 eggs. Almost all the parameters were comparable to previous generation (Table 70).

Table 69. Juvenile and production performance of *Daothigir*

Traits		*Daothigir*	
		N	Mean ± SE
Body Weight (g) at			
Day old		130	28.21 ± 0.32
5 wks		119	286.8 ± 3.31
20 wks	Male	16	1315 ± 23.85
	Female	98	1016 ± 17.59
40 wks	Male	13	1935 ± 41.42
	Female	96	1471 ± 16.30
FCR up to 5 wks		119	3.12
Conformation traits at 5 week of age			
Shank length (mm)		119	51.24 ± 0.51

Keel length (mm)	119	55.68 ± 0.50
Breast Angle (°)	119	45.04 ± 0.49
Average age at sexual maturity (days)	10	197.8 ± 1.09
Egg weight (g) at		
32 wks	100	34.65 ± 0.43
40 wks	100	37.51 ± 0.54
52 wks	100	39.31 ± 0.41
72 wks	100	42.19 ± 0.54
Egg production to 40 wks of age		
Hen housed	101	39.35
Hen day	-	41.22
Survivor	89	42.91
Egg production to 52 wks of age		
Hen housed	101	65.98
Hen day	-	67.99
Survivor	76	71.25
Egg production to 72 wks of age		
Hen housed	101	116.9
Hen day	-	119.2
Survivor	63	122.5

Table 70. Juvenile and production performance of two way cross

Traits	PB-2 x Indigenous (BN cross)	
	N	Mean ± SE
Body weight (g) at		
Day old	150	39.67 ± 0.28
5 wks	130	399.6 ± 2.43
20 wks	110	1987 ± 20.14
40 wks	100	2813 ± 26.26
FCR up to 5 wks	130	2.89
Conformation traits at 5 wks of age		
Shank length (mm)	130	52.88 ± 0.41
Keel length (mm)	130	56.13 ± 0.43
Breast Angle (°)	130	69.78 ± 0.47
Average age at sexual maturity (days)	10	163.9 ± 1.71
Egg weight (g) at		
32 wks	100	48.32 ± 0.27

Traits	PB-2 x Indigenous (BN cross)	
	N	Mean ± SE
40 wks	100	51.20 ± 0.37
52 wks	100	60.32 ± 0.31
72 wks	100	61.42 ± 0.36
Egg production to 40 wks of age		
Hen housed	110	41.55
Hen day	-	42.89
Survivor	100	46.11
Egg production to 52 wks of age		
Hen housed	110	74.95
Hen day	-	76.09
Survivor	88	79.18
Egg production to 72 wks of age		
Hen housed	110	124.78
Hen day	-	128.12
Survivor	67	130.25

The *Kamrupa* variety was evaluated up to 72 weeks in farm and field conditions during the reporting year (Table 71). The 5 weeks body weight was 413.91g and 329.30g in the farm and field, respectively. The age at sexual maturity was 148.18 days in the farm and 168.96 days in the field. The egg weight at 40 weeks of age was 60.76g and 44.25g, in farm and field, respectively. The hen housed egg production up to 40 weeks, 52 weeks and 72 weeks of age was 51.85, 93.32 and 156.21 eggs in the farm and corresponding values in the field were 46.24, 76.28 and 124.94 eggs, respectively. The performance of cross has slightly improved over the last two generations.

Table 71. Juvenile and production performance of *Kamrupa*

Traits		*Kamrupa* (BND cross) (Field)		*Kamrupa* (BND cross) (Farm)	
		N	Mean ± SE	N	Mean ± SE
Body weight (g) at					
Day old		200	39.92 ± 0.38	200	39.59 ± 0.52
5 wks		182	329.3 ± 2.63	189	413.9 ± 2.03
20 wks	Male	40	1488 ± 21.67	40	1581 ± 10.14
	Female	140	1137 ± 7.47	137	1263 ± 5.33
40 wks	Male	32	2123 ± 40.27	36	2502± 9.23
	Female	126	1782 ± 19.05	129	1958 ± 5.41
FCR up to 5 weeks		-	-	189	2.65
Conformation traits at 5 week of age					
Shank length (mm)		182	52.62 ± 0.50	189	49.98 ± 0.41

Traits	*Kamrupa* (BND cross) (Field)		*Kamrupa* (BND cross) (Farm)	
	N	Mean ± SE	N	Mean ± SE
Keel length (mm)	182	53.29 ± 0.56	189	52.64 ± 0.47
Breast Angle (°)	182	55.74 ± 0.54	189	70.14 ± 0.50
Average age at sexual maturity (days)	*	168.9	20	148.1 ± 1.56
Egg weight (g) at				
32 wks	150	42.54 ± 0.41	200	52.45 ± 0.26
40 wks	150	44.25 ± 0.52	200	60.76 ± 0.33
52 wks	150	47.21 ± 0.91	200	61.83 ± 0.29
72 wks	150	48.13 ± 1.02	200	62.45 ± 0.31
Egg production to 40 wks of age				
Hen housed	140	46.24	137	51.85
Hen day	-	47.18	-	54.21
Survivor	126	48.96	129	56.03
Egg production to 52 wks of age				
Hen housed	140	76.28	137	93.32
Hen day	-	78.19	-	95.34
Survivor	105	80.72	112	96.60
Egg production to 72 wks of age				
Hen housed	140	124.9	137	156.2
Hen day	-	127.0	-	160.1
Survivor	85	131.6	92	163.0

*Birds are considered sexually matured when 50 % of flock starts laying. The ASM in field conditions was assessed by gathering data from 15 farmers.

Other activities

To popularize "*Kamrupa*" variety of chicken, the ICAR-AICRP on Poultry Breeding, AAU, Guwahati centre participated in the "Livestock and Poultry Show-2025" organized by Animal Husbandry and Veterinary Department, Govt. of Assam & ALPCO, Assam from 10th to 12th January' 2025 at Khanapara, Guwahati-781022 under the banner of ICAR-AICRP on Poultry Breeding, AAU, Guwahati centre. In the event, leaflet on *Kamrupa* were distributed to the farmers and the centre was also awarded First Prize in Poultry Exhibit Show for *Kamrupa, Daothigir*, *Dahlem Red* and PB-2.

Dr. G.K. Gaur, Hon'ble ADG (Animal Production and Breeding), ICAR HQs, New Delhi, visited the office of the AICRP on Poultry Breeding and farm complex under the project at College of Veterinary Science, Khanapara, Guwahati. He also visited one cluster of *Kamrupa* chickens in Chamata villages under the Dimoria Development Block of Kamrup (Metropolitan) district of Assam. During the visit, he interacted with the farmers and expressed satisfaction with the support, inputs and other technical assistance provided by the Guwahati Centre.

Germplasm supply

The centre supplied 51,020 (including 9,952 hatching eggs and 41,068 chicks/growers of *Kamrupa*) germplasm units to 687 rural farmers of Assam and North-eastern region.

Receipt realized

The centre realized revenue receipts of Rs. 10.91 lakhs during the financial year which was 43.69% of expenditure on feed cost (Rs. 24.97 lakhs).

Birsa Agricultural University, Ranchi (Jharkhand)

Activities assigned

- Genetic improvement of native chicken for body weight as well as egg production may be practiced for brining faster genetic gain in the terminal crosses.
- Evaluation and improvement of the local native chicken germplasm and to be maintained as pure line.
- Procurement and evaluation of improved chicken germplasm in the local climate condition.
- The centre will work on development of new varieties suitable for rural poultry in the region utilizing local germplasm.

Action Taken

- The centre evaluated Native G11 up to 72 weeks of age.
- The *Dahlem Red* G-10 up to 72 weeks of age.
- Evaluation of *Jharsim* E11 up to 72 weeks of age and *Jharsim* E12 up to 8th week of age.

Incubation records

A total of 34,181eggs were set for hatching, out of which 27,912 chicks were hatched. Fertility and hatchability on total egg set and fertile egg set was higher in *Jharsim* parents than native population (Table 72)

Mortality

The strain wise mortality in different ages has been presented in the Table 73. Mortality was mainly due to Coccidia, Enteritis, and electricity failure. In order to tackle this, isolation and another management practices were followed. Treatment was made as per the post-mortem report and recommendation of Medicine Department, RVC, BAU.

Table 72. Summary of incubation and hatching results for the period

Strains	Year	Eggs	Infertile egg	Fertility (%)	Hatchability (%)		Chicks Hatched (No.)
					TES	FES	
Native	April 24-March 25	9635	1106	88.52	67.95	76.76	6547
Jharsim	April 24-March 25	24546	658	97.31	87.04	89.43	21365
Total		34181	1764				27912

Table 73. Mortality percentage (Strain/Age/ Sex wise)

Breeds/strains	Year	0-6 weeks	7-18 weeks	19-40 weeks
Native	2024-25	4.79	2.88	4.62
Dahlem Red	2024-25	4.91	4.92	5.12
PB2 x Desi	2024-25	4.03	2.96	3.90
Jharsim	2024-25	5.12	5.06	4.13

Performance evaluation of germplasm

Native and *Dahlem Red* birds were evaluated for 12th and 11th Generation respectively for body growth traits at 20th week and 4th week of age (Table 74). The body weight of native birds at 20th week of age was observed to be 1298.06 (M) 1091.64 (F) and for *Dahlem Red* at 4th week of age was 183.46 g. The egg production and egg weight performance of native (G11) and *Dahlem Red* (G10) is presented in Table 75.

Table 74. Growth performance of native and *Dahlem Red* populations

Traits	Native	*Dahlem Red*
	G12 (N 150)	G11 (N=200)
Body weight, g		
day old	28.96±0.17	30.86±0.14
4 wks	173.9±0.50	183.4±0.43
8 wks	357.5±0.51	
12 wks	556.1±0.27	
16 wks	762.6±0.46	
20 wks		
M	1298±0.53	
F	1091±0.87	

Table 75. Pure Line production performance

Traits	Native	*Dahlem Red*
	G11	G 10
Egg weight at 40 wks		45.80
Egg of at first lay		163
Egg production, Nos.		
40 wks HD	33.73	38.76
HH	33.12	38.29
52 wks HD	68.49	87.41
HH	66.40	85.50
64 wks HD	106.2	143.1
HH	102.9	139.2
72 wks HD	127.9	182.7
HH	123.9	178.4

Table 76. Evaluation of *Jharsim* and crosses for growth performance

Traits	*Jharsim*	PB2 X Native
	(E12) (N=200)	E9 (150)
Body weight, g		
day old	32.69±0.16	30.16±0.18
4 wk	187±0.041	181.5±0.50
8 wk	483.8±0.51	448.1±0.48

Comparative performance of *Jharsim* (12th generation) and PB2 X Native (9th Generation) were evaluated (Table 76). Comparatively better performance of *Jharsim* birds were observed.

Table 77. Evaluation of *Jharsim* for reproductive performance

	Jharsim (E 11)	PB2 X Native (E 8)
Egg weight (g) 40 wks	-	42.96±0.22
Age at first egg (d)	-	163
EP. (No.) 40wks HD	-	33.76
HH		32.10
EP. (No.) 52wks HD	83.58	67.27
HH	80.89	61.05
EP. (No.) 64wks HD	141.2	117.9
HH	136.7	109.9
EP. (No.) 72wks HD	177.4	142.0
HH	171.2	131.3

Reproductive performance of *Jharsim* birds were evaluated for 11th generation up to 72th weeks of age. Egg production HD, HH were observed to be 83.58, 80.89; 141.24, 136.70 and 177.43, 171.28 respectively (Table 77).

Evaluation of native chicken

The growth performance of native and Jharsim birds was evaluated and is presented generation-wise in Tables 78 and 79 respectively. The body weight differed significantly in different generations in native chicken.

Table 78. Generation wise Growth performance of native birds

Gen.	0 day	4 wks	8 wks	12 wks	16 wks	20 wks	
						Female	**Male**
1	25.66± 0.12	162.3± 0.16	348.3± 0.53	753.9± 2.16	946.7± 2.14	1092± 1.00	1222± 2.95
2	26.96± 0.14	164.8± 0.32	352.3± 0.33	755.6± 0.38	949.2± 0.26	1105± 0.33	1235± 1.90
3	26.96± 0.09	166.7±0.43	356.4± 0.58	757.1± 0.48	951.1± 0.62	1110± 1.07	1241± 1.93
4	27.15± 0.10	169.4± 0.58	358.1± 0.55	759.1± 0.68	953.0± 0.88	1117±0.73	1250±1.71
5	28.06± 0.14	171.4± 0.41	360.1± 0.64	761.8± 0.55	955.1± 0.63	1120±0.69	1258±1.55
6	28.43± 0.17	173.0± 0.62	362.3± 0.60	763.8± 0.58	958.5± 0.64	1124± 0.67	1265± 1.32
7	28.96± 0.13	175.2± 0.62	364.3± 0.58	765.1±0.69	960.6±0.61	1127± 0.66	1274± 1.89
8	29.16± 0.10	176.5± 0.62	367.0± 0.60	768.4± 0.61	962.2± 0.56	1130± 0.65	1280± 1.93
9	29.69± 0.14	177.5± 0.57	369.0± 0.62	771.0± 0.61	965.1± 0.64	1132± 0.67	1286± 1.57
10	29.72± 0.11	177.9± 0.59	371.2± 0.63	774.7± 0.65	967.9± 0.63	1135± 0.71	1298± 1.64

The growth performance of *Jharsim* birds during different generations is presented in Table 79

Table 79. Generation wise Growth performance of *Jharsim* birds

Gen.	0 day	4 wks	8 wks	12 wks	16 wks	20 wks	
						Female	Male
1	29.03±0.10	174.4±0.43	470.6±0.44	941.5±0.43	1422±0.44	1627±0.43	1807±1.19
2	29.51±0.08	177.3±0.40	474.6±0.43	943.5±0.45	1424±0.44	1629±0.50	1809±0.86
3	29.67±0.09	179.1±0.42	475.1±0.44	946.5±0.45	1426±0.41	1630±0.68	1811±1.09
4	29.68±0.11	180.1±0.43	477.1±0.47	945.6±0.44	1426±0.44	1632±0.42	1815±1.28
5	30.26±0.12	181.5±0.47	478.8±0.48	948.7±0.45	1428±0.40	1634±0.47	1819±1.06
6	30.87±0.10	182.5±0.48	479.0±0.44	949.6±0.45	1431±0.77	1635±0.48	1821±1.23
7	31.10±0.09	183.8±0.42	478.8±0.42	950.6±0.54	1432±0.45	1637±0.54	1825±1.17
8	31.68±0.11	185.1±0.42	480.6±0.43	952.3±0.42	1436±0.44	1639±0.48	1837±1.60
9	31.85±0.13	188.2±0.43	484.1±0.28	956.4±0.46	1447±0.87	1642±0.44	1868±1.80
10	31.92±0.13	192.5±0.51	487.5±0.39	956.3±0.41	1452±0.40	1651±0.52	1884±1.59

Evaluation and characterization of Native chicken of Chotanagpur plateau of Jharkhand.

Khukhri, a chicken ecotype of Chotanagpuri are was characterized with respect morphological, physical, reproductive, growth and production performance under the field conditions.

I. General Description

Name of the breed	KHUKHRI
2. Synonyms/ Local names, if any:	Kokro, Sandi
3. Background for such a name:	Traditionally the rural tribal farmers called KHUKHRI
4. Since when the breed is known:	The breed is present in breeding tract since time immemorial. The rural tribal and backward community are the main rearers of this breed.The unique population was developed by these farmers due to selective breeding and geographical isolation
5. Strains (or within breed types):	Nil
6. Most closely related breeds (in appearance):	None
7.Origin of breed (Indigenous/exotic):	Indigenous
8. Origin, if imported (Name of country):	NA
9. a. Native tract of distribution in terms of	21°57' to 25°14' N and 83°20' to 87°58' E.longitude and latitude
b. Approximate area of distribution (sq km)	
c. Place(s) State: Jharkhand	District: Ranchi, Ramgarh, Bokaro, Gumla, Lohardaga, Godda, Pakur

Physical Characters

1. Colour

Character	Male (1270)	Female (2910)
a) Plumage colour:		
Mixed	711	349
Brown	127	1542
Red	279	146
Black/White/Black & White	153	873
b) Skin colour (White)	1270	2910
c) Shank colour		
Yellow	1232	2503
Slaty black	38	407
d) Comb colour (Red)	1270	2910
e) Eye colour (Black with yellow reddish ring)	1270	2910

2. Comb

Character	Male (1270)	Female (2910)
Pattern		
Single	660	1601
Pea	419	989
Rose	191	320
Size (Medium)	1270	2910
Colour (Red)	1270	2910

3. Reproduction characteristics

Broodiness (usual/sometimes/rare/other) : Usual

Fertility and hatchability (%)	Average	Range	N
Fertility	87.37±0.43	85.26-88.63	3110
Hatchability (FES)	90.16±0.48	88.32-91.98	2230
Hatchability (TES)	78.79±0.54	76.65-80.10	2010

4. Growth characteristics

Body weight (g)	Male			Female		
	Average	Range	N	Average	Range	N
Day old	23.45±0.18	22-24.50	2150	21.58±0.16	19.50-22.8	2015
8 weeks	330.2±2.15	297-362	2140	298.4±0.18	271-313	2011
12 weeks	630.1±2.10	603-655	2109	521.9±2.55	488-545	2004
Adult weight	1235±3.01	1195-1280	2018	928.7±3.45	861-1018	2002

5. Production performance

Egg production characteristics	Average	Range	N
Age at first egg (days)	215.6±0.85	213-220	1205
Annual egg production	43.11±0.41	38-45	1210
Clutch size (days)	5.24±0.62	5-6	1205
Clutch interval (days)	1.32±0.01	1-3	1206
Laying cycle (months)	3.94±0.14	3.52-4.01	1206
Egg quality traits			
Egg weight (g)	38.45±0.79	35-41	2000
Shell weight (g)	4.23±0.48	4-4.8	1307
Albumin weight (g)	21.47±1.58	20-24	1307
Yolk weight (g)	12.77±0.85	12-13.5	1307
Shell thickness (mm)	0.37±0.001	0.35-0.39	1307
Specific gravity	1.102±0.001	0.99-1.13	1305
Albumin index	11.49±0.13	10.6-12.2	1307
Yolk index	44.55±0.24	43.2-45.3	1307
Haugh units	85.49±0.51	83.80-86.65	1307
Shell colour (white/brown/cream or tinted/other): Brown			
Albumin quality (thick / thin) Thick			
Egg defects (Blood spots/meat spots): No			

Molecular characterization of Khukhri chicken

Twenty blood samples were amplified using 22 random primers on the basis of standardized protocol.

Screening of Random Oligonucleotide Primers

Twenty-two primers were initially examined for amplification of genomic DNA in two populations of Khukhri chickens. Out of 22 only 16 primers were capable of generating polymorphic amplification patterns and hence, they were used in the subsequent analysis with 50 DNA samples. The Tm value of the primers varied from 28.9 to 37^{0}C.

RAPD Analysis

The individual sample from Khukhri chicken of Jharkhand was analysed with 16 primers and all these primers were capable of priming polymorphic amplification pattern in different populations. Only unambiguous, reproducible and scorable polymorphic fragments were taken into consideration for analysis. One hundred seventy-two bands were scored, in which 168 bands (97.674 %) were polymorphic. The primers differed in generating level of polymorphism. It was observed that primer OPA-16 amplified maximum number (16) of polymorphic bands and PBG-5 amplified lowest number (5) of polymorphic bands. Among the 16 primers used, three-fourth (75 %) were highly polymorphic. The average number of amplified bands per primer ranged from 2.2 to 7.46 and the size of the amplified bands varied between 100 to 3000 base pairs (bp).

In population 1 the polymorphic loci were 152 and 87.86 % was polymorphic. Whereas, in population 2 the polymorphic loci were 159 and per cent polymorphic loci was 91.91.

6. Carcass characters

Carcass characters		Male			Female		
		Average	Range	N	Average	Range	N
Age at slaughter (days)		285	275-293	502	298	288-360	512
Weight (kg)	Hot	1.465±0.74	1.350-1.575	502	1.211±0.35	1.115-1.341	512
	Cold	1.325±0.59	1.290-1.410	502	1094±0.42	1.044-1.120	512
Dressing %	Hot	68.76±9.81	62.21-73.10	502	62.34±2.39	60.12-65.22	512
	Cold	63.26±6.21	60.53-66.26	502	59.28±1.96	58.46-62.50	512
Meat: bone ratio		2.26±0.26	2.21-2.34	501	2.11±1.08	2.05-2.19	510
Feed conversion efficiency		5.67±1.28	5.10-5.81	610	6.01±1.10	5.58-6.15	505

Trainings conducted

54 farmers from different districts of Jharkhand have been provided individual training for 10 days on poultry farm and management.1254 farmers were provided one day training –cum- exposure visit in different districts of Jharkhand. Seven TV talks were also delivered during the report period.

Germplasm Supply

Centre supplied 47,522 germplasm units among 438 farmers, NGOs, KVKs and other agencies. This year supply was less due to outbreak of Ranikhet in Jharkhand. Chicks movement was stopped as per Govt. of Jharkhand.

Revenue Generation

The centre generated receipt of Rs. 10,17,137 during the financial year.

Maharana Pratap University of Agriculture & Technology, Udaipur (Rajasthan)

Activities assigned

- Evaluation and improvement of the local native chicken germplasm.
- Procurement and evaluation of improved chicken germplasm in the local climatic condition
- Evaluation of *Pratapdhan* in different agro climatic conditions.

Action taken

- G-14 generation of *Mewari* breed was evaluated up to 52 weeks of age.
- *Pratapdhan* was evaluated for production traits up to 72 weeks of age during E13 generation.
- RIR and CSFL populations were regenerated and being maintained at the centre
- Germplasm of *Pratapdhan*, a dual-purpose variety was supplied to the needy farmers.

Achievements

Incubation records

The centre regenerated G-15 generation of *Mewari* chicken population as well as RIR, CSFL, BN and BNR populations. The fertility was higher in all the populations (except RIR and CSFL) as compared to previous generation. The hatchability on total egg set also followed the similar trend, while hatchability on fertile egg set basis was lower in *Mewari* and CSFL over previous generation (Table 80).

Mortality

The incidence of mortality in various populations is presented in Table 81. The mortality was lower in *Mewari* during juvenile period but it was slightly higher during grower phase as compared to previous year. In RIR, the mortality was slightly higher during juvenile and up to 40 weeks of age. The mortality in CSFL was also slightly higher in chicks and grower phase while it was lower in

Table 80. Summary of incubation and hatching results of different populations

Strain / breed/cross	Year	Eggs set (Nos.)	Fertility (%)	Hatchability (%)		Good Chicks (Nos.)
				TES	FES	
Mewari	2022-23 (G13)	5284	83.87	69.63	82.79	3679
	2023-24	4251	81.61	69.38	85.25	2960
	2024-25	**6327**	**86.79**	**72.94**	**84.03**	**4615**
RIR	2022-23	6605	85.84	74.07	86.28	4892
	2023-24	4646	81.91	72.99	89.16	3758
	2024-25	**2043**	**81.37**	**72.69**	**89.30**	**1485**
CSFL	2022-23	510	94.90	87.25	91.94	445
	2023-24	495	89.90	81.82	91.01	405
	2024-25	**510**	**86.27**	**73.92**	**85.68**	**377**
BN cross	2022-23	2149	82.83	72.78	87.87	1564
	2023-24	2154	81.45	71.72	88.06	1545
	2024-25	**2995**	**88.88**	**79.77**	**90.32**	**2389**
Pratapdhan (BNR) female parent	2022-23	34486	85.28	73.40	86.15	25313
	2023-24	23302	85.98	77.14	91.03	17974
	2024-25	**24160**	**86.17**	**79.51**	**91.73**	**19210**

BN cross except during 0-5 and 41-52 weeks. The mortality in *Pratapdhan* was lower at all ages as compared to the previous year.

Performance evaluation of germplasm

In *Mewari* population, the juvenile body weights at 8 weeks slightly increased during G-14 generation, similarly, pooled sex body weight recorded at 16 weeks of age was also higher as compared to the previous generation. The adult body weights of females at 20 weeks of age were slightly improved while the body weight at 40 weeks of age was slightly lower as compared to previous year. The age at sexual maturity reduced by about 4 days as compared to the previous (G-13) generation. The hen housed, hen day and survivors' egg production up to 40 and 52 weeks of age have improved as compared to previous generation (Table 82).

Table 81. Mortality (%) records at different age in different populations

Strain/Breed/Cross	Gen./Year	0-5 wks	6-20 wks	21-40 wks	41-52 wks
Mewari	G12 (22-23)	4.18	5.11	4.55	3.48
	G13 (23-24)	5.32	4.81	3.64	1.90
	2024-25	**4.49**	**5.60**	**2.84**	**4.31**
RIR	G12 (22-23)	4.22	5.67	5.41	3.21
	G13 (23-24)	4.15	5.89	5.48	3.08
	2024-25	**4.93**	**5.01**	**5.83**	**2.85**
CSFL	2022-23	4.61	3.30	5.49	2.38
	2023-24	5.19	3.30	5.49	2.38
	2024-25	**5.61**	**6.69**	**2.04**	**2.08**
BN cross	2022-23	3.92	5.44	4.82	3.66
	2023-24	3.87	5.82	5.31	2.33
	2024-25	**4.76**	**5.68**	**4.15**	**4.35**
Pratapdhan (BNR cross)	2022-23	2.82	5.34	4.76	2.50
	2023-24	4.41	6.12	4.33	2.50
	2024-25	**1.57**	**4.95**	**2.52**	**2.63**

Table 82. Growth and production performance of *Mewari* in different generations

Traits	*Mewari* (G-14)		***Mewari* (G-13)**	
	N	Mean ± SE	N	Mean ± SE
Body weight, pooled sex (g)				
day old	2191	32.80±0.06	1904	32.72±0.08
8 wks	1283	650.6±3.2	1242	643.0±3.4
16 wks	854	1019±5.19	782	996.4±4.95
20 wks*	790	1447±5.36	434	1432±7.63
40 wks*	193	1661±7.54	221	1687±10.56
ASM (d)	457	164.6±0.43	188	168.2±0.19
Egg weight (g)				
28 wks	809	42.91±0.14	474	42.96±0.24
40 wks	388	46.59±0.19	265	46.19±0.24

Traits	*Mewari* (G-14)		***Mewari* (G-13)**	
	N	Mean ± SE	N	Mean ± SE
EP 40 wks (Nos.)				
Hen housed	790	43.78±0.23	349	38.15±0.28
Hen day		43.92		38.78
Survivors'	785	44.06±0.22	339	39.28±0.26
EP 52 wks (Nos.)				
Hen housed	790	64.54±0.24	349	53.87±0.86
Hen day		65.18		55.09
Survivors'	767	66.47±0.27	335	56.12±1.02
EP 72 wks (Nos.)				
Hen housed		-	349	99.74±0.37
Hen day		-		103.8
Survivors'		-	323	103.9±0.34

*Values for females only from 20 weeks onwards

The data pertaining to evaluation of pure lines and cross is presented in Table 83. In RIR population, the juvenile body weights at 8 weeks was 656.05g while the 20 weeks body weight was 1536g. The 8th week body weights were 1724.25 and 739.42g in CSFL and BN cross respectively. The mean body weights of males at 20 weeks of age were 2842 and 2204g in CSFL and BN cross respectively (Table 83). The age at sexual maturity was 160.14 days in RIR. The hen housed, hen day and survivors' egg production up to 40 and 52 weeks in RIR were 78.41, 79.20, 79.93 and 113.24, 115.40 and 117.72 eggs respectively.

Evaluation of *Pratapdhan*

E-13 generation of *Pratapdhan* was evaluated up to 72 weeks of age (Table 84). The pooled body weights at different ages improved slightly as compared to previous evaluation except 8th week weight. Similarly, the body weight of female at 20 weeks of age was also higher as compared to previous evaluation. The age at sexual maturity was slightly increased as compared to the previous evaluation. The egg weight at 28 and 40 weeks of age slightly lowered as compared to previous evaluation. The hen housed and hen day egg production up to 40, 52 and 72 weeks of age increased as compared to the previous evaluation.

Table 83. Performance evaluation of pure line and cross

	RIR		CSFL		BN Cross	
Traits	N		N		N	
Body weight (g)						
day old	527	34.58±0.15	290	43.15±0.16	482	39.46±0.13
2 wks	506	110.3±0.97	284	234.1±1.12	475	127.0±0.83
4 wks	459	217.7±2.38	227	632.1±3.75	468	296.9±3.24
8 wks	374	656.0±5.64	180	1724±9.25	431	739.4±9.97
20 wks*	285	1536±7.34	93	2842±48.06	245	2204±23.10
AFE in the flock (d)		140				
ASM (d)	188	160.1±1.13				

*Values for females in RIR and males in CSFL and BN cross

Table 84. Growth and production performance of *Pratapdhan* during different evaluations

Traits	*Pratapdhan*					
	N	E13	N	E12	N	E11
Body weight (g)						
day old	401	38.70±0.19	431	38.57±0.11	425	39.12±0.13
2 wks	398	169.4±1.07	421	158.0±1.05	419	155.6±1.07
4 wks	393	358.1±3.94	408	348.7±3.44	413	329.8±3.45
8 wks	375	824.5±6.32	242	839.8±12.02	235	816.1±10.44
20 wks*	120	2041±22.37	127	2028±23.13	120	2018±14.9
AFE in the flock (d)		150		145		143
ASM (d)	164	166.1±0.96	176	163.5±0.73	159	161.3±0.86
Egg weight (g)						
28 wks	359	46.30±0.20	270	46.48±0.31	253	46.63±0.33
40 wks	274	53.39±0.22	225	53.90±0.29	215	53.18±0.23
EP 40 wks (Nos.)						
Hen housed	120	65.15±0.82	115	53.35±0.87	120	51.57±0.86
Hen day		67.36		54.69		53.90
Survivors'	112	69.80±0.71	109	56.28±0.72	112	55.25±0.73
EP 52 wks (Nos.)						
Hen housed	120	94.42±0.81	115	90.79±0.78	120	82.49±0.82
Hen day		99.90		94.66		91.92
Survivors'	107	105.8±0.64	105	99.44±0.68	105	94.28±0.70
EP 72 wks (Nos.)						
Hen housed	120	153.0±0.67	115	151.0±0.64	120	145.6±0.69
Hen day		167.7		163.0		162.4
Survivors'	102	180.0±0.63	99	175.4±0.62	97	180.2±0.65

*Values for females only from 20 weeks onwards

Implementation of STC component

Five trainings were organized and a total of 287 TSP farmers were benefitted. The poultry inputs such as chicks, feeder, waterers and feed were distributed to the farmers under STC component of the project.

S.No.	Place, District	No. of Farmers	Chicks	Feeder	Drinkers	Feed (kg)
1	Rajsamand	60	1200	60	60	1500
2	Udaipur	69	1380	69	69	1725
3	Dungarpur	50	1000	50	50	1250
4	Udaipur	58	1160	58	58	1450
5	Chittorgarh	50	1000	50	50	1250
	Total	287	5740	287	287	7175

Germplasm supply

A total of 61,699 germplasm (61,192 live birds and 507 hatching eggs) was supplied during the report period.

Revenue generation

The centre realized receipts of Rs.16.42 lakhs during the current financial year, which was 78.07% of the expenditure on feed cost (Rs 21,03,325/-).

CSK Himachal Pradesh Krishi Vishwavidyalaya, Palampur (Himachal Pradesh)

Activities assigned

- Pedigreed hatching and evaluation of the local native chicken.
- Procurement and evaluation of improved chicken germplasm in the local climatic condition and for development of cross.
- Production and evaluation of crosses of local native birds with improved germplasm.
- Development and evaluation of terminal crosses (location specific germplasm)

Action taken

- *Himsamridhi*, location specific poultry variety is being propagated in different regions of state including far flung areas and evaluated under farm and field condition.
- In native chickens, S-2 generation was evaluated up to 40 weeks of age, while S-1 generation from previous year completed evaluation from 41-72 weeks
- *Dahlem Red* population (G-3) was evaluated from 26-72 weeks of age, while G-2 generation completed evaluation from 53 weeks onwards to 72 weeks of age
- *Himsamridhi* and *Dahlem Red X Native* (DN) cross evaluation (E-10) was completed for 24-72 weeks, while (E-9) completed evaluation from 53-72 weeks.
- Process of registration of native chicken of Himachal Pradesh was initiated. The breed name is proposed as "*Dhaualshi*" and registration application along with descriptors was submitted to ICAR-National Bureau of Animal Genetics Resources, Karnal

Achievements

Native chickens

A total of 30 sires and 228 females of S-1 Native generation were used for producing pedigreed population comprising of 1,182 chicks in S-2 generation. Heritability estimates (h^2) for egg weights at 28 weeks (0.31±0.08) and 40 weeks (0.43±0.11) of age, body weights at 16 weeks (0.39±0.04) and 40 weeks (0.33±0.06) were moderate in magnitude. The heritability estimates for egg production up to 40 weeks of age (0.41±0.08) was of medium range, while the heritability estimates for age at first egg was low (0.18±0.05). The genetic correlation of 40 weeks egg production with age at first egg was negative (-0.36±0.05). Similarly, the genetic correlations for 40 weeks egg production with body weights at 16 weeks (-0.03±0.11) and 40 weeks (-0.06±0.21) of age were also negative but lower in magnitude. The genetic correlation of 40 week egg production with egg weights at 28 weeks (-0.32± 0.13) and 40 weeks (-0.21±0.08) were also negative.

Dahlem Red

The G-2 generation of *Dahlem Red* from previous year completed evaluation from 53 to 72 weeks of age while the G-3 generation was evaluated for 26-72 weeks during the current year.

Incubation records

The summary of incubation records for various pure lines and crosses are presented in Table 85. The overall average fertility rate was 88.56 % and ranged from 88.50% for *Himsamridhi* to 90.85% for *Dahlem Red*. The fertility rate was slightly low comparable to previous year in native and *Himsamridhi*. However, it was improved slightly in case of *Dahlem Red* and DN cross. The overall average hatchability on fertile egg set (TES) and total egg set (FES) estimated as 76.76% and 86.67%, respectively. The hatchability on TES as well as FES basis was improved in Native, *Dahlem Red* and *Himsamridhi* as compared to previous generation, while it declined slightly for DN cross.

Mortality

The chick mortality (0-6 weeks) ranged from 1.78 to 4.44% (Table 86) during the reporting period. The chick stage mortality reduced for native and *Himsamridhi* and increased slightly in *Dahlem Red* and DN cross chickens in comparison to previous year. The mortality during the grower stage (7-20 weeks of age) ranged from 1.09 to 4.61%. The mortality at grower stage was lower in comparison to previous year with all the stocks reared at poultry farm. Mortality during 21-40 weeks period ranged from 1.83 to 3.96% and almost comparable to the previous year. Enteritis, omphalitis, coccidiosis and non-specific causes (chilling, overcrowding/huddling) were the important causes of mortality. The centre is also taking necessary precautions to reduce the mortality

by including bio-security measures and the mortality particularly during growing phase.

Performance evaluation of germplasm

During the report period, the performance of native and *Dahlem Red* was evaluated (Table 87). In native chicken (S-2), body weights at different ages were more or less similar to previous generation (S-1). Age at first egg for native population was lower in comparison to previous generation. Egg weight of native chicken (S-2) at 28 and 40 weeks of age was slightly increased over previous generation (S-1). Egg production at 40 weeks of age in native (S-2) was of same magnitude as of previous generation (S-1). For *Dahlem Red* (G-3), body weights at different ages were also more or less similar to the previous generation (G-2). Egg weights of *Dahlem Red* (G-3) at 40 wk and 52 wk of age were slightly higher, however for 72 weeks of age, egg weight was lower as compared to previous generation. The hen housed and hen day egg production up to 40, 52 and 72 weeks of age in *Dahlem Red* (G-3) had slightly reduced in comparison to previous generation (G-2).

Evaluation of DN cross

The performance of DN cross (*Dahlem Red* x Native) during 2024-25 has been outlined in Table 88. The DN cross completed evaluation during the year from 24-72 weeks of age. Body weights at different ages up to laying were comparable to the previous evaluation, however, there was an increase in body weight at 20 weeks of age. Egg weights at different ages were also improved in comparison to the previous evaluation. The hen housed and hen day egg production up to 40, 52 and 72 weeks of age have increased particularly.

Table 85. Summary of incubation and hatching

Strain/cross	Year	No. of egg set	Fertility (%)	Hatchability (%)		No. of good chicks
				TES	FES	
Native	2023-24	11463	90.85	71.90	79.13	8242
	2024-25	1547	89.01	76.40	85.83	1182
Dahlem Red	2023-24	2308	89.47	69.97	78.20	1615
	2024-25	1946	90.85	75.59	83.20	1471
DN cross	2023-24	1431	88.05	72.04	81.83	1031
	2024-25	379	88.91	71.24	80.11	270
Himsamridhi	2023-24	47595	88.76	76.78	86.50	36547
(DND) cross	2024-25	91632	88.50	76.81	86.79	70386

Table 86. Incidence of mortality at different ages

Strain/cross	Year	Mortality (%)		
		0-6 wks	7-20 wks	21-40 wks
Native	2023-24 (S-1)	5.30	9.31	2.47
	2024-25 (S-2)	**2.29**	**4.61**	**3.96**
Dahlem Red	2023-24	2.13	2.83	3.14
	2024-25	**4.44**	**2.46**	**2.60**
DN cross	2023-24	2.70	7.22	3.59
	2024-25	**3.75**	**2.92**	**3.34**
Himsamridhi	2023-24	2.00	2.38	1.04
	2024-25	**1.78**	**1.09**	**1.83**

Table 87. Performance of Native and *Dahlem Red* chickens

Traits	Native				*Dahlem Red*			
	S-2		S-1**		G-3		G-2**	
	N	Mean ±SE	N	Mean±SE	N	Mean ±SE	N	Mean ±SE
Body weight (gm)								
Day old*	784	32.76±0.21	628	31.03±0.20	1471	34.98±0.04	1405	35.23±0.03
4 wks*	757	212.±1.85	593	188.2±2.40	1446	289.4±1.66	1396	291.5±2.90
8 wks*	736	527.4±3.5	570	485.5±4.17	1391	597.4±2.34	1374	620.6±4.95
20 wks M	250	1583±5.8	227	1556±8.6	119	1917±9.90	159	1850±12.5
F	360	1349± 7.6	281	1358±9.3	683	1590±4.71	492	1576±9.60
40 wks M	190	1963± 9.0	210	1915±10.4	98	2183±14.6	100	2160±13.5
F	345	1530 ±9.5	275	1548±10.9	671	1762±6.32	465	1712±10.1
FCR(0-8 wk)	736	4.77	570	4.86	1391	4.21	1374	4.06
AFE, d	360	158	281	160	683	148	492	140
ASM, d	360	172	281	178	671	163	491	159
Age at 50% prod (d)		201	275	208	671	179		174
Age at peak prod (d)		220 (65%)		223 (63%)		208 (74%)		206 (78%)
Egg weight								
28 wks	150	41.58±0.15	100	40.46±0.18	250	49.90±0.18	100	50.15±0.20
40 wks	150	46.18±0.12	100	45.40±0.21	250	53.86±0.15	100	53.12±0.16
52 wks	Under evaluation		100	47.80±0.10	200	57.15±0.12	100	56.51±0.11
72 wks			100	49.15±0.16	100	58.02±0.15	100	58.95±0.11
Egg prod (EP) 40 wks								
HH	360	43.60±0.57	275	43.21±0.75	683	79.18±1.27	492	80.47±1.38
HD	-	44.59	-	43.52	-	83.21	-	82.48
Survivor	345	45.50±0.60	266	44.67±0.78	621	87.08±1.29	465	85.14+1.41
Egg prod (EP) 52 wks								
HH	Under evaluation		275	82.71±0.68	683	128.6±1.32	492	133.7±1.41
HD			-	84.24	-	138.3	-	140.5
Survivor			261	87.15±0.71	583	150.7±1.41	452	145.5±1.47
Egg prod (EP) 72 wks								
HH	Under evaluation		275	107.7±1.1	683	171.9±2.15	492	176.3±2.31
HD			-	118.48	-	190.9	-	194.0
Survivor			230	128.8±1.2	500	234.8±3.18	300	240.1±3.38

* Pooled sex body weight ** S_1 native stock of previous year evaluated for 41-72 weeks during the current year and G_3 DR of the previous stock evaluated in current year from 53-72 week

Table 88. Growth and production performance of crosses

Traits	DN cross				*Himsamridhi*			
	E-10**		E-9		E-10**		E-9	
	N	Mean ±SE	N	Mean±SE	N	Mean ±SE	N	Mean ±SE
Body weight (gm)								
Day old*	320	34.87±0.29	185	31.05±0.40	280	35.62± 0.19	300	33.10±0.30
4 wks*	314	255.7±1.45	185	226.2±6.12	275	236.3±3.50	300	223.1±5.85
8 wks*	301	495.9±3.06	178	476.9±15.17	271	579.2±9.92	239	534.8±9.24
20 wks M	142	1804±13.43	89	1720±11.54	60	1853±16.24	82	1805±12.34
F	140	1460±12.60	60	1395±18.68	145	1527±10.54	90	1470±14.51
40 wks M	133	2024±11.10	85	1950±9.62	41	2198±28.24	58	2150±32.12
F	139	1594±16.97	56	1560±21.46	144	1620±17.85	85	1570±16.70
FCR(0-8 wks)	301	4.78	178	5.90	271	4.35	239	5.10
AFE flock,d	140	158	60	155	145	154	90	150
ASM,d	140	172	60	166	145	170	90	167
Age at 50% prod, (d)		184		185	145	183		189
Age at peak prod, (d)		210 (68%)		205 (70%)		214 (75%)		202 (73%)
Egg weight (gm) at								
28 wks	100	46.11± 0.12	50	45.48±0.10	100	46.73± 0.11	50	48.95±0.10
40 wks	100	51.62± 0.10	50	50.26±0.08	100	51.37 ±0.16	50	51.57±0.18
52 wks	100	53.19± 0.13	50	52.05±0.11	50	54.36 ±0.14	50	53.15±0.09
72 wks	50	54.74± 0.14	50	53.65±0.10	50	56.92± 0.21	50	55.82±0.17
Egg prod (EP) 40 wks								
HH	140	62.21	60	59.66	145	71.24	82	73.26
HD	-	62.65	-	61.07	-	71.73	-	74.17
Survivors	139	62.66	56	63.92	143	72.24	81	74.17
Egg prod (EP) 52 wks								
HH	140	103.9	60	96.18	145	120.0	82	119.2
HD	-	105.4	-	101.4	-	121.7	-	121.6
Survivors	137	106.2	51	113.1	142	122.5	79	123.8
Egg prod (EP) 72 wks								
HH	140	163.2	60	158.9	145	180.9	82	172.7
HD	-	169.3	-	167.2	-	184.7	-	174.0
Survivors	110	188.9	51	198.6	141	186.1	79	195.7

* Pooled sex body weight **DN and DND cross of E-9 evaluated in current year from 53-72 week

Table 89. Performance of DND (*Himsamridhi*) cross at farmer's flocks

Traits	E-10 (2024-25)		E-9 (2023-24)	
	N	Mean ±SE	N	Mean±SE
Body weight (gm)				
4 wks	950	215±1.60	700	225±2.90
8 wks	560	485±2.90	460	460±3.12
20 wks				
Male	50	1825±12.90	60	1766±10.70
Female	215	1410±10.21	190	1384±9.49
40 wks				
Male	25	2190±20.54	20	2246±30.56
Female	160	1495±15.40	150	1510± 14.30
AFE in flock, (d)		176		180
Egg weight, (g)				
28 wks	100	44.25±0.31	100	44.66±0.26
40 wks	100	49.45±0.24	100	49.35±0.29
Egg prod, (Nos.)				
40 wks	150	52.65	125	49.86
52 wks		Under evaluation	80	93.20

Evaluation of *Himsamridhi*

Himsamridhi was evaluated under farm conditions (Table 88) from 53-72 weeks in the previous (E-9) and from 24-72 weeks of age during present evaluation (E-10). For field evaluation, *Himsamridhi* was evaluated up to 40 weeks of age (Table 89). Body weights at different ages were almost comparable to the previous evaluation under farm as well as field conditions. Egg weights at 28, 40 and 52 weeks of age were also more or less similar to previous evaluation under farm as well as field conditions. The hen housed and hen day egg production up to 40 and 52 weeks of age was comparable to the previous evaluation, however, there was an increase in 72 week egg production under farm conditions. Under field evaluation, egg weights at different ages were comparable to the previous evaluation, while there was an increase in the 40 weeks egg production.

Implementation of STC activities

Under the Scheduled Tribe Component (STC), 200 units (10,000 chicks) were supplied free of cost along with starter feed of 50 kg/unit, feeder, drinkers and medicine kit. Twenty-five (25) Front Line Demonstration (FLD) were conducted in collaboration with Krishi Vigyan Kendra (KVKs). Five training programs (1-3 days) were organized covering 158 farmers in collaboration with Director Extension Education/KVKs/NGO for farmers of Hamirpur, Kangra, Lahaul & Spiti, Kullu and Sirmaur districts. Twelve (12) one-day awareness programs/exposure visits were conducted covering more than 260 farmers in collaboration with directorate of extension education under Farmer's First Program and NGOs (Himotthan and Hans Foundation). Evaluation works of FLD's distributed in high altitude in tribal areas was also completed and additional villages/ regions are being identified for further coverage under STC activities.

Germplasm supply

During the year, germplasm supply was 73,945, which included 70745 chicks/growers of *Himsamridhi*, native and other crosses and 3200 fertile eggs of *Himsamridhi* to 799 farmers including 200 units under STC component.

Revenue generation

The centre realized receipts of Rs 20.27 lakhs during the financial year on account of sale of various poultry products (chicks, eggs, culled birds) which was 74.25% of expenditure on feed cost (Rs 27.30 lakhs).

Bihar Animal Sciences University, Patna (Bihar)

Activities assigned

- Maintenance of parent stock for continuous supply of fertile eggs, day old and grown up chicks of rural chicken varieties.
- Recording the growth, production, fertility and hatchability rate in parents.
- Collection of data on growth and production paravmeters from farmers' fields.
- Analysis, documentation and reporting of the data.

Achievements

Parent Stock

During the period under report 250 male and 1400 female day old chicks of *Vanaraja* (batch XIV) have been procured from DPR, Hyderabad. The average body weight of the birds at different weeks of age is given in Table 90.

Egg production and Egg weight

The *Vanaraja* parent stock (Batch-XIV) received on 18.08.2023, attained the average age of first egg lay at 3% egg production 178 days of age. The average age at 10% egg production of was recorded to be 181 days. The birds started laying at 25 weeks of age and reached peak production of 66.55 % at 40-41 weeks of age. The egg weight of *Vanaraja* parent at 40, 52, 64 and 72 weeks was 55.68±0.79, 56.68±0.79, 56.55±0.69 and 56.28±0.49 g, respectively.

Table 90. Body weight (g) of *Vanaraja* parent chicks (Batch-XIV) at different weeks of age.

Age (wks)	Male	Female
36	3685±29.39	2539±36.72
40	3708±41.22	2549±47.65
44	3784±38.33	2566±44.86
48	3878±56.92	2573±58.91
52	4007±09.13	2605±52.18
56	4066±16.24	2617±69.29
60	4096±36.53	2638±73.46
64	4136±22.78	2734±58.62
68	3996±59.18	2677±51.32
70	3970±54.44	2664±56.22
72	3988±62.62	2686±60.65
74	3992±56.12	2691±38.91
76	3995±40.22	2689±47.86
78	3998±28.94	2693±83.32
80	4000±93.23	2698±47.86

Fertility and hatchability

During the period under report fertility of *Vanaraja* birds was 75.67%. Hatchability on TES and FES for *Vanaraja* was 67.05% and 78.19% respectively, during the current period.

Feedback from the beneficiaries

- Mortality of chicks upto 3 months of age is a great concern.
- Fowl cholera and Respiratory disease complex are the major problems faced by the farmers. Poultry farming has becoming popular enterprises in this state.
- The SHG members are selling their eggs through evening egg shop in local market.
- Birds are sold at the rate of Rs. 200-225 per kg live weight basis.
- The farmers are satisfied on the performance of Vanraja but they are concerned with the mortality of birds.

Germplasm supply

A total of 80,768 germplasm were distributed during the period under report. Total number of farmers benefited were 1940. Most of the agency/farmers usually prefer to take grown up chicks after completion of brooding stage however farmers are required to be convinced to take day old chicks. Nursery birds at the age of 5-6 weeks were distributed among the farmers through various agencies like ATMA and KVKs to promote backyard poultry farming in the state. Birds were distributed through KVKs and NGOs. Birds were also distributed among the farmers through Agricultural Technology Management Agency (ATMA) in the Naxalite affected areas of Jehanabad and Gaya districts. Demonstration and training programmes were organized by the PSP, BVC, Patna with the help of ATMA for adoption of this project among the farming community. Birds have also been supplied to the farmers of Chatra, and Hazaribagh district in Jharkhand.

Revenue Generation

A sum of total Rs. **12,65,277** was generated through sale of commercial chicks and grown up chicks

Constraints and difficulties

- There should be some budgetary provision for training and awareness activities.
- During the month of December and January, in general, farmers do not prefer to take chicks due to severe cold.
- The high cost of poultry feed is another problem.

ICAR Research Complex for NEH Region, Nagaland Centre, Jharnapani (Nagaland)

Activities assigned

Maintenance of parent stock for continuous supply of fertile eggs, day old and grown up chicks of rural chicken varieties.

- Recording the growth, production, fertility and hatchability in parents.
- Collection of data on growth and production parameters from farmers' fields.
- Analysis, documentation and reporting of the data.

Work Done

Parent stock

During the reporting year, one batch of parent stock of *Srinidhi* was procured and maintained under deep litter system along with two earlier batches of *Vanaraja* and one batch of *Srinidhi*. The weekly body weight was recorded and presented below (Table 91).

Hatching performance

The average fertility was 81.00% and hatchability on TES and FES were 59.40% and 72.91% respectively in XV batch of *Vanaraja* parents. The average fertility was 78.81% and hatchability on TES and FES were 54.46% and 68.70% respectively in IX *Srinidhi* parents. The average fertility was 67.42% and hatchability on TES and FES were 48.39% and 69.64% respectively in X *Srinidhi* parents.

Germplasm supply and revenue generation

During the reporting year, altogether 81,663 chicks were supplied to a total of 1249 beneficiaries of 298 villages including farmers, KVKs, NGOs working in Nagaland and neighbouring states and different state/central sponsored program.

Under the Tribal Sub Plan, 744 beneficiaries were covered from Kiphire, Kohima, Peren, Dimapur, Wokha, Zunheboto, Longleng, Mokochung and Phek districts in Nagaland and Senapati district in Manipur. Altogether, 26354 nos. of Day-Old Chicks of *Vanaraja* and *Srinidhi* varieties were provided to the beneficiaries. The performance of *Vanaraja* birds under field condition was appraised from the demonstration unit established in previous year and obtained encouraging results. A total of Rs. 54,18,044 was the revenue generated through sale of chicks, eggs and culled birds during the period.

Table 91. Body weight (g) records of *Srinidhi* parent line

Age (wks)	*Srinidhi* male X	*Srinidhi* female X
0th day	37.23±0.55	29.86±0.90
2	121.1±2.4	87.7±2.2
4	291.8±4.9	204±5.1
6	478.8±9.2	263±5.6
8	685.1±12.5	344.3±7.2
10	768.4±13.8	464.9±17.5
12	888.7±16.2	705.7±14.6
16	1255±22.3	810.5±15.9
18	1393±27.4	1234±50.5
20	1750±52.28	1231±26.0

Table 92. Egg production (HHEP%) in parents of *Vanaraja* and *Srinidhi*

Age (wks)	*Vanaraja* XIV	*Vanaraja* XV	*Srinidhi* IX
36	14.58	53.84	58.96
40	46.89	63.61	62.57
44	49.1	61.49	46.10
52	45.74	54.40	30.46
60	48.54	55.92	34.75
64	51.24	39.74	21.35
72	46.28	31.41	30.40
76	45.83	29.64	23.94
80	47.86	20.12	2.78

Egg production

The hen house egg production performance is mentioned on weekly basis for *Vanaraja* and *Srinidhi* parent lines in Table 92.

Constraints

- Requirement of incinerator for disposal of hatchery wastes.

ICAR Research Complex for NEH Region, Sikkim Centre, Gangtok (Sikkim)

Activities assigned

- Maintenance of parent stock for continuous supply of fertile eggs, day old and grown up chicks of rural chicken varieties.
- Recording the growth, production, fertility and hatchability in parents.
- Collection of data on growth and production parameters from farmers' fields.
- Analysis, documentation and reporting of the data.

Work done

Parent stock

During the period under report, 83 male and 416 female parents of *Vanaraja*, 13th batch aged 133 weeks were reared at the centre.

Egg production

The Hen Day Egg Production for *Vanaraja* layers were given in Table 93.

Fertility and hatchability

The average fertility was 80.57% and hatchability on TES was 54.98% for the *Vanaraja* parents.

Germplasm supply and revenue generation

During the reporting period, a total of 35,453 chicks were distributed to 1,097 farmer beneficiaries thus, generating a revenue of Rs 25,63,570/-.

Table 93. Egg production (HDEP%) in parents of *Vanaraja*

Age (wks)	Hen Day Egg Production (%)
80	32.70
84	37.83
88	49.81
92	48.16
96	45.51
100	42.18
104	41.14
108	33.33
112	29.74
116	20.39
120	31.62
124	28.89
128	23.00
132	23.31

ICAR Research Complex for NEH Region, Imphal (Manipur)

Activities assigned

- Maintenance of parent stock for continuous supply of fertile eggs, day old and grown up chicks of rural chicken varieties.
- Recording the growth, production, fertility and hatchability in parents.
- Collection of data on growth and production parameters from farmers' fields.
- Analysis, documentation and reporting of the data.

Work done

Parent stock

During the reporting year, a batch of parent stock of *Srinidhi* was maintained under deep litter system. The average body weight was recorded after every four weeks and was presented below in Table 94.

Table 94. Body weight (g) of *Srinidhi* birds at different age

Age (wks)	*Srinidhi* (17th batch)	
	Male line	Female line
88	3308±3.41	2504±1.60
92	3315±2.26	2518±1.66
96	3322±2.95	2524±1.02
102	3325± 5.92	2534±1.58
106	3337±1.60	2537±1.06
110	3345±1.68	2546±1.15
102	3351±3.40	2549±1.31
104	3356±1.20	2557±0.70
108	3363±1.72	2562±1.39
112	3373±1.56	2566±1.22
116	3383±1.35	2574±0.93
120	3393±2.09	2578±1.32
124	3397±1.43	2580±1.80
128	3433±8.49	2586±0.87
132	3455±1.32	2595±1.24
136	3564±1.28	2608±3.02

Hatching performance

The average fertility was 72.84%, average hatchability on TES and FES was 57.71% and 79.69% in *Srinidhi* parents, respectively.

Germplasm supply and revenue generation

During the reporting period, 18,395 chicks/hatching eggs have been supplied to 253 farmer beneficiaries in different parts of the state. Revenue generated was Rs. 4,32,600 during this reporting period.

Field performance and feedback from the farmers

The performance data of *Srinidhi* birds under farmer's field were collected from the farmers randomly. The production record and performance of birds in various parts of the Manipur in terms of their body weight gain, field condition was recorded (Tables 95). Along with the birds, other requirements like feed, medicine and feed supplement were also given to the beneficiaries. The main reason of mortality during initial phase in farmer's field was due to irregular or insufficient electricity supply which is required for brooding of chicks and disease like coccidiosis, respiratory infection and endoparasite infestation and a higher rate of disease incidence was also observed where the beneficiaries did not follow the timely health cover and maintained properly.

Table 95. Average body weight (g) of *Srinidhi* birds at different ages

Parameters	*Srinidhi*	
Age (wks)	Male	Female
4	318.2	241.3
8	815.6	526.4
12	1389	759.1
16	1684	1022
20	1755	1027

Constraints faced during the reporting period

- Birds are 142 weeks old at present and their productivity has reduced as they are maintained beyond their peak production period. Some of the chicks hatched out from the own parent stock were reared till maturity to produce hatching eggs to meet the demand.
- Since the incubator is old, there is problem faced in operating the machine which needs constant repairing from time to time.
- The availability of feeds was scarce since the ongoing conflict started and there were blockades of national highways.

Tamil Nadu Veterinary and Animal Sciences University, Hosur (Tamil Nadu)

Activities assigned

- Maintenance of parent stock for continuous supply of fertile eggs, day old and grown up chicks of rural chicken varieties.
- Recording the growth, production, fertility and hatchability in parents.
- Collection of data on growth and production parameters from farmers' fields.
- Analysis, documentation and reporting of the data.

Achievements

Parent stock

One batch (VII batch) of *Vanaraja* and *Gramapriya* parents were reared at CPPM, Hosur during the reporting period and the batch was in layer phase between 19 and 71 weeks of age. A total of 130 (18 male and 112 female) parents of *Vanaraja* (VII batch) and 401 (59 male and 342 female) parents of *Gramapriya* (VII batch) were in position, at the end of reporting period.

Egg production

The hen day and hen housed egg production of VII batch of *Vanaraja* and *Gramapriya* was presented in Table 96. The hen day egg production reached a maximum of 67.6 per cent (average: 48.5 per cent) during 19 – 71 weeks of age with hen housed egg production of 179 eggs at 71 weeks of age in *Vanaraja*. Similarly, the hen day egg production reached a maximum of 76.1 per cent (average: 53.7 per cent) during 19 – 71 weeks of age with hen housed egg production of 199 eggs at 71 weeks of age in VII batch of *Gramapriya*.

Table 96. Egg production in *Vanaraja* and *Gramapriya* parents

Age in weeks	*Vanaraja* (VII batch)		*Gramapriya* (VII batch)	
	HDEP (%)	HHEP (No.)	HDEP (%)	HHEP (No.)
18-20	2.9	0.3	0.0	0.0
20-24	32.0	9.4	18.2	5.2
25-28	65.9	27.4	41.5	16.7
29-32	67.6	45.8	45.9	29.2
33-36	55.6	60.9	37.7	39.4
37-40	42.6	72.3	44.5	51.5
41-44	56.5	87.4	72.5	70.5
45-48	55.8	102.2	76.1	91.0
49-52	56.1	117.1	74.1	111.5
53-56	53.5	131.3	72.2	131.4
57-60	45.8	143.5	69.0	150.3
61-64	48.3	156.4	66.9	168.4
65-68	50.7	169.8	67.9	186.4
69-71	46.3	179.1	65.3	199.3

Hatching performance

The fertility and hatchability of VII batch *Vanaraja* and *Gramapriya* parent birds were presented in Table 97. The fertility in VII batch *Vanaraja* parent ranged from 92.3 to 84.5 per cent and hatchability (TES) ranged from 84.5 to 62 per cent. Similarly, the fertility varied from 89.3 to 84.9 per cent and hatchability (TES) ranged from 83.2 to 25.8 per cent in *Gramapriya* (VII batch) parents.

Table 97. Fertility and hatchability in *Vanaraja* and *Gramapriya* parents (VI batch)

Age in weeks	*Vanaraja* (VII batch)			*Gramapriya* (VII batch)		
	Fertility %	Hatchability % (TES)	Hatchability % (FES)	Fertility %	Hatchability % (TES)	Hatchability % (FES)
25-28	84.5	62.0	73.4	84.9	25.8	30.4
29-32	88.6	77.2	87.1	89.2	38.5	43.0
33-36	89.7	69.1	77.1	91.4	48.1	52.6
37-40	90.6	75.5	83.2	90.8	70.7	77.9

41-44	91.3	83.0	90.9	91.2	83.2	91.2
45-48	91.7	83.8	91.3	91.1	81.8	89.8
49-52	90.9	81.9	90.3	91.0	80.9	88.8
53-56	92.3	80.9	87.6	90.5	80.2	88.6
57-60	90.3	81.4	90.1	89.1	77.4	86.9
61-64	89.7	84.5	94.2	88.2	78.3	88.7
65-68	87.6	76.2	87.1	88.6	71.7	80.9
69-72	87.2	75.2	86.2	86.0	74.3	86.5

Implementation of DAPSC activities

During the year 2024-25, a total of 22 beneficiaries belonging to SC from Bargur block of Erode district of Tamil Nadu were provided on 25.03.2025 with one night shelter for each beneficiary at free-of-cost with each night shelter costing about Rs. 13000.

In addition, sum of 8782 *Vanaraja*, *Gramapriya* and Aseel chicken germplasm along with a feeder, drinker and 25 kg chick mash (per beneficiary) were supplied to 152 SC beneficiaries belonging to SC from Trichy, Madurai, Tiruvarur, Kanchipuram and Erode district of Tamil Nadu. A one-day capacity building training programme on "Scientific management of desi and improved varieties of chicken" were organised and conducted for SC beneficiaries at Tiruvarur, Kanchipuram and Erode districts of Tamil Nadu. The night shelter, chicken germplasm, feeders drinkers and the training programme were supplied and conducted under SC Sub-plan of All India Coordinated Research Project in Poultry Breeding functioning at CPPM, Hosur.

Germplasm supply and Revenue generation

A total of 68,756 improved rural chicken germplasm of *Vanaraja*, *Gramapriya*, *Aseel* and *Kadaknath* were distributed to 897 beneficiaries including farmers and entrepreneurs throughout Tamil Nadu during 2024-25. The Centre has generated total revenue of Rs. 18.29 lakhs during 2024-25.

Sher-e-Kashmir University of Agricultural Sciences and Technology of Kashmir, Srinagar (J & K)

Activity assigned

- Maintenance of parent stock for continuous supply of fertile eggs, day old and grown up chicks of rural chicken varieties.
- Analysis, documentation and reporting of the data.

Achievements

Parent Stock

During the current year, this centre maintained one batch each of *Vanaraja* parents and Layer type parents. Stock of *Vanaraja* had 20 males 100 females and Stock of Layer type parents was 452.

Egg Production and hatching performance

The egg production of the parent birds maintained at the centre is provided in Table 98.

Table 98. Egg production of parent stock

Month	HDEP (%)	Hatchability on TES (%)
April	15.11	6.10
May	38.50	69.88
Jun	45.90	67.81
Jul	56.27	84.96
Aug	56.97	84.98
Sep	56.21	85.0
Oct	56.21	84.52
Nov	56.21	69.58
Dec	52.68	68.27
Jan	46.81	14.28

Proper identification and detailed morphometric evaluation .of Kashmir Favorella birds is essential for establishing a nucleus flock of pure birds (Table 99).

Table 99. Morphometric characters of *Kashmir Favorella*

Trait	Description
Plumage Colour	No specific colour; variants include jet black, dark brown, brown, blue, green, red, gold, grey to pure white. Most have mixed shades.
Plumage Pattern	Solid, dull, striped, patchy, spotted, and barred patterns present.
Skin Colour	Predominantly pink (65%), followed by white (35%). White-skinned birds are preferred for table purposes.
Shank Colour	Yellow (51%), Black (21%), Dark Slate (28%). Some yellow shanks show red spots.
Earlobe Colour	Mostly white (93%); red in 7% of birds.
Comb Colour	Red (63%), Pink (37%).
Eye Colour	Predominantly orange, locally called “Makai Lal”.
Comb Type	Typical feathered comb; single comb most common, followed by rose and pea types.

Germplasm supply and Revenue generation

A total of 40,343 chicks were distributed to 3,057 farmers across Kashmir and tribal regions under various extension and breeding initiatives, and generated Rs. 8,94,764 revenue by sale of chicks and eggs during the period.

Implementation of STC activities

A focused tribal outreach component led to the distribution of 1,800 chicks specifically under the Tribal Sub-Plan (TSP). These were distributed in Kargil, Gurez, Bandipora, Alusteng, Dignibal, Shopian and Ganderbal, thereby addressing regional equity in resource dissemination.

PVNR Telangana Veterinary University, Livestock Research Station, Mamnoor, Warangal (Telangana)

Activity assigned

- To take up the pending civil works on priority with regards to construction of hatchery.
- Maintenance of parent stock for continuous supply of fertile eggs, day old germplasm / growers *(Gramapriya variety* and improved native chicken – *Vanashree*).
- Recording the growth, production, fertility and hatchability in parents / commercials.
- Analysis, documentation & reporting of the data.

Achievements

Parent Stock

The centre maintained parents of *Nicobari, Aseel, Vanashree, Kadaknath* and *Ghagus* for the reporting period. The body weights of the above birds are presented in Table 100. The *Aseel* birds were liquidated during the period because of old age and all *Kadaknath* birds stock lost because of mortality

Egg production

The egg production of different birds maintained at the centre is provided in Table 101.

Table 100. Body weight (g) of native commercial stock (*Nicobari, Aseel, Vanashree, Kadaknath* and *Ghagus*) for the period from April 2024 to March 2025

Age (wks)	*Nicobari*		Aseel		Ghagus		Vanashree		Kadaknath	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
4	297±4.21	201±3.10	131±6.2	118±4.2	182.2±1.54	168±1.45	282±3.51	204±2.40	184±2.1	146±1.7
8	621±14.2	402±16.5	630±12.4	486±10.4	539.3±5.40	479.3±6.40	604±8.2	524±6.4	353±4.2	284±5.2
12	877±13.6	735±14.3	936±10.1	805±9.5	890±11.2	768±14.4	1029±8.97	892.6±10.2	755±12.5	605±10.2
20	1570±20.2	1278±17.1	1965±20.6	1360±18.1	2145±26.1	1610±16.3	2204±10.6	1636±8.7	1210±15.4	900±14.5
40	2063±31.5	1596±23.2	2680±25.1	1881±28.4	2521±24.2	18t11±26.1	3156±33.9	2217±16.5	2132±24.4	1475±22.2

Table 101. Production performance in native commercial stock (*Nicobari*, *Aseel, Kadaknath, Ghagus* & *Vanashree*) for the period from April, 2024 to Mar, 2025

Traits		*Nicobari*	Ghagus	Vanashree	Kadaknath
EP (%) 32 wks	Hen Housed	21.06±1.45	32.4±1.42	35.1±1.08	23.22±0.95
	Hen Day	25.45±1.60	36.3±1.96	38.05±1.20	25.15±1.22
	Egg Weight (g)	46.00±0.60	42.32±0.62	47.45±0.27	51.22±0.40
EP (%) 40 wks	Hen Housed	61.25±1.34	40.80±1.38	41.40±1.20	-
	Hen Day	64.24±1.68	39.61±1.41	44.20±1.92	-
	Egg Weight (g)	49.55±0.36	51.26±0.48	51.18±0.36	-
EP (%) 52 wks	Hen Housed	41.86±1.30	20.4±1.26	-	-
	Hen Day	44.25±1.20	26.10±2.16	-	-
	Egg Weight (g)	54.45±0.48	55.20±0.62	-	-
EP (%) 64 wks	Hen Housed	-	18±1.88	-	-
	Hen Day	-	20.01±2.65	-	-
	Egg Weight (g)	-	56.40±0.52	-	-

Table 102. Hatching performance in native commercial stock (*Nicobari, Kadaknath, Ghagus* & *Vanashree*) for the period from April 2024 to March 2025

Age (wks)	*Nicobari*			*Ghagus*			*Vanashree*			*Kadaknath*		
	Fertility (%)	Hatchability (%)		Fertility (%)	Hatchability (%)		Fertility (%)	Hatchability (%)		Fertility (%)	Hatchability (%)	
		TES	FES		TES	FES		TES	FES		TES	FES
28	47.1	40.2	55.2	51.1	37.2	48.2	45.2	41.6	52.4	73.3	44.5	49.6
36	87.2	73.6	82.4	80.1	69.4	79.4	84.2	62.6	69.3	78.5	51.2	60.4
40	90.6	79.5	81.6	78.4	64.4	77.2	70.2	56.2	66.3	-	-	-
52	87.6	78.4	80.8	78.2	58.4	69.2	-	-	-	-	-	-
72	-	-	-	-	-	-	-	-	-	-	-	-

Hatching performance

The hatching performance of birds in terms of fertility and hatchability is presented in Table 102.

Germplasm supply and Revenue generation

A total of 16,381 germplasm supplied to farmers and a revenue of Rs. 11.17 lakhs was generated during the current year.

Sri Venkateswara Veterinary University, Tirupati (A.P.)

Activities Assigned

- Rearing of parents and supply of fertile eggs and chicks
- Supply of chicks under SCSP programme
- Awareness on rearing of backyard poultry

Work done

Parent stock

During the year 2024-25, existing batch of *Vanaraja* parent birds of different age groups (7th and 8th batch) were maintained for germplasm supply. Furthermore, a total of 1000 birds were further received as 9th batch during the month of February, 2025 from ICAR-Directorate of Poultry Research, Rajendranagar, Hyderabad.

Body weights

The average body weight of male and female parent birds of 7th batch at 72 weeks was 3430.26 and 2405.34g , 8th batch at 42nd weeks were 3185.47 and 2324.83g and 9th batch at 4th week were 170.90 and 149.60g, respectively (Table 103).

Table 103. Body weights of *Vanaraja* parent birds

Age wks	Male (g)	Female (g)	Age wks	Male (g)	Female (g)
	7th batch			8th Batch	
40	2719±171.1	2098±163.1	8	743.8±101.9	615 .7± 78.05
44	2782±169.1	2129±182.1	12	1329±199.8	1096±264.7
48	2840±117.1	2195±148.1	14	1483±82.60	1210±36.86
52	2959±321.7	2203± 116.3	18	1598±199.8	1396±304.4
56	3098± 211.3	2240±161.1	22	2096±413.4	1708±159.3
60	3135±219.1	2290±163.1	26	2277±375.8	1890±305.6
64	3261±153.0	2323±150.3	30	2381±138.2	2065±112.8
68	3328±143.0	2378±149.3	34	2967±361.8	2193±186.8
72	3430±320.8	2405± 115.4	38	3054±230.9	2207±284.0
			42	3185±214.5	2324±236.7

Egg Production

The performance in terms of egg weight, egg production and hatchability of the seventh batch during 40 to 72 weeks and for eighth batch, from 24 – 44 weeks has been presented in Table 104.

Germplasm supply and Revenue generation

During the year 2024-25, 61,641 units of germplasm were supplied to 323 farmers and Rs. 6.66 lakhs was generated as revenue from the sales of chicks, eggs and culled birds. Further, under SCSP Programme, a total of 320 birds were distributed to the 32 farmers belonging to the Voorundooru village in Srikalahasti mandal. Along with birds, feed, feeders, waterers, night shelters were also distributed in the presence of Dean, SVVU, Tirupati and Associate Dean, College of Veterinary Science, Tirupati on 20-03-2025. In addition to the above, several trainings on backyard poultry (BYP) farming were provided to the farmers on 24-07-2024, 06-08-2024, 20-12-2024 and 20-03-2025. Awareness regarding BYP farming was also provided to the students of M.Sc of Padmavathi women college and also to the Bhashyam school students on 28-08-2024 and 06-02-2025 respectively. A Field survey was conducted to know the performance of the birds at farm level and farmers were advised for vaccinations and medication for the better performance of birds.

Table 104. Production performance of *Vanaraja* parents for the year 2024-25

Age	7th batch			8 th batch			
	Egg wt g	HDEP %	Hatchability (%)	Age	Egg wt g	HDEP %	Hatchability (%)
40	49.43	49.72	68	24	41.56	34.55	31.62
44	50.54	54.66	73	28	43.48	40.19	40.58
48	51.86	62.83	81	32	46.71	44.89	42.31
52	52.05.	72..81	79	36	49.88	4873	49.43
56	52.92	69.31	72	40	50.17	51.22	50.27
60	53.37	68.46	69	44	51.56	56.42	55.39
64	53.93	64.15	62				
68	54.19	55.79	57				
72	54.83	48.92	43				

ICAR Research Complex for NEH Region, Umiam (Meghalaya)

Activities assigned

- Maintenance of parent stock for continuous supply of fertile eggs, chicks of improved chicken varieties
- Recording the growth and reproductive performance in *Vanaraja* parent lines
- Collection of data on performance of *Vanaraja* birds from farmers' field and reporting their feedbacks.

Work done

Parent stock

Two batches of improved variety parent stocks were procured from ICAR-DPR, Hyderabad during July, 2023 and November, 2023. During the end of the reported year, the parents were in 80 and 64 weeks. The birds were reared under deep litter system in the institute farm for production and supply of improved varieties of chicks (Table 105).

Production and reproduction

The growth and reproductive performance of *Vanaraja* and *Srinidhi* parent lines are presented in Table 105. The reproductive performance of *Vanaraja* (batch II) and *Srinidhi* parent lines respectively are presented in Tables 106.

Feedback from the field

The performance of *Vanaraja* birds recorded up to 20 weeks was found to be optimum. The major diseases recorded in the farmer's field were Coccidiosis, Bacillary white diarrhoea, Infectious coryza etc. particularly during summer seasons.

The majority of the farmers are rearing the birds under backyard system, although few farmers rear them under intensive system and are earning their livelihood through selling of birds and eggs. The selling price of live birds and eggs are reported to be ranged from Rs.450-500 per kg and Rs. 10-15 per egg respectively. The overall acceptability and demand of Vanaraja birds is increasing among the rural farmers and consumers in the region.

Germplasm supply

A total of 25,773 were supplied to 635 numbers of beneficiaries in the Meghalaya and revenue of Rs. 10,43,480 was generated during period.

Under the TSP component three farmer's training and field day cum demonstrations were organized. A total of 3950 improved variety chicks along with feeder and waterer, feed, medicines etc. were provided to 121 tribal farmers from different districts of Meghalaya during the period.

Exposure visits of farmers from different states like Tripura, Arunachal Pradesh, Assam and Meghalaya, and school and college students were made to give them an exposure to scientific poultry farming.

Table 105. Body weight in *Vanaraja* and *Srinidhi* male and female parent lines

Age, wks	*Vanaraja* Parents		*Srinidhi* Parens	
	Male Parent	Female Parent	Male Parent	Female Parent
24	2301±22.10	1711±33.65	2156±45.32	1651±35.23
28	2432±69.36	1861±96.36	2263±74.66	1722±10.86
36	2689±66.32	1985±87.56	2489±78.36	1880±89.36
40	2720±86.39	2166±85.36	2601±93.36	1922±29.87
44	2899±84.38	2236±49.89	2792±59.56	2082±99.85
48	2969±98.96	2366±98.36	2888±91.34	2096±85.91
52	3122±102.3	2499±89.69	2969±132.0	2122±125.4
56	3299±100.9	2566±96.36	2912±98.36	2140±133.8
60	3222±98.36	2610±98.36	2989±132.3	2237±96.36
64	3329±89.32	2766±125.3	3009±98.36	2369±96.36

Characterization of Syiar Markasa poultry of Meghalaya

Home tract and distribution of Syiar Markasa birds of Meghalaya- It is reared by Khasi tribe since time immemorial. The highest density of the populations of these poultry are distributed in Markasa, a small village in Eastern West Khasi hills district of Meghalaya. It is situated between approximately 25 degrees 10′ and 25 degrees 51′ N latitude, and between 90 degrees 44′ and 91 degrees 49′ E longitude. The phenotypic traits of Syiar Markasa chicken of Meghalaya have been presented in Table 107.

Table 106. Reproductive performance of *Srinidhi* parent lines

Traits	*Vanaraja*	*Srinidhi*
Average HDEP (48-64 wks)	44.64	41.32
Fertility (%)	80.44	81.32
Hatchability on TES (%)	62.97	56.35
Hatchability on FES (%)	68.25	63.37

Constraints

Irregular power supply hampers the production efficiency of the hatchery units and increased chick mortality during winter.

Chicks demand drops drastically during the winter season among the local farmers

Table 107. Phenotypic traits of *Syiar Markasa* chicken of Meghalaya

Traits	Male (n= 287)	Female (n= 607)	Pooled (n= 885)
Plumage colour			
Golden Reddish Brown	40.323%	53.225%	46.774%
Golden Blackish Brown	37.096%	16.129%	26.613%
Black	3.226%	19.354%	11.290%
Multi-colour	19.354%	11.290%	15.323%
Plumage pattern			
Solid	83.871%	54.838%	69.355%
Stripped/Penciled	4.838%	19.354%	12.096%
Patchy	11.290%	14.516%	12.903%
Laced	-	11.290%	3.225%
Comb type			
Single	100.00%	96.774%	99.193%
pea	-	3.225%	0.806%
Eye colour			
Orange	96.774%	88.709%	92.742%
Brown	3.225%	11.290%	7.258%
Ear lobe colour			
Red	95.161%	88.709%	95.161%
White	4.483%	4.838%	3.226%
Red-white	-	6.451%	1.613%
Comb colour			
Red	100.00%	100.00%	100.00%
Shank colour			
Yellow	83.871%	46.774%	69.355%
White	14.516%	24.193%	11.290%
Grey	1.612%	20.967%	8.065%
Black	-	8.064%	0.806%
Skin colour			
Yellow	85.483%	64.516%	75.00%
White	14.516%	35.483%	25.00%

GB Pant University of Agriculture and Technology, Pantnagar (Uttarakhand)

This centre was established as a non-funded centre in the middle of the financial year 2024-25. Therefore, no funds, except those allocated under TSP, were provided for conducting general activities.

The launching ceremony was held on January 16, 2025, in the esteemed presence of Dr. A. K. Gaur, ADG (AP&B), ICAR-New Delhi, Dr. R. N. Chatterjee, Director, ICAR-DPR, Rajendranagar, Hyderabad, Prof. (Dr.) M. S. Chauhan, Vice Chancellor, GBPUAT, Pantnagar, Dr. A. S. Nain, Director of Research, GBPUAT, Pantnagar, Dr. A. H. Ahmad, Dean, College of Veterinary & Animal Science, Pantnagar and other officials from Pantnagar. The heads of various departments of the college were also present during the launching ceremony. At the conclusion of the program, the dignitaries distributed various useful items to the 50 Pashu Sakhis.

Activities during the report period

- Propagation of *Uttara* flock under STC programme

Action taken

- Five training programs (04 on campus and 01 off campus) were conducted under STC component and 260 farmers belonging to four districts were benefitted. Four exposure visits were also conducted.

7 CONTROL POPULATIONS, ICAR-DPR, HYDERABAD (TELANGANA)

Activities assigned

- Maintenance and evaluation of random-bred control population for egg
- Maintenance and evaluation of random-bred control population for meat
- Supply of control population stocks to all AICRP centres except ICAR-CARI, Izatnagar

Action taken

- The random-bred control populations for egg and for meat were regenerated.
- Hatching eggs from layer and meat control populations were made available to different AICRP centres during the year.

Details of the implementation of programme and results achieved

I) Maintenance and evaluation of random bred control population for egg

A synthetic population that was originated from the AICRP and commercial populations at GAU, Anand was considered to be useful for this purpose and in the population available at Directorate of Poultry Research was under a mild positive selection for egg production. The selection was relaxed and mating was arranged among 70 randomly chosen males and 350 randomly chosen females to reproduce the base generation of the layer control LC-0. The LC-1 was reproduced with 60 sires and 300 dams in two hatches. The LC-2 generation was reproduced utilizing 40 sires and 200 dams in three hatches. The LC-4, LC-5, LC-6, LC-7 and L-8 generations were reproduced using 40 sires and 200 dams. LC-9 and LC-10 generation was reproduced using 32 sires and 128 dams and 37 sires and 74 dams, respectively. From LC-11, generation was reproduced with 50 sires and 200 dams. Recent generations (LC-15; LC-16) were reproduced with 25 sires and 125 dams. In LC-17, number of sires and dams for regeneration was increased to 35 and 185 respectively. LC-18 was regenerated using 35 males and 180 females. The inbreeding coefficient was kept at minimum level. At the time of housing, only two males per sire family and two females per dam family were housed for recording of production and other body weight traits according to the technical programme.

Regeneration of LC-18 generation: The number of sires and dams used to regenerate LC-18 generation, effective population size and rate of inbreeding are presented in Table 108.

Table 108. Number of sires and dams, effective population size and rate of inbreeding over generations

Gen.	No. of Sires	No. of Dams	Effective population size (Ne)	Rate of in breeding (ΔF)
LC-7	40	200	133.33	0.00250
LC-8	40	200	133.33	0.00250
LC-9	32	128	102.40	0.00488
LC-10	37	74	98.66	0.00507
LC-11	50	200	160.00	0.00313
LC-12	50	200	160.00	0.003
LC-13	40	200	133.33	0.0025
LC-14	25	100	80.00	0.0062
LC-15	25	125	83.33	0.006
LC-16	25	125	83.33	0.0060
LC-17	37	185	123.33	0.0040
LC-18	35	180	117.21	0.0043

Incubation records

Incubation records in LC-18 and past few generations in layer control population have been presented in Table 109. In LC-18, fertility, hatchability on total eggs set basis and hatchability on fertile eggs set basis respectively was 76.4%, 72.2% and 94.5% respectively. Although fertility declined as compared to the previous generation, a significant increase was found in hatchability on total eggs set and fertile eggs set basis.

Table 109. Incubation records in layer control population over the generations

Gen.	Fertility (%)	Hatchability (%)	
		FES	TES
LC-9	85.1	92.3	78.5
LC-10	70.2	84.2	59.1
LC-11	70.9	87.0	61.7
LC-12	62.0	85.0	53.0
LC-13	59.2	80.7	47.8
LC-14	81.0	82.0	68.0
LC-15	80.7	95.3	76.9
LC-16	78.0	79.6	62.1
LC-17	76.4	94.5	72.2
LC-18	74.7	89.8	66.9
b	**0.38 NS**	**0.27 NS**	**0.49 NS**

Production performance

Performance of the 17th generation of layer control population (LC-17) was evaluated up to 72 weeks during the report period. The performance of control population and their regression value (time trend of control) has been presented in the following Table 110. The egg production up to 64 and 72 weeks of age was 183.95±3.22 and 198.69±3.78 eggs respectively while the corresponding body weights at 64 and 72 weeks of age in LC-17 was 1578.32±15.77 and 1641.09±19.49g, respectively. The egg weight at 64 weeks of age was 53.77±0.45g.

The traits like body weight at 16 weeks and 40 weeks of age, age at sexual maturity, 40 weeks egg weight and egg production up to 40 and 64 weeks (up to LC-17) showed non- significant change. Hence, the layer control population appears to be stable for all the traits since past few generations.

II) Maintenance and evaluation of random bred control population for meat

During the period G-22 generation of the control broiler was regenerated and G-21 generation was evaluated for production traits.

Incubation records

Incubation records of G-22 generation in broiler control population have been presented in Table 111. Percent fertility, percent hatchability on total eggs set and percent

Table 110. Performance of layer control population for growth and production traits

Gen.	Body weight (g)		ASM (days)	Egg weight	Egg production (Nos.)	
	16 wks	40 wks		40 wks (g)	40 wks	64 wks
LC-9	1048	1510	154.9	52.91	91.47	200.7
LC-10	954	1508	155.4	53.28	92.64	194.4
LC-11	886	1497	156.4	51.28	94.90	223
LC-12	914	1522	150.1	52.88	98.00	224
LC-13	880	1492	150.6	51.11	107.69	221
LC-14	885	1624	155.0	52.43	97.74	217
LC-15	1087	1585	157.3	55.48	90.51	190
LC-16	984.1	1500	148.7	50.96	99.17	217.2
LC-17	889.04	1500.56	150.98	51.41	119.85	183.95
b	**-2.87NS**	**3.60NS**	**-0.48NS**	**-0.08NS**	**2.06NS**	**-1.19NS**

hatchability on fertile eggs set respectively were 83.40, 76.90 and 92.20.

Table 111. Incubation records of Broiler control population

Gen.	Fertility (%)	Hatchability (%)	
		TES	FES
G-15	73.68	63.65	89.10
G-16	78.99	71.93	91.06
G-17	88.64	79.86	90.10
G-18	85.32	79.92	93.66
G-19	88.81	79.74	89.79
G-20	87.75	84.14	95.89
G-21	91.90	87.05	94.72
G-22	83.40	76.90	92.20

Juvenile body weights

Performance of juvenile traits in control broiler population in G-22 generation is not available. However, performance of these traits from G-1 to G-21 is presented in Table 112. The regression estimates of generation mean on generation number for 5 weeks body weight and 6 weeks body weight showed non-significant changes over generations indicating the stability of the broiler control population for juvenile body weights.

Production traits

A total of 300 females were maintained till 40 weeks of age and recorded for age at sexual maturity, body weights at 20 and 40 weeks of age, egg weight at 32 and 40 weeks of age and egg production to 40 weeks of age. The mean for all these traits were presented in Table 113. The hatching eggs of this population were being supplied to the AICRP-PB centres as and when they require for evaluation of their selected lines. The consolidated production performance of broiler control over generations has been presented in the following table. The regression estimates of generation means on generation number (G-0 to G-21) showed non-significant changes over the generations in all the egg production and egg weight traits indicating the stability of the broiler control.

Table 112. Performance of juvenile body weights in broiler control population

Gen	BW 5 wks	BW 6 wks
G-1	822	1060
G-2	872	1141
G-3	731	995
G-4	897	1195
G-5	907	1106
G-6	672	891
G-7	592	783
G-8	929	1215
G-9	626	964
G-10	578	829
G-11	522	720
G-12	731	1156
G-13	573	993
G-14	520	663
G-15	570	836
G-16	734	951
G-17	740	930
G-18	755	1042
G-19	788	1056
G-20	842	1072
G-21	810	975
b	**-3.75^{NS}**	**-5.03^{NS}**

Table 113. Growth and production performance of broiler control population over the generations

Gen.	BW 20 wks (g)	BW 40 wks (g)	ASM (days)	EW 32 wks (g)	EW 40 wks (g)	EP 40 wks (No)
G-0	2509	3150	177	54.02	60.50	47.00
G-1	2536	3256	164	52.00	54.90	45.90
G-2	2776	3370	163	51.07	57.55	66.67
G-3	2670	3487	162	53.32	58.09	65.37
G-4	2591	3478	163	53.99	58.12	65.07
G-5	2559	3524	162	51.56	54.67	57.47
G-6	2130	2886	173	53.06	58.87	58.65
G-7	2457	3335	165	53.39	56.61	57.27
G-8	2436	3222	167	54.32	57.00	60.00
G-9	1941	3005	171	51.44	57.28	53.38
G-10	1982	2799	194	51.66	55.10	57.06
G-11	1885	2933	189	51.40	57.27	54.30
G-12	2369	3139	170	52.20	56.43	56.59
G-13	2279	3033	174	50.96	55.80	55.82
G-14	2416	3151	182	52.50	56.20	56.59
G-15	2296	3098	182	51.23	58.68	56.0
G-16	2474	2848	181	52.68	58.42	56.99
G-17	2222	2957	183	53.15	55.58	50.44
G-18	2197	2882	182	51.96	56.87	46.81
G-19	2535	3177	174	50.65	55.34	78.82
G-20	2526	3053	166	52.68	57.39	72.58
G-21	2060	2975	188	53.43	56.09	66.44
b	**-14.08** ^{NS}	**-19.13** **	**0.82****	**-0.04** ^{NS}	**-0.06**^{NS}	**0.34** ^{NS}

8 CRITICAL OBSERVATIONS
AICRP ON POULTRY BREEDING CENTRES

KVASU, Mannuthy

Accomplishments and achievements

1. The S-8 generation of native chicken was produced and evaluated up to 16 weeks of age.
2. The S-34 generation of IWN and IWP strain of White Leghorn was evaluated from 29 to 72 weeks of age.
3. The egg weight at 40 and 64 weeks of age was 52.04, 53.35g in IWN and 52.60, 55.70g in IWP strains, respectively.
4. The body weight of IWN strain at 40 and 64 weeks of age was 1394 and 1444g, respectively, while that of IWP strain was 1404 and 1480g, respectively, at corresponding ages during S-34 generation.
5. The IWN X IWP birds, native chicks and their crosses were supplied to farmers and institutions.
6. The centre has supplied a total of 1,38,500 numbers of germplasms during the year.
7. The centre has generated revenue of Rs. 23.50 lakhs, which was 196.32% of the recurring expenditure (Rs. 11.97 lakhs).

Short falls

- The mortality during 9 to 16 weeks in the S-8 generation of native birds was above the permissible level.
- No data on the growth traits of male chicks and growers of the native chickens was collected and given in the report.
- The fertility and hatchability of IWN and IWP strains have consistently come down over the last three generations.
- The 64 weeks egg production in IWN and IWP strains and the control population is coming down consistently over the last three generations.
- The mortality during 17 to 40 weeks of age in IWN and IWP strains during S-34 generation was higher than the permissible limit.
- Despite repeated suggestions, some of the observations or suggestions made under critical observations in the previous annual report are not incorporated in the report submitted by the centre.

Suggestions for further improvement

1. The incidence of mortality must be brought down to a permissible level.
2. Data on the growth traits of male chicks and growers of the native chickens must be recorded and given in the report.
3. Age at 50% and age at peak production (%) of native and IWN and IWP strains must be given as instructed in the previous annual report and also in the technical program. The body weight of hens and cocks of native chickens at 20 and 40 weeks must be given.
4. Egg quality traits of the native chickens and IWN and IWP strains must be studied and reported.
5. Suggestions made under critical observations in the previous annual report must be looked into, and necessary steps must be taken to implement them.
6. Timely submission of the reports or information requested by the Directorate.

KU, Anand

Accomplishments and achievements

1. The S-5 generation of *Ankleshwar* chicken was evaluated from 17 to 40 weeks of age.
2. Chicks of the S-6 generation of *Ankleshwar* chicken were produced.
3. The S-4 generation of IWN and IWP strains was evaluated from 17 to 72 weeks of age.
4. Chicks of the S-5 generation of IWN and IWP strains were produced.
5. The S-11 generation of IWD and IWK strains was evaluated from 17 to 64 weeks of age.
6. Chicks of the S-12 generation of IWD and IWK strains were produced.
7. The centre has supplied a total of 54,337 germplasm during the reporting period.
8. The centre has generated the revenue of Rs. 33.52 lakhs during the reporting year, which was 76.48% of the total expenditure of feed cost (Rs. 43.83 lakhs).

Short falls

- The fertility in the *Ankleshwar* chicken has further came down in the present generation.
- No information on juvenile growth traits of the *Ankleshwar* breed is collected and given in the report.
- No data on the growth traits of male chicks and growers of the *Ankleshwar* breed was collected and given in the report.
- The fertility and hatchability on FES and TES in IWN and IWP strains have come down in the present generation.
- The mortality of the control population during 17 to 40 weeks and 17 to 64 weeks of age was relatively higher.
- No study on egg quality traits was done in *Ankleshwar* breed as suggested in the critical observations of last year annual report.
- Fertility in the IWK strain is consistently coming down over the generations.
- No publications from the centre were made as it was observed consistently over the years.

Suggestions for further improvement

1. Body weight at 0 day, four and eight weeks of age and shank length at 8 weeks of age (native chickens) in different strains must be recorded and given in the report.
2. Data on the growth traits of male chicks and growers of the *Ankleshwar* breed needs to be collected and given in the report.
3. The body weight of adult male and female birds of the *Ankleshwar* breed at 16 and 40 weeks must also be given.
4. Age at 50% production and age at peak production (%) of native (Ankleshwar) and IWN and IWP strains must be given as instructed in previous annual report and also in the technical program.
5. Egg quality traits of the *Ankleshwar* breed and IWN and IWP strains must be studied and reported as suggested previously.
6. Publications in the form of research papers, technical articles, popular articles, etc., must be made.
7. Suggestions made under critical observations in the previous annual report must be looked into, and necessary actions must be taken to implement them.

KVAFSU, Bengaluru

Accomplishment and achievements

1. Evaluated the performance of native chicken population (S-7), PB-1 (S-17) and PB-2 (S-30) for economic traits.
2. Body weight of native chickens in S-7 generation at 20 weeks was 1498 and 1135 g in males and females respectively. Corresponding weights at 40 weeks was 1920 and 1343 g, respectively.
3. Body weights at 5 weeks of age in PB-1, PB-2 and control lines was 1318, 1291 and 990.2 g, respectively.
4. PB-1 x PB-2 cross attained 2 kg at 7 weeks of age in field conditions.
5. A total of 1,80,737 germplasms were supplied to 829 beneficiaries. The centre generated revenue of Rs. 49.60 lakhs.

Shortfalls

The production of crosses for evaluation and developing new location specific variety to be given priority.

Suggestions for further improvement

1. Process of developing of a new location specific variety needs to be given top priority.
2. Genetic analysis of the data of PB-1 and PB-2 lines needs to be done.
3. Publications from the results of the project needs to be made regularly.

GADVASU, Ludhiana

Accomplishment and achievements

1. Evaluated the performance of *Punjab Brown* (S-9), PB-1 (S-17), PB-2 (S-49) and cross (RIR x (PB-2 X Native)) for economic traits.
2. Body weight of *Punjab Brown* at 8 and 16 weeks was 785.4, 1686 and 676, 1311 g, respectively in male and female. Egg production up to 52 weeks was 109.23 eggs with egg weight of 50.13g at 40 weeks of age.
3. Three way cross (RIR x (PB-2 x Native) was evaluated for farm and field performance. The body weight at 8 and 20 weeks of age were 678 and 1811 g in farm and 631.9 and 1708 at field, respectively. ASM and egg production up to 36 weeks at farm was 158.7 days and 60.1 eggs, respectively.
4. Average body weight at 5 weeks of age was 1138 and 1083 g in PB-1 and PB-2 lines, respectively. Egg

production up to 40 weeks of age in PB-1 and PB-2 lines were 65.02 and 68.27 eggs, respectively.

5. A total of 75,478 germplasms were supplied to 605 farmers. The centre generated revenue of Rs. 19.38 lakhs.

Shortfalls

- Process of developing a new location specific variety needs to be given top priority.
- The three-way cross may be evaluated in farm and field conditions in large numbers to fulfil the criteria for variety registration and release.
- The control line was not evaluated due to timely unavailability from ICAR-DPR.

Suggestions for further improvement

1. Farm and field evaluation of three-way purpose cross needs to be undertaken in larger numbers.
2. Process of registering PB-1 and PB-2 lines may be given priority.
3. Control line needs to be evaluated simultaneously.
4. Efforts should be made to improve the germplasm supply

ICAR-CARI, Izatnagar

Accomplishment and achievements

1. Evaluated the performance of native (S-9), CSML (S-22), CSFL (S-22) and native x CSML cross.
2. In native population, the age at Sexual Maturity was recorded as 183 days, with a cumulative egg production up to 40 weeks of 58.25 eggs. The average egg weight at 40 weeks of age was 48.00 g.
3. The body weight at 5 weeks of age in CSML, CSFL and control lines were 1055, 1050 and 795.7 g, respectively in S-22 generation.
4. A total 24,856 germplasm was supplied to the 35 farmers.

Shortfalls

- Juvenile body weight and growth details of native germplasm was not reported.
- In CSMl, CSFL and Control lines, juvenile body weight other than BW5, growth and egg production parameters were not submitted.
- Genetic parameters of trait under selection in CSML and CSFL was not provided.
- Germplasm supply was low.
- Details of publication were not given

Suggestions for further improvement

1. Growth performance of native population to be reported.
2. The desi broiler cross may be evaluated in farm and field conditions in large numbers to fulfil the criteria for variety registration and release.
3. Efforts should be made to improve the germplasm supply.

ICAR Research Complex, Agartala

Accomplishments and achievements

1. The centre evaluated the Tripura Black, *Dahlem Red*, CSFL and their crosses during the year. The annual egg production was 169.23 and 142.75 eggs under farm and field conditions, respectively.
2. A total of 20,432 poultry germplasms were supplied to 267 farmers with a revenue receipt of Rs. 17.13 lakhs

Short falls

- Hatchability is low
- Mortality was very high
- Registration of Tripura Black chicken not done
- Germplasm supply was low

Suggestions for further improvement

1. Proper biosecurity should be ensured in the farm
2. Periodic monitoring of incubators for optimum temperature and humidity
3. Efforts should be made to improve germplasm supply

NDVSU, Jabalpur

Accomplishments and achievements

1. The centre maintained Kadaknath, Jabalpur colour and Kadaknath cross populations.
2. Body weight of Jabalpur colour birds at 20, 40 and 52 weeks of age was recorded as 1603.3, 2089.0 and 2191g.
3. The body weight of Kadaknath birds at 20 and 40 weeks was 1097 and 1619 g, respectively.
4. Hen day egg production up to 40 and 52 weeks age was 99.56 and 163.5 eggs in Jabalpur colour and 64.2 and 93.2 eggs in Kadaknath.

5. The body weights of Narmadanidhi birds at 20 weeks were 1507 g in males and 1384 g in females, respectively.
6. Egg production of Narmadanidhi up to 40 and 52 weeks was 58.6 and 110 eggs, respectively and average egg weight was 49.4g at 40 weeks of age.
7. A total of 44,432 chicken germplasm was distributed to 928 farmers with revenue receipts of Rs. 30.66 lakhs.

Short falls

- Germplasm supply was low
- Genetic parameters were not provided
- Registration of JBC population not initiated

Suggestions for further improvement

1. Pedigree and selection program need to be initiated in Kadaknath and JBC
2. Registration of JBC population as pure line population
3. Improvement in germplasm supply

AAU, Guwahati

Accomplishments and achievements

1. The centre evaluated Native, *Dahlem Red*, *Daothigir* and *Kamrupa* up to 72 weeks of age
2. In *Kamrupa*, the age at sexual maturity was 148.18 and 168.96 days in the farm and in the field, respectively.
3. The hen housed egg production up to 40, 52 and 72 weeks of age was 51.85, 93.32 and 156.21 eggs in the farm and corresponding values in the field were 46.24, 76.28 and 124.94 eggs, respectively.
4. In *Daothigir*, the hen housed egg production up to 72 weeks of age was 116.98 eggs with egg weight of 42.19g.
5. The centre supplied 51,020 germplasm to 687 farmers and realized receipts of Rs. 10.91 lakhs during the reporting year.

Short falls

- Mortality is high and unusual in *Kamrupa*
- Hatchability on TES in *Daothigir* is low

Suggestions for further improvement

1. Proper biosecurity and vaccination schedules to e followed to control the mortality
2. Germplasm supply to be improved further
3. Incubator conditions needs to be checked to improve the hatchability

BAU, Ranchi

Accomplishments and achievements

1. BAU, Ranchi centre evaluated the native chicken, *Dahlem Red* and *Jharsim* up to 72 weeks of age for different economic traits.
2. The body weight at 8 and 12 weeks of age in Native chicken were 357.58±0.51 and 556.12±0.27 g, respectively.
3. The annual egg production (72 wks) on hen day basis was 128 and 183 eggs in Native and *Dahlem Red* chicken.
4. Khukhri, a chicken ecotype of Chotanagpuri are was characterized with respect morphological, physical, reproductive, growth and production performance and the application was submitted to ICAR-NBAGR, Karnal for registration of the breed.
5. The centre has distributed 47522 germplasm to 438 farmers with a revenue of Rs. 10.17 lakhs.

Short falls

- Germplasm supply low
- Pedigree selection in native chicken not initiated

Suggestions for further improvement

1. Pedigree selection for higher body weight in native chicken needs to be initiated
2. Efforts should be made to improve the germplasm supply

MPUAT, Udaipur

Accomplishments and achievements

1. The centre evaluated *Mewari*, CSFL, RIR and *Pratapdhan* populations
2. The body weight at 20 and 40 weeks of age were 1447 and 1661g in *Mewari* females.
3. The egg production was 43.92 and 65.18 eggs up to 40 and 52 weeks of age in *Mewari* chicken
4. The annual egg production up to 72 weeks of age was 167.75 eggs in *Pratapdhan*.
5. A total of 61,699 improved chicken germplasm was distributed to about 446 farmers during the report

period. The centre realized Rs 16.42 lakhs from the distribution of germplasm.

Short falls

- Pedigree mating in *Mewari* not initiated
- Field data of *Pratapdhan* not recorded
- Suggestions for further improvement
- Pedigree selection is to be initiated
- Field data of *pratapdhan* to be recorded
- Impact of *Pratapdhan* needs to carried out

CSKHPKVV, Palampur

Accomplishments and achievements

1. The centre evaluated Native, *Dahlem Red* and *Himsamridhi* during the report year.
2. The egg production up to 40 weeks was 44.59 eggs in native chicken
3. The *Dahlem Red* population was evaluated up to 72 weeks in G-3 generation and HDEP at 40, 52 and 72 weeks was 83.21, 138.36 and 190.97 eggs respectively.
4. The egg production in *Himsamridhi* (DND) up to 40, 52 and 72 weeks was 71.73, 121.72 and 184.79 eggs respectively under farm conditions
5. During the year, the centre supplied 73,945 chicks/ growers of *Himsamridhi* (DND cross), native and other crosses to 799 farmers and revenue receipts of Rs. 20.27 lakhs was realized.

Short falls

- Germplasm supply needs improvement
- Suggestions for further improvement
- Efforts should be made to improve the germplasm supply

BASU, Patna

Accomplishments and achievements

1. One batches of parents were reared
2. Supplied 80,768 germplasm to farmers
3. Generated Rs. 12.65 lakhs of revenue

Short fall

- Field data not recorded
- Suggestion for further improvement
- Data from field performance of birds should be recorded and reported

ICAR-RC NEH, Jharnapani

Accomplishments and achievements

1. Four batches of parents of *Vanaraja* and *Srinidhi* were reared
2. A total of 81,663 improved chicken germplasm was distributed to the farmers
3. An amount of Rs. 54.18 lakhs revenue was generated

Shortfall

- Field data not provided

Suggestion for further improvement

1. Data from field performance of birds should be recorded and reported

ICAR-RC NEH, Gangtok

Accomplishments and achievements

1. One batch of *Vanaraja* parents was reared
2. Distributed 35,453 chicks to the farmers and generated Rs. 25.63 lakhs revenue

Short fall

- Target supply not achieved

Suggestion for further improvement

- Efforts should be made to meet the target supply

ICAR-RC NEH, Imphal

Accomplishments and achievements

1. One batch of *Srinidhi* parents was reared
2. The centre has supplied 18,395 chicks to farmers
3. An amount of Rs. 4.32 lakhs of revenue was generated

TANUVAS, Hosur

Accomplishments and achievements

- Reared one batch each of Vanaraja and Gramapriya parents.

- The annual hen housed egg production was 179 eggs in *Vanaraja* and 199 eggs in Gramapriya, respectively.
- A total of 68,756 improved rural chicken germplasm was distributed to 897 farmers
- The Centre has generated total revenue of Rs. 18.29 lakhs during 2024-25.

Short falls

- Target germplasm was not achieved
- Field performance was not recorded

Suggestions for further improvement

- Field data and feed back from the farmers needs to be recorded and reported
- Efforts should be made to meet the target supply of germplasm

SKUAST-K, Srinagar

Accomplishments and achievements

1. One batch each of *Vanaraja* and Layer parents were in position
2. Distributed 40,343 chicks to the farmers.
3. Generated Rs.8.94 lakhs revenue

Short fall

- Germplasm supply target not achieved
- Field data not provided

Suggestion for further improvement

1. Efforts should be made to achieve target supply
2. Data from field performance of birds should be recorded and reported

ICAR-RC NEH, Umiam

Accomplishments and achievements

1. Two batches of *Vanaraja* and one batch of *Srinidhi* parents were reared
2. Distributed 25,773 improved germplasm to the farmers
3. Generated Rs. 10.43 lakhs revenue

Short fall

- Germplasm supply target not achieved
- Suggestion for further improvement
- Efforts should be made to meet the target set for germplasm supply

PVNRTVU, Warangal

Accomplishments and achievements

1. One batch *each* of *Aseel, Nicobari, Vanashree, Kadaknath and Ghagus* were reared
2. Distributed 16,381 chicks to farmers
3. Revenue was Rs. 11.17 lakhs

Short fall

- Target supply not achieved
- Data of field performance not reported
- Suggestion for further improvement
- Efforts should be made to achieve target supply
- Data from field performance of birds should be recorded and reported

SVVU, Tirupati

Accomplishments and achievements

- Two batches of *Vanaraja* parent birds were evaluated
- The total germplasm supply was 61,641 with a revenue of Rs. 6.66 lakhs
- A total of 323 farmers were benefitted.

Short falls

- Target germplasm was not achieved
- Field performance was not recorded

Suggestions for further improvement

- Field data and feed back from the farmers needs to be recorded and reported
- Efforts should be made to meet the target supply of germplasm

9 SUCCESS STORIES

FROM TRIPURA SUCCESS STORIES - I

Title: Tokbari: A dual purpose backyard poultry for enhancing rural livelihoods

Name and address of Farmers: Ramesh Debbarma, Village- Sepai Para, West Tripura, Tripura

Background of Farmers:

- Tribal farmers
- Age: 55 years
- Education: 8th Std.
- No of family members: 04 (02 children, 02 adults)
- Land Holdings: 2 kani

Achievements

Mr. Ramesh Debbarma from West Tripura district was doing rubber cultivation and poultry farming with desi birds. After coming in contact with ICAR, Lembucherra he received 20 nos. of 8 weeks old improved variety (Tokbari) chicks, one feeder, one drinker, medicine, feed supplements etc. from ICAR, Tripura Centre under AICRP on Poultry Breeding Project. He also got financial support for construction of low cost poultry shed. He made the shed with locally available materials (Bamboo) and the roof with GCI sheet. After receiving the chicks he fed them commercial poultry feed (Starter) for the first few weeks and after that he started providing them broken rice, rice bran, left over rice etc. to reduce feed cost along with some vitamin supplements, liver tonic at regular intervals. He was being trained on scientific poultry farming by ICAR Tripura centre and followed regular deworming, vaccination and other practices as recommended. At the age of 5 months the female and male birds attained around 1.5 kg and 2.5 kg respectively and the females started laying eggs. The birds lay an average of 22 eggs per week which is being utilized for production of chicks and the rest he sold in the market @ Rs.6/- per egg. As he does not have a hatchery unit, some of the eggs were incubated naturally under broody hens and a total of 150 chicks were hatched out. He has sold 45 live birds @ Rs.500.00 per bird and earned an amount of Rs. 22500.00 from selling of those. He is getting good number of eggs from improved germplasm and satisfied by the performance of the stock. Now he is planning to extend his poultry unit in future.

Mr. Ramesh Debbarma with his newly constructed poultry shed supported by ICAR, Tripura Centre

Mr. Ramesh Debbarma with Tokbari birds received from ICAR, Tripura Centre

FROM TRIPURA SUCCESS STORIES - II

Title: Tokbari: Empowering tribal women through backyard poultry forming

Name and address of Farmers: Sitarani Debbarma, Village- Sepai Para, West Tripura, Tripura

Background of Farmers

- Tribal Women
- Age: 52 years
- Education: illiterate
- Land Holdings: 3 kani

Achievements

Mrs. Sitarani Debbarma w/o Shri Biwsarath Debbarma, from Sepai Para, West Tripura was being trained on scientific poultry rearing by ICAR Tripura centre and introduced the improved variety Tokbari bird (BND) in her field. Mrs. Sitarani Debbarma has received 20 nos. of 8 weeks old Tokbari chicks, feeder, drinker, medicine, feed supplements etc. from ICAR, Tripura Centre under AICRP on Poultry Breeding. She also got financial support for construction of low cost poultry shed. After ICAR intervention she has adopted scientific way of poultry rearing and started following all the recommended practices to increase production of meat and eggs. She started selling eggs and live birds in the open market @ Rs.6/- per egg and Rs.600/- per bird. She earned net profit/Tokbari bird is Rs. 436 more as compared to native unit/bird. She has experienced hike in her annual income after ICAR intervention made which helped her in different way to improve her livelihood. Her family living standard has improved in terms of food security, nutritional security and his status in his society is also now much better than earlier. She is getting good number of eggs from improved germplasm and satisfied by the performance of the stock.

Mr. Ramesh Debbarma with his newly constructed poultry shed supported by ICAR, Tripura Centre

Economics with cost benefit ratio:

Type of poultry	No	Input cost (Rs.)	Production	Gross profit (Rs.)	Net profit (Rs.)	BCR
Poultry (Dual Breed)	20 nos.	7120	1365 eggs 45 kg meat	20300	13180	1.85

Monitoring/guidance at farmers fields by ICAR, Tripura Centre

Sitarani Debbarma with dual type Tokbari birds received from ICAR, Tripura Centre

Sitarani Debbarma with eggs of Tokbari birds

FROM ASSAM SUCCESS STORIES - I

Title: '*Kamrupa*': Transforming lives through sustainable poultry rearing in Assam

Name of the Farmer/Entrepreneur: Mr. Raju Bhanji

Address with Phone Number: Nilak Tarani Pathar, P.O. Nilak Chariali, P.S. Chilapathar, District,Dhemaji, Assam. Phone number: 9957536959

Background of the Farmer

Mr. Raju Bhanji, a smallholder farmer from a remote village in Chilapathar, Dhemaji District of Assam, had always struggled to maintain a stable income through out the year from farming. His family's dependence on rain-fed agriculture made their earnings unpredictable. Looking for a reliable secondary income source, he turned to backyard poultry rearing but initially raised only non-descript local birds, which offered minimal returns.

Initiative Taken by the Farmer

Mr. Raju's journey changed after he attended an awareness programme conducted by the Krishi Vigyan Kendra (KVK), Dhemaji. In the programme he was introduced to the *Kamrupa* poultry—an improved variety designed for rural conditions. Motivated by its dual-purpose nature and promising productivity, Raju enrolled in a short-term training program organized by the AICRP on Poultry Breeding, Khanapara.

Following the training programme, he began his poultry venture by purchasing 150 Day-old chicks (DOCs) of the *Kamrupa* varity, aiming to uplift his income and utilize his backyard space efficiently.

Details of Breed/Variety Reared

Raju select *Kamrupa*, a varity developed by Assam Agricultural University under the project ICAR-AICRP on Poultry Breeding for dual purposes—egg and meat production. Hardy and well-suited for semi-intensive and scavanging conditions, the *Kamrupa* birds mature faster and lay more eggs compared to native breeds, making them ideal for rural entrepreneurs.

Scientific Intervention Provided by the Institute/ Centres/KVK/AH Department

Mr. Vanji received comprehensive technical support, including care and management of chicks, chick brooding and housing management of poultry, scientific feeding schedules using locally available feed, timely vaccination and deworming schedule and market linkages.

Achievements (with Updated Financials)

Mr. Bhanji maintained a batch of 150 *Kamrupa* chicken per batch. At 8 weeks, each bird reached an average live weight of 0.9 kg. He sold the birds at a rate of Rs. 350 per kg in the local market.

Total Live Weight: 145 birds (considering mortality of 5 birds) × 0.9 kg = 130.5 kg

Total Revenue: 130.5 kg × Rs. 350 = Rs. 45,675

Total Expenses (chicks, feed, care, etc.): Rs. 30,000

Net Profit per batch: Rs. 15,675

With better growth rates and efficient management, Raju has managed to establish a consistent monthly income that supports his family and allows reinvestment into the business.

Socioeconomic Impact

The earnings from *Kamrupa* chicken farming have brought financial stability to his household. He has reduced dependence on agriculture alone and now enjoys a diversified income. With his improved economic condition, he has invested in better education for his children and plans to scale his poultry unit further.

His success has inspired nearby youth and fellow farmers to explore *Kamrupa* chicken as a viable enterprise, creating a ripple effect in the community and contributing to livelihood development through sustainable poultry farming.

Source (Institute/AICRP Center/PSP Centre/ KVK/AHD) and contributors

ICAR-All India Co-ordinated Research project on Poultry Breeding, Directorate of Research (Veterinary), Assam Agricultural University, Guwahati Centre and the contributor is Dr. Mihir Sarma, Principle Investigator of the project.

FROM ASSAM SUCCESS STORIES - II

Title: '*Kamrupa*': A backyard poultry variety boosting rural livelihoods in Assam

Name of the Farmer/Entrepreneur: Sri Bijendra Kathar

Address with Phone and Number:
Village: Chamata

P.O: Sonapur

Dist: Kamrup (M), Assam

Block: Dimoria Development Block

Phone: 8638535213

Background of the Farmer

Sri Bijendra Kathar, a resident of chamata, Sonapur, under Dimoria development block had long practiced backyard poultry rearing as part of his household tradition. Raising a few indigenous birds, he often found the output too limited to fulfill the nutritional and economic requirements of his family. Determined to support his family through farming, he began seeking ways to make poultry rearing a more viable income source.

Initiative Taken by the Farmer

His turning point came after participating in an awareness programme focused on "Improved poultry practices". There, he came across the *Kamrupa* breed—an improved rural poultry variety. Eager to learn more, he visited the AICRP on Poultry Breeding at Khanapara, where he was trained in scientific management of poultry farming and market potential.

Encouraged by the promising performance of *Kamrupa* chicken, Sri Kathar launched his poultry venture with the purchase of 100 *Kamrupa* Day-Old Chicks (DOCs). His aim was to generate a consistent source of income for his family through scientific farming of *Kamrupa* chicken.

Details of Breed/Variety Reared

Sri Kathar chose to rear *Kamrupa*, a dual-purpose backyard chicken variety, bred for both egg and meat production, developed under the All India Coordinated Research Project (AICRP) on Poultry Breeding, Directorate of Research (Veterinary), Assam Agricultural University, Khanapara. The *Kamrupa* chicken is well-suited for semi-intensive and scavenging systems and performs significantly better than local varieties in terms of egg production and body weight.

Scientific Intervention Provided by the Institute/ Centres/KVK/AH Department:

To ensure success, Sri Kathar received hands-on training on:

Brooding and chick management, feeding practices, vaccination and disease control

Marketing strategies and farm budgeting,

He was also supported with vaccines and other essential inputs necessary for healthy flock management and improved productivity.

Achievements (with Updated Financials)

Sri Kathar purchased 100 numbers of *Kamrupa* day-old chicks every month. Within two months, each bird reached an average live weight of 850-900 grams. He sold the birds at a market price of Rs. 390 per kg.

Total Live Weight: 97 birds (considering mortality of 3 birds) × 0.9 kg = 87.3 kg

Selling Price: 87.3 kg × Rs. 390 = Rs. 34,047

Total Expenses (including chicks, feed, healthcare, etc.): Rs. 19,500

Net Monthly Profit: Rs. 14,547

With careful management practices, improved bird performance and batter marketing Sri Kathar increased his profit margin while keeping costs under control.

Socioeconomic Impact

The enhanced income from *Kamrupa* poultry farming has significantly strengthened the financial standing of Sri Kathar. With a monthly profit of over Rs. 14,000.00, he now contributes more confidently to household expenses and savings.

His success story has inspired several others in his village to adopt *Kamrupa* chicken farming. It demonstrates that with scientific support, skill development and a high-performing breed, backyard poultry farming can become a reliable and profitable livelihood in rural Assam.

Source (Institute/AICRP Center/PSP Centre/ KVK/AHD) and contributors

ICAR- All India Co-ordinated Research project on Poultry Breeding, Directorate of Research (Veterinary), Assam Agricultural University, Guwahati Centre and the contributor is Dr. Mihir Sarma, Principle Investigator of the project.

FROM HIMACHAL PRADESH SUCCESS STORIES - I

Entrepreneurship development in rural poultry

Name of the farmer: Sh. Mahendra Kumar S/O Sh. Tek Chand

Address: Village-Salwin, Post Office: Kahel, Tehsil: Churah District: Chamba (Himachal Pradesh). Mobile: 9625717994

Background of the farmer: Sh. Mahendra Kumar belongs to region of Chamba district, one among the remote areas in higher hills. Farmers in the region are engaged in poultry farming activities along with other farm activities. He is associated with the project since 2021, when he was imparted training under project.

Initiative taken by the farmer: After rearing 3 batches of *Himsamridhi* successfully he informed that other farmer in the region are also interested to do poultry farming but most of the time supply of quality chicks is major constraint, owing to connectivity and climatic constraints. Seeing an opportunity, he decided to procure bigger hatches and adopted the methodology of nursey rearing in remote area of Chamba District to cater the demand of local farmers. He was supported by the AICRP unit by ensuring the timely supply of chicks.

Achievements: During 2024-25 he has taken 4 hatches of average size around 2000 from AICRP unit Palampur and reared them for period of 4-6 weeks. He has planned the rearing as per demand in the local market and suitable condition for transport. He reared the chicks with technical guidance provided from project staff for period up to 8 weeks and sold them as per the demand from farmers in the nearby villages. After accounting of chick cost, mortality and input cost he realized profit around 15-20 rupees/chick.

Socioeconomic impact: Sh. Mahendra Kumar transform himself from small-scale poultry farming in hilly region towards entrepreneurial venture. He has established himself in supply chain of backyard poultry chicks in remote are. He is able to dispose four batches of nursery reared chicks earning profit as well as ensured the timely and easily supply of chicks in the far flung region of Chamba valley. He is planning to further extend the reach in to remote villages and is regularly taking the batches in 2-3 month interval.

Nursery rearing facility in higher hills of Chamba

FROM HIMACHAL PRADESH SUCCESS STORIES - II

Title: "Young farmer from shivalik ranges in lower Himalayas incorporated backyard poultry farming as remunerative farm enterprise"

Name of the farmer: Sh. Vijay Kumar S/O Sh. Sh. Bakshi Ram

Address: Village-Maslena, PO-Jhanjiani, Tehsil-Barsar, Hamirpur (Himachal Pradesh). Mobile: 9805048823

Background of the farmer: Sh. Vijay Kumar is basically an agriculturist in occupation. He belongs to lower hill region (Shivalik Himalayan ranges) of Himachal Pradesh. Like other hill farming rural household, he also rears few poultry birds in his backyard. The production he had from the few birds was not enough to satisfy his household needs. He was searching for a source of extra income apart from the household consumption, which can increase his returns from farming activities. The shivalik hill region in contrast to mid-higher hills of the state is densely populated and is also having peri-urban settlements in surrounding, which act as potential premium market for local farm produce.

Initiative taken by the farmer: He has been associated with Himmothan, NGO engaged in animal husbandry development initiative in mid-lower hill region of the state. During one of the training program organized by Himmothan society in Poultry farm, CSKHPKV, Palampur Vijay Kumar Resident of Maslena, Hamirpur (Himachal Pradesh) showed his willingness to include backyard poultry farming in his farming portfolio. He informed that in his surrounding peri-urban settlement the backyard poultry eggs are fetching premium price but he has having smaller flock size, thus is not able to capture the market regularly as he used to have surplus birds/eggs occasionally. After knowing about the location specific poultry variety "*Himsamridhi*" developed under AICRP on poultry breeding, (Rural unit) Palampur, during training programme he became very much interested

to start backyard poultry farming. He was supplied 250 chicks during October, 2023 to start his backyard poultry rearing venture and extended technical advice from time to time including preventive measures against major diseases. The growths of the chicks supplied were periodically monitored by on farm visit. The mortality in his flock was less (less than 10%) during the chick and growing phases.

Key results/highlights/interesting facts: The birds started laying eggs in mid of April, 2024 at around 6 months of age. He is retaining the laying hens till date with few culling. The male birds/cockerels which attained body weight of 1.7-2.0 kg at about 5-6 months of age were sold as per need/demand @ Rs.600-700/per bird giving him revenue of Rs 60,000/- in six-month duration from sale of cockerels. Accounting of various expenditure on rearing of birds and other inputs he realizes net profit around 25,000 rupees from sale of cockerels. According to Sh. Vijay Kumar during the peak season he earned handsome returns by selling of cockerels at premium price, since country chicken is in great demand during the winter season. The egg production of female birds was around 55-60 eggs per day from around 100 layers during the peak production in winter months. During this period, he was able to sell eggs @ Rs. 12-15 Rs per egg. At present, he is getting about 45-50 eggs daily giving him revenue of Rs. 600-700 per day and accounting for rearing, feeding and other inputs, monthly average net profit from sale of egg is around 10000 rupees. He adopted mixed system of scavenging with grains for rearing poultry birds keeping the input cost at bare minimum. He also practices supplementation with vitamins, minerals and calcium from time to time. A portion of eggs produced and cockerels were also consumed in the family to improve their nutritional quality.

Impact: Sh. Vijay Kumar is now making handsome profit in backyard poultry farming with improved birds of *Himsamridhi*. The effective utilization of household grains, kitchen waste and scavenging maximizes his returns from sale of eggs. He also improves his marketing strategies for better returns by attaining peak production during high demand period and maintaining replacement batches to ensure regular supply. With his experience of farming activities, he up-scaled the backyard poultry activities under semi-intensive system from rearing smaller flock size 0f 10-20 birds to 200-250 birds at a time. He is continuing with this occupation adding small replacement batches of 100-200 chicks at periodical intervals.

Additional information: The work was carried under All India Research Project on Poultry Breeding (Rural Poultry Center, Palampur) with financial support received from ICAR-Directorate of Poultry Research.

Contact Person(s): Dr Varun Sankhyan (PI),
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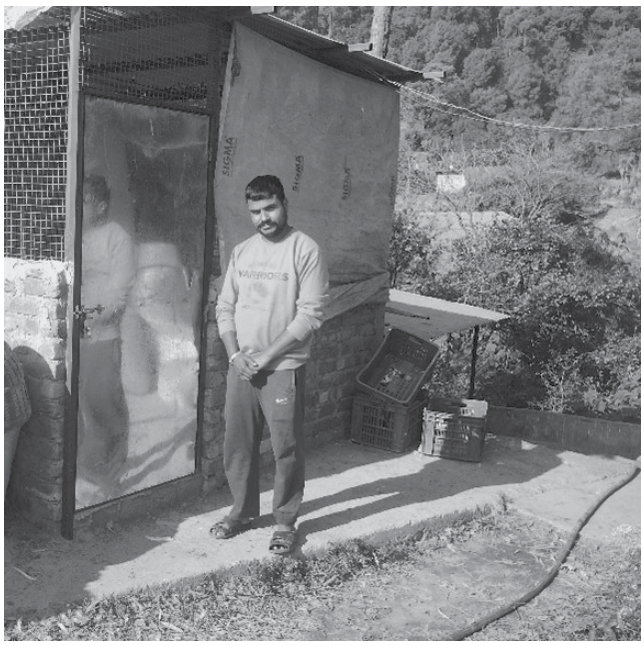

***Himsamridhi* field unit of Sh. Vijay Kumar**

FROM MANIPUR SUCCESS STORIES - I

Mrs. Ayao Mung (53 years) a farmer from Louphong Village, Phungyar Block, Kamjong Dist.795010. She is a dedicated and sincere hardworking housewife and a farmer whose family depends on income generated from his husband who is a farmer. She reared some 150 numbers of *Srinidhi* birds supplied from ICAR Poultry Seed Project, Manipur Centre in the backyard as a source of income for household maintenance. She had imparted scientific knowledge of poultry rearing from the training conducted by ICAR Manipur Centre. Now she is happy with the income received from rearing poultry and she plans to diversify her farm by planting banana, Kachai Lemon, Mangoes etc.

Mrs. Ayao Mung with *Srinidhi* birds

Address:	Louphong Village, Phungyar Block, Kamjong Dist.795010, Manipur
Inputs to farmers	150 numbers of *Srinidhi* Chicks from Poultry Seed Project ICAR Manipur Centre
Rearing system	Semi-deep litter system
Cost of commercial feed	20 bags x Rs.2500 =Rs. 50,000
Cost of rice polish for 150 birds till 72 weeks	800 kg Approx. x Rs.25/kg= Rs. 20,000
Cost of Medicines & Vitamin	Rs.5,000
Materials for low cost housing	Rs.6,000
Sale of Excess Male Birds@Rs.300 per kg	10 Birds@3.5/kg = 35 kg xRs.300 = Rs. 10,500
Monthly income from sale of eggs @Rs.10 per egg	1500 egg one month @Rs.10 =Rs.15,000 egg sales in a year =Rs.V15,000 x 12 months =Rs.1,80,000
Annual Net Profit	Rs.1,13,500
Average Monthly income	Rs.9,125/-

FROM MANIPUR SUCCESS STORIES - II

Mrs. Mensingla Kasar (45 years) a farmer from Chadong Village, Phungyar Block, Kamjong Dist.795145. She is a dedicated and sincere hardworking housewife and a farmer whose family depends on income generated from his husband who is a farmer. She reared some 150 numbers of *Srinidhi* birds supplied from ICAR Poultry Seed Project, Manipur Centre in the backyard as a source of income for household maintenance. She had obtained scientific knowledge of poultry rearing from the training conducted by ICAR Manipur Centre. She is also going hand in hand with the ICAR Manipur Centre regarding any disease outbreak or the technical know-hows from the Project. Now she is happy with the income received from rearing poultry and after joining a training conducted on Integrated Farming Systems by the Project at ICAR Manipur Centre, she plans to diversify her farm by planting banana, Kachai Lemon, Mangoes etc.

Mrs. Mensingla Kasar

Address:	Chadong Village, Phungyar Block, Kamjong Dist.795145, Manipur
Inputs to farmers	150 numbers of *Srinidhi* Chicks from Poultry Seed Project ICAR Manipur Centre
Rearing system	Semi-deep litter system
Cost of commercial feed	20 bags x Rs.2500 =Rs. 50,000
Cost of rice polish for 150 birds till 72 weeks	1000 kg Approx. x Rs.25/kg= Rs. 25,000
Cost of Medicines & Vitamin	Rs.7,000
Materials for low cost housing	Rs.8,000
Sale of Excess Male Birds @ Rs.300 per Kg	14 Birds @ 4.0/kg = 56 kg x Rs.300 = Rs. 16,800/-
Monthly income from sale of eggs @Rs.10 per egg	1450 egg one month @ Rs.10 =Rs.14,500 egg sales in a year =Rs.14500 x 12 months =Rs.1,74,000
Annual Net Profit	Rs.1,86,000
Average Monthly income	Rs.8,400/-

FROM MANIPUR SUCCESS STORIES - III

Mrs. Yuingamla Lungleng (62 years) a farmer from Lungphu Village, Kamjong Dist.795010. She is a dedicated and sincere hardworking housewife and a farmer whose family depends on income generated from his husband who is also a farmer. She reared some 150 numbers of *Srinidhi* birds supplied from ICAR Poultry Seed Project, Manipur Centre in the backyard as a source of income for household maintenance. She had imparted scientific knowledge of poultry rearing from the training conducted by ICAR Manipur Centre. Now she is continuing rearing of the birds in backyard system and happy with the income received from rearing poultry and the nutritional security is well secured from the eggs of the birds. She is diversifying her farm after learning Integrated Farming and diversification from the ICAR Manipur Centre by rearing three numbers of pigs, planting sugarcane, tree beans, bananas, and seasonal vegetables etc.

Mrs. Yuingamla Lungleng with *Srinidhi* birds

Address	Kamjong Dist.795010, Manipur
Inputs to farmers	150 numbers of *Srinidhi* Chicks from Poultry Seed Project ICAR Manipur Centre
Rearing system:	Semi-deep litter system
Cost of commercial feed	15 bags x Rs.2300 =Rs. 34,500
Cost of rice polish for 150 birds till 72 weeks	1000 kg Approx. x Rs.25/kg= Rs. 25,000
Cost of Medicines & Vitamin	Rs.6,000
Materials for low cost housing	Rs.5,000
Sale of Excess Male Birds @ Rs.300 per kg	12 Birds @ 3.0/kg = 36 kg xRs.300 = Rs. 10,800
Monthly income from sale of eggs @ Rs.10 per egg	1400 egg one month @Rs.10 =Rs.14,000 egg sales in a year =Rs.15,000 x 12 months =Rs.1,68,000
Annual Net Profit	Rs.1,08,300
Average Monthly income	Rs.9,025/-

FROM MEGHALAYA SUCCESS STORIES - I

Mrs Banisha Surong

Address: Jaiaw Laitdom Village, East Khasi Hills district, Meghalaya

Age: 42Years

Qualification: Graduate

Family member: 7 nos

Contact Number: 9863433908

Status before intervention

She has started the Poultry farming twenty years back with thirty no of Poultry bird for eggs production under backyard traditional system with available resources.

Interventions

- Capacity building and training regarding hatchery management and brooding
- Supplied improved variety chicks of *Vanaraja*
- Continuous technological support and monitoring
- Critical inputs: Mineral mixture, supplements and feeds
- Vaccination at regular intervals

Current status

Present flock consist of 350 adult birds and 30 to 40 chicks

- Housing: She constructed a concrete poultry shed with cemented floor and half wall.
- Shifted to concentrate feeding and set up a low cost incubator for hatching eggs. After rearing the chicks for 3 months she sells the birds @ Rs. 300-350/kg while they weigh around 1.5-1.8 kg and eggs are kept for hatchery unit
- Her monthly turnover Rs 30,000 (approx.) from the sale of Poultry bird, and eggs.

Hatchery Unit

She is running her hatchery unit successfully since last two years. In one cycle she incubates 130-140 eggs out of which on an average 100 chicks hatch out. She rears the chicks for three months and then supply to local people @ 280-320 per bird. In a year she approximately has 17 to 18 cycles with a net income of Rs 4, 50,000 by selling the birds.

Investments:

She utilizes the profit to improve the standard of living for her family and in Poultry farming for further expansion

FROM MEGHALAYA SUCCESS STORIES - II

Mrs. Birit Nongrum

Address: Umsaitprah Village Ri-bhoi district

Age: 55 Years

Qualification: Under-Graduate

Family member: 6 nos

Contact number: 9615165109

Status before interventions

She has started the Poultry farming in 2020 with thirty *Vanaraja* poultry bird for eggs production under backyard traditional system of Poultry rearing

Interventions

- Capacity building and training regarding hatchery management and brooding
- Supplied improved variety chicks of *Vanaraja*
- Continuous technological support and monitoring
- Critical inputs: Mineral mixture, supplements and feeds
- Vaccination at regular intervals

Current status

- Present flock includes 200 adult *Vanaraja* birds ,300 one month old *Vanaraja* chicks and 3 weeks old *Vanaraja* poultry chicks. She has kept 200 *Vanaraja* layers for egg production separately.
- Marketing: Poultry bird are sold at Rs. 300/kg at body weighing around 3-3.5 kg and eggs are sold at Rs 280 per tray.
- Her monthly turnover is Rs 40,000.00 (approx.) from the sale of poultry birds and eggs.

Investments: She utilizes the profit for expansion of her flock.

FROM TAMIL NADU SUCCESS STORY

Mr. S. Subramanian (Mobile: 09585906377) from Vellangal village of Tiruvarur district, TN is a 62 years old marginal farmer and the sole bread winner of the family entirely depends on income from small piece of land and through daily wages. Since the village is situated in Tiruvarur Dt. Which comes under Protected Agriculture Zone, there is no other source of income once agricultural activities are completed. Meantime, he was selected as a beneficiary under Scheme for Poultry Development by Dept. of Animal Husbandry during 2017. He underwent three days training programme on Poultry rearing at Farmers Training Centre (FTC), Tiruvarur as a part of the scheme and he learned about scientific management of *desi* chicken.

During the training, he learned about *Gramapriya* and *Vanaraja* chicken and their performance and availability from ICAR-AICPR(PB) Centre, Hosur. Since then, he has been procuring *Gramapriya* and *Vanaraja* chicken from Hosur Centre through FTC, Tiruvarur. He procured the birds more than 7 times since 2017, with numbers ranging from 30-100 per purchase. The male birds of *Gramapriya* and *Vanaraja* are sold for meat, whereas the females are reared for egg production. An additional income of Rs. 35,000/- to Rs. 40,000/- per batch and a net profit of Rs. 25,000/- per batch (100 bird) in 4 to 5 months through sale of birds for Rs. 500-600 per bird weighing around 1.8 kg and egg for Rs. 12 per egg. The farmer met his day-to-day expenditure through sale of birds and eggs and the poultry rearing generates employment to the farmer during lean season.

FROM KARNATAKA SUCCESS STORY

Shri. Dayanand Adayar from Mangalore started small scale rearing of native chicken in the year 1985. Observing the huge demand for local native chicken for customary ritual sacrifice of coloured native chicken to local deities in the region, he wished to start scientific poultry farming. He got introduced to AICRP Poultry Breeding Centre, Bengaluru in the year 1989. Since then he is in regular touch with the Scientist at AICRP poultry breeding, Bengaluru and regularly takes inputs on all aspects of poultry farming. He regularly purchases day old chicks from AICRP centre, does brooding, and sells them locally at farm as well at ritual places Panolibail near Kasargoad is one such temple place where he sells his birds. There is huge demand for local coloured birds of around 1 to 1.5 kg for sacrifice. Presently he is infrastructure for rearing ten thousand birds and is involved in rearing of local native chicken, as well improved birds as Girirja and Raja II. He prefers Raja II birds as they have greater growth potential compared to other local coloured birds. Many rural youth are following his footsteps and are involved in poultry business. He has motivated many youth in that region to start become poultry business. He is actively involved in Poultry farmers association activities and is presently President of Dakshina Kannada District Poultry Breeders society and also one of the director of Karnataka Poultry Federation. Further, he has been recognised and awarded as Progressive poultry breeder from Karnataka at Golden Jubilee celebration of AICRP-DPR held at Hyderabad on 13.02.2025.

FROM RANCHI SUCCESS STORY

Title: Backyard poultry to enhance socio-economic status of tribal farmer

Name of the farmer/entrepreneur :Mr. Birbal Manjhi

Address with phone number and Email: Namkum, Ranchi, 9262226196

Background of the farmer: Mr.Birbal Manjhi has a total 0.8 acre of land out of which 0.46 acre is non-irrigated. He developed interest in integrated farming system mainly by including poultry in the cropping system. He has participated in training programmes like Integrated backyard poultry farming.

Initiative taken by the farmer: He has taken training at AICRP on Poultry unit on scientific backyard poultry farming. He initiated Backyard poultry farming with 1500 *Jharsim* birds. He gradually developed interest in backyard *Jharsim* poultry chicken.

Production performance: *Jharsim* produces 500 eggs in backyard with body weight 1.5 kg at 16-20 weeks of age. These are the low input birds.

Scientific Intervention provided by institute/centre/ KVK/AH Department (Training, inputs, etc): AICRP conducted training on poultry farm management and regarding the vaccination schedule for birds and always in regular contact of the farmers for any difficulty in poultry farming.

Achievements: Mr. Birbal Manjhi has developed a good stock of *Jharsim* birds with capacity of approx. 2000 birds. He has expanded his farm for meat purpose birds too. Now he is well trained poultry farmers.

Socioeconomic impact: Mr. Birbal Manjhi presently having approx 2500 *Jharsim* layer birds. His annual income from poultry is approx Rs 2-3 lakhs.

10 PROCEEDINGS OF THE ANNUAL REVIEW MEETING OF AICRP ON POULTRY BREEDING, HELD AT ICAR-DIRECTORATE OF POULTRY RESEARCH, HYDERABAD ON 13TH AND 14TH FEBRUARY 2025

The Annual Review Meeting of AICRP on Poultry Breeding (2023-24) was organized at ICAR-Directorate of Poultry Research, Hyderabad on 13th and 14th February 2025. The review meeting was chaired by Dr. Raghavendra Bhatta, Deputy Director General (Animal Science), ICAR in the presence of Dr. R. N. Chatterjee, Director-ICAR-DPR, Hyderabad and Dr G. K. Gaur, Assistant Director General (Animal Production and Breeding). Dr. R.P Sharma Former Director and Dr. Dr S. B. Barbuddhe, Director, ICAR-NMRI, Hyderabad also graced the occasion as Guests of Honour during the inaugural session. The following officers attended the review meeting:

1. Dr. Raghavendra Bhatta, DDG (AS), ICAR, New Delhi
2. Dr. G. K. Gaur, ADG (AP& B), ICAR, New Delhi
3. Dr. R. N. Chatterjee, Director, ICAR-DPR, Hyderabad
4. Dr. U. Rajkumar, Head, PGB Div & In charge, AICRP-PB, ICAR-DPR, Hyderabad
5. Dr. S.S.Paul, Head, PNHP, Div, ICAR-DPR, Hyderabad
6. Dr. S.K. Bhanja, Head, DPR Regional Station, Bhubaneswar
7. Dr. H.K.Narula, Pr Scientist, ICAR, New Delhi
8. Dr. H. Kalita HoRC, ICAR RC for NEH region, Nagaland
9. Dr. F. P. Savaliya, Professor & PI, KU, Anand, Gujarat
10. Dr. A. Patel, Professor, KU, Anand, Gujarat
11. Dr. Simmi Tomar, Pr Scientist & PI, CARI, Izatnagar
12. Dr. Sourabh Deori. Sr Scientist & PI, Meghalay Centre, ICAR RC for NEH region, Umiam
13. Dr. Mihir Sarma, Scientist & PI, AAU, Khanapara, Guwahati
14. Dr. Chongtham Sonia, Scientist & PI, Manipur Centre, ICAR RC for NEH region, Imphal
15. Dr. Vaishali Khare, Associate Professor & PI, NDVSU, Jabalpur
16. Dr. Pankaj Kumar, Professor & PI, BASU, Patna
17. Dr. Thiruvenkadan, Dean, & PI, CPPM, Hosur
18. Dr. Shamsudeen P, Professor & Co-PI, CPPM, Hosur
19. Dr. Naveen Kumar GS, Pr Scientist & PI, KVAFSU, Bengaluru
20. Dr. Beena C Joseph, Associate Professor & PI, KVASU, Mannuthy
21. Dr. C.Suja, Asst professor & Co PI, KVASU, Mannuthy
22. Dr. Varun Sankhyan Asst Professor & PI, CSKHPVK Palampur
23. Prof. Azmat Alam Khan, Registrar & PI, SKUAST-K Srinagar
24. Dr. Siddhartha Mishra, Professor & PI, MPUAT, Udaipur
25. Dr. Saroj Kumar Sahoo, Asst Professor & PI, GADVASU, Ludhiana
26. Dr. Vinay Singh, Sr Scientist & PI Tripura Centre, ICAR RC for NEH region, Agartala
27. Dr. P. Amareswrai, Professor & PI, PVNR TVU, Warangal
28. Dr. Prasanth, Asst professor & Co PI, PVNR TVU, Warangal
29. Dr. B. Rambabu Naik, Professor & Co PI, SVVU, Tirupati, A.P.
30. Dr. Tamilarasan K, Scientist, Sikkim Centre, ICAR RC for NEH region, Gangtok
31. Dr. M .K. Padhi, Pr Sceintst, DPR, Reginal Station, Bhubaneswar
32. Dr. M. Niranjan, Pr. Scientist, ICAR-DPR, Hyderabad
33. Dr. Santosh Huanshi, Pr. Scientist, ICAR-DPR, Hyderabad
34. Dr. L.L.L. Prince, Pr. Scientist, ICAR-DPR, Hyderabad
35. Dr. M.R.Reddy, Pr Scientist, ICAR-DPR, Hyderabad
36. Dr.M.Shanmugam, Pr Scientist, ICAR-DPR, Hyderabad
37. Dr. Aneet Kour, Scientist, ICAR-DPR, Hyderabad

Dr R. N. Chatterjee, Director, ICAR-DPR, welcomed the dignitaries and provided an overview of the history of AICRP on Poultry Breeding, highlighting its achievements in developing and improving elite layer and broiler lines, creating location-specific rural chicken varieties, and characterizing and conserving indigenous chicken breeds.

Dr G. K. Gaur, Assistant Director General (Animal Production and Breeding), ICAR appreciated the efforts of the scientists and emphasized huge scope for expanding the poultry to bring the availability of egg and meat to the recommended levels of 180 eggs and 11 kg chicken meat.

Hon'ble DDG (A.S.), ICAR, Dr. Bhatta congratulated the Institute and AICRP on Poultry Breeding team for the successful organization of Golden Jubilee Celebrations of AICRP on Poultry Breeding. He lauded the contribution of AICRP in earlier days for the development of poultry industry in India.

Dr. U. Rajkumar, In-charge, AICRP on Poultry Breeding presented the project coordinator's and action taken report for the year 2023-24. He presented the grading of different centres based on overall achievements. Most of the centres performed satisfactorily. He emphasized to bring out quality publications from the research work of the project. Dr.G.K.Gaur, ADG suggested to keep poor performing centres on cooling period of one year. If the performance is not improved, the centre will be closed subsequently. He informed the house that, duck research may be initiated in two centres. DPR Regional Station, Bhubaneswar and Guwahati can be included together for multiplication and distribution of duck germplasm.

The progress report of respective centres of AICRP on Poultry Breeding for the year 2023-24 was presented by the P.I.s of respective centres.

Mannuthy Centre

The progress report of the Mannuthy centre was presented by Dr. Beena Joseph, Associate. Professor, KVASU, Mannuthy. The Director, ICAR-DPR appreciated the work of the centre and suggested to evaluate the performance of the three-way cross at the farm and field level as per the technical program. The PI was suggested to present the genetic and phenotypic response in IWN and IWP lines. The centre was urged to start the genetic improvement in the native chicken breed (Tellicherry). The target for the germplasm supply of the centre was enhanced to 1.25 lakhs for the year 2024-25. The Hon'ble DDG (A.S.) suggested to involve students in the AICRP research for their thesis work. The centre was also instructed to come out with good quality research publications.

Anand Centre

Dr. F. P. Savalia, Professor and Head, Poultry Research Station, Kamdhenu University, Anand presented the progress report of the Anand centre. He informed the house that the centre has received the breed conservation award from the ICAR-NBAGR, Karnal for the Ankleshwar breed. He requested to discontinue RIR breed at the centre and to record the performance of IWD and IWK lines of White Leghorn up to 40 weeks of age instead of the present 64 weeks of age to reduce expenditure on feed and other inputs. The House agreed to the proposal. The ADG suggested for accurate estimation of the genetic parameters using appropriate statistical models. The Hon'ble DDG (A.S.) observed that major portion of the grant was going towards the salary component and he emphasized for the higher allocation of funds for research contingency. Accordingly, he instructed the Director to write a letter to Hon'ble Vice Chancellor of Kamdhenu University with regard to withdrawal of salary component from next EFC. The target of germplasm supply of the centre is fixed at 1.0 lakh for the year 2024-25.

Bengaluru Centre

Dr. Naveen Kumar GS, Pr Scientist, KVAFSU, Bengaluru presented the progress report of the Bengaluru centre. The Hon'ble DDG (A.S.) appreciated the presentation and progress of the centre. The PI requested for the renovation of the poultry sheds and hatchery as they are very old. The centre was suggested to go for cage rearing of breeders for proper recording of full-sib pedigree data and also to increase the number of sire families of pure lines and native chickens. It was suggested to propose the renovation of poultry houses with cage rearing facility and hatchery in the next EFC. The PI was instructed to find out the name used by local people for the native chickens collected from the native tract. The PI was suggested to collect hatching eggs of the Ghagus breed from its native tract and establish a separate population to study the phenotypic and genetic differences with other native chickens of the centre. The DDG asked the Director to write a letter to the Hon'ble Vice Chancellor of KVAFSU to allocate funds for the renovation of sheds.

Ludhiana Centre

The progress report of the Ludhiana centre was presented by Dr. Saroj Kumar Sahoo. Asst. Professor, GADVASU, Ludhiana. The ADG observed that standard errors were not provided for the heritability estimates and he also suggested to include ΔP and ΔG in the presentation. The honourable DDG informed that henceforth there will not be any salary component and suggested to improve the performance of

the centre. The P.I. was suggested to come out with good quality research publications. The germplasm supply target enhanced to 1.0 lakhs for the year 2024-25.

Izatnagar Centre

Dr. Simmi Tomar, Principal Scientist, ICAR-CARI, Izatnagar presented the progress report of the CARI centre. The Director, ICAR-DPR suggested for the characterization of the native chicken germplasm. The ADG suggested to identify the best lines and make the genetic improvement in them. The genetic progress in best lines must be determined by maintaining a suitable control population. The house suggested to include the scientist with animal breeding expertise to handle the project. Dr. Tomar expressed that there is a lack of adequate scientific manpower in the centre and she requested permission for recruitment of contractual project staff for the centre. It was suggested to follow the technical program of the project strictly.

Agartala Centre

Dr. Vinay Singh, Scientist, ICAR-RC NEH, Tripura centre presented the progress report of the Agartala centre. Dr. Singh was informed to include the research component by initiating the genetic improvement in native chicken germplasm through selective breeding. He was asked to submit the proposal for the procumbent of setters and hatchers with the approximate cost estimates. He was suggested to improve the performance of the centre. He was also suggested to increase the germplasm supply of the centre to 50,000 for the year 2024-25.

Jabalpur Centre

The progress report of the Jabalpur centre was presented by Dr. Vaishali Khare, Associate Professor, NDVSU, Jabalpur. The Director, ICAR-DPR suggested for the improvement of the presentation. He also suggested to initiate the registration of Jabalpur Colour germplasm. The Director had expressed his dissatisfaction with the performance of the centre. Experts observed that estimates of genetic parameters were not accurate for most of the traits. The PI was suggested to increase the population size and proper recording of pedigree data to increase the accuracy of the parameters. The PI was informed to improve the germplasm supply of the *Narmadanidhi*. It was also suggested to work on the registration of Jabalpur colour chicken population with NBAGR.

Udaipur Centre

Dr. Sidhartha Mishra, Professor and Head, MPUAT, Udaipur presented the progress report of the Udaipur centre. The video on the impact of the introduction of the *Pratapdhan* strain on the income from backyard poultry rearing was shown during the presentation. The DDG has appreciated the video. However, ADG felt that the progress of the centre was not satisfactory as there was no research component in the centre. He suggested to initiate genetic improvement in native chickens and include research component in the *Mewari* breed of chicken. Concerns were expressed about the lack of involvement of breeding scientists in the AICRP project. ADG asked Dr. Rajkumar to visit the Centre and review the status of the project. The extension for one year is given to the centre for deciding the future course of action. The target for the germplasm supply was increased to 70,000 for the year 2024-25.

Palampur Centre

Dr. Varun Sankyan, Asst. Professor, CSKHPKV, Palampur, presented the progress report of the Palampur centre. He informed that the cage-rearing facility is being created for rearing about 550 birds in individual cages. The DDG appreciated the performance of the centre. The PI was instructed to initiate the registration of native chicken germplasm. ADG suggested the PI to initiate the genetic improvement of the native chickens. The Director suggested to prepare a video on the performance of *Himsamridhi* birds in the high altitude hilly areas.

Guwahati Centre

Dr. Mihir Sharma, Scientist, AAU, Khanapara, Guwahati presented the progress report of the Guwahati centre. The P.I. was suggested to transfer the parents of the *Kamrupa* strain to the AAU University and start working only on native chicken germplasm. Furthermore, he was directed to go for registration of native chicken germplasm. The infrastructure for rearing ducks under AICRP on Poultry Breeding has to be created at the research station where water bodies are present. The research component must be given more emphasis in the project. One-year time was given to the unit for preparing a detailed research plan on duck breeding. It was further suggested that the Bhubaneshwar Centre, if required may supply the ducks germplasm to the centre. ADG asked Dr. Rajkumar to visit the centre and explore the feasibility of duck research at the centre.

Ranchi Centre

The progress report of the Ranchi centre was presented by Dr. Ravinder Kumar, asst Professor, BAU, Ranchi. The Director mentioned that the progress of the centre was not satisfactory. He suggested to remove white plumage birds from native chicken germplasm. As the

revenue generation was low; the centre was informed to rationalize the selling price of hatching eggs and day-old chicks. The ADG suggested to take up the registration of native chickens. He also suggested for initiating pedigree mating of native chickens through artificial insemination. The PI was instructed to initiate the selection program in native chickens according to the technical program. The Hon'ble DDG suggested involving PG/PhD students in the research work of the AICRP and bring out quality research publications. The target for germplasm supply was revised to 75,000 for the year 2024-25.

Nagaland Centre

Dr. Homeshwar Kalita, Head, Regional Station, ICAR-RC NEH, Nagaland presented the progress report of the Nagaland centre. It was observed that there is no involvement of scientific manpower with breeding specialisation. It was suggested to get the help of Animal Genetics and Breeding scientist from ICAR-National Research Centre on Mithun as Co P.I. . The centre was identified as a production unit; so experts suggested to expand the farm facilities to increase the germplasm supply. Accordingly, the target of germplasm supply was increased to 1.5 lakhs for the year 2024-25.

Sikkim Centre

Dr. Tamilarasan, Scientist, ICAR-RC NEH, Sikkim presented the performance of the centre. He informed that he was given the charge of P.I just two weeks back. Serious concerns were expressed for not utilizing the funds allocated under various heads including Trible Sub Plan. PI informed the house that funds from the Umiam headquarters were not released due to some accounting issues. The PI was informed to give top priority for the proper utilization of the funds. The proposal of P.I. for the recruitment of young professionals to carry out the research work was considered. The target of germplasm supply of the centre was increased to 1.5 lakh for the year 2024-25.

Manipur Centre

Dr. Chongthom Sonia, Senior Scientist, ICAR-RC NEH, Imphal presented the progress report of the centre. The performance of the centre was not good. The P.I. expressed the difficulties in carrying out the work due to ongoing social unrest and flood. The PI was asked to explore the possibilities of getting germplasm from the Guwahati centre for distribution among the backyard farmers. A one-year cooling period was given to monitor the progress of the centre. The germplasm supply of the centre was fixed at 50,000 for the year 2024-25.

Umiam Centre

Dr. Sourabh Deori, Senior Scientist, ICAR-RC NEH, Umiam presented the progress of the centre. The house felt that the performance of the centre was not satisfactory. Dr. Deori informed the house that from time to time; centre is facing power failure issues and that there is an urgent need for the power backup (generator set) facility to rear the poultry birds in the newly established poultry shed. The PI was instructed to arrange generator backup facility using the funds of ICAR Research Complex, Umiam. It was further observed that the utilization of the funds allocated to the centre was not satisfactory. The centre was placed under observation for one-year period to decide the future course of action.

Hosur Centre

Dr. A. K. Thiruvenkadan, Dean, College of Poultry Production and Management presented the progress report of the Hosur Centre. The centre was suggested to start the research activities under the project by identification of native chicken germplasm and requirements of the people in the area. Accordingly, the technical program of the centre has to be reoriented. The DDG suggested to involve PG students of Namakkal Veterinary College for their thesis work in the AICRP project so that better research publications can be produced. The target of germplasm supply was fixed at 1.0 lakhs for the year 2024-25.

Patna Centre

Dr. Pankaj Kumar, Professor, Bihar Veterinary College, BASU, Patna presented the progress report of the centre. The DDG appreciated the presentation but suggested to present the data in tabular form for better understanding. The technical program of the centre has to be revised to include the research component under the project. The centre must start working on the genetic improvement of native chicken germplasm. It was also suggested to receive the feedback from the farmers of the study area. PI was instructed to start identifying and collecting the native chicken germplasm. The target of germplasm supply was fixed at 70,000 for the year 2024-25.

Srinagar Centre

Dr. A. A. Khan, Professor & Registrar, SKUAST-K, Srinagar presented the progress report of the centre. The PI informed that the centre is working on conservation of the Kashmir Favorella breed of chicken. The house appreciated the progress of the centre and suggested to initiate the research work on purification and genetic characterization of the Kashmir Favorella breed. The PI requested to hold

the next year's ARM of AICRP at the Srinagar centre before the start of the winter season.

Warangal Centre

Dr. Amareshwari; Professor, Livestock Research Station, Mamnoor, PVNR TVU Warangal presented the progress report of the Warangal centre. The PI informed the house that there is good acceptance of the *Nicobari* breed of chicken among the farmers of the area. The centre is working on the multiplication and distribution of *Nicobari*, Vanashree, Ghaus and Aseel breeds under the project. The house instructed the PI to start research work on the *Nicobari* breed of chicken. PI informed that two poultry sheds are under construction and there is a need for the creation of the cage facility to start work on genetic improvement in native chickens. Accordingly, she was instructed to propose cage facility in the new EFC of the project. The house suggested to improve the germplasm supply in the coming year.

Tirupati Centre

Dr. Rambabu, Professor and Head, C.V.Sc. (S.V.V.U), Tirupati presented the progress report of the centre. He also displayed the videos on the feedback received from the beneficiaries. The house felt that the performance of the centre is not up to the mark. Therefore, Hon'ble DDG suggested to write a letter to the Vice Chancellor of the SVVU, Tirupati to change the present PI on the health ground. The technical program of the centre needs to revised with inclusion research component. The house suggested to improve the germplasm supply, particularly of native chickens. The target for germplasm supply was kept at 50,000 for the year 2024-25.

Plenary Session

In the closing remarks; the Director, ICAR-DPR informed that the Regional Station, ICAR-DPR, Bhubaneshwar will be a new centre of the AICRP on Poultry Breeding and will start work on characterization, conservation and genetic improvement of duck germplasm.

Dr. G.K. Gaur, ADG complimented the centres, which are doing good work and cautioned the poor performing Centres. He suggested to reorient the centre activities with inclusion of research work on genetic improvement program. The centres, where facilities are limited may work as field units for the multiplication and distribution of the improved germplasm.

Dr. Raghavendra Bhatta, DDG (AS) appreciated and congratulated the AICRP on Poultry Breeding for its golden jubilee celebrations and impact on development of poultry industry in the country. He reiterated that a policy decision will be taken to discontinue the salary component from the project. Accordingly, all the Vice-Chancellors will be informed. He stressed on the importance of students in the project and urged all the PIs to include students for their PG and PhD research work. He also suggested to bring out good quality publications from the research and improve the visibility of the project.

Dr. Leslie Leo Prince, Pr. Scientist and In-charge, PME Cell, ICAR-DPR proposed a vote of thanks.

Recommendations

1. Research is the primary focus of AICRP on Poultry Breeding and emphasis must be given on the characterization, genetic improvement and registration of native poultry germplasm.
2. Salary component of the project may be withdrawn from the next EFC, The Vice-Chancellors may be informed, accordingly.
3. The project should be operated in a multidisciplinary approach involving the scientists from Breeding, Poultry Science, Nutrition, Health, etc.
4. One-day virtual Midterm Review Meeting should be organized to monitor the half-yearly research progress of the centres.
5. The feedback from the farmers; particularly small and marginal must be taken to address their concerns regarding backyard or small-scale poultry farming.
6. Impact assessment study after the introduction of improved germplasm should be done by all the centres.
7. Quality publications must come from the research work, carried out under AICRP on Poultry breeding. It is mandatory to acknowledge the ICAR/ AICRP on Poultry Breeding in all the publications.
8. Strict biosecurity measures need to be adopted to reduce the outbreaks.
9. Duck research may be initiated at DPR Regional Station, Bhubaneswar with Guwahati centre as a field unit.

11 PUBLICATIONS

Research Papers

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Book

Sahoo Lopamudra, Singh Vinay, Kumar Rahul, Das Biswajit, Mishra Vinay Kumar and Choudhury Burhan U. 2025. *Agricultural Technologies to Transform Rural Livelihoods in Tripura.* ISBN 978-93-341-8381-8, 138 pages. ICAR Research Complex for NEH Region, Umiam, Meghalaya, India. Copyright©2025, ICAR Research Complex for NEH Region.

Book Chapters

Vinay Singh, U. Rajkumar, M. Niranjan, Suresh Malik, R.N. Chatterjee, Avijit Haldar, Chandan Debnath, R.S. Godara, Lopamudra Sahoo, Sunil Doley, B.K. Kandpal, Biswajit Das, V. K. Mishra 2025. Tokbari: A Dual Purpose Coloured Bird suitable for Rural Poultry Production. In Book: *"Agricultural Technologies to Transform Rural Livelihoods in Tripura"* Authors: Sahoo Lopamudra, Singh Vinay, Kumar Rahul, Das Biswajit, Mishra Vinay Kumar and Choudhury Burhan U. ISBN 978-93-341-8381-8, ICAR Research Complex for NEH Region, Umiam, Meghalaya, India. Copyright©2025, ICAR Research Complex for NEH Region.pp: 114-115.

Vinay Singh, Chandra Deo, Chandan Debnath, Asit Chakraborty, Lopamudra Sahoo, Huirem Bharati, U. Rajkumar, M. Niranjan, B.K. Kandpal, Biswajit Das, B.U. Choudhury, V. K. Mishra 2025. *Choak*: A Low Cost Feed for Broiler Production. In Book: *"Agricultural Technologies to Transform Rural Livelihoods in Tripura"* Authors: Sahoo Lopamudra, Singh Vinay, Kumar Rahul, Das Biswajit, Mishra Vinay Kumar and Choudhury Burhan U. ISBN 978-93-341-8381-8, ICAR Research Complex for NEH Region, Umiam, Meghalaya, India. Copyright©2025, ICAR Research Complex for NEH Region.pp: 116.

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Vinay Singh, Asit Chakraborty, Lopamudra Sahoo, Anup Das, Chandan Debnath, H. Lembisana Devi, Huirem Bharati, Sourabh Deori, B.U. Choudhury, Mahak Singh, Biswajit Das, V. K. Mishra 2025. Heat stress management in laying hen though herbal feed supplement. In Book: *"Agricultural Technologies to Transform Rural Livelihoods in Tripura"* Authors: Sahoo Lopamudra, Singh Vinay, Kumar Rahul, Das Biswajit, Mishra Vinay Kumar and Choudhury Burhan U. ISBN 978-93-341-8381-8, ICAR Research Complex for NEH Region, Umiam, Meghalaya, India. Copyright©2025, ICAR Research Complex for NEH Region.pp: 121.

हिन्दी पत्रिका में लेख:

वनिय सहि असति चक्रवर्ती लोपामुद्रा साहू महक सहि एच लेम्बसिना देवी सौरभ देवरी बी यू चौधरी प्रसनजीत देबनाथ एवं बश्विजीत दास। अदरक अंडे देने वाली मुर्गियों में गर्मी के तनाव को कम करने के लिए एक हर्बल फीड सप्लीमेंट। "पूर्वोत्तर भारती" भा.कृ.अनु.प. उत्तर-पूर्वी पर्वतीय क्षेत्र अनुसंधान परिसर, उमियम, मेघालय -793103 द्वारा प्रकाशित हिन्दी पत्रिका। ISBN: 978-81-949334-8-9, संपादक: डॉ. वीरेंद्र कुमार वर्मा एवं डॉ. अमति कुमार, मुद्रित: रूमी जुमी एंटरप्राइज, सिक्समाइल, गुवाहाटी-22, नवीनतम अंक -8, पृष्ठ. सं:

वनिय सहि असति चक्रवर्ती लोपामुद्रासाहू महक सहि एच लेम्बसिना देवी सौरभ देओरी राकेश कुमार एवं बश्विजीत दास। चोक कुक्कुट पालन के लिए एक कम लागत वाला पोल्ट्री फीड। "पूर्वोत्तर भारती" भा.कृ.अनु.प. उत्तर-पूर्वी पर्वतीय क्षेत्र अनुसंधान परिसर, उमियम, मेघालय -793103 द्वारा प्रकाशित हिन्दी पत्रिका। ISBN: 978-81-949334-8-9, संपादक: डॉ. वीरेंदर कुमार वरमा एवं डॉ. अमति कुमार,

Abstracts

Adil S., M.T. Banday, M.A. Wani, S.A. Hussain, I.U. Sheikh, A.A. Khan, H. Hamadani and I.A. Baba 2024 Effect of protected form of rosemary essential oil on meat quality of broiler chicken *Book of Abstracts, 39th Indian Poultry Science Association Conference (IPSACON-2024) & National Syposium on "Shaping the Indian Poultry Sector for Sustainable Growth" from October 16-18, 2024 at Nagpur Veterinary College, MAFSU, Nagpur* pp 148.

Adil, S., M.T. Banday, M.A. Wani, I.U. Sheikh, A.A. Khan, I.A. Baba, H. Hamadani, Z. Kashoo and S. Muzamil 2004 Effect of nano-encapsulated rosemary essential oil on immune status of broiler chicken *Book of Abstracts, 39th Indian Poultry Science Association Conference (IPSACON-2024) & National Syposium on "Shaping the Indian Poultry Sector for Sustainable Growth" from October 16-18, 2024 at Nagpur Veterinary College, MAFSU, Nagpur* pp15

Basavarajaiha, D.M., Shreya A.M., Yatish H.M. and Naveen kumar G S. 2005 Heritability and correlation analysis of growth and reproductive traits in Punjab broiler lines. SOCDAB National Symposium, Bengaluru, p. 108.

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Madhusudhan, H.S., Veeregowda,B.M., Jaishankar,N and Naveen kumar G.S. 2005 Evaluation of powdered Hatchery waste infertile egg without shell by nutritional, microbiological and invitro digestibility methods. WANACON-2025, Nagpur, p.278.

Naveen kumar G S., Santosh Haunshi and Rajakumar, U. (2025) Comparative performance of Native, PB1 line chicken and their F1 cross under intensive rearing system. SOCDAB National Symposium, Bengaluru, p. 29.

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Sayed Mehwish Qadri, Azmat A. Khan, H. Hamadani, Zulfiqar-ul Haq and Nageena Nazir 2004 Pre-incubation organic acid egg sprays an alternative to formaldehyde fumigation in hatcheries *Book of Abstracts, 39th Indian Poultry Science Association Conference (IPSACON-2024) & National Syposium on "Shaping the Indian Poultry Sector for Sustainable Growth" from October 16-18, 2024 at Nagpur Veterinary College, MAFSU, Nagpur* pp-61

Sayed, Mehwish Qadri, Azmat A. Khan, H. Hamadani, Zulfiqar-ul Haq and Gowhar Gull 2004 Effects of illumination during incubation on hatchability and post hatch performance in *vanaraja* chicken *Book of Abstracts, 39th Indian Poultry Science Association Conference (IPSACON-2024) & National Syposium on "Shaping the Indian Poultry Sector for Sustainable Growth" from October 16-18, 2024 at Nagpur Veterinary College, MAFSU, Nagpur* pp 60

Sayed, Mehwish Qadri, Azmat Alam Khan, H. Hamadani, Zulfiqar-ul Haq and I. U. Shiekh 2024 Effect of pre-incubation egg sprays on egg quality traits of *vanaraja* eggs *Book of Abstracts, 39th Indian Poultry Science Association Conference (IPSACON-2024) & National Syposium on "Shaping the Indian Poultry Sector for Sustainable Growth" from October 16-18, 2024 at Nagpur Veterinary College, MAFSU, Nagpur* pp 61

Suja C.S, S Sankaralingam, Beena C Joseph, Binoj Chacko and P Anitha 2024. Evaluating the production performance of a coloured three-way cross chicken (Thriveni) in backyard and intensive rearing system. Proceedings of 16th Kerala Veterinary Science Congress, College of Veterinary and Animal Science, Mannuthy, Kerala 8-10 November 2024. P. 267.

Vinay Singh, Asit Chakrabarti, Lopamudra Sahoo, Mahak Singh, Sourabh Deori, B.U Choudhury, Prasenjit Debnath, H. Bharati Biswajit Das and V. K. Mishra 2024. Production Performance and Egg Quality Parameters of Laying Hen Supplemented with Black Turmeric under Heat Stress. In "XVI European Poultry Conference - 2024" held on 24-28 June, 2024, in Valencia, Spain. Abstract ID: 130758.

Vinay Singh, Chandra Deo, Asit Chakrabarti, Lopamudra Sahoo, Mahak Singh, Rakesh Kumar, Chongtham Sonia, Dinesh Kumar, Huirem Bharati, Bapi Das and B.U. Choudhury (2024). Effect of Feeding of Home Made Rice Beer Waste (Choak) on Poultry Production and Cost Economics. In 7th International Conference on Advances in Agriculture Technology and Allied Sciences (ICAATAS-

2O24) Jointly Organized Society of Agriculture Research and Social Development (New Delhi), Southern Federal University (Russia) & The Neotia University, West Bengal, India on 15-16 September, 2024. In SOUVENIR-CUM-COMPENDIUM OF ABSTRACTS. pp: 210.

Oral Presentations

Oral Presentation on "Effect of Feeding of Home Made Rice Beer Waste (Choak) on Poultry Production and Cost Economics". In 7th International Conference on Advances in Agriculture Technology and Allied Sciences (ICAATAS-2O24) Jointly Organized Society of Agriculture Research and Social Development (New Delhi), Southern Federal University (Russia) & The Neotia University, West Bengal, India on 15-16 September, 2024.

Thesis

Nidhi Daroch (2025). Identification of genetic polymorphism in candidate genes related to egg production and egg quality traits in Native chicken of Himachal Pradesh (**MVSc)**.

Kshitij Katkar (2024). Effect of varying concentration of dietary vitamin D3 on productive and reproductive performance in *Himsamridhi* chicken variety (**MVSc)**.

Sunidhi (2024). Evaluation of nutritional requirements of low input technology (LIT) birds for increased economic return in different rearing system **(PhD)**.

Yadav S (2025) Effect of Varying Dietary Protein and Energy Levels on Growth and Egg Production Performance of Mewari Chicken. Doctoral thesis, MPUAT, Udaipur **(PhD)**.

Kumar M (2024) Performance Evaluation of Mewari Chicken and its Crosses Under Intensive System. Marster's Thesis, MPUAT, Udaipur **(MSc)**.

Gurjar SK (2024) Effect of Feeding Mustard Cake on Growth and Nutrient Utilization in Pratapdhan Chicks. Master's Thesis, MPUAT, Udaipur **(MSc)**.

Yadav AK (2024) Effect of Feeding Bajra (Pennisetum glaucum) Grain on Growth and Nutrients Utilization in Pratapdhan Chicks. Master's Thesis, MPUAT, Udaipur **(MSc)**.

Folder / Pamphlets

Folder on Scientific rearing of "Coloured meat chicken" in Kannada. 2024-25, Dr.Naveen kumar G.S., AICRP on Poultry Breeding, Veterinary College, Bengaluru.

Folder on Scientific rearing of "Brown shelled egg chicken" in Kannada. 2024-25, Dr.Naveen kumar G.S., AICRP on Poultry Breeding, Veterinary College, Bengaluru.

Training Manual on Poultry Entrepreneurship in Kannada for farmers training from 22-07-2024 to 27-07-2024. Dr.Naveen kumar G.S., AICRP on Poultry Breeding, Veterinary College, Bengaluru.

Awards

1. Dr. Suja C.S (Farm Manager) received the "Best paper with second prize" in Session 5- Livestock and poultry production (poster presentation category) for the paper "Evaluating the production performance of a coloured three way cross chicken (Thriveni) in backyard and intensive rearing system" authored by Suja C.S, S Sankaralingam, Beena C Joseph, Binoj Chacko and P Anitha in the 16th Kerala Veterinary Science Congress held during November 8-10, 2024 at College of Veterinary and Animal Sciences, Mannuthy, Kerala.
2. AICRP Poultry breeding, Bengaluru secured First Prize in Poultry exhibition category at State level Livestock, Poultry and Fisheries Expo 2025, held at Bidar.
3. Best Poster Award – Evaluation of powdered hatchery waste infertile eggs without shell by nutritional, microbiological by digestibility methods" Madhududhan H.S., Veeregowda, B.M., Jaishankar,N., Naveen kumar G.S., Hemanth Gowda, K and Prabhu.T.M. at World Animal Nutrition Conference (WANCON- 2025) 20-22 Jan 2025 on " Newer Vista to Animal Nutrition Research towards Climate Resilient Animal Production for Livelihood, Food and Nutritional Security.
4. 1st Prize in oral presentation: Mavi GK, Dubey PP, Singh N, Sahoo SK, Grewal RS and Malhotra P. (2024). Effects of Linolenic Acid on Sperm Attributes During in Vitro Storage of Rooster Semen. In: National Symposium of ISSAR November 29 to December 1, 2024 held at GADVASU, Ludhiana.
5. Dr. Azmat Alam Khan received the IPSA Fellowship during 39th IPSACON-2024 October 16-18, 2024 at Nagpur Veterinary College, MAFSU, Nagpur
6. AAU, Guwahati centre participated in the "Livestock and Poultry Show-2025" organized by Animal Husbandry and Veterinary Department, Govt. of Assam & ALPCO from 10th to 12th January' 2025 at Khanapara, Guwahati-781022 and received First Prize in Poultry Exhibit.

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Dr Raghavendra Bhatta, DDG (AS), ICAR and Chief Guest addressing the audience on the occasion of Golden Jubilee Celebrations of AICRP on Poultry Breeding

Dr. R.N.Chatterjee, Director welcoming the guests on the occasion of Golden Jubilee Celebrations of AICRP on Poultry Breeding

Dr. G.K.Gaur, ADG (AP& B), ICAR addressing the audience

DDG and other dignitaries visiting the photo exhibition of AICRP on Poultry Breeding

Dr R.P. Sharma, former Director, ICAR-DPR, Hyderabad addressing the gathering

Release of AICRP on Poultry Breeding Annual Report

AICRP Annual Review Meeting in progress

Annual Review Meeting of AICRP on Poultry Breeding in progress

Honouring Dr R P Sharma, former Director, ICAR-DPR, Hyderabad.

Honouring Dr. V R Reddy, Retd. Professor, Dept. of Poultry Science, PVNRTVU, Hyderabad.

Honouring Dr VLK Prasad, Retd. Professor, Dept. of Poultry Science, PVNRTVU, Hyderabad.

Honouring Dr Mahipal Reddy, Retd. Professor, Dept. of Poultry Science, PVNRTVU, Hyderabad.

Honouring Dr Rajashekar Reddy, Retd. Professor, Dept. of Poultry Science, PVNRTVU, Hyderabad.

Exchange of MOU between ICAR-DPR and KVASU, Mannuthy

Exchange of MOU between ICAR-DPR and KVAFSU, Bengaluru

Honouring women farmer from Nagaland

Indigenous Cock

PB-1 Cock

Coloured broiler birds maintained by Farmer

Indigenous birds at farmer's backyard

PB-2 hens at AICRP, Bangalore centre

White Leghorn birds at AICRP Mannuthy centre

Tellicherry Male

Tellicherry Female

A pair of White leghorn birds

Tripura black Female

Tripura black Male

Data recording of *Tokbari* birds at farmers field

Tokbari birds at farmers field

Input distribution under DAPSC programme at Ludhiana

PB1 X Local crossbred

High altitude chicken farming in Kirting, Himachal Pradesh

Distribution of *Vanaraja* chicks to farmers in Kashmir

Brochures

DPR Mobile App

Twitter Page

DPR FaceBook Page

ICAR-DPR You Tube Channel

AICRP on Poultry Breeding
Golden Jubilee Celebrations on 13th February 2025

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