



Government of Jammu and Kashmir
Animal/Sheep Husbandry & Fisheries Department
Civil Secretariat, Srinagar, Kashmir

Subject: Approval of Jammu & Kashmir State Livestock Breeding Policy, 2019

Reference: State Administrative Council Decision No **110/13/2019** dated **29-05-2019**

Government Order No: 74 -ASH of 2019
D a t e d: 08 - 06-2019

Approval is accorded to **Jammu and Kashmir State Livestock Breeding Policy, 2019 (Annexure 1)** and **Livestock Breeding Plan (Annexure 2)**.

By order of the Government of Jammu and Kashmir.

Sd/-
Dr. Asgar Hassan Samoon (IAS)
Principal Secretary to Government
Animal/Sheep Husbandry & Fisheries Department

No: ASH/Plan/92/PF-II/2014

Dated: 08/06/2019

Copy to:

1. Chief Secretary J & K State.
2. Secretary, Department of Animal Husbandry & Dairying, Govt. of India.
3. Secretary, Department of Fisheries, Govt. of India.
4. Financial Commissioner, Finance Department.
5. Financial Commissioner Health Department & Medical Education.
6. Principal Secretary to Hon'ble Governor J&K.
7. Principal Resident Commissioner J & K.
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13. Secretary, Law, Justice and Parliamentary affairs.

14. All Deputy Commissioners of J & K (Anantnag /Baramulla /Bandipora /Budgam /Doda /Ganderbal /Jammu /Kupwara /Kargil / Kishtwar /Kulgam /Kuthwa /Leh /Poonch /Pulwama /Ramban /Rajouri /Reasi /Samba / Shopian /Srinagar / Udhampur)
15. Director Archives, Archaeology and Museums J & K.
16. Director Animal / Sheep Husbandry Jammu/Kashmir/ Director Fisheries J & K for wide publicity and circulation to all stake holders / upload on official website.
17. OSD to Advisor (K)/Advisor (KS)/Advisor (G)/Advisor (S).
18. CEO Livestock Development Board Jammu/Kashmir.
19. Chairman J & K Bank
20. CGM NABARD J & K
21. Lead Bank Manager, J & K to circulate the policy document to all commercial Banks in J & K and to all members of SLBC.
22. General Manager Govt. Press Srinagar **for immediate publication of 1000 copies of the policy document in Govt. Gazette for circulation to all concerned central/State Govt Departments/ institutions**
23. MD, SICOP J & K Srinagar with request **for immediate printing/publication of the Policy Document at approved rates in consultation with Technical officers of Animal/Sheep Husbandry /Fisheries Department at Civil Secretariat, Srinagar, Kashmir**
24. PPS to Principal Secretary to Government, Animal/Sheep Husbandry/Fisheries & Transport Department.
25. Administrator (Technical Officer) Departmental website Government Order file (W.2.S.C)/Master file/Stock file (w.3.S.C)

Under Secretary to Government
Animal/Sheep Husbandry & Fisheries Department

A. BACKGROUND

- i. Livestock is an integral part of Jammu and Kashmir's agrarian economy and plays a multifaceted role in providing livelihood support and nutritional security to the rural population. Livestock sector provides food security, employment opportunities, alternate livelihood source and social/financial security to farmers.
- ii. Livestock sector is emerging as important growth leverage to state economy and its share to Gross State Domestic Product is increasing. Census 2011 indicates that about 73% of the state's population lives in rural areas and is associated with agriculture and allied sectors including livestock rearing as main occupation.

iii. Contribution to economy (2017-18)

State level

Agricultural and allied sector's contribution to state GDP	16.18%
Livestock sector's contribution to state GDP	5.40%
Livestock sector's contribution to agricultural GDP	33.63%

- iv. Under the Constitution of India, livestock development falls within the jurisdiction of the State Government. However, Central Government supplements and complements the efforts of State Governments through different schemes and programs apart from creating an enabling environment to promote sustainable growth of the sector.
- v. Although J&K is a front runner in livestock statistics, average productivity of sector is lower as compared to global averages. Inadequate availability of feed and fodder, insufficient breeding coverage, low conception rates, non-availability of quality breeds, poor management practices, high mortality and morbidity losses due to diseases, inadequate infrastructure /manpower and unorganized marketing are the other major concerns.

- vi. The National Livestock Policy aims at increasing livestock productivity and production in a sustainable manner, while protecting environment, preserving animal bio-diversity, ensuring bio-security and farmers' livelihood. In context of this goal, main objective of this policy is to support the existing low input production systems for improving productivity and income to improve socio-economic status of a vast majority of our livestock producers. The policy also envisages supporting research and development initiatives on issues pertaining to livestock sector for improving livestock productivity, enhancing bio-security and profitability.
- vii. Human population of Jammu Kashmir comprises of 1% of India's population whereas livestock population of the state constitutes 1.79% of the Country's livestock population (512 million), thus per-capita livestock number in J&K is more than the national average. Jammu & Kashmir holds 77.14% of country's yak population, 20% of equine population and 5.21% of sheep population. The state stands first in Yak population, second in equines, fifth in Sheep, sixth in Donkeys and 17th in poultry.
- viii. Despite leading in numbers, the indicators emanating out of our livestock sector are a cause for 'worry'. Livestock population is dipping (3.4% fall from 18th livestock census), imports into the State are increasing (more than Rs. 2500 crore annually) and fodder is acutely scarce. The sector needs a fillip to match current requirement and to evolve at desired pace. Besides fodder scarcity, unorganized practices, smallholdings, disoriented pricing mechanisms, diminishing economic returns and ineffective regulatory mechanisms have further added to woes of the sector. The engagement of people in this sector finally seems to have relegated to habits rather than robust economic activity.

19TH Livestock CENSUS (2012) J & K

Category	No's in lac
Cattle	27.98
Buffaloes	7.39
Sheep	33.89
Goat	20.18
Other species	2.56
Total	92.00
Poultry	82.74

B. LIVESTOCK BREEDING POLICY

- i. A comprehensive and futuristic breeding policy is paramount to proper scientific development of sector. The present Livestock breeding policy drafted for the state of Jammu and Kashmir has taken uniqueness of the state in its agro-climatic and geographical positioning with in the country into consideration. While formulating the policy due weightage has been attached to the expertise gained by the department over decades in running breeding programmes for different species of livestock.
- ii. Main impetus has been laid on the improvement of the genetic potential of local livestock by grading/ crossbreeding with superior exotic germplasm wherever required. The policy has been designed to stimulate the growth and nurture institutions in the state to generate quality breeding inputs for a sustainable livestock development, without endangering the fragile natural resources of the state.
- iii. The policy shall lay a strong foundation to ways and means for modernizing and upgrading the existing training facilities for development of quality human resources and to obtain new technologies and skills on all aspects of livestock production and product development.
- iv. **The Breeding Policy shall be reviewed after every ten years.**

(a) Bovine (Cattle and Buffalo):

Policy Statement:

Augmentation of production, productivity and quality of the milk by adopting up-gradation/ crossbreeding with exotic dairy breeds Jersey and Holstein Friesian (HF) shall form the main activity associated with genetic up-gradation in these species of large ruminants for ensuring, food and nutritional security of the State. Artificial insemination with use of high pedigreed male germplasm shall be main tool to achieve genetic up-gradation in cattle and buffaloes. Natural service, where ever necessary, shall also be a breeding practice.

Non-descript/low genetic potential local bulls shall be castrated.

1. BREEDING POLICY FOR CATTLE:

- 1.1 The State shall employ Jersey and Holstein Friesian (HF) breeds for grading/cross breeding of cattle in the State as per the existing policy. However, the cross breeding with Jersey/ HF shall be restricted in plain and irrigated areas and peri-urban areas of the state while as only Jersey germplasm shall be used for cross breeding/grading up in semi hilly and hilly areas of the state. Selective breeding of local cattle shall also be carried out in resources restricted areas of the state.
- 1.2 The exotic inheritance of both the breeds shall be restricted to a maximum of 75% in temperate regions of the state and a maximum of 50% in plains of subtropical Jammu.
- 1.3 Stress shall be laid on selection of quality bulls (50% to 75% breed levels) of local and exotic inheritance for stabilization of desired level of inheritances. To realize this Open Nucleus Breeding System (ONBS) shall be implemented in all regions of the state.
- 1.4 Characterization, documentation, registration and improvement of local hill cattle of the state.
- 1.5 In the interim, Sahiwal breed for plains & Shivalik hill region of Jammu division and Red Sindhi breed for non-descript tracts of Aspirational districts shall constitute indigenous component of cross bred bulls on pilot basis.
- 1.6 In remaining parts of Jammu province, policy as drafted for temperate areas of Kashmir division shall be followed and elite local females shall be identified and inseminated with elite semen (H. F and Jersey) to produce the quality half bred and 3/4 bulls of exotic inheritance for use in Genetic improvement programme
- 1.7 In Ladakh in urban and peri-urban areas half-breds of Ladakhi and Jersey Cattle shall be popularized. For other areas selective breeding of Ladakhi cattle shall be practiced.
- 1.8 For organized dairy farms either crosses of Jersey and Holstein Friesian with local stock, or purebred Jersey and Holstein Friesian breeds shall be recommended.

- 1.9 Experimentation on the adaptability and production related performance of French breed *Mt Biliarde* and Swiss breed *Braunvieh* as pure breeds as well as in combination with local germplasm in hilly and small valleys of Jammu and Kashmir is also recommended.
- 1.10 To manage the cattle population in a better and organized ways, use of sexed semen may be preferred as far as possible.
- 1.11 Progeny testing / pedigree selection shall be essentially followed while selecting elite/ quality bulls that are to be used for breeding programs in the state.

2. Breeding Policy for Buffalo:

- 2.1 Up-gradation of the local Buffalo population using frozen semen of the selected sires of Murrah through Artificial Insemination/natural mating as per feasibility.
- 2.2 Murrah bulls for natural service in migratory herds and in difficult, remote areas of the state.
- 2.3 Up-gradation of buffaloes in border area pockets of R.S. Pura, Kathua and Samba shall also be done by introduction of elite germ-plasm of Nili Ravi breed.
- 2.4 To manage the buffalo population in a better and organized ways, use of sexed semen shall be preferred as far as possible

(b)Ovine

POLICY STATEMENT:

- (i) Emphasis shall be given on production of mutton and at the same time gains achieved in fine wool so far shall be taken care of by appropriate selection and breeding methods to evolve a dual purpose (wool and mutton) breed for the state.
- (ii) The Sheep Breeding policy in vogue in Jammu and Kashmir is one recommended by National Commission on Agriculture (1976) for Northern temperate region wherein northern temperate areas of the State were earmarked for the fine/ apparel wool production. With the advent of globalization and international trade, wool from international markets is available at cheap rates with the result remuneration from wool is not profitable. However, demand for the mutton has increased

drastically with time and currently the state imports about 15 lac small ruminants annually. Therefore, there is need of policy shift from rearing sheep for apparel wool to mutton attribute.

- (iii) With this policy shift coupled with availability of good performing crossbred sheep from the field, selective breeding for more mutton production from shall be recommended. Presently the crossbred sheep have comparatively low dressing percentage as compared to the mutton breeds (40-45% vs 50-55%), but it would be prudent to maintain the gains made in the wool production and quality in the local crosses while crossing and selecting animals for mutton traits. Therefore, dual purposes breeds like Corriedale, Sufflock, besides meat breed like Dorper, Texel etc. needs to be propagated and evaluated for enhancing carcass traits, high growth and high prolificacy.
- (iv) Utilization of ETT/AI techniques program in sheep sector needs to be pursued under the policy especially for seed stock. The germplasm of the nucleus sheep breeding farms of the states is accordingly to be developed/ evolved to meet the stud demand for mutton production. The exotic inheritance in stock should be kept about 75%.
- (v) As envisaged therein, the cross breeding of local sheep with dual purpose breeds as mentioned above (maximum exotic inheritance up to 75%) shall be initiated in the uncovered areas followed by selective breeding to stabilize the breed with stress on mutton traits.

3.0. Breeding Policy Sheep:

(i) Kashmir Division:

- 3.1. Stabilization of inheritance level (75% merinos 25%local) by selective breeding with stress on growth, fecundity and dressing percentage attributes. The gains obtained in fine wool shall be maintained (at least 23-micron fiber diameter). The developed Kashmir Merino shall be completely documented and registered as a separate breed.
- 3.2. To continue with breeding of dual-purpose sheep of Corriedale breed (with exotic inheritance up to maxim75%) in orchard areas of KashmirDivision.
- 3.3. Appropriate levels of inheritance of muttonous breeds, like Dorper, Texel etc with local sheep shall be identified and introduced after performance

evaluation in the orchard production system of Kashmir.

- 3.4. *In situ* as well as *ex-situ* Conservation of threatened sheep breeds of the Division, Gurezi and Karnai in their home tract:
- 3.5. Efforts shall be made for introduction of high prolificacy genes in sheep for production of twins and triplets, for vertical /horizontal growth.

(ii). Jammu Division:

- 3.6. Stabilization of inheritance level (75% Rambouillet- 25% local) by selective breeding with stress on mutton production. The gains accrued in fine wool shall be maintained (with at least 24-micron fiber diameter).
- 3.7. Appropriate levels of inheritance of muttonous breeds, like Dorper, Texel etc and local sheep shall be identified and introduced after performance evaluation in the plain belts of Jammu Division (stationary sheep of Kathua, Samba, Jammu and Rajouri Districts).
- 3.8. *In situ* as well as *ex-situ* Conservation of threatened sheep breeds of the division (Baderwali /Gaddi and Punchi) shall be carried out in its original breeding tract.
- 3.9. Efforts shall be made for introduction of high prolificacy genes in sheep for production of twins and triplets and also for vertical/horizontal growth.

(iii) Leh District:

- 3.10. Breed improvement of Changluk and Mulluk sheep for dual purpose (mutton and wool) shall be taken up by selective breeding
- 3.11. The existing policy of crossbreeding of Sheep of Ladakh with merinos in certain pockets shall be continued and stabilization of the developed crosses.

(iv) Kargil District:

- 3.12. Selective Breeding amongst the Local sheep (including Purki sheep) and in whole of Kargil excluding the areas covered under 3.13 and 3.14.
- 3.13. To continue with breeding of Merino Sheep for fine wool in specific pockets of Kargil where it has proved successful and stabilization of the developed crosses.

- 3.14. In view of the acceptability of Karakul breed of Sheep for enhanced mutton production the same shall be continued as per present practice in selective areas of Kargil District and stabilization of the developed crosses.
- 3.15. Pilot studies on. Introduction of Changluk inheritance in Kargil Sheep should be taken up to ascertain their combining ability for better returns.

(c.) Caprine:

i). Policy Statement:

In Jammu and Kashmir, we have two renowned breeds of goats with populations of about two lakh and more than ten lakh for *Changra* and *Bakerwali* goats, respectively. The changra goats are known for producing quality pashmina fiber besides good quality chevon. Similarly, big sized Bakarwali Goat producing chevon and limited milk is also one of the recognized breed of the state. In addition to these there are some nondescript goats in Shivalik area too along with a good number of *Beetal* and its crosses are also being reared by the farmers.

Accordingly, the policy for this sector shall be augmentation of quality Chevon/milk and fiber production through selective breeding for the recognized breeds and crossbreeding in case of nondescript and Shivalik goats.

ii). Kashmir Division

- 4.1. *Bakerwali* breed shall be used as an improver breed in non-descript local flocks for enhancing growth and body weight beside other Chevon production related traits because of its reported good performance under temperate climates.
- 4.2. Appropriate levels of inheritance of Beetal /Swiss Alpine breed with local non-descript goats shall be identified and introduced after performance evaluation for milk production.

iii). Jammu Division:

- 4.3. Augmentation of Chevon production by selective breeding in private flocks of Bakerwali breed of goat along with good mothering abilities.
- 4.4 *In situ* conservation of local Gaddi goat shall be taken up.
Introduction after validation of Beetal/ Alpine breeds of goat from Punjab/Himachal Pradesh for up-gradation in Kandi belt and Shivalik hill ranges of Jammu Division for milk production.

iv). Leh District:

- 4.5 Selective breeding of *Pashmina* goats shall be taken up in traditional areas of Leh District and its further propagation in non-traditional areas.
- 4.6 Performance studies of *Malra* goats with regards to its production of fiber and Chevon shall be investigated and its combining ability with *Pashmina / Changra* goats for better fiber and Chevon production. If the Malra goats seem to have some uniqueness selective breeding shall be followed if it performs better after crossing with Changra in such case it shall be up graded with Changra.
- 4.7 Angora goats presently having low acceptability with the breeders of Leh shall be phased out and replaced by Changra as an improver breed.
- 4.8 Exotic/Indigenous breeds or crossbreeds shall be introduced in Nobra and other areas of Leh district especially for milk production.

V). Kargil District

- 4.9 Introduction of Exotic (Swiss Alpine) /Indigenous germplasm in local goats of Kargil district for milk and chevon production in potential areas of the district.
- 4.10 Selective breeding of local goat for higher growth in *Chevon* production.
- 4.11 To explore combining ability of local goat germplasm with *Changra* goats for overall economic returns to farmers.

(c) Poultry:

Policy Statement:

- (i) There is a wide gap between demand and production of poultry and poultry products in the State. The activities in this sector need to be scaled up to the maximum. However due to high cost of egg production under intensive poultry rearing (layers) in temperate zones, dependence on import of feed ingredients, and higher cost for providing controlled farm conditions for egg production – development a *region-specific dual-purpose* bird for backyard poultry sector merits considerations.
- (ii) In subtropical areas of the state the layer production under private sector shall be encouraged and ways and means to sustain it technically shall be an important component of the policy. Similarly, for augmentation of broiler production, ways

and means to provide technical support to the farmers shall be important component of the policy

- (iii) This sector also shall be diversified by introduction of new variants of poultry after conducting validation trials in specific areas.

5.0 Breeding Policy Poultry.

- 5.1. Sustainable development Kashmir favrolla & other of self-propagating poultry birds through selective breeding
- 5.2. Development of area specific and self-propagating, self-sustaining or with minimal brooding intervention (low input), colored bird of dual purpose or specific meat or egg strains for rural poultry farming.
- 5.3. Till the development of aforementioned bird, the birds developed within state or elsewhere in the country shall be propagated after validation of their performance. e.g. Kashmir Commercial Layer, Chabro, Kalinga brown, CARI – Nirbeck, Hitcari, Vanraja, RIR etc.
- 5.4. Breeding policy of poultry shall aim at increasing production of eggs and poultry meat by popularizing low input technology birds in backyard farms and also by encouraging broiler farming.
- 5.5. Selective Breeding of local ducks and geese with the aim to evolve a better performing duck/goose under backyard.
- 5.6. Duck (Khaki Campbell, White Pecking), turkeys, Japanese and Quail farming shall also be taken up to augment the poultry meat production and to meet the consumer requirements of these birds.

(e.) Other livestock species:

Policy statement:

- (i) Double Humped Camel, Yak and Zanskari Horses are other domestic farm species of specific importance to certain areas, especially, the trans-Himalayan region of Ladakh (Leh and Kargil) for their abilities to survive in extreme climate, thriving on coarse feed and fodder and working as beasts of burden in difficult and inhospitable topography.

- (ii) Despite strategic and socio-economic importance their production remained neglected during the past. The immediate concern is their small and dwindling populations and rampant inbreeding which under this policy shall be addressed.

6.0 Breeding Policy for Equines:

- 6.1** Zanskari breed off horses shall be conserved by pure breeding after carefully selecting sires and rotating, these sires to avoid In-breeding
- 6.2** Conservation of pure line of *Chumurti* horses in high altitude and extremely hypoxic and cold conditions along with its horizontal growth.
- 6.3** Characterization, documentation and conservation of Ladakhi donkey.
- 6.4** Cross breeding/upgrading of local horses.
- 6.5** Establishment of horse stud farm in Kashmir which shall serve as nucleus for breed improvement of local horses. The improver breeds shall be Marwari/ Khatiwari.
- 6.6** Establishment of infrastructure and capacity for artificial insemination in horses.
- 6.7** Introduction of Italian donkey Jack (Poitou—a French Donkey) for production of mule.

7.0 Breeding policy for Yak.

- 7.1. Characterization, documentation & registration of Ladakhi yak as breed(s)
- 7.2. Selective breeding with enhancement of overall production traits of Ladakhi yak under pastoral system of management and rearing.
- 7.3. Introduction of exotic germplasm of improved yak breeds like Datong etc with akin geo-climatic condition adjacent to Chanthang area of Ladakh in Tibet.
- 7.4. Selection of yak for utilization for hybridization with cattle to take advantage of the heterosis in given production system.

8.0. Breeding Policy for Double Humped camel

- 8.1. In situ conservation of Double Humped Camel shall be continued in view of very small population of these animals.
- 8.2. Registration of all animals shall be made mandatory and structured breeding program shall be recommended by Animal Husbandry Department to avert inbreeding.

8.3. Apart from this administrative steps shall be put in place for ensuring that these rare animals are not slaughtered without genuine reasons.

9.0. Breeding Policy for Cats and Dogs:

9.1. Indigenous breeds:

- a. Dogs: Documentation and registration of the important shepherding dog “Bakerwali” shall be carried out. Efforts shall also be made to create breeding society /Kennel Club for all type of dog breeds available in the state.
- b. Cats: Documentation and registration of local cat of the state. Efforts shall also be made to create breeding society “Feline Club” for all types of cat breeds available in the state.

9.2. Exotic: Breed registered societies/local chapters for exotic breeds of dogs and cat shall be encouraged.

10.0. Strengthening of frozen semen banks:

For dissemination of quality germplasm and to increase the breeding coverage and to strengthening the present structure and augmenting the facilities in uncovered area is indispensable and present coverage of 25-30% needs to be doubled in coming 5 years. This intervention shall help to increase the milk production almost to double in coming decade and to realize it, opening of new semen banks at district level along with sufficient artificial insemination centres with associated facilities are essentially to be put in place.

11.0. Setting up of nucleus breeding farms:

Small open nucleus breeding farms needs to be established in all the agro-climatic zones of the states. These are essentially required for selection of the bull to stabilize the required inheritance level in the bovine stock.

12.0. Human Resource Development:

For realization of the policy competent human resource is cardinal. It is basis of successful implementation of the envisaged policy. The selection, rearing and evaluation of local graded animals are important component of the policy implementation. This requires competent human resource that are equipped with

know-how of maintenance of insemination centres, semen handling, semen delivery, data collection, maintenance of data with respect to performance recording of the livestock population. Accordingly, provision for human resource development should be essentially addressed.

13.0 Breeding societies: Formation of the breeding societies and their efficient management for all the breeds/species whether indigenous/ imported should be developed in the state.

14.0. Fodder Production: Genetic improvement shall result in increased potential of the graded and improved animals and in order to harvest the full potential of graded animals' sufficient quantity of the feed and fodder is fundamental. The fodder requirements (on dry matter basis) of the state stand about 45 lac metric tonnes annually. Therefore, increased production of fodder and increasing biomass production to increase carrying capacity of the pastures needs proper planning and execution.

Furthermore, with the increasing population/demand of fodder gap between requirement and availability is bound to increase. Therefore, the efforts must be made to fill the increasing gap between demand and supply of the fodder and for these farmers should be encouraged to go for fodder production.

15. Health coverage: Introduction of elite germplasm stretches the physiology of the animals while enhancing the production and therefore, emergence of production related diseases and other animal diseases are likely to increase. Further, to reap the full potential of animals' production and to provide the healthy and clean animal products, a robust animal health and disease control programmes is one of the essentialities. As a component of robust health programme effective disease diagnosis infrastructure at least at all tehsil or at least at district levels is a requirement. There is need to have effective vaccines and vaccination schedule for all animal species along with data base of various area specific diseases database.

16. Fish Breeding Policy:

The state of Jammu and Kashmir has ample water resources which offer congenial environment for breeding of cold water as well warm water fishes. Among the cold-water fishes Rainbow and Brown Trout are being bred artificially by stripping method whereas among the warm water fishes Rohu, Catla , Mrigal, Common carp, Grass carp, Silver Carp are being successfully bred by hypophysation in Circular Type Chinese hatcheries. The department has also achieved a major breakthrough in breeding and culture of endangered fish Mahseer. The present Trout seed production of the state is 132 lac whereas IMC and Exotic carps contribute 560 lacs towards the total fish seed production of the state. The state has achieved self-sufficiency in trout fish seed production and the department is also supplying the trout seed to other state of the country and abroad as well. With the establishment of fish production units under private sector, the demand of fish seed has been increased manifold. The Department has established a network of trout hatcheries covering almost all the areas of Kashmir division besides efforts are afoot to breed trout fish in Ladhakh and cold-water districts of Jammu division as well. A total of 14 trout hatcheries have been established in the state. These hatcheries have all the modern infrastructure/facilities to produce quality trout seed. As the broodstock of trout was not replenished for a long time, as such, to overcome the inbreeding depression the department has recently procured genetically improved variety of eyed ova of trout from Denmark. The stock is being reared at Khag trout hatchery in Budgam district to raise the parent stock. Under carp fish seed production, the department has established two National fish seed farms at Kathua, Jammu and Manasbal, Kashmir. For the revival of endangered Mahseer fish, a Mahseer hatchery has been established at Anji Reasi. For production of ample broodstock of endangered Mahseer, a Mahseer brood bank is being established at Kalokote, Rajouri with the assistance of National Fisheries Development Board. With the commissioning of Mahseer brood bank, the department shall be in a position to rejuvenate the endangered Mahseer fish in the natural waters of the state. Though the department is making strenuous efforts to produce quality and quantity seed of required size but the shortage of rearing space particularly in carp seed production is one of the constraints. To overcome the shortage of rearing space, the department contemplates to motivate the private carp farmers to utilize their small ponds as seed production units for rearing spawn/early fry to fingerling size to enhance their income besides meeting their own seed requirement. This step besides increasing the quality fish seed of good size shall also help the department for optimum

utilization of fish seed hatcheries. Moreover, in order to further enhance the seed production capacity from the existing trout hatcheries the department envisages to modify some of the present hatcheries into two/ three tier seed production system as being followed abroad. Efforts are afoot to introduce fish seed production in private sector with the financial assistance from NFDB. The private farmers shall be encouraged to take up trout breeding by way of providing them the equipment (Troughs, trays etc) required for seed production besides their skill development by organizing training programmes.

Livestock Breeding Plan; Operational Strategy:

1. Dairy Cattle Breeding Policy

Policy Statement	<ul style="list-style-type: none"> ✓ Augmentation of production, productivity and quality of milk by adopting up-gradation/ crossbreeding with exotic dairy breeds. Jersey and Holstein Friesian (H.F) shall form the main activity associated with genetic up-gradation in these species of large ruminants for ensuring food and nutritional security for the State.
Policy	<ul style="list-style-type: none"> ✓ The State shall employ Jersey and HF breeds for grading/ cross breeding of cattle as per the existing policy. However, cross breeding with Jersey/ HF shall be restricted in plain and irrigated areas and peri-urban areas while as Jersey germplasm shall be used for cross breeding/grading up in semi hilly and hilly areas of the State. ✓ The exotic inheritance of both the breeds shall be restricted maximum up to 75% only in temperate areas and 50 to 62.5% for plains of subtropical area of Jammu. ✓ Stress shall be laid upon the selection of quality 50%, 62.5% and 75% cross bred bulls of local and exotic inheritance for the stabilization of desired level of inheritances. To realize it Open Nucleus Breeding System (ONBS) shall be established for all regions of the State. ✓ Characterization, documentation, registration and improvement of local hill cattle of the State. ✓ In plains and Shivalik hill region of Jammu Division, Sahiwal shall constitute indigenous component of cross bred bulls. Red Sindhi may constitute indigenous component for non descript tracts of Aspirational districts on pilot basis. ✓ Commercial dairy farming shall be encouraged to meet the target demands of milk and to boost the milk processing plants in J&K. ✓ Experimentation on the adaptability and production related performance of French breed Mt Biliarde and Swiss breed Braunvieh- pure as well as in combination with local germplasm in hilly and small valleys of Jammu and Kashmir
Goal / Objective	<ul style="list-style-type: none"> ✓ To improve/up-grade the local ND cattle for milk productivity which comprises 52% of total breedable cattle ✓ To characterize, conserve, improve the local Hill cattle and its registration with NBAGR.
Targets	<ul style="list-style-type: none"> ✓ Raise milk production from 27.56 lac tons in 2018 to 62 lac tons of milk by 2030 ✓ Raise average lactation yield from 1531 lts per lactation to 3600 lts per lactation to realize the target
Strategy	<ul style="list-style-type: none"> ✓ Align the State resources (State & Central programs & Grants, Development Deptt. and Farm Universities) to meet the targets ✓ AI with improved coverage and efficiency of conception rates shall continue to be the main tool to realize the goals and targets. ✓ Sexed semen of elite bulls shall be explored for dissemination of the genetic superiority through skewed births in favor of female calves. ✓ State Wide implementation of INAPH (an NDDDB initiative on Information Network for Animal Productivity & Health) for <ul style="list-style-type: none"> ○ Data recording from the field in real-time on AI's, conception rates, births, milk productivity, health etc. and its seamless transmission to State Data Bank ○ For real-time tracking of the cattle improvement programs across the State ✓ Monitoring Team for periodic appraisal of the policy

1.1 Breeding for Higher Productivity in Cattle

a. Sub-tropical (Jammu region)

Agro Zone	Farming System	Breeding strategy	Quality of the Bulls	Target Lactation in population ¹	Operational Strategy
Urban & Peri-urban areas	Intensive (Commercial Dairy Farming)	Use pedigree tested frozen semen of Pure Jersey/HF bulls for upgradation to exotic level	<ul style="list-style-type: none"> • Pedigree tested bulls • Jersey bulls: >5000 lts/lact. • HF Bulls : >6000 lts /lac 	<p>>3500 lts for Jersey Cows (11.5 lts /day)</p> <p>>4500 lts for HF cows (15 lts /day)</p>	<ul style="list-style-type: none"> • Commercial Dairy Farming to boost milk production to meet the target requirement of 1000 ml /person/day in view of the growing disposable incomes and health consciousness and to produce surplus for the milk processing industry.
Plains & Irrigated areas	Semi-intensive	Use pedigree tested frozen semen of Jersey / HF bulls in un-covered areas on local cattle to produce crossbreds (50%). Inter-se mating using frozen semen of crossbred Jersey / HF bulls to maintain 62% exotic inheritance	<ul style="list-style-type: none"> • Jersey bulls: >5000 lts/lact. • HF Bulls : >6000 lts /lac • Crossbred bulls 50% & 62 ½ % Jersey x Sahiwal HF x Sahiwal 	<p>>3000 lts for Jersey crossbred cows (10lts /day)</p> <p>>4000 lts for HF crossbred cows (13lts /day)</p>	<ul style="list-style-type: none"> • Bull Mother Farms to be modernized in infrastructure • Compulsory implementation of INAPH (an <i>NDDB initiative on Information Network for Animal Productivity & Health</i>) for <ul style="list-style-type: none"> ○ Data recording from the field in real-time on inseminations, births, milk yield, disease occurrence, ○ For real-time tracking of the cattle improvement programs • Maintaining of the Sahiwal Breed at CBF for producing <ul style="list-style-type: none"> ○ Crossbreds with HF and Jersey ○ Pure Sahiwal Bulls for use in AI for popularizing Sahiwal as an important indigenous breed among farmers on low-input system of farming • Link Farmers with CBFs to follow ONBS for: <ul style="list-style-type: none"> ○ Selection of the best crossbred bulls by progeny testing/pedigree selection • Establish Central Data Bank on Cattle Breeding • Minimum Standard Protocol for semen production issued by Government of India from time to time shall be strictly followed for breeding bull selection. • Health and feed / Fodder management and conservation for lean seasons, is essential to realize the potential of dairy cows. • Data generated by capturing all breeding events through INAPH shall be analyzed at central data bank for future planning
Semi-hilly & hilly areas	Semi-intensive	Popularization of Sahiwal Breed Crossbreeding of local cows with Jersey up to 50% exotic level	<p>Pure Sahiwal Bulls -Dams yield >2400 lts / lac</p> <p>50% Jersey Bulls for inter-se mating</p>	<p>>1500 lts / lac Sahiwal Cows (5 lt /day)</p> <p>>1800 lts for XB Jersey Cows (6 lts /day)</p>	<ul style="list-style-type: none"> • Maintaining of the Sahiwal Breed at CBF for producing <ul style="list-style-type: none"> ○ Crossbreds with HF and Jersey ○ Pure Sahiwal Bulls for use in AI for popularizing Sahiwal as an important indigenous breed among farmers on low-input system of farming • Link Farmers with CBFs to follow ONBS for: <ul style="list-style-type: none"> ○ Selection of the best crossbred bulls by progeny testing/pedigree selection • Establish Central Data Bank on Cattle Breeding • Minimum Standard Protocol for semen production issued by Government of India from time to time shall be strictly followed for breeding bull selection. • Health and feed / Fodder management and conservation for lean seasons, is essential to realize the potential of dairy cows. • Data generated by capturing all breeding events through INAPH shall be analyzed at central data bank for future planning

b. Temperate (Kashmir region)

Agro Zone	Farming System	Breeding strategy	Quality of the Bulls	Target Milk Production	Operational Strategy
Urban & peri-urban areas	Intensive (Commercial Dairy Farming)	Use pedigree tested frozen semen of Pure Jersey / HF bulls for up-gradation to 75% - 100 % exotic level	<ul style="list-style-type: none"> • Pedigree tested bulls • Jersey bulls:>5000 lts / lact. • HF Bulls:>6000 lts /lac 	<p>>3500 lts for Jersey Cows (11.5 lts /day)</p> <p>>4500 lts for HF cows (15 lts /day)</p>	<ul style="list-style-type: none"> • Commercial Dairy Farming to boost milk production to meet the requirement of 1000 ml/person/day in view of growing disposable incomes & health consciousness & to produce surplus for milk processing industry • Link Directorate of Animal Husbandry (FSS Ranbirbagh, Artificial Breeding Stations, AI Centers), MLRI Manasbal & progressive farmers for ONBS & progeny testing of the bulls. • Align resources (State/Central funding & programs) to modernise FSS Ranbirbagh, Artificial Breeding Stations, AI Centres & MLRI Manasbal • Compulsory implementation of INAPH for <ul style="list-style-type: none"> ○ Real-time data recording from the field on cow registration, AI, Conception rate, births, milk-yield, repeatability etc and its analysis for : <ul style="list-style-type: none"> – Progeny testing of bulls – Record of exotic inheritance level in cows and their Comparative performance – Area wise milk production – Identification of the elite cows in the field – Evidence –based periodic appraisal of the breeding policy in real-time & policy planning ○ For real-time tracking of the cattle improvement programs • Establish State Central Data Bank on Cattle Breeding • Minimum Standard Protocol for semen production issued by Government of India from time to time shall be strictly followed for breeding bull selection. • Develop Region and District Wise PERT Chart indicating the monitorable indicators.
Plains, Irrigated & Orchard areas	Semi-intensive	Use pedigree tested frozen semen of Jersey / HF bulls for up-gradation to 75% exotic level Inter-se mating to maintain 75 % exotic inheritance in the population	<ul style="list-style-type: none"> • Pedigree tested bulls • Jersey bulls: >5000 lts / lact. • HF Bulls :>6000 lts /lac • 75% Crossbred bulls of Jersey and HF 	<p>>3000 lts for Jersey XB Cows (10 lts /day)</p> <p>>4000 lts for HF XB cows (13 lts /day)</p>	
Semi-hilly & hilly areas	Semi-intensive	Crossbreeding with Jersey up to 75% exotic level	75% Jersey Bulls for inter-se mating	>1800 lts for Jersey (6 lts /day)	

C. Cold Arid Desert of Ladakh Region

Agro -Zone	Farming System	Breeding strategy	Quality of the Bulls	Target Milk production in the population ²	Operational Strategy
Urban and peri-urban areas	Semi-Intensive and Intensive	Use pedigree tested frozen semen of Pure Jersey bulls for crossbreeding of Ladakhi Cattle to 50% exotic level	<ul style="list-style-type: none"> • Pedigree tested bulls • Jersey bulls: > 5000 lts / lact. 	>1800 lts for crossbred cows (6 lts /day)	<ul style="list-style-type: none"> • Establishment / Strengthening of Hill Cattle Breeding Farm in Ladakh region by DAH for: <ul style="list-style-type: none"> ○ Conservation and improvement of the Ladakhi cattle through ONBS ○ Producing ½ bred bulls with Jersey Semen for use in the Artificial Insemination program for maintaining the exotic inheritance of 50% Jersey in Ladakhi cattle in the field. • Implementation of INAPH in Urban areas of Ladakh and Kargil for <ul style="list-style-type: none"> ○ Data Recording on inseminations, births, milk yield, repeatability and disease incidence ○ Comparison of the different grades of cattle (Pure local, 50% Jersey, 62% Jersey) for future policy planning • ONBS for genetic improvement of the local Ladakhi Cattle at Hill Cattle Breeding Farm • Producing improved Ladakhi Cattle bulls for natural breeding in inaccessible areas • Producing frozen semen of Pure Ladakhi bulls for AI in accessible areas.
Other Hilly & Rural Areas	Semi-Intensive Open range farming during summer	Pure Breeding: Use of the improved Ladakhi Bulls for Natural breeding / Artificial insemination of the local population	<ul style="list-style-type: none"> • Local Bulls : >1000 lts of dams milk yield / lact 	> 900 lts milk / lac	<ul style="list-style-type: none"> • ONBS for genetic improvement of the local Ladakhi Cattle at Hill Cattle Breeding Farm • Producing improved Ladakhi Cattle bulls for natural breeding in inaccessible areas • Producing frozen semen of Pure Ladakhi bulls for AI in accessible areas.

² Present= 600 lts / lac

1.2 Conservation of Indigenous Cattle germplasm

Region	Breeding strategy	Quality of the Bulls	Breeds to be Conserved	Operational Strategy
Jammu	In-situ selective breeding of pure indigenous breeds for milk production traits as well as their respective unique characteristics under low input conditions	Pure Sahiwal Bulls Dams yield > 2400 lts / lac	Sahiwal Cattle, Zebu Cattle	<ul style="list-style-type: none"> • Ex-situ conservation of local breeds at regional Government farms to maintain each breed at a population level above endangerment • Development of breed societies in the home tract. • In-situ conservation at the farmers level and incentives to local farmers who maintain a purebred stock under low input low output systems • Baseline scientific studies at SKUAST J&K, to understand the true potential of each breed. • Characterization, documentation and inventorization of indigenous breeds at national level for their sustainable use, improvement and preservation. • Castration of animals of poor genetic worth
Kashmir		Dam yield >1500lt/lac (Current 00 lt /lac)	Indigenous Hill Cattle Gurezi Cattle	
Ladakh		Dam yield > 600kg/lactation High reproductive efficiency and high milk Fat	Ladakhi Cattle	

2. Breeding Policy for Buffalo

Species	Breeding strategy	Operational Strategy
Buffalo	<ul style="list-style-type: none"> • Up-gradation of local bred using Murrah (frozen Semen) and in border areas of RS Pura, Kathua & Samba with elite germplasm of Nili Ravi 	<ul style="list-style-type: none"> • AI wherever possible use of sexed semen wherever possible • Natural service in migratory herds and in difficult remote areas • Import of new high quality germplasm for popularization of Buffalo in Kashmir region. • Rotation of sires to avoid inbreeding • Ex-situ conservation of local breeds at regional Government farms/ development of breed wise societies in the home tract. • In-situ conservation at the farmers level and incentives to local farmers who maintain a purebred stock under low input low output systems • Baseline Scientific studies, to understand the true potential of each breed.

3. Ovine/Caprine Breeding Policy of J&K

PRELUDE:

The Sheep Breeding policy in vogue in Jammu and Kashmir is the one recommended by National Commission on Agriculture (1976) for Northern temperate region wherein the Northern temperate areas of the State were ear marked for fine/ apparel wool production. However, with globalization the wool from international market is available at cheaper rates and the remuneration from wool is not profitable. However, demand for the mutton is increasing with time and to meet it about 15 lac small ruminants are imported into the state annually. Therefore, there is need of a policy shift from woolly apparel sheep rearing to mutton attribute sheep

Because of this policy shift and availability good performing crossbred from the field selective breeding for more meet production from sheep shall be the policy the State. Presently cross bred sheep have comparatively low dressing percentage as compared to the mutton breeds (40-45% v/s 50-55%). This needs to be improved while ensuring the gains made in the wool production and quality in the local crosses are maintained. Therefore, dual purposes breeds like Corriedale, Sufflock, Dorper, Texel etc. shall be introduced for carcass traits, high growth and high prolificacy. Utilization of ETT/AI techniques program in sheep sector is to be pursued under the policy especially for seed stock. The germplasm of the nucleus sheep breeding farms of the State may accordingly be developed/ evolved to meet the stud demand for mutton production. The exotic inheritance in stock should be about 75%

As envisaged therein, the cross breeding of local sheep with dual purpose breeds as mentioned above (with exotic inheritance up to maximum 75%) shall be initiated in the uncovered areas followed by selective breeding to stabilized the breed with stress on mutton traits.

Product	Present Status (2016 AD) (Human population = 130 lac) + Floating Population (Security forces, Labour force , tourists)			Requirement in 2030 AD (Population = 170 lac at a growth of 2.3%/annum)	
	Production (Per capita availability)	Requirement (Per capita requirement)	Deficiency	Requirement in 2030	% Increase in demand
Mutton	324 lac kg	1560 lac kg	806 lac kg	2040 lac kg	~ 400%
Poultry	230 lac kg	(12kg/person/ year)	(~52%)		
Fish	200 lac kg				
Total	754 lac kg (5.8 kg/person/year)	+ Extravaganza			

<p>Policy Statement</p>	<ul style="list-style-type: none"> ✓ Emphasis on the production of mutton and at the same time gains achieved in fine wool so far to be taken care of by appropriate selection and breeding methods to evolve a dual purpose (wool and mutton) breed for the State. ✓ Characterization and Conservation of the local breeds of sheep and goat for posterity. ✓ Registration of Kashmir Merino and Corriedale (<i>Kashdale or Kardale</i>) as synthetic breeds of Kashmir
<p>Goal / Objective</p>	<ul style="list-style-type: none"> ○ To improve / up-grade the sheep for mutton and wool production and goat for chevon, milk and fibre production ○ To conserve & improve the local sheep and goat germplasm ○ To evolve a dual purpose sheep breed for the State
<p>Targets</p>	<ul style="list-style-type: none"> ✓ Improve live body weight at 12 months of age from an average of 23 kg to > 40kg ✓ Improve dressing percentage from 40-45% to 50-55% ✓ Improve lambing efficiency from 80% to 120%
<p>Strategy</p>	<ul style="list-style-type: none"> • Align State resources (State & Central programs & Grants, Development Deptt. & Farm Universities) to meet the targets • Evolve breeding plans for breeding of sheep for higher bodyweight gain, prolificacy(twinning) and wool quality traits • Evolve breeding plans for breeding of goats for higher bodyweight gain, prolificacy(twins), milk production and fiber quality traits • Develop a crossbreeding strategy to avoid indiscriminate and unplanned crossbreeding thereby preventing breed dilution of important breeds. • Establish a State-wide Sheep/ Goat Breeding Database: Adoption of FMIS developed by SKUAST-K at all farms <ul style="list-style-type: none"> • Recording of data on all aspects of Farm Management (Breeding, Production and Management) • Ranking of animals on genetic merit using advanced biometrical and statistical tools • Linking of progressive sheep breeders with sheep breeding farms and University. • Modernization and strengthening of farm and laboratory infrastructure • Revival and Strengthening of the Stud Ram Farms, erstwhile Feeding Centers • Develop Region and District Wise Performance Evaluation and Review Technique Charts (PERT Chart) • Monitoring Team for periodic appraisal of the policy

3.1 Sheep Breeding Policy

3.2 3.1.1 Breeding for Higher Productivity in Sheep

3.3 a. Sub-tropical (Jammu region)

Farming System	Breeding strategy	Quality of the Rams	Target production in population	Operational Strategy
Intensive For commercial sheep farming	Provision of elite Rambouillet crossbred (75% exotic + 25% local) breeding stock to progressive commercial farmers Provision of elite Dorper& Texel after performance evaluation at Govt Farms	Pure Rambouillet Rams: YBW>55kg GFW > 3kg FD <21 μ	YBW >50 kg (Current: 28.63kg ^{3a}) GFW ^a = 2.5kg (current: 1.22) FD ^b < 21 μ	<ul style="list-style-type: none"> • Strengthening of Government Sheep Breeding Farms for: <ul style="list-style-type: none"> – Modernisation of Infrastructure – Two positions for Qualified Animal Geneticists & Breeders at each farm for <ul style="list-style-type: none"> ○ Proper and scientific data recording and analysis ○ scientific implementation of the breeding programs including ONBS ○ Genetic conservation of local breeds – Import of new high quality germplasm for rearing at Farms ○ Rambouillet to reduce inbreeding and improve farms flock ○ Dorper& Texel for demand for mutton production ○ Use of ET (Embryo Transfer) / AI Technology esp. for seed stock • Revival and Strengthening of the Stud Ram Farms, erstwhile Feeding Centers
Semi-migratory	Breed improvement through crossbreeding Rambouillet (75% exotic + 25% local) followed by interse mating	-do-	YBW > 40 kg GFW= 2.5kg (current: 1.22) FD < 21μ	<ul style="list-style-type: none"> • Replacement / rotation of rams with sheep breeders every two years to minimise inbreeding • Efforts to introduce prolificacy(twinning) in sheep for horizontal growth • Establishment of State-wide Sheep Breeding Database <ul style="list-style-type: none"> – Adoption of FMIS developed by SKUAST-K at all farms: – Recording of data on all aspects of Farm Management – Ranking of animals on genetic merit using advanced tools – Linking of progressive breeders with sheep breeding farms • Monitoring Team for periodic appraisal of the policy
Migratory / Free Range	Selective breeding of Bakerwali/ Gaddi and Poonchi Upgrading of non-descript to 75% Rambouillet	YBW>40kg GFW >2.5kg FD < 30micron	YBW > 35 kg GFW = 2kg (current: Gaddi: 0.817, Poonchi 1.6 kg) FD < 32u (current:Gaddi: 34u, Poonchi32 u)	<ul style="list-style-type: none"> • Replacement / rotation of rams with sheep breeders every two years to minimise inbreeding • Efforts to introduce prolificacy(twinning) in sheep for horizontal growth • Establishment of State-wide Sheep Breeding Database <ul style="list-style-type: none"> – Adoption of FMIS developed by SKUAST-K at all farms: – Recording of data on all aspects of Farm Management – Ranking of animals on genetic merit using advanced tools – Linking of progressive breeders with sheep breeding farms • Monitoring Team for periodic appraisal of the policy

b. Temperate (Kashmir region)

Farming System	Breeding strategy	Quality of the Rams	Target production in population	Operational Strategy
Intensive For commercial sheep farming	Provision of elite Kashmir Merino and Corriedale breeding stock to progressive commercial farmers Provision of elite Dorper & Texel sheep after performance evaluation at Govt Sheep Breeding Farms	YBW > 50kg GFW = 3 kg FD < 21 μ	Corriedale: YBW > 45kg, GFW = 2.0 kg (current 25.84) Kashmir Merino: YBW > 45kg (current 1.42 ⁵), GFW = 2.5kg, FD < 21 μ (current 20 ^{u5}) (current 22.44kg, 1.42kg, 21.62 μ)	<ul style="list-style-type: none"> • Strengthening of Government Sheep Breeding Farms for: <ul style="list-style-type: none"> – Modernisation of Infrastructure – Two positions for Qualified Animal Geneticists & Breeders at each farm <ul style="list-style-type: none"> ○ Proper and scientific data recording and analysis ○ Scientific implementation of the breeding programs including ONBS ○ genetic conservation of local breeds – Import of new high-quality germplasm for rearing at Farms <ul style="list-style-type: none"> ○ Merino & Corriedale to reduce inbreeding and improve farmers flocks ○ Dorper & Texel to meet the stud demand for mutton production – Use of ET (Embryo Transfer) / AI Technology esp. for seed stock • Revival and Strengthening of the Stud Ram Farms, erstwhile Feeding Centers • Replacement / rotation of rams with sheep breeders every two years to minimise inbreeding • Efforts to introduce prolificacy (twining) in sheep for horizontal growth • Establishment of State-wide Sheep Breeding Database <ul style="list-style-type: none"> – Adoption of FMIS developed by SKUAST-K at all farms: – Recording of data on all aspects of Farm Management – Ranking of animals on genetic merit using advanced tools – Linking of progressive sheep breeders with sheep breeding farms • Monitoring Team for periodic appraisal of the policy
Semi-migratory	Breed improvement through crossbreeding with Corriedale & Merino (75% exotic + 25% local) followed by inter-se mating Selective breeding in Kashmir Merino	YBW > 50kg FD < 21 μ	Corriedale crossbred: YBW > 40kg, GFW = 2.0 kg Kashmir Merino: YBW > 40kg, GFW = 2.5kg, FD < 21 μ (current 22.44kg, 1.42kg, 21.62 μ)	
Migratory / Free Range	Selective breeding of Gurezi/ Karnai	YBW > 40kg GFW 2.0 kg FD < 27 μ	YBW > 35kg, GFW = 2kg (current: 1.25Karnah, 1.500Gurezi) FD < 28μ current: 29.70 for Karnah	

c. Cold Arid Desert of Ladakh Region

Farming System	Breeding strategy	Quality of the Rams	Target production in population	Operational Strategy
<p>Semi Intensive</p>	<p>Continue crossbreeding with Merino & stabilisation of crosses in pockets of Kargil where it has proven successful</p> <p>Continue selective breeding of Karakul breed and its crosses for mutton production in Kargil</p> <p>Pilot studies on introduction of Changluk inheritance in Kargil sheep to be taken up to ascertain their combining ability for better returns.</p>	<p>Merino Rams YBW >45kg FD <23 μ GFW= 3.0 kg</p> <p>Karakul Rams YBW >50kg</p> <p>Changluk Rams YBW >45kg GFW= 3.0 kg</p>	<p>Merino Crosses YBW >35kg FD <23 μ GFW > 2.0 kg</p> <p>Karakul crosses YBW >40kg</p> <p>Changluk Crosses YBW >35kg GFW= 2.0 kg</p>	<ul style="list-style-type: none"> • Strengthening and modernisation Govt. Sheep Breeding Farms: <ul style="list-style-type: none"> ○ Production of quality breeding stock (Rams) for distribution to farmers ○ Modernization/ strengthening of <ul style="list-style-type: none"> • Farm Infrastructure • Testing Centre infrastructure • Data Recording Systems • Two positions for Qualified Animal Geneticists and Breeders at every farm • Adoption of ONBS • Import of new high-quality germplasm for rearing at Sheep Breeding Farms <ul style="list-style-type: none"> ○ Karakul for meeting the stud demand for mutton production • Breeding and Management of local breeds under low input- low output production systems
<p>Free Range</p>	<p>Selective breeding of Purgi, Changluk and Malluk for dual purpose</p>	<p>Fix minimum production standards for breeding Rams of different breeds after evaluation of each breed</p>		<ul style="list-style-type: none"> • Establishment of State-wide Sheep Breeding Database <ul style="list-style-type: none"> ○ Adoption of FMIS developed by SKUAST-K at all farms: • Recording of data on all aspects of Farm Management (Breeding, Production and Management) • Ranking animals on genetic merit using advanced tools • Linking of progressive sheep breeders with sheep breeding farms • Monitoring Team for periodic appraisal of the policy

3.1.2 Conservation of Indigenous germplasm of Sheep

Region	Breeding Strategy	Breeds	Operational Strategy																														
Jammu		Bhadarwali, Gaddi, Poonchi	<ul style="list-style-type: none"> Ex-situ conservation of local breeds at regional Government farms/ development of breed wise societies in the home tract. <table border="1"> <thead> <tr> <th>Breed</th> <th>Registration (with accession No)</th> <th>Conservation at Govt Farm</th> </tr> </thead> <tbody> <tr> <td>Gurezi</td> <td>INDIA_SHEEP_0700_GUREZ_14004</td> <td>Bandipora</td> </tr> <tr> <td>Karnai</td> <td>INDIA_SHEEP_0700_KARNAH_14005</td> <td>Kupwara</td> </tr> <tr> <td>Purgi</td> <td>To be characterised and registered</td> <td>Kargil</td> </tr> <tr> <td>Malluk</td> <td>To be characterised and registered</td> <td>Leh</td> </tr> <tr> <td>Changluk</td> <td>To be characterised and registered</td> <td>Leh</td> </tr> <tr> <td>Gaddi</td> <td>INDIA_SHEEP_0600_GADDI_14003</td> <td>Reasi</td> </tr> <tr> <td>Poonchi</td> <td>INDIA_SHEEP_0700_POONCHI_14006</td> <td>Reasi</td> </tr> <tr> <td>Bharadawai</td> <td>To be characterised and registered</td> <td>Reasi</td> </tr> <tr> <td>Changthangi</td> <td>INDIA_SHEEP_0700_CHANGTHANGI_14002</td> <td>Leh</td> </tr> </tbody> </table>	Breed	Registration (with accession No)	Conservation at Govt Farm	Gurezi	INDIA_SHEEP_0700_GUREZ_14004	Bandipora	Karnai	INDIA_SHEEP_0700_KARNAH_14005	Kupwara	Purgi	To be characterised and registered	Kargil	Malluk	To be characterised and registered	Leh	Changluk	To be characterised and registered	Leh	Gaddi	INDIA_SHEEP_0600_GADDI_14003	Reasi	Poonchi	INDIA_SHEEP_0700_POONCHI_14006	Reasi	Bharadawai	To be characterised and registered	Reasi	Changthangi	INDIA_SHEEP_0700_CHANGTHANGI_14002	Leh
Breed	Registration (with accession No)	Conservation at Govt Farm																															
Gurezi	INDIA_SHEEP_0700_GUREZ_14004	Bandipora																															
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Bharadawai	To be characterised and registered	Reasi																															
Changthangi	INDIA_SHEEP_0700_CHANGTHANGI_14002	Leh																															
Kashmir	In-situ selective breeding of pure indigenous breeds for meat and wool as well as their respective unique characteristics under low input conditions.	Gurezi, Karnai																															
Ladakh	ONBS to check inbreeding and for maintenance of genetic diversity	Purgi, Changluk, Malluk	<ul style="list-style-type: none"> Formation of Breed Societies In-situ conservation at the farmers level and incentives to local farmers who maintain a purebred stock under low input low output systems Baseline Scientific studies to understand the true potential of each breed at SKUAST J&K Characterization, documentation and inventorization of indigenous breeds at national level for their sustainable use, improvement and preservation. ONBS to connect Sheep Breeding Farms with Farmers in Niche areas for continuous selective breeding for genetic improvement 																														

3.2 Caprine Breeding Policy of J&K

3.2.1 Breeding for Higher Productivity in Goat

a. Sub-tropical (Jammu region)

Farming System	Breeding strategy	Quality of the Bucks	Target production in population	Operational Strategy
Migratory / Free Range	Selective breeding for improvement of Bakarwali goat for its growth, adaptability and prolificacy traits	Bakarwal Bucks YBW > 50kg	Bakarwal goats YBW Male > 45 kg Female >30 kg	<ul style="list-style-type: none"> • Establishment of Goat Breeding Farm in Rajouri for <ul style="list-style-type: none"> ○ Characterisation, conservation and improvement of Bakerwal Goat breed ○ Linking of Farm with Bakerwals for ONBS ○ Performance evaluation of the Beetal and Swiss Alpine breeds for milk production • Introduction of Swiss Alpine / Beetal and Boer goat for milk and meat production under intensive farming system • Attempts to utilize ETT/AI Techniques esp. for seed stock • Establishment of State-wide Goat Breeding Database <ul style="list-style-type: none"> • Recording of data on all aspects of Farm Management (Breeding, Production and Management) • Ranking animals on genetic merit using advanced tools • Linking of progressive breeders with breeding farms
Semi-migratory	Up-gradation of local non-descript with Bakarwali goat for growth and adaptability traits Popularisation of Beetal Goat for milk production	Bakarwal Bucks YBW > 50kg Beetal Milk Yield > 3 kg	Bakarwal goats YBW Male > 40 kg Female >30 kg Beetal Milk Yield >2 kg	
Intensive for commercial goat farming	Boer Goat - the best breed for chevon production Introduction of Swiss Alpine and Beetal for milk production after performance evaluation	Boer Bucks YBW >65kg Alpine / Beetal Milk Yield > 3 kg	Boer goats YBW Male > 50 kg Female >30 kg Alpine / Beetal Milk Yield > 3 kg	

b. Caprine breeding policy for Temperate (Kashmir region)

Farming System	Breeding strategy	Quality of the Bucks	Target production in the population	Operational Strategy
Free Range	Selective breeding and rotational mating of local breeds like of Bakarwali for its growth, adaptability and prolificacy traits	Pure-bred Bhakarwali bucks YBW >50kg	YBW > 50 kg	<ul style="list-style-type: none"> • Establishment of Goat Breeding Farm in Ganderbal District for <ul style="list-style-type: none"> ○ Characterisation, conservation and improvement of Bakerwal Goat breed ○ Performance evaluation of the Beetal and Swiss Alpine breeds for milk production ○ Introduction of Boer goat for meat production under intensive farming system • Attempts to utilize ETT/AI Techniques esp. for seed stock • Establishment of State-wide Goat Breeding Database <ul style="list-style-type: none"> • Recording of data on all aspects of Farm Management (Breeding, Production and Management) • Ranking animals on genetic merit using advanced tools • Linking of progressive breeders with breeding farms
Semi-migratory	Crossbreeding Bakarwali breed with local non-descript goats for body weight gain Crossbreeding local non-descript goats with Alpine and Beetal for milk production after performance evaluation at organised farms	Pure Bakarwali bucks YBW > 50kg	Bakarwal goats YBW Male > 40 kg Female >30 kg	
Intensive	Introduction of Boer Goat - the best breed for chevon production in world Introduction of Swiss Alpine and Beetal for milk production after performance evaluation	Boer Bucks YBW >60kg Alpine / Beetal Milk Yield > 3 kg	Boer goats YBW Male > 50 kg Female >30 kg Alpine / Beetal Milk Yield > 3 kg	

c. Caprine breeding policy for Cold Arid Desert of Ladakh Region

Farming System	Breeding strategy	Quality of the Bucks	Target production in population	Operational Strategy
Free Range	<p>Selective Breeding and rotational mating of Pashmina Goat to exploit the wide variability in pashmina yield. (150 gms to 700 gms)</p> <p>Open Nucleus Breeding Scheme (ONBS) at Govt Goat Breeding Farm Upshi</p> <p>Propagation of Pashmina goat to non-traditional areas for pashmina production.</p>	<p>Pashmina Bucks for breeding</p> <p>Yield:>600 gms</p> <p>Staple length:>70 mm</p>	<p>Bucks: Yield : >500 gms Staple length: > 60 mm</p> <p>Does: Yield >350 gms Staple length> 50 mm</p>	<ul style="list-style-type: none"> • Strengthening Govt Pashmina Goat Breeding Farms (Upshi and Khangrial) for Production of quality breeding Bucks for distribution to farmers <ul style="list-style-type: none"> ○ Modernization/ strengthening of <ul style="list-style-type: none"> – Farm Infrastructure – Fibre Testing Centre infrastructure – Data Recording Systems ○ Adoption of ONBS for introduction of new variability to keep inbreeding under check by linking farmers with the farm ○ Two positions for Qualified Animal Geneticists and Breeders at each farm to plan, implement and supervise the breeding programs • RFID tagging of the elite goats of farmers for data recording in the field. • Establishment of State-wide Goat Breeding Database <ul style="list-style-type: none"> • Recording of data on all aspects of Farm Management (Breeding, Production and Management) • Ranking animals on genetic merit using advanced tools • Linking of progressive breeders with breeding farms
Semi Intensive	<p>Introduction of Changra breed and Swiss Alpine (Kargil) for chevon and milk production.</p> <p>Up-gradation of Malra with Pashmina/Changra for chevon and fibre production</p> <p>Angora goats (having low acceptability with the breeders of Leh)to be phased out and replaced by Changra as an improver breed.</p>	<p>Fix minimum production standards for breeding Rams of different breeds after evaluation of each breed</p>		

3.2.2 Conservation of Indigenous Caprine Germplasm

Region	Breeding Strategy	Breeds	Operational Strategy									
Jammu	<p>Selective Breeding of pure indigenous</p> <p>ONBS to check inbreeding and for maintenance of genetic diversity</p>	Bhakarwali	<ul style="list-style-type: none"> Ex-situ conservation of local breeds at regional Government farms to maintain each breed at a population level above endangerment/development of breed wise societies in the home tract. <table border="1"> <thead> <tr> <th>Breed</th> <th>Registration (with accession No)</th> <th>Conservation at Govt Sheep Breeding Farm</th> </tr> </thead> <tbody> <tr> <td>Changthangi</td> <td>INDIA_GOAT_0700_CHANGTHANGI_06005</td> <td>SHD Kashmir at Leh</td> </tr> <tr> <td>Bakarwal</td> <td>INDIA_GOAT_0700_BHAKARWALI_06034</td> <td>SKUAST- K SHD Jammu at Reasi</td> </tr> </tbody> </table>	Breed	Registration (with accession No)	Conservation at Govt Sheep Breeding Farm	Changthangi	INDIA_GOAT_0700_CHANGTHANGI_06005	SHD Kashmir at Leh	Bakarwal	INDIA_GOAT_0700_BHAKARWALI_06034	SKUAST- K SHD Jammu at Reasi
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Kashmir	Bhakarwali											
Ladakh	Changthangi Malra	<ul style="list-style-type: none"> In-situ conservation at the farmers level and incentives to local farmers who maintain a purebred stock under low input low output systems Baseline Scientific studies, to understand the true potential of each breed at SKUAST J&K. Characterization, documentation and inventorization of indigenous breeds at national level for their sustainable use, improvement and preservation. To evolve strategies to keep inbreeding under check e.g. rotation of sires Culling of animals of poor genetic worth. Develop a crossbreeding strategy/ plan to avoid indiscriminate and unplanned crossbreeding thereby preventing breed dilution of important breeds. 										

4. Poultry Breeding Policy of J&K

Policy Statement	<ul style="list-style-type: none"> Increase production and productivity of Poultry sector by strengthening commercial broiler sector, developing layer sector, rejuvenating backyard poultry production and diversifying poultry production through non-chicken poultry species along with concomitant development of allied sectors especially chicken hatcheries.
Goal / Objective	<ul style="list-style-type: none"> Reduce the gap between demand and supply of poultry and poultry products Sustain commercial broiler and layer production in J&K Documentation, Conservation and improvement of indigenous poultry germplasm Development of a dual-purpose breed for rural poultry farming
Targets	<ul style="list-style-type: none"> Raise poultry meat production from 230 lac kg in 2018 to 622.28 lac kg by 2030 <ul style="list-style-type: none"> (for 170 lac people @12kg /person/year considering mutton contributes 30.50% to the total mutton production) Raise total egg production from 100 million to 3600 million by 2030 Develop region specific, climate resilient varieties of poultry for back yard free range and Integrated farming systems
Strategy	<ul style="list-style-type: none"> Align the State resources (State & Central programs & Grants, Development Deptt and Farm Universities) to meet the targets Diversification of the sector by the introduction of new breeds, varieties and Species Provide technical support to private sector to make the poultry industry sustainable in the State Propagation of alternate poultry farming by propagation of duck, geese etc Monitoring Team for periodic appraisal of the policy Modernization and strengthening of farm infrastructure Region and District Wise PERT

4.1 Breeding of Poultry

Farming System	Breeding strategy	Operational Strategy
BROILER	<ul style="list-style-type: none"> • Introduction of newly developed varieties within state as well as outside the state after evaluation • Promoting Parent Stock rearing and hatchery operations in state to decrease import of DOCs 	<ul style="list-style-type: none"> • Establishment of POULTRY DEVELOPMENT BOARD to plan, develop and monitor the activities of the poultry sector in the state to achieve the targets. • Establishing a Germplasm Evaluation and Certification Centre for evaluation & Certification of Commercial Broiler and Layer Germplasm (DOCs) under auspices of Poultry Development Board and Poultry Development Institutes. • Registration of the Poultry Farm, Hatcheries, Feed Mills & other Poultry Establishments • Modernize / strengthen Government Poultry Farms and University <ul style="list-style-type: none"> • Farm Infrastructure • Data Recording Systems • State-of-the-art hatchery • Brooder Houses • Production of quality DOCs • Import of new high quality, high producing germplasm • Establishment of Parent Stock Farms with integrated Hatcheries • Evaluation of the performance and adaptability of Kashmir Commercial Layer, Chabro, Kalinga Brown, CARI- Nirbeek, Hitcari, Vanraja, RIR etc • Emphasis upon alternate poultry farming by adoption of Duck, Geese, Turkey, Japanese Quail and Guinea Fowl farming.
LAYER	<ul style="list-style-type: none"> • Promoting commercial Layer Farming under intensive and free range/integrated farming systems 	
BACKYARD	<ul style="list-style-type: none"> • Documentation, Conservation and Improvement of Kashmir Favorella Poultry • Development of region specific varieties suitable for backyard 	
ALTERNATE POULTRY	<ul style="list-style-type: none"> • Documentation, Conservation and Improvement of indigenous breeds of non-chicken poultry like Duck & Geese • Introduction of other non-chicken species like turkey, quail, ginea fowl etc. 	

5. Other Livestock Species

Policy Statement	<ul style="list-style-type: none"> • Animals like the double humped camel, yak or Zanskari horse are of specific importance to certain areas essentially the trans-Himalayan region and Ladakh. Their abilities to survive under extreme climatic conditions thriving on low feed and fodder and working as beasts of burden in different and uninhabitable topographies, makes their conservation essential. • Despite their strategic and socioeconomic importance, their conservation and protection has remained neglected. • The immediate concern is to check their dwindling populations and rampant inbreeding.
Goal / Objective	<ul style="list-style-type: none"> • To conserve the indigenous breeds of livestock and protect them in their unique ecological niches • Genetic improvement of the breeds while preserving genetic variability
Targets	<ul style="list-style-type: none"> • To keep the population of the Animal Genetic Resources of the State above endangerment level and also to maintain genetic variability • Characterization and Documentation of all breeds within the livestock species
Strategy	<ul style="list-style-type: none"> • Align the State resources (State & Central programs & Grants, Development Department and Farm Universities) to meet the targets • Diversification of the sector by introduction of new breeds and crossbreeding wherever applicable • Monitoring Team for periodic appraisal of the policy • Modernization and strengthening of farm infrastructure • Region and District Wise PERT

5.1 Breeding Policy for other livestock species.

Species	Breeding strategy	Operational Strategy
Equines	<ul style="list-style-type: none"> • Selective Breeding of Zanskari and Chumurti breeds of horse as well as the Ladkhi Donkey • Upgradation of local horses with Marwari and Kathiawari • Use of Italian Donkey Jack for Mule production 	<ul style="list-style-type: none"> • AI wherever possible use of sexed semen wherever possible • Natural service in migratory herds an in difficult remote areas • Establishment of Horse Stud Farm in Kashmir to maintain a nucleus herd • Selective Breeding under pastoral system • Government Farms: <ul style="list-style-type: none"> ○ Production of quality breeding stock for distribution to farmers ○ Modernization/ strengthening of <ul style="list-style-type: none"> • Farm Infrastructure • Testing Centre infrastructure • Data Recording Systems • Artificial Insemination centres in horses • 2 positions for Qualified Animal Geneticists and Breeders at every farm • Import of new high quality germplasm • Rotation of sires to avoid inbreeding • Ex-situ conservation of local breeds at regional Government farms/ development of breed wise societies in the home tract. • In-situ conservation at the farmers level and incentives to local farmers who maintain a purebred stock under low input low output systems • Baseline Scientific studies, to understand the true potential of each breed. • Characterization, documentation and inventORIZATION of indigenous breeds at national level for their sustainable use, improvement and preservation including Bakarwali dog • Slaughter of animals of poor genetic worth. • ONBS to connect Breeding Farms with farmers in Niche areas for continuous selective breeding for genetic improvement • Creation of Feline clubs/ Kennel Clubs
Double Humped Camel	<ul style="list-style-type: none"> • In situ conservation • Selective breeding under structured breeding programme to avoid inbreeding 	
Yak	<ul style="list-style-type: none"> • Selective breeding of the Ladakhi Yak breed • Introduction of exotic germplasm like Datong • Selection of Yak for Hybridization with Cattle 	
Dogs & Cats		

6. Breeding Policy for FISH

Jammu and Kashmir is bestowed with huge aquatic resources which are in the form of rivers, lakes, streams, springs, reservoirs, ponds, wetlands etc. These aquatic resources are about 15.97% of the total area of aquatic resources of India. The total fish production of 19850 tons of Jammu and Kashmir forms less than 1% of the country's fish production. Animal protein forms the choicest food in the state due to the climatic conditions. Jammu and Kashmir annually consumes a whopping 53,000 tons of mutton, of which 21,000 tons worth over Rs. 7.0 billion, is imported from outside. The fish production of the state has touched a new high of 20,700 tons which include 482 tons of trout fish production. About 95% of the total fish production is from the capture fisheries while as rest is from the culture fisheries. The fish production from capture sector has shown a declined trend from the last few decades. Fish import is now also being carried out at large pace, keeping the growing population of the state into consideration. J & K is importing 11000 quintals of fish annually to meet need of the state. The country's **per capita fish consumption** in 2016 was just 6.6 kg, compared with the global average of over 20.4 kg, according to FAO. As per the census of 2011, the population of Jammu and Kashmir is 12,548,926 and if the recommended fish demand of the country is considered, the total fish demand of Jammu and Kashmir is 16,31,36,038kgs (163136.97 tons), which means that J&K is much deficient (1,43,286.97 tons) in fish production as far as the recommended national fish consumption is concerned. The fish diversity and production in Kashmir region of Jammu and Kashmir over few decades has shown sharp decline. The fishes inhabiting the area of Jammu & Kashmir mostly the indigenous ones have shown sharp decline with the result some of them have become endangered and threatened, whereas some exotics especially the common carp (*Cyprinus caripio var specularis* and *Cyprinus caripio var communis*) have adopted well in Kashmir and is the most suitable cultivable fish species. Fishery regulations had to be taken in the capture sector. Aquatic resources have to be free from pollution, encroachment and from the invasive fish species. A comprehensive plan for giving the boost to the fisheries sector is needed in the state. The production of trout fish in order to cater the demand of the fish in state needs more boost so that more trout fish are produced annually within a limited period of time. The production of indigenous fishes especially Schizothoracids, common carps (*Cyprinus caripio var. communis* and *Cyprinus caripio var. specularis*) and trouts (*Onchorhynchus mykiss* & *Salmo trutta fario*) needs to be taken at gross root level in the feasible areas of Jammu and Kashmir and Ladakh.

6.1 Fish Breeding Policy

Policy Statement	<ul style="list-style-type: none"> ✓ Augmentation of production and productivity of both Capture and Culture fisheries. ✓ Restocking of the water resources to improve and restore the fish production potential ✓ Conservation and improvement of local ichthyofauna (fish diversity)
Policy	<ul style="list-style-type: none"> ✓ The State shall employ Snow trouts (Schizothoracids), trouts (Rainbow & Brown Trouts) and common carps in the breeding program for breeding/grading up in aquatic habitats of Jammu, Kashmir and Ladakh areas of the State. ✓ Stress shall be laid upon the selection of brooders like quality, fecundity and growth of brooders for selection. To realize it comprehensive characterization of fish species of commercial importance shall be carried for all regions of the State. ✓ Characterization, documentation, registration and improvement of local ichthyofauna of the State for ranching and productivity. ✓ Commercial fish farming shall be encouraged to meet the target demands of fish protein . ✓ Experimentation on production, growth and fecundity related performance of rainbow trout fish in culture and capture systems of Valley
Goal and Targets	<ul style="list-style-type: none"> ✓ <i>Augmentation of production and productivity of both Capture and Culture fisheries.</i> ✓ <i>Production of sufficient seed of indigenous fishes (Schizothoracids) for ranching in natural resources & enhancing production through capture fisheries</i> ✓ <i>Raise fish production from 20,000 tons in 2018 to 60,0000 tons of production by 2030</i>
Strategy	<ul style="list-style-type: none"> ✓ Align the State resources (State & Central programs & Grants, Development Deptt. and Farm Universities) to meet the targets ✓ Link private carp farmers as fish seed production units for rearing spawn/early fry to fingerling size so as to enhance their income besides meeting their own seed requirement. ✓ Modernization of hatcheries into two/ three tier seed production system ✓ Importation of genetically improved variety of trout to replenish the brood stock to address the issue of inbreeding ✓ Rejuvenate the endangered Mahseer fish in the natural waters of the state. ✓ Strengthening of carp fish seed production and establishment of Mahseer brood bank ✓ Monitoring Team for periodic appraisal of the policy