



Government of Rajasthan



Knowledge Paper Series

ANIMAL HUSBANDRY IN RAJASTHAN



Knowledge Paper Series
Enhancing the
Animal Husbandry
& Dairy Wealth
of Rajasthan

Prepared by



Knowledge Partner





Animal husbandry forms an integral part of agriculture and allied activities, and acts as the core provider of milk, meat, eggs, wool, silk, etc. thereby making farm and health management practices of animals critical.

Animal husbandry is the science of caring and breeding of domestic animals and development of genetic traits such as high yielding, disease resistance, etc. that are valuable to humans. Animal husbandry involves breeding and raising livestock such as buffaloes, cows, goats, camels, horses, sheep, etc. and is also extended to poultry farming and fisheries.

1 Global Best Practices in Animal Husbandry and Dairy

1.1 Superior breeding technology

Superior breeding techniques are being used for growing genetically healthy and productive livestock. Technology is being used to identify the breeds on the basis of right skeletal and overall cardiovascular health, low aggression, and suitability for the environment and their breeding locations

- For instance, Sheep Genetic Association developed by Australian Wool Innovation Ltd and Livestock Australia maintains Animals Genetic Record of approximately 1 million individual Merino Sheep and similar number of terminal and maternal sire breed. Based on the data each sheep is assigned Australian Sheep Breeding Value (ASBV) which is used by both ram breeders and commercial producers in meat and wool sectors to aid in breeding and productivity improvement.
- Cooperatives such as Grass Roots Farmers' Cooperative in Arkanas USA have been formed to maintain a record of all the animals with their physical and genetic qualities and the information is shared within the group for breeding or artificial insemination. Standards for breeding and artificial insemination have also been developed :
 - Natural breeding and cervical artificial insemination (AI) are the only breeding methods permitted
 - Embryo transfer and using animals produced by embryo transfer is prohibited
 - Cloned or genetically engineered animals are prohibited. This includes the use of cloned or genetically engineered breeding stock, offspring, or semen and eggs.
 - Sourcing breeding or market animals from sale or auction barns is prohibited
- Male germplasm/semen banks have been established in many countries with state-of-the-art infrastructure such as usage of liquid nitrogen for preservation, which enables a sustained and long shelf life for the same and an easier access by the farmers
- High quality progeny testing through skilled manpower is being used to track efficient implementation of the whole process

1.2 Organic Produce from Livestock

- With a significant increase in health conscious consumers seeking environmentally safe, chemical-residue free healthy foods, along with product traceability and a high standard of animal welfare across the globe, organic livestock production methods have gained importance. There is an increasing awareness for organic milk, eggs and other such animal derived products.
- Currently, livestock production methods for organic produce is confined to only USA

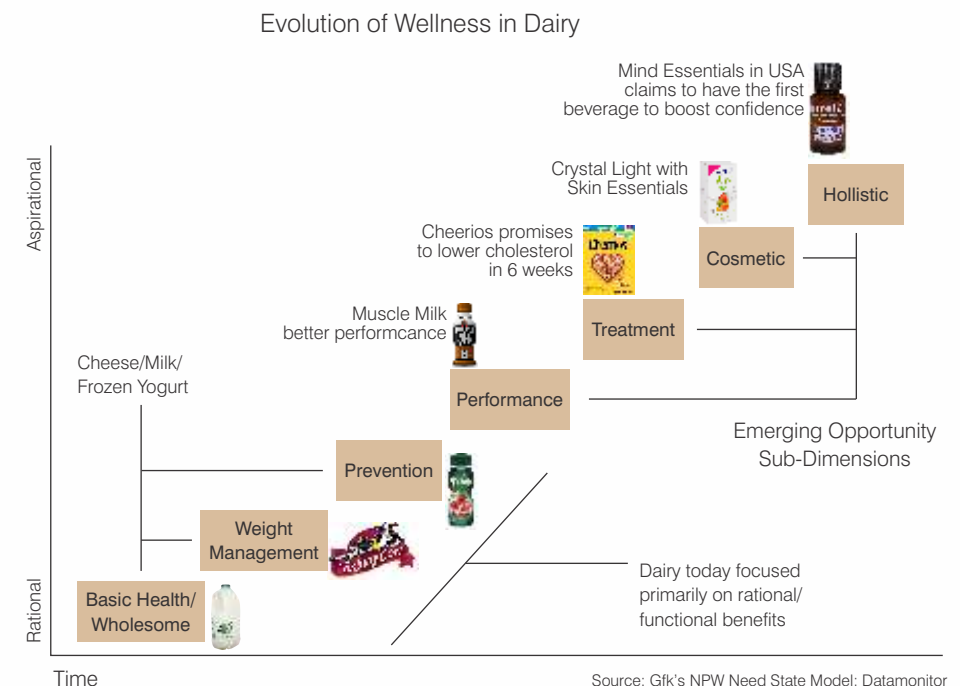
and some European countries. However, there is a growing trend to adapt these practices with countries like Brazil and Argentina following the lead.

- As an example, Korin Meat a Brazilian firm abolished the usage of antibiotic growth promoters. The company sourced an increasing amount of maize and soya from local farmers for feeding. Chickens were provided more space than in conventional industrial production and were given outdoor access. Free-range gave birds slower growth rates, which resulted in a better overall animal welfare. As a result better quality of eggs and chicken were produced enabling business growth from 0.6 million eggs in 1994 to 8.5 million eggs in 2011.

1.3 Innovations in Dairy Processing

Multiple innovations around increasing the shelf life and nutrient constituents of milk have been undertaken

- For instance, Dairyvative Technologies has developed a process through which concentrates and reconstitutes the milk to a lactose free end product and with one seventh of its weight. The milk processed using this technology remains shelf stable without refrigeration for about a year while keeping the protein content intact.
- In terms of processed milk products, it is seen that the dairy companies are moving up on the "wellness curve", where from basic milk products catering to health and weight management, players are moving towards innovative milk based health drinks that provide holistic nutrition to the consumers. USA is leading innovation in dairy as is seen from the below figure.



1.4 Digital Interventions in Animal Husbandry

- Multiple farm management softwares/ systems are being used globally both by corporates and independent farm owners. These softwares enable in effective farm management:
 - Information management system provides owners recommendations on the best practices and implementation guidelines
 - Tracking management softwares help owners to keep track of their livestock when they go for rearing, space management, etc.
 - Inventory management helps the farmers keep track of the fodder, seeds, poultry, dairy etc. and better management of resources to achieve higher profitability.
- Multiple mobile applications have also been developed to simplify the record management for the livestock keeping
- These softwares and apps provide tools for data analysis and tracking of their cattle. Some of the popular apps include ZIMS, AgWorld, Allflex etc.
- Providing planning and logistics support for effective animal health and management, including control and eradication of predominant animal diseases as well as effective procurement methodology

1.5 Leveraging inter animal symbiotic relationship

- Various husbandry owners are taking benefits of symbiotic relationships between the animals to increase their productivity and reduce the cost of fodder
- The method includes integration of two or more domestic animals rearing at the same premises. These animals could include duck-fish, poultry-fish, goat-fish etc.
- The excreta of the animals is rich in nitrogen and phosphorus while urine is rich in nitrogen and potash which acts as food for the fish. The shelter for the animals is constructed upon the pond embankment where the fish is being farmed
- This could be taken a step further, plant – animal symbiotic relationships are leveraged through co-farming, where fish excreta can be used as a nutrient for horticulture cultivation

Symbiotic relationships between animals increase their productivity and reduce the cost of fodder

1.6 Institutionalising processes for animal husbandry

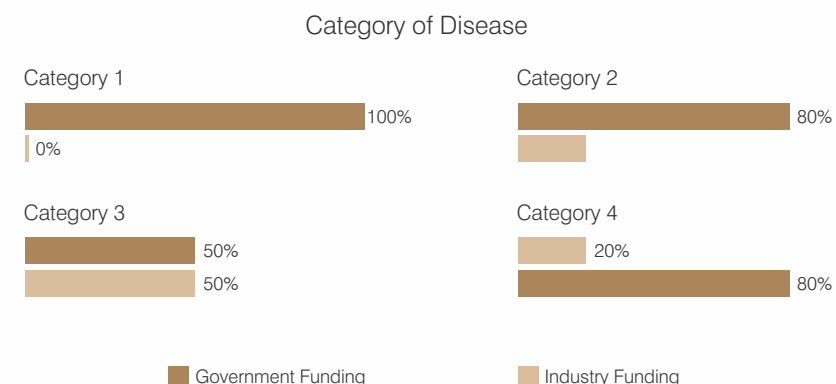
1.6.1 Implementation of nationwide quality assurance program and uniform standards across nations:

- Uniform standards for animal husbandry are being implemented across economic allies such as ASEAN to facilitate trade across the boundaries. Consequently the countries have initiated quality assurance programs which their producers utilize to ensure that the practices being followed in individual countries are standardized.
 - Quality assurance programs are being run to provide training to the owner, operator, and all staff and require written protocols for production practices, including those directed at animal well-being.
 - Assurance programs are being designed for continual review of existing systems and practices, especially as new science and technology become available and economically viable.
- Standards for housing and shelter, farm layout, pasture and forage, food and water arrangements, transportation and slaughtering have also been designed for the same

1.6.2 Good Governance in Animal Health systems

- Innovative public private partnerships are being practiced in countries such as Australia for governance in animal health
- Formalized arrangements are made for shared decision making and funding across both government and industry stakeholders
- Emergency animal disease response teams are being created with such arrangements where the funding is mutually by the government and the industry but the governance is centered with the government.
- For example: Animal Health Australia was formalized by the government to facilitate a shared decision making and enable funding arrangements for animal health control across both government and industry stakeholders.

Under the program, a list of 62 diseases was prepared which has been split in four categories basis the level of government and industry funding



2 Animal Husbandry in Rajasthan

2.1 Current scenario

Animal husbandry and livestock sector contributes to approximately 10% of the state GDP. Animal Husbandry is not only a subsidiary occupation to agriculture but it is a major economic activity, especially in the arid and semi-arid regions of the Rajasthan.

Livestock sector development has a significant beneficial impact in generating employment and reducing poverty in rural areas. Livestock provides other benefits to the rural sector such as nutritious food supply, draft power for agriculture and a sustained income for the farmer from animal produce.

The state ranks first in the country in goat and camel populations. It also ranks second in buffalo population and third in sheep population in the country. Rajasthan produces maximum wool in the country with an annual output of 15 Mn tons. The milk production in the state was around 17,000 mn tons (12% of India's milk production) in 2015. This milk produce is facilitated by a pool of c. 13,905 cooperative societies headed by a state level apex organization, RCDF (Rajasthan Co-Operative Dairy Federation or "Saras").

- Rajasthan has the fifth-largest cattle population in India and some of the finest breeds of milch and draught cattle
- The state has six cattle feed plants with a total cattle feed production capacity of 1,650 MT per day
- 21 milk processing plants with a total processing capacity of 20.35 lakh litre per day. Eight plants are registered under ISO-9001 and HACCP-15000
- Rajasthan Dairy Cooperative Federation has its dedicated programs to increase dairy processing and value added products to target local and national markets
- A frozen semen bank at Bassi (Jaipur) has a production capacity of 25 lakh doses/year of cross-breed cows and buffaloes
- Germplasm Station at Narwa Khinchian (Jodhpur) has a production capacity of 10 lac doses/year that promotes and

15mn
annual wool
output of
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Maximum in
the country

2nd
in buffalo
population

3rd
in sheep
population

develops indigenous cattle.

- Poultry in the state has grown by 60% between 2007 to 2012 and production of eggs is growing at the CAGR of 18% year on year
- Fish production in the state is growing at the rate of 12% year on year with 80% of the fish being marketed outside the state
- Wool: With 15 mn tons of wool production, Rajasthan ranks 1st in India with a share of about 30%. The state has eight different breeds of sheep that produce quality carpet wool and about 70 wool processing units in the state with 85% of wool produced in the state is of carpet grade

2.2 Existing policy support for animal husbandry

The state of Rajasthan has multiple policies in place to facilitate animal husbandry in the state:

- Bhamasah Pashu Beema Yojana, is a livestock insurance scheme to mitigate the risk of uncertainties due to eventual loss of the animal. The government provides a subsidy of 70% to the Below Poverty Line households and 50% to others as part of the same
- Livestock Development Policy 2010, has been developed to strengthen the animal husbandry sector for enhanced production and stability
- Pashudhan Niti, has an objective of enhancing the production and productivity of the farm animals or products obtained from the state which will eventually benefit the farmers
- Free medicine programs: Essential medicines and surgical products were provided to the farmers for free under the scheme. This helps in reducing the burden of the expense of the medical treatment of the animals and enables a better animal health management in the state

2.3 Existing best practices in the state:

The state has already adopted multiple best practices in animal husbandry, and now plans to take this further to attain world class standards. Some of the already existing best practices/ initiatives are highlighted below:-

- Veterinary healthcare and disease diagnostic centres have been set up in the state of Rajasthan to identify and effectively control various diseases affecting the animals in the state
- Various state level fairs, livestock exchange programs, are conducted by the state Animal Husbandry department with an aim to draw the attention to the scientific and technical developments in the Animal Husbandry sector and to motivate the livestock farmers for developing and rearing elite animals. These fairs act as a platform for sale and purchase of livestock thereby supplementing the income of livestock owners/ breeders
- An epidemiological unit by the state Animal Husbandry Department has been set up for surveillance and monitoring of diseases related to animals. The epidemiological unit

3 Way Forward

The Government of Rajasthan aims to preserve, protect, strengthen and improve livestock health, create employment opportunities, increase production and productivity and attain a sustainable growth of livestock, poultry and fisheries for nutritional security and economic prosperity.

The animal husbandry department, entrusted with the responsibility of providing veterinary health cover to all the livestock across dairy, poultry, sheep rearing and fisheries is committed to facilitate the state to achieve its maximum potential of becoming a “Food Factory of India”.

To improve the production potential and better animal health management in the state, the Department of Animal Husbandry has the following plans to achieve the above stated objectives:-

A. Develop a state of the art infrastructure for animal husbandry and dairy

- The state of Rajasthan plans to leverage the proposed infrastructure connectivity in Rajasthan such as Delhi-Mumbai Industrial Corridor and Freight Corridors to develop a processing hub with an objective of enhancing value addition levels for animal products (dairy, wool, poultry and fish)
- This will be undertaken through public private partnerships for processing plants, packaging stations etc. for milk, other animal products like wool, poultry, fisheries etc. and ancillary machine/ equipment suppliers thereby developing a complete animal product processing ecosystem
- The government is planning to transform the animal husbandry landscape of Rajasthan by encouraging manufacturing of value added dairy products both Indian (curd, paneer, butter milk etc.) as well as others such as cheese, yoghurt, cheese sauce, cheese powders, custard, etc. and poultry/ fisheries processing in the state
- Processors would have an easy access to the raw material by developing a hub and spoke system of collection centers

The animal husbandry department is committed to facilitate the state to achieve its maximum potential of becoming a “Food Factory of India”.

determines the disease endemic areas, control of outbreaks of animal diseases and its containment. Simultaneously it also helps in containment of zoonotic diseases of public health importance

- Progress in Poultry Initiatives:
 - A major breakthrough has been made in poultry, through development of high producing breeds of layer stock in the state in the poultry farms situated at Khatipura, Jaipur
 - More productive breeds such as ‘Pratadhan’ and ‘Kadaknath’ have been introduced in the state. ‘Pratapdhan’ has four times more egg-laying capacity and 75 per cent more weight as compared to the indigenous birds.
 - A state level disease diagnostic laboratories for poultry has also been established in Gandhinagar and Jaipur
 - Rajasthan has also established a State Poultry Training Institute in Ajmer which focusses on R&D and training in the area of poultry breeding
- Progress in Dairy initiatives:
 - The state government is paying special attention on enhancing milk processing infrastructure in the state
 - The existing infrastructure consists of 30 milk chilling centers with capacity of 8.45 lakh litre per day, 6 powder plants with capacity of 6 metric tonnes per day, 6 cattle feed plants with cattle feed capacity of 1650 metric tonnes per day

for wool, a distributed control system (DCS) established to increase the milk collection coverage in the state and fisheries cultivation could be undertaken in the lakes in the vicinity of the processing hub

B. Better Livestock Management Practices and Systems

- Establish a comprehensive veterinary health care system, disease diagnosis, disease monitoring, surveillance and reporting system for providing a better veterinary health care and delivery system and maintain the disease free status in respect specified diseases
- Setting up of R&D institutes in the state would assist in the development of animal husbandry industry with research in latest technologies and mechanization
- Increasing production and productivity of livestock by employing symbiotic rearing relationships
- Digital technology could be utilized and leveraged to manage the resources better and to use for genetic mapping of animals, inventory and record keeping of animal feed and other resources (including water, soil, etc.), feed distribution and logistics would allow efficient handling of resources
- Development of fodder resources and to reduce cost of production and ensure sustainable production throughout the year

C. Initiatives to Uplift the Animal Breeders/ Farmers

- Training of unemployed youth & farmers in the field of Dairy farming, Piggery farming, & Poultry farming to encourage the farmers to take up self-employment ventures in Animal Husbandry Sector
- Enabling the small producer to have better forward and backward linkages specially marketing of livestock and products, participate in the process of globalization, growth and modernization of the livestock sector
- Promoting the extensive use of long life products such as Ghee, khoa, etc. in the daily diet to boost the market
- To utilize livestock sector as a tool for economic & social development and gender equity

