



Annual Report (2023-24)

AICRP on Poultry Breeding

(Rural Poultry Unit, Palampur)



CO-OPERATING CENTRE

**Department of Animal Genetics and Breeding
DGCN COVAS, CSKHPKV Palampur -176062
(H.P)**



AICRP ON POULTRY BREEDING

(RURAL POULTRY UNIT, PALAMPUR)

ANNUAL REPORT, 2023-24

(April, 2023 to March, 2024)

Project Particulars (at glance):

1.	Project Title	All India Coordinated Research Project (AICRP) on Poultry Breeding : Rural Poultry Unit, CSKHPKV, Palampur-176062 (HP)
2.	Sanction No.	F No. 1-9/PS/PA/PDP
3.	Date of start	23.03.2009
4.	Period under report	April, 2023 to March, 2024
5.	Institute	CSK, Himachal Pradesh Krishi Vishvavidyalaya, Palampur (HP)
6.	Cooperating Centre	Department of Animal Genetics and Breeding, College of Veterinary & Animal Sciences, CSKHPKV, Palampur-176062 (H.P.)
7.	Location	CSKHPKV, Palampur
8.	P.I.	Dr. Varun Sankhyan, Asstt. Prof
9.	CO- PI's	<ul style="list-style-type: none"> • Dr Krishanender Dinesh, Asstt. Prof (AGB) • Dr Rakesh Thakur, Asstt. Prof. (LFC) • Dr Devesh Thakur, Asstt. Professor (VAHEE) • Dr Rakesh Kumar, Asstt. Professor (Vety. Pathology) • Dr Rajesh Kumar, Asstt. Prof (AGB) • Dr Shivani Katoch, Professor (ANN)
10.	Revised Budget Allocation for FY 2023-24	Rs 104.33 Lakhs <ul style="list-style-type: none"> • 75% ICAR share = 78.25 Lakhs • 25% State share = 26.08 Lakhs

Performa for Annual Report for Rural Poultry Centres:

Section “A”-General

- | | |
|--|--|
| 1. Name of the Centre | CSK, Himachal Pradesh Krishi Vishvavidyalaya,
Palampur (HP) |
| 2. Name of the Project | AICRP on Poultry Breeding |
| 3. Strains/ stocks maintained | DR parents, Native (G ₁₀ & G ₁₁), DR X N Cross and
Himsamridhi (DND) |
| 4. Date of commencement of project | 23.3.2009. |
| 5. Period of report | 01.04.2023 to 31.03.2024 |
| 6. Budget (RE) estimates
For FY 2023-24 | Rs 104.33 Lakhs (75% ICAR share = 78.25 Lakhs;
25% State share = 26.08 Lakhs) |

Revised Budget Estimates of AICRP on Poultry Breeding, Palampur (In Lac Rs --)

Grant -in- aid Salary	Grant –in-aid; General				Grant –in-aid; Capital				Total	75% ICAR share	25% state share
	TA	RC	TSP	SCSP	Works	Equip.	Livestock	SCSP			
53.33	1.33	20.00	10.67	6.67	2.00	8.00	1.00	1.33	104.33	78.25	26.08

7. Expenditure details (Tentative):

S. N.	Head	Allocation (₹)	Expenditure (₹)
1	Establishment charges (Pay and allowances)	5333000.0	4700832.0
2	TA (Domestic)	133000.0	132779.0
3	TSP	1067000.0	1066623.0
4	Research &Operational (Recurring contingency)	2000000.0	1999749.0
5	SCSP	667000.0	666260.0
6	Equipment	800000.0	799645.0
7	Livestock	100000.0	100000.0
8	Works	200000.0	200000.0
9	SCSP	133000.0	133000.0
	Total	10433000.0	9798888.0

8. Revenue Receipts: Rs. 17,70,048.0 only (78.64% of feed cost of Rs. 22,50,602)

9. Staff position:

Name	Designation	Pay Scale/Remarks
Dr. Varun Sankhyan	Assistant Professor	Deployed Pay scale: 56100-177500
Dr Krishanender Dinesh	Assistant Professor	Deployed Pay scale: 56100-177500
Sh Vijay Kumar	Sr. Assistant	Deployed Pay scale : 38100-120400
Sh Suresh	Veterinary Pharmacist	Deployed Pay scale : 28900-91600

10. Publication :

➤ Research articles: Two

1. Dinesh K, Sankhyan V, Thakur D, Kumar R, Katoch S and Singh G. (2023). Assessment of egg quality parameters in *Himsamridhi* chicken variety under intensive housing in Himachal Pradesh. *Indian Journal of Poultry Science* 58(2): 165-171.
2. Dinesh K, Sankhyan V, Thakur D, Katoch S, Kumar S and Bhardwaj N. (2024). Evaluation of Native and Kadaknath chicken for production performance, egg quality traits and farmers acceptability in Western Himalayan region of Himachal Pradesh, India. *Indian Journal of Animal Sciences* 94(1):60-66.

➤ Abstracts: Nil

➤ Thesis : One

➤ Others :

11. Any other relevant information:

- *Himsamridhi* variety is being distributed to farmers in different areas including high altitude cold temperate tribal areas of the state. This poultry variety is well adapted to local agro climatic condition and is readily accepted by farmers as stock of choice for backyard poultry farming in rural areas.
- Collaboration with three KVKs in different agro climatic zone of Himachal Pradesh is being implemented for on farm trial (OFT) and front line demonstration (FLD). The capacity building program is also being strengthened with KVKs and Department of Veterinary and Animal Husbandry Extension Education especially in tribal and remote areas in convergence with other development initiatives.
- Cages housing facility for native birds is installed for pedigree recoding for native birds

12. Infrastructure development:

Work

- a. Installation of cages

Status

Completed

13. Collection of Native germplasm: The native germplasm available in the farm is used to produce next generation. These birds were evaluated for production performance during the year.

Section “B”: Technical

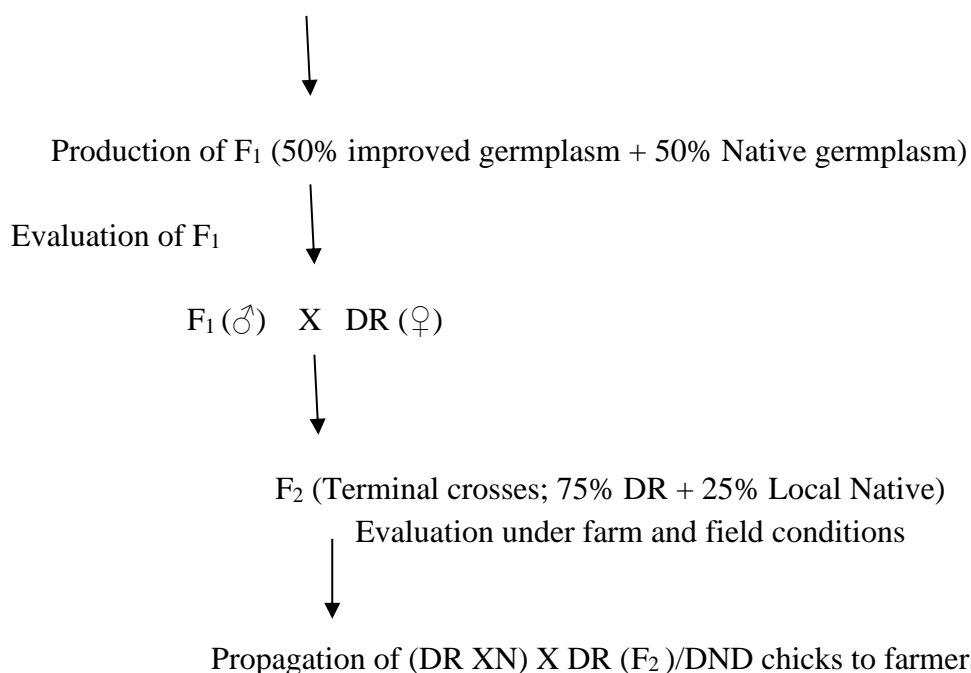
14. Objectives: Evaluation of local fowl germplasm and production of crosses suited to local climate.

15. Technical programme:

- Preliminary surveys of local rural areas to know people’s preference for type of poultry stock
- On the basis of surveys, the type of chicken stocks will be developed by the Centre

Breeding plan for production of egg type chicken stock

Improved egg type stock; RIR/ DR (♂) X Local Native (♀)



16. Technical programme carried out during the period:

- Evaluation of pure lines (DR and Native).
- Crossing of Dahlem Red X Native and production of Himsamridhi (DND) crosses, their performance evaluation at farm and field level and distribution of cross chicks to poultry farmers.
- Establishment of poultry units in tribal areas under TSP by extending input support (developed strain, feed, medicine and equipment) to associated tribal poultry farmers for promotion of backyard poultry production in tribal areas.
- Selection and culling in different stocks to produce subsequent improved generation.

17. Work done during the year 2023-24:

A. Stock position:

- The opening stock position was 1911 birds comprising 534 adult male (173 DR, 101 Native, 143 DR X N and 117 DND), 1377 adult females (918 DR, 186 G₁₀ Native, 60 DR X N and 213 Himsamridhi) and the closing stock position on 31.3.2024 was 1849 birds comprising 403 adult male (124 DR, 55 G₁₁ Native, 216 DRXN and 8 Himsamridhi) 1236 adult females (748 DR, 145 G₁₁ Native, 140 DR X N and 203

Himsamridhi/DND) and 210 chicks of native birds. Detailed stock position is presented in Table 1.

- 1696 layer birds { 1150 DR parents, 238 Native (G_{11}), 159 Himsamridhi/DND and 149 DRXN were evaluated for farm performance up to different stages during the year (Table 2).
- 979 layer birds (500 DR parents, 186 native parents (G_{10}), 132 Himsamridhi and 161 DRXN continuing laying from previous year (2022-23) completed their evaluation up to 52-72 weeks during this year.
- 47435 chicks of different stocks (36547 Himsamridhi/DND, 8242 Native, 1615 DR and 1031 DR XN were hatched during 2023-24 (Table 6).
- 44530 chicks/growers of different stocks (35765 Himsamridhi/DND, 7924 Native, 130 DR and 711 DR X N were supplied to 482 poultry farmer units established in different districts of the state (Table:7).

B. Performance evaluation of different stocks:

(a) Evaluation of Pure line stock: 1405 Dahlem Red (DR) parents and 318 Native (G_{11}) birds are under evaluation for various growth and production traits. Apart from this, 157 native birds of previous generation (G_{10}) completed evaluation from 52-72 week onwards during current year and culled after 72 weeks of age (Table: 3). The salient performance parameters are as follows:

- The AFE in DR stock was 140 days while the age at 50% HHEP was 174 days. The HHEP up to 40 and 52 weeks of age was 80.47 and 133.70 eggs/bird respectively. While corresponding HDEP up to 40 and 52 weeks of age was 82.48 and 140.56 eggs/bird respectively. The egg weight at 28, 40 and 52 weeks of age was 50.15 ± 0.20 gm, 53.12 ± 0.16 gm and 56.51 ± 0.11 gm respectively.
- The previous year stock which completed evaluation up to 72 wk recorded HHEP at 72 week was as 184.03 eggs/bird respectively while corresponding HDEP was 204.64 eggs/bird respectively. The egg weight (gms) at 72 week was 59.06 ± 0.13 .
- In Native G_{11} birds; the AFE was 158 days and the age at 50% HHEP was 204 days. The HHEP at 40 weeks of age was observed as 48.72 eggs/bird respectively while corresponding HDEP was observed as 51.37 eggs/ bird respectively. The egg weight at 28 and 40 week of age was 40.35 ± 0.22 gm and 45.46 ± 0.27 gm respectively.
- The previous year stock (G_{10}) which completed evaluation from (52-72 wk) recorded HHEP at 52 and 72 weeks of age as 76.84 and 105.62 eggs/bird respectively. While HDEP at 52 and 72 weeks of age 79.37 and 116.78 respectively. The egg weight (gms) at 52 and 72 week was 48.86 ± 0.14 and 49.16 ± 0.22 gm.

(b) Evaluation of different crosses:

Himsamridhi and DRXN crosses were produced and evaluated for growth and production traits at farm level (Table 4) as well as under field conditions (Table 5). The results are summarized as follows:

Farm evaluation of crosses:

- The AFE in DRXN was 155 days while age at 50% HHEP was 185 days. The HHEP up to 40 and 52 weeks of age was 59.66 and 96.18 eggs/bird respectively while corresponding HDEP up to 40 and 52 week of age were 61.07 and 101.49 eggs/hen respectively. The egg weight at 28, 40 and 52 weeks of age was 45.48±0.10, 50.26±0.08 and 52.05±0.11 gm respectively (Table 4).
- The previous year stock which completed evaluation up to 72 wk recorded HHEP and HDEP was as 141.88 and 158.15 eggs/bird respectively. The egg weight (gms) at 72 week was 54.68±0.18.
- The AFE in Himsamridhi stock evaluated during current year was 150 days and age at 50% HHEP was 189 days. The HHEP up to 40 and 52 weeks of age was 73.26 and 119.26 eggs/hen respectively. While HDEP up to 40 and 52 week of age was 74.17 and 121.62 eggs/bird respectively. The egg weight at 28, 40 and 52 weeks of age was 48.95±0.10 gm, 51.57±0.18 gm and 53.15±0.09 gm respectively (Table 4).
- Himsamridhi stock continuing evaluation from previous year completed evaluation upto 72 weeks during current year. HHEP upto 72 week of age was 170.78 eggs/ hen while corresponding HDEP was 181.07 eggs/hen. The egg weight at 72 week was 56.42±0.12 gm (Table 4).

Evaluation at Field (Farmer's Flock):

- Performance of Himsamridhi location specific poultry variety was evaluated under field condition covering different agro climatic region of the state. For current year evaluation, body weights at 4 and 8 weeks of age were 225.62±2.90 and 460.30±3.12 gm respectively. The adult body weight in males at 20 weeks and 40 week was 1766±10.70 and 2246±30.56 gm respectively. The body weights in females at 20 and 40 weeks of age were 1384±9.49 gm and 1510±14.30 gm respectively. The Hen housed egg production at 40 and 52 weeks of age was 49.86 and 93.20 egg/hen respectively. The average egg weight at 28 and 40 weeks of age was 44.66±0.26 and 49.35±0.29 gm respectively (Table 5). Performance evaluation till 72 weeks of age is in progress.

C. Fertility and hatchability:

- 47435 chicks of different stocks (1615 DR, 8242 Native, 36547Himsamridhi/DND and 1031 DRX N were hatched during 2023-24 (Table: 6).
- The overall fertility during the year was 89.16 % but varied among different stocks ranging from 88.05% for DRXN to 90.85% for Native birds (Table: 6).
- The overall hatchability was 75.54 % and 84.72% on TES and FES basis respectively. It varied from a high of 76.78 % on TES and 86.50 % on FES basis in DND to a low of 69.97% on TES and 78.20% on FES in in Dahlem Red.

D. Chick production and distribution:

- A 47435 chicks of different stocks (1615 DR, 8242 Native, 36547Himsamridhi/DND and 1031 DRX N were hatched during 2023-24. Out of these 44530 chicks/growers of different stocks (130 DR, 7924 Native, 35765Himsamridhi/DND and 711 DR X N were

supplied to 482 poultry farm units, established in different districts (Kangra, Chamba, Mandi, Kullu, Hamirpur and Bilaspur districts of the state (Table:7).

- During this year, 482 poultry units with 44530 chicks were established in 95 villages of district Kangra, Chamba, Mandi, Kullu, Hamirpur and Bilaspur (Table 8). The distribution of chicks among different categories of farmers showed maximum (235 units; 10503 chicks) units among SC farmers followed by general farmers (82 units; 16117 chicks). The chicks were also supplied to different NGOs like Himmothan Tata Trust and Himmothan Society etc. under their rural development programme and Krishi Vigyan Kendra, Sundernagar, Berthin and Bajaura of HPKV, Palampur for demonstration unit.

E. Mortality Incidence causes and control measures:

- The overall farm mortality (Table: 9) was 2.85% for chicks (0-6 weeks), 4.02% for grower (7- 20 weeks of age) and 2.79 % for adult (21-40 weeks of age) and 1.02% for adults (41-52 weeks).
- Among different stocks, the incidence of chick mortality % (0-6 weeks) was 2.13 % for DR parents, 5.30 % for Native, 2.70% for DRXN cross and 2.00% for Himsamridhi/DND. The mortality incidence in growers (7-20 weeks) was 2.83% for DR parents, 9.31% for Native, 7.22% for DRXN crosses and 2.38% for Himsamridhi/DND. The adult mortality between 21-40 weeks was 3.14% for DR parents, 2.47% for Native, 3.59% for DR X N cross and 1.04% for Himsamridhi/DND. Adult mortality during 41-52 weeks of age was 0.92% for DR, 1.86% for DRXN and 1.05% for Himsamridhi/DND.
- Among different causes of mortality in chicks, enteritis, omphalitis and chilling stress were the primary causes along with non-specific causes like huddling, rodent mortality and non-diagnostic causes. In growers, Coccidiosis, Vent picking/cannibalism, Enteritis and injuries were main causes along with non- specific lesions. In adult birds, Vent-picking/ cannibalism, Egg retention/ Egg peritonitis, Colibacillosis, Enteritis, Endoparasitic infestation (Ascariasis), external injuries along with non-specific lesion and undiagnosed causes (Annexure II).
- The remedial measures adopted to control mortality included routine sanitation & hygienic measures, disinfection, optimum management including feeding, timely vaccination against prevalent viral diseases, judicious medication, nutritional supplements (Ostovet, Lacton-HS, L-HM plus, Groviplek, Vimeral, Brotone) as per requirements, regular deworming against endo parasites including drugs like Alomar, Piperazine, Marco worm, coccidiostat (Coccinil, Amprolium) and antibiotics administration (Vendox, Lixen, Enrofloxacin).

F Work carried on under the TSP component:

- 1500 chicks were supplied free of cost to 30 ST farmers along with starter feed of 50 kg/unit, feeder, drinkers and medicines (Lixen, Albomar, Vimeral, Brotone, Coccinil etc.)

- Monitoring/performance recording of established units were also carried along with feedback from tribal farmers. Survey was also done in tribal areas to identify more poultry farmers for establishment of poultry units in coming year

18. Management practices:

Standard management practices were followed in housing, feeding, watering, disease control, vaccination and lighting management for different types of stocks / breeds under recommended norms for different categories of birds. The birds were reared on deep litter providing adequate space/bird. Crumbled feed of standard make was offered to all categories of birds (Chicks, Grower and layer birds). Routine health control measures were practiced at the farm at all times. The post mortem examination of each dead bird was got done from Pathology Department of the college to arrive at definite diagnosis and plan future treatment line.

19. Progress since inception:

Since 2009, when the project was started, the following activities related to infrastructure development, strengthening of facilities and procurement, multiplication and propagation of poultry germplasm were undertaken under the project:

- ✓ Surveys to identify farmer's preference for type of stock desired for backyard poultry production in local areas was completed. The farmer's choice was for a dual purpose coloured bird.
- ✓ Construction of Poultry hatchery (by modification of existing building in the department) and an additional new building for providing 28 mating pens for planned pedigree breeding was completed.
- ✓ Purchase of major incubation equipments and machinery (setter, incubator and generator, feeders, drinkers etc.) was completed in 2010. The purchase of new equipments is being carried on as per requirements and budgetary provisions from time to time.
- ✓ In the beginning, local poultry germplasm (594 birds) were purchased from farmers in different rural areas of the state. Presently 11th generation (G₁₁) is in evaluation stage. During this year, 8242 Native X Native chicks were hatched out of which 7924 chicks were also supplied on demand to farmers who were interested in rearing Desi birds.
- ✓ The performance of different pure lines (Vanaraja, RIR, DR and Native) was evaluated earlier at farm level. Different crosses including DR X N, (DR X N) X DR has been produced. The performances was evaluated at farm and/ or field level or is under different stages of evaluation and are being propagated at farmer's level to promote backyard poultry production. The performance evaluation of different stocks at farmer's level as well as farm condition is done.
- ✓ Out of 5,61,364 chicks hatched till date, 5,17,943 chicks of different crosses and pure stocks including DR X N, DND crosses and NXN and DR X DR purebred have been distributed to poultry farmer in different districts of the state.

- ✓ Release of location specific poultry variety named Himsamridhi by ICAR. It has been evaluated both under farm as well as farmer's level and had shown good production potential under village level poultry farming.
- ✓ New brooder cum grower house is constructed which will ease out space constraint.
- ✓ Purchase of new setter cum hatcher.
- ✓ New layer house was constructed to initiate the pedigree breeding.
- ✓ Installation of cages at Poultry farm.

20. Any other relevant information:

- Demonstration units were maintained at adopted villages of KVKs (Sundernagar, Kullu and Berthin) of University and to promote backyard poultry farming.
- Three days training programme on Backyard Poultry Farming was organized from 18.10.2023 to 20.10.2023 at CSKHPKV Palampur.
- One day training programme on backyard poultry farming was organized at Khajura Basti under Village Panchayat Sagoor-Majherna on dated 28.02.2024.
- One day training programme on backyard poultry farming was organized at Padhkar Village Panchayat Sagoor-Majherna on dated 29.02.2024.
- One day training programme on backyard poultry farming was organized at Chakol Bedu I under Village Panchayat Sagoor-Majherna on dated 04.03.2024.
- Around 9405 chicks were supplied to NGO's (Himmothan Tata trust and Himmothan Society) and KVKs for further supply to identified farmers under its rural development programme.
- One day exposure visit (10) at university poultry farm and hatchery complex was organized for 175 farmers of Himmothan Society, Hamirpur and Himmothan Tata Trust, Baijnath and farmers from different districts of Himachal Pradesh.

21. Germplasm supply:

- Total germplasm supply for the year was 44530 chicks including of different stocks (130 DR, 7924 Native, 35765 Himsamridhi/DND and 711 (DR X N) to 482 poultry farm units established in different districts (Kangra, Mandi, Kullu, Bilaspur, Hamirpur and Chamba) of the state for performance evaluation and adopting backyard poultry farming.

22. Major constraints:

- Egg incubation, brooding and chick distribution activities were affected during extreme winter months.

Table: 1. Stock Position (opening and closing balances) during the year 2023-24

Stock	Opening Balance on 01.04.2023					Closing Balance on 31.03.2024				
	Adult		Grower	Chicks	Total	Adult		Grower	Chicks	Total
	M	F				M	F			
DR	173	918	---	---	1091	124	748	---	---	872
NXN	101	186	---	---	287	55	145	---	210	410
DR X N	143	60	---	---	203	216	140	---	--	356
<i>Himsamridhi</i>	117	213	---	---	330	8	203	---	---	211
Total	534	1377	---	---	1911	403	1236	---	210	1849

Table: 2. Annual Stock position for the year 2023-24

Strain/ Line / Cross	Chicks hatched	No. of layers evaluated 21-72 weeks	Germplasm Supplied
DR X DR	1615	500* +1150	130
Native (N X N)	8242	186*+238	7924
Himsamridhi	36547	132*+159	35765
DR XN	1031	161*+149	711
Total	47435	979* + 1696 = 2675	44530

* Continuing from previous year but completed laying period during this year (2023-24).

Table: 3. Performance of Pure line stocks (DR and N)

Traits	Native				Dahlem Red			
	2023-24 (G11)		2022-23 (G10)		2023-24 (G2)		2022-23 (G1)	
	N	Mean ±SE	N	Mean±SE	N	Mean ±SE	N	Mean ±SE
Body weight (gm)								
Day old*	318	30.64±0.19	340	30.25±0.05	1405	35.23±0.03	1000	33.10±0.10
4 wks*	293	181.2±3.65	340	198.7±3.84	1396	291.5±2.90	957	280.1±4.35
8 wks*	281	489.6±8.17	334	525.8±12.2	1374	620.6±4.95	929	575.10±5.40
20 wks M	107	1550±14.6	-	-	159	1850±12.5	-	-
F	131	1362±20.1	157	1395±26.2	492	1576±9.6	670	1580±13.5
40 wks M	80	1856±16.3	-	-	100	2160±13.5	-	-
F	116	1540±14.7	150	1545±20.2	465	1712±10.1	640	1750±12.3
FCR(0-8 wks)	281	5.36	334	4.77	1374	4.06	1000	4.38
AFE flock,d		158		152		140		138
ASM,d	116	175	157	178	465	159	670	167
Age at 50% prod, d		204		-		174		-
Age at peak prod.(d)		218 (65%)		-		206(78%)		-
Egg weight								
28 wks	50	40.35±0.22	50	42.10±0.10	100	50.15±0.20	100	49.67±0.24
40 wks	50	45.46±0.27	50	46.15±0.20	100	53.12±0.16	100	52.40±0.26
52 wks		-	50	48.86±0.14	100	56.51±0.11	100	55.33±0.10
72 wks		-	50	49.16±0.22		-	100	59.06±0.13
Egg prod (EP) 40 wks								
HH	116	48.72	157	47.33	492	80.47	665	82.24
HD	110	51.37	153	48.56	480	82.48	652	83.88
Survivor	109	51.84	150	49.53	465	85.14	640	85.45
Egg prod (EP) 52 wks								
HH		Under evaluation	157	76.84	492	133.70	665	131.62
HD			152	79.37	468	140.56	605	144.20
Survivor			141	85.56	452	145.54	580	150.41
Egg prod (EP) 72 wks								
HH		Under evaluation	157	105.62		Under evaluation	665	184.03
HD			142	116.78			598	204.64
Survivor			135	122.82			534	229.17

* Pooled sex body weight ** G₁₀ native stock of previous rear evaluated for 41-72 week during the current year and G₁ DR of the previous stock evaluated in current year from 53-72 week

Table: 4. Growth and production performance of crosses produced

Traits	DN cross				DND cross (<i>Himsamridhi</i>)			
	2023-24		2022-23**		2023-24		2022-23**	
	N	Mean ±SE	N	Mean±SE	N	Mean ±SE	N	Mean ±SE
Body weight (gm)								
Day old*	185	31.05±0.40	296	30.15±0.15	300	33.10±0.30	300	32.10±0.10
4 wks*	185	226.2±6.12	284	220.6±5.10	300	223.16±5.85	261	230.1±4.20
8 wks*	178	476.9±15.17	276	485.3±13.20	239	534.8±9.24	230	550.2±8.10
20 wks M	89	1720±11.54	-	-	82	1805±12.34	-	-
F	60	1395±18.68	107	1426±15.20	90	1470±14.51	88	1490±13.20
40 wks M	85	1950±9.62	-	-	58	2150±32.12	-	-
F	56	1560±21.46	92	1585±20.60	85	1570±16.70	82	1556±14.25
FCR(0-8 wks)	178	5.90	276	4.80	239	5.10	230	4.58
AFE flock,d	60	155	107	150	90	150	82	152
ASM,d	60	166	107	171	90	167	80	169
Age at 50% prod, d	185	-	-	-	-	189	-	-
Age at peak prod, d	205(70%)	-	-	-	-	202(73%)	-	-
Egg weight (gm) at								
28 wks	50	45.48±0.10	50	46.10±0.20	50	48.95±0.10	50	49.32±0.35
40 wks	50	50.26±0.08	50	50.85±0.60	50	51.57±0.18	50	51.90±0.20
52 wks	50	52.05±0.11	50	52.10±0.25	50	53.15±0.09	50	54.01±0.10
72 wks			50	54.68±0.18			50	56.42±0.12
Egg prod (EP) 40 wks								
HH	60	59.66	107	62.32	82	73.26	88	70.05
HD	58	61.07	99	67.36	81	74.17	85	72.53
Survivors	56	63.92	92	72.48	81	74.17	82	75.18
Egg prod (EP) 52 wks								
HH	60	96.18	107	102.50	82	119.26	88	113.92
HD	56	101.49	101	108.65	80	121.62	84	119.34
Survivors	51	113.15	92	119.22	79	123.80	82	122.26
Egg prod (EP) 72 wks								
HH		Under evaluation	107	141.88		Under evaluation	88	170.78
HD			96	158.15			83	181.07
Survivors			85	178.61			79	190.24

* Pooled sex body weight **DN and DND cross of 2022-23 evaluated in current year from 53-72 wk

Table: 5. Performance of DND (*Himsamridhi*) at farmer's flocks

Traits	2023-24 (E9)		2022-23 (E8)*	
	N	Mean ±SE	N	Mean±SE
Body weight (gm)				
4 wks	700	225.62 ± 2.90	600	208.3 ± 3.20
8 wks	460	460.30 ± 3.12	480	481.3 ± 2.76
20 wks Male	60	1766±10.70	100	1720 ± 9.65
20 wk Female	190	1384±9.49	200	1405±9.49
40 wk Male	20	2246±30.56	20	2281±35.75
40 wk Female	150	1510± 14.30	160	1541±11.71
AFE in flock (days)		180		--
Egg weight (gm)				
28 wks	100	44.66±0.26	100	44.90±0.23
40 wks	100	49.35±0.29	100	49.69±0.38
Egg prod (EP)				
40 week	125	49.86	160	52.59
52 week	80	93.20	135	95.73
72 week		Under evaluation	90	148.65

*Evaluated from 53-72 weeks in 2022-23

Table: 6. Fertility and Hatchability of different poultry stocks during the year 2023-24

Stock	No. of Egg set	No. of Fertile eggs	% Fertility	Quality chicks hatched	% Hatchability	
					TES	FES
Himsamridhi	47595	42250	88.76	36547	76.78	86.50
N X N	11463	10415	90.85	8242	71.90	79.13
DR	2308	2065	89.47	1615	69.97	78.20
DRXN	1431	1260	88.05	1031	72.04	81.83
Total	62797	55990	89.16	47435	75.54	84.72

Table: 7. Chick Production and distribution during the year 2023-24

Strain/ Stock	Chicks Hatched	Supplied to farmers	Reared at Farm	Mortality	Remarks
Himsamridhi	36547	33166+2599*	782	----	
N X N	8242	7924	318	---	
DR	1615	130	1485	---	
DR X N	1031	711	320	---	
Total	47435	44530	2905	---	

*Supplied in growing stages to farmer

Table: 8. Category wise distributions of Poultry units established during 2023-24

Category	No. of Units	No. of Chicks	Remarks
General	82	16117	
ST	30	1500	
OBC	38	7005	
SC	235	10503*	9600 chicks supplied under SCSP component
Institutional(KVK)	97	9405	KVK Berthin, Bajaura, Sundernagar and NGO of HP for demonstration.
Total	482	44530	1500 and 9600 chicks provided free of cost under TSP and SCSP component respectively.

Table: 9. Mortality incidence in different category of birds during 2023-24

Strain	Age interval							
	0 – 6 weeks		7- 20 weeks		21-40weeks		41-52 weeks	
	ND/NH	% Mortality	ND/NH	% Mortality	ND/NH	% Mortality	ND/NH	% Mortality
DR	30/1405	2.13	39/1375	2.83	42/1336	3.14	12/1304	0.92
NXN	28/528	5.30	27/495	9.31	7/283	2.47	---	---
DRXN	5/185	2.70	13/180	7.22	6/167	3.59	3/161	1.86
DND	6/300	2.00	7/294	2.38	3/287	1.04	3/284	1.05
Overall	69/2418	2.85	86/2139	4.02	58/2073	2.79	18/1749	1.02

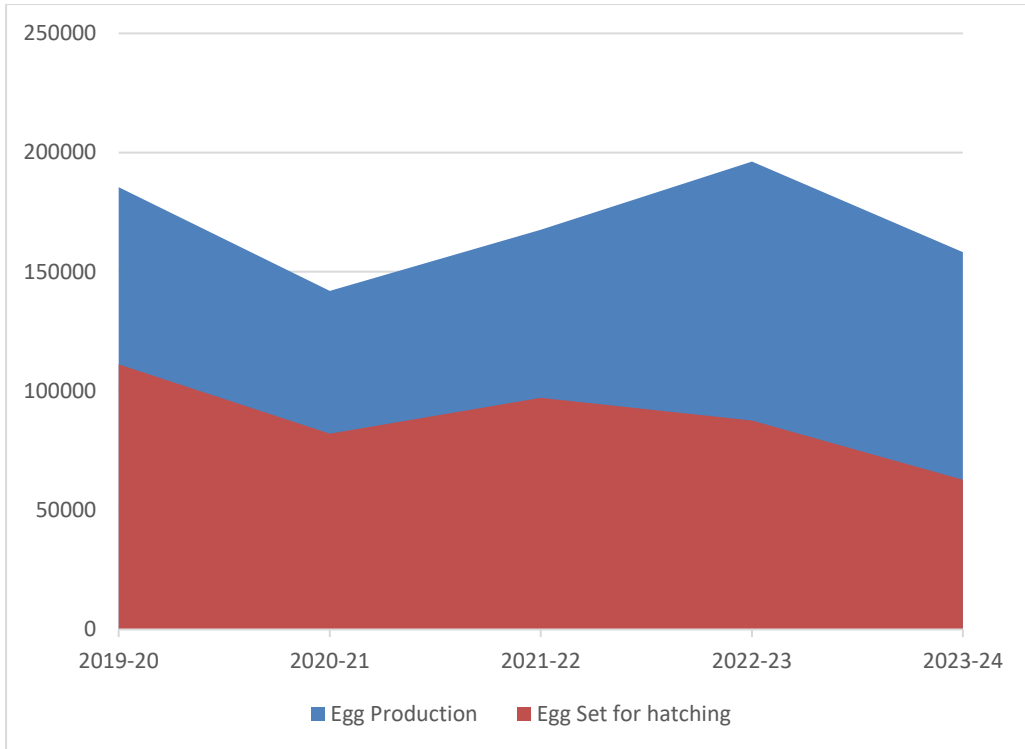


Fig 1: Egg production and egg set for hatching trend over last five year

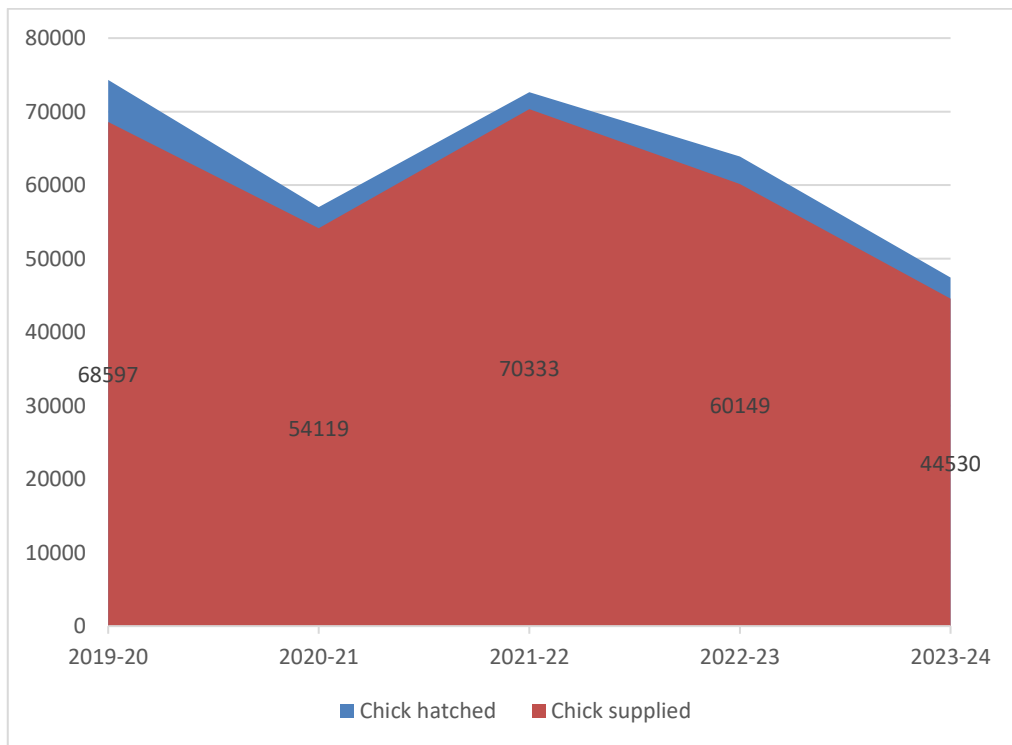


Fig 2: Chick hatched and chick supplied trend over last five year

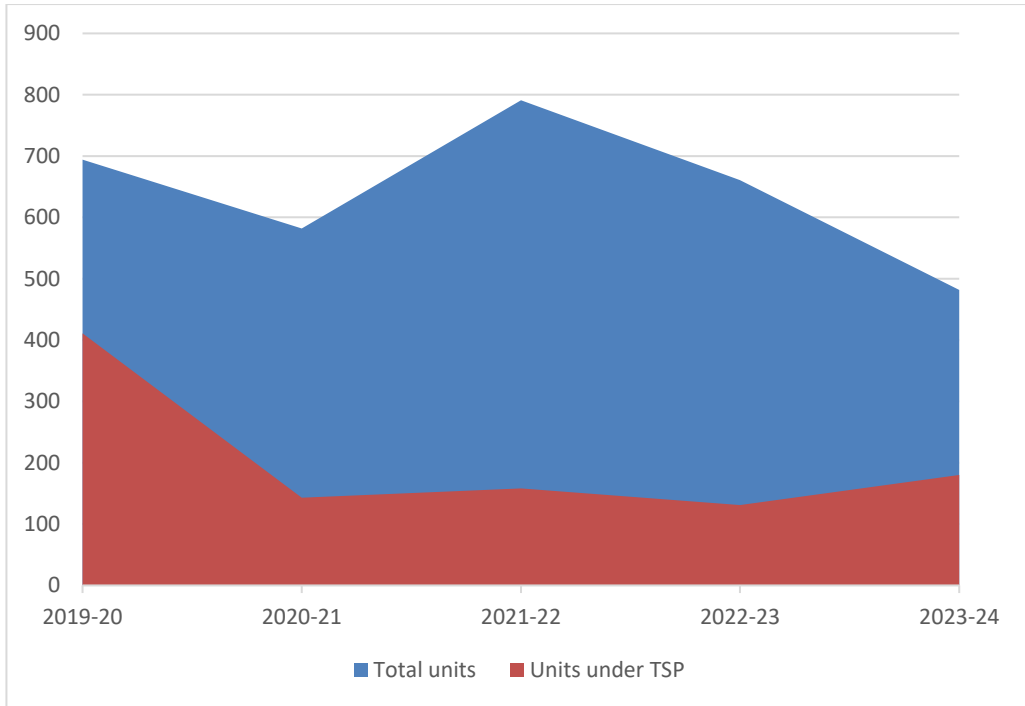


Fig 3: Total units and units under TSP/SCSP trend over last five year

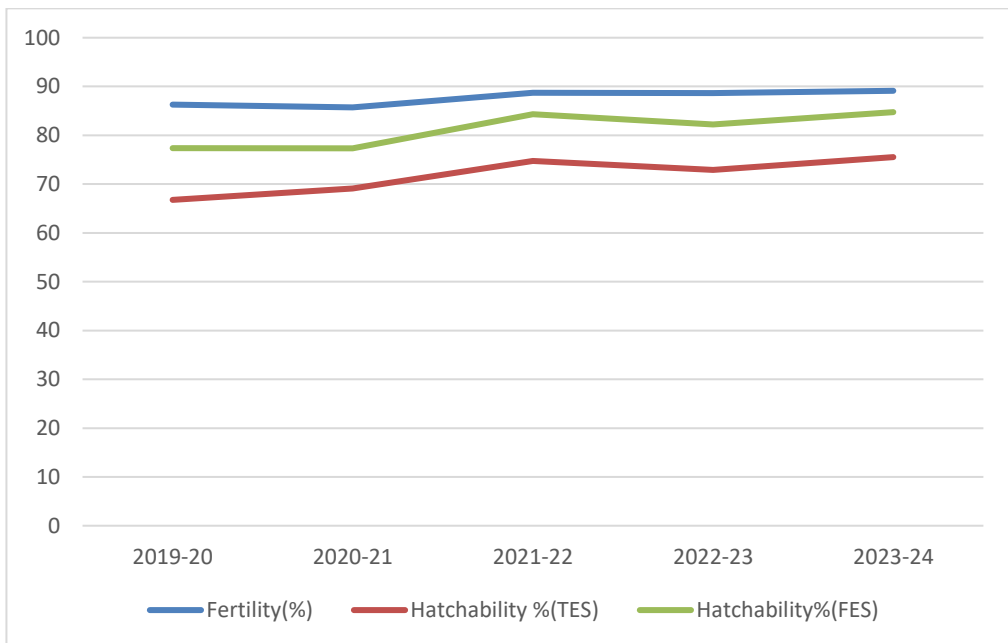


Fig 4: Fertility and hatchability trend over last five year



Fig 5: Dahlem Red parent stock under evaluation



Fig 6: Native population under cage system



Fig 7: Himsamridhi field unit



Fig 8: Exposure visit to University Poultry Farm and Hatchery



Fig 9: One Day Training Programme on Backyard Poultry Farming



Fig 10: Distribution of chicks in collaboration with NABARD



Fig: 11 SCSP Unit distribution in collaboration with KVK (KVK Bajaura)



Fig: 12 Himsamridhi field unit under open scavenging system

Success story

Title: “Empowering Rural Entrepreneurship: Arun Kumar’s Journey in Backyard Poultry Farming”

Name of the farmer: Sh. Aman Kumar

Address: Village and Post Office Kunsal, Tehsil-Baijnath, Kangra (Himachal Pradesh)

Challenge:

Rural poultry farming in hill farming systems, when integrated with other farm activities, shows great potential by addressing challenges like product disposal, resource optimization and sustainability. Encouraging farmers already engaged in agriculture to incorporate family poultry can maximize benefits. Constraints such as poor management, lack of suitable breeds, marketing strategies and limited feed and veterinary support are identified in Himachal Pradesh. Converging with existing livestock improvement programs can identify motivated farmers like Sh. Aman Kumar from Kunsal village, who can intensify backyard poultry farming. This approach optimizes resource use and links marketing strategies for premium prices.

Background of the farmer: During one of the visits to farmers in another NABARD funded project on rural livelihood promotion, the project team identified few beneficiaries who was willing to adopt backyard poultry farming. The young entrepreneur Sh. Aman Kumar (20 year old boy) who had interest since childhood as he had reared 2-3 birds showed his willingness to increase the number and take backyard poultry on larger scale.

Initiative taken by the farmer: During visits to farmers in a NABARD-funded rural livelihood project, several beneficiaries expressed interest in backyard poultry farming. Among them, 20-year-old entrepreneur Sh. Aman Kumar stood out. He had nurtured a passion for poultry since childhood, starting with just a few birds, and was eager to scale up his operation.

Upon exposure to the "*Himsamridhi*" poultry variety developed by AICRP, Palampur, he received 150 chicks during October 2022 to kick-start his venture. The project team provided ongoing technical support, including disease prevention measures and monitored chick growth closely, resulting in lower mortality rates

Key results/highlights/interesting facts:

1. He manages the backyard poultry with family labour and has constructed low-cost enclosures to house birds.
2. He does not regularly buy commercial feed and rears his poultry birds on home-based feed ingredients such as maize and wheat.
3. He regularly feeds 3-4 bags of local water spinach (*Choo-Nali*) which grows across water streams to the birds.
4. He also offers birds fodder and unutilized household food waste.
5. He sells eggs through his father’s shop at Rs. 12-15 per egg and pays his education fees from that.
6. He sells birds at Rs. 600-800 (per adult bird) among his friends, neighbours, and customers of his father’s shop.

7. His farming system for rural poultry comprises scavenging with the incorporation of household grain and feed supplementation, especially during peak laying.

Impact: Arun Kumar has strong good interest in poultry farming with incorporation of location specific poultry variety Himsamridhi. From a meagre two-three birds his number has increased to 90-100 under the AICRP interventions and his keen to increase this number after completion of his studies. He has a shop owned by his father where he is able to sell eggs at Rs 12-15/egg. Coupled with his marketing skills along with the demand in the area he was able to dispose birds and eggs at premium prices.

Mr. Arun Kumar initially received 150 chicks about 130 birds survived till maturity. Adult male birds were sold @ Rs 600-800 /bird at around 5 months of age. About 60-65 layers were maintained for laying cycle and 30-35 eggs were per day from 60 layers was realized during peak production. He realized about 15000 (after excluding feed and other expenses) from sale of cockerels in around six months. Daily he is getting around 300-400 rupees income from sale of egg. Accounting for rearing cost of layer, feed and other expenditure his daily profit from selling eggs comes around 100-150 rupees. With his experience of marketing and farming he increase the stock to have around 80-90 layers at a time in batches so that continuity of supply could be ensured to his customer and to increase his profitability. He is continuing with backyard poultry by adding replacement batches of around 100-150 chicks periodically.

Supporting Quotes and Images



Fig 1: *Himsamridhi* birds



Fig 2: *Himsamridhi* birds under scavenging

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,

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Salient achievements of AICRP on Poultry Breeding (Rural Poultry Unit, Palampur) for year 2023-24

- A total of 44530 chicks/growers of different stocks including 35765 chicks/grower of developed variety were supplied and 482 backyard poultry units were established covering more than 95 villages of different development blocks of six districts of state of Himachal Pradesh.
- A total of 30 TSP backyards poultry units comprising 1500 chicks were established in tribal households in tribal district Bharmour and Pangi subdivision of Chamba, These units were provided chicks, starter feed @ 50Kg/unit, feeder, waterer and medicinal inputs.
- The overall % fertility was good (89.16%) and ranged between 88.05% for DRXN to 90.85% for Native, whereas the overall hatchability was 75.54% and 84.72% on TES and FES basis.
- The center evaluated G₁₁ generation of native population up to 40weeks of age. AFE was 158 days and the age at 50% HHEP was 204 days. The HHEP and HDEP up to 40 weeks of age was 48.72 and 51.37 respectively. The egg weight at 40 weeks of age was 45.46±0.27gm.
- The G-2 Dahlem Red population was evaluated up to 52 weeks of age and G-1 generation from previous year completed evaluation from 53-72 weeks of age.
- The AFE in DR stock was 140 days while the age at 50% HHEP was 174 days. The HHEP and corresponding HDEP up to 40 and 52 weeks of age was 80.47, 133.70, egg/hen and 82.48, 140.56 eggs/bird respectively. The egg weight at 28, 40 and 52 weeks of age was 50.15±0.20, 53.12±0.16 and 56.51±0.11 gm respectively.
- Ninth evaluation of *Himsamridhi* was carried out this year and is currently evaluated up to 52 weeks of age both under farm as well as field condition. The two way cross (DRXN) is also undergoing evaluation and is currently evaluated up to 52 weeks of age.
- The center realized receipts of Rs 17.70 lacs during the financial year on account of sale of various poultry products (chicks, eggs, culled birds) which is 78.64% of expenditure on feed cost (Rs 22.50 lacs).
- Published two research paper in NAAS rated journal and collaboration with three KVKs in different agro climatic zone of Himachal Pradesh is being implemented for on farm trial (OFT) and front line demonstration (FLD). The capacity building program is also being strengthened with KVKs

Annexure: I. Vaccination schedule followed at the farm for disease control

Vaccine	Strain used	Age	Route
Marek's Disease	HVT FC126 Strain	Day Old	S/C
IBD	Mild	7 day	Intraocular
RD	Lasota	10 day	Intraocular
IBD	Intermediate Plus	14 day	Intraocular
RD	Lasota/F ₁	40day	Intraocular
RD	R ₂ B	70 Day	S/C

Annexure: II. Causes of mortality in different stocks at different age groups during 2023-24

Stock	Age group	S. N.	Main causes	No. died/Total	% incidence
Dahlem Red	Chicks	1	Enteritis	9/30	30.00
		2	Omphalitis	6/30	20.00
		3	Nothing specific	8/30	26.66
		4	Non-diagnostic causes	6/30	20.00
		5	Chilling stress	1/30	3.33
	Grower	1	Enteritis	4/39	10.25
		2	Coccidiosis	13/39	33.33
		3	Vent picking	10/39	25.64
		4	Non-diagnostic causes	10/39	25.64
		5	Nothing specific	2/39	5.12
	Adult	1	Coccidiosis	20/42	47.61
		2	Enteritis	6/42	14.28
3		Egg Retentions	16/42	38.09	
Native	Chicks	1	Enteritis	20/28	71.42
		2	Nothing specific	8/28	28.57
	Grower	1	Non-diagnostic causes	7/27	25.92
		2	Vent pecking	8/27	29.62
		3	Overcrowding	12/27	44.44
	Adult	1	Liver rupture	4/7	57.14
		2	Egg Retentions	3/7	42.85
Himsamridhi	Chicks	1	Omphalitis	3/6	50.00
		2	E-Coli	2/6	33.33
		3	Coccidiosis	1/6	16.68
	Grower	1	Over crowding	2/7	28.57
		2	Non-diagnostic causes	3/7	42.85
		3	Nothing specific	2/7	28.57
	Adult	1	Non-diagnostic causes	3/3	100.0
DR X N	Chicks	1	Omphalitis	3/5	60.00
		2	Enteritis	2/5	40.00
	Grower	1	Enteritis	6/13	46.15
		2	Overcrowding	7/13	53.84
	Adult	1	Non-diagnostic causes	1/6	16.67
		2	Enteritis	2/6	33.33
		3	Round worms	3/6	50.00

Annexure: III. Performance trends of AICRP over Last 5 years

Year	Egg Prod.	Hatching eggs	Fertile eggs	Chicks Hatched	Chicks supplied	Units	TSP/ SCSP units	TSP/SC Units	% Fertility	% Hatchability	
										TES	FES
2019-20	185563	111200	96002	74310	68597	694	411	20550	86.26	66.77	77.40
2020-21	142005	82175	72897	57024	54119	582	143	7150	85.72	69.11	77.33
2021-22	167694	97146	86165	72634	70333	791	158	7900	88.70	74.77	84.30
2022-23	196247	87653	77698	63892	60149	661	131	6550	88.64	72.89	82.23
2023-24	158222	62797	55990	47435	44530	482	265	12003	89.16	75.54	84.72