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Study on the indigenous breeds of cattle and buffalo and its products

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Abstract

The study was conducted in English in the district of Rajasthan with the aim of learning about the locally available indigenous or desi breed of cows and buffaloes. A total of 5 villages are selected from Hanumangarh Junction, Rajasthan. Globally India is greatest milk producer and consumer as well it neither imports nor exports the produce. As Rajasthan ranks 2nd in milk production so per capita milk availability here is 538 grams it is nearly double to the average nation's per capita which is 252 grams. Moreover, world's largest buffalo populace is in India. Milk is appraised as one of the Mother Nature's most perfect food and from centuries people are consuming it. Majority of milk proportion is water which is approximately 85% and the rest includes fat content according to different breed and other components such as protein, carbohydrate, and minerals. In the developing nations with the advancement in lifestyles and standard of living the demand and consumption of milk is gradually increased which also led to large number of milk business entrepreneurs. As dairy and agriculture are the major occupation in rural India and development in this sector result as reduction in poverty, generate employment and contribute upliftment of national economy.

Keywords: Breeds, cattle, buffalo, products

Introduction

Rajasthan is a largest state of India present in north western region of the map. It is also known as place of sand dunes as it is famous for its hot climate of scorching heat waves during day time and night cool breezes. With this exceptionally harsh temperate area the vegetation, human and cattle population is very minute due to less availability of crucially required basic resource water for greenery which was a major source of attraction for population to settle. Due to less resource the population here is shattered and less.

Majority follows the occupation of cattle herders like camel, goat, sheep and few species of cows and buffaloes. During the season of drought there only means of sustainability was dairy product for survival and economic purposes. Because of less vegetation the women in older times use to make curries and dishes like Batti, Chacch, Rabbadi, Gatte, etc. made of curd and milk because these were the only products which were easy available.

With the increment in technology and post-independence parliamentary policies for the upliftment of this backward area by implementing several life-saving policies for farmers like by construction of country's first man made canal namely Indira Gandhi canal to support livelihood by providing adequate supply of water for crops and for humanity. However, by establishing Farmer help centers and subsidies on drip irrigation system to promote farming. This revolutionary era of development lead to a sky rocketed growth of Dairy sector in this area with the introduction Genetically Modified cattle, artificial insemination techniques improved the milk and also gave monetary benefit to the farmer.

In 20th Animal census it is clearly quoted that the Rajasthan state accommodates 2nd spot among all states in the count of livestock population followed by Uttar Pradesh whereas greatest in goat and camel population. However, summed livestock count of India's largest state is 568.01 lakhs with 10.60% of country percentile. It stands 2nd in cattle populace (23%) while 22% of buffalo populace with 3rd rank. It is crystal clear from the 20th census conducted in 2019 that buffalo and cattle population witnessed sky rocketed increase of 5.53% and 4.41%. Majority of Farmers have indigenous cattle breeds such as Tharparkar, Rathi, Kankreg, Sahiwal and Gir whilst buffaloes such as Murrah and Surti.

Description of indigenous cattles owned by farmers

This defines the physical, biological characteristics of the cattle.

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Tharparkar: It is known as Pride of Thar Desert, locally called as “Thari” and “White Sindhi”. A drought resistant breed as it survives on small bushy vegetation like sewan grass during the unfavorable situations like drought and food scarcity. This breed is temperature resistant and live easily in the 0° Celsius temperature of January month and 48° Celsius of June month. Its eye-catching feature is white and light grey color coat. Its average milk production is 2000-2500kg lactation. Earlier its per day milk production was 3-4 Liters but now with the help of Selective breeding, Artificial Insemination the production potential has increased to 24 Liters per day.

Rathi: The name derived from the Rathi community of nomadic Muslims in Rajasthan and it provides them with their major source of livelihood. It is a milch breed with brown color coat and white patches with medium sized body structure. It is very calm natured cow breed result considered best for household. However, it is also cost effective as compared to other cattle breeds like Sahiwal; gir with average milk production is 2000kg per lactation. Additionally, Ghee extracted from this breed is considered best for consumption and for medicinal purposes.

Kankreg: This breed is used for both agricultural and milking purposes so it is defined as Dual purpose breed. Main characteristic feature is that the color of its hump and hind quarters are always darker than the rest of the body. The male animals are considered as strong and sturdy so they are used for agricultural practices while with the help the advanced technology like Artificial insemination, selective method has contributes in the increment of milk production from 10 liters per day to sometimes even 18 liters/day. Another eye-catching feature of this breed is its sawai chal means stylish walk. Its average milk production is 1500kg per lactation.

Gir: It is highest milk producing cow in India. It is popularly known for its milk yielding capacity in stress condition as it is tolerant to disease and weather as well. It is reddish in color with white spots on the body. With the help of long ears they use to swatter flies and insects. Their horn grow backward and downward with a curve. It is also raised for milk and as well as beef production. Its average milk production is 1800-2000 kg per lactation. It is also exported to other nations like Brazil, United States of America, and Mexico for both breeding and milk purposes. It is also one of the top priorities of entrepreneurs in Animal husbandry and dairy field because of the high cost of its products.

Sahiwal: It is considered as one of the best milk breeding among indigenous cow breeds. As it is found in various regions of North West India. It is heat tolerant and tick resistant as parasites spread disease and leads to infection which directly affects the health and milk production also leads into the financial loss. Its color varies from brownish red to slight grey with shiny and glossy coat. It is also exported to foreign nations like Australia for cross breed purposes. Its average milk production is 1800 to 2000 kg per lactation. It also has large teats compared to other breeds of the same genus which makes milking process quite easier and also has a long tail about to touch the ground.

Here is the average Fat content of the above-mentioned breeds

Breed Name	Fat Content
Tharparkar	4.5%
Rathi	8.5%
Kankreg	4.8%
Gir	5.1%
Sahiwal	5.2%

Bovine breeds reared in Rajasthan

Murrah: It is a breed of Northern part of Indian subcontinent which is lately introduced into Rajasthan in mid nineteenth century. It is also locally known as Kali, Kundi. However, another eye-catching feature of this breed is white markings on the tail, knees with overall glossy, and shiny jet-black color coat. Moreover, its next identification marking is curly horned. It is widely accepted as most efficient for butter and milk because of high fat availability. For grading up purposes of locally available inferior breeds it is opted. Average lactation period is 1800-2500 kg per lactation.

Surti: It is one of the most important buffalo breed of Rajasthan and Gujarat. It is also recognized by the names such as Charotari and Talabda. Its body color varies from brown, black to silver grey with white spots on the forehead and tail. Its female has long neck compared to others whereas has sickle shaped and flat horns are present on the convex shaped forehead. It is also boomed with well-shaped, developed udders between the hind limbs. Average milk production per lactation is 1700-2500 kg per lactation.

Breed name	Fat Content
Murrah	8.5%
Surti	8-12%

Farm management practices and its purposes

Cattle farming is the science of taking care of animal livestock like rearing, breeding, sheltering, feeding. Its objective is not to meet human need of milk production but also for good, nutritious product and disease free. Responsibilities defined as-

Land: It is preferred that loamy and gravel soil. Must a large or proper spacious area should be available to accommodate cows and buffaloes. For fodder production at least 1 acre land is required for 2 cows. In covered area a cow requires 3.5 m² and buffalo requires 4.0 m² while in an open area cow requires 7.0 m² and buffaloes require 8.0 m².

Water: All time water available in the bowl or tubs made from cement structured near to the livestock. In some villages automatic water bowls are being used by some farmers to fulfill the thirst of cattle, they structured it from old plastic galloons. There are also some permanent structures can be seen like long cement tubs called as water troughs.

Housing: Loose housing system is mostly preferred in this region with aluminum or thatched type roof to prevent livestock from scorching heat and open sides maintains ventilation. Moreover, it is cost effective system and some have secured their livestock housing by fencing it with iron wire which allows visibility and air into the housing and also works as safety guard, it also cost cheaper than the walls, so it's the farmers first choice.

Hay shed: It is the storage house to store cattle feed and here it is made of mud and straw because it is easy and cheap to construct by homemakers like women so it also save labor cost.

Record maintenance: It is the most crucial job to do in animal husbandry as it is used to note daily milking capacity, vaccination dose of every cattle and even also the sale of the milk.

Tagging: Majority of farmers prefer ear tagging technique to classify or identify every cattle. They use to pin yellow colored tag on the ears of the cattle for identification.

Milking method: The majority follows fisting type of milking method, as it traditionally followed way and also does not need any mechanical forces to extract milk.

Basic terminologies

Detail	Cattle	Buffalo
Species	Bovine	Bovine
Group	Herd	Herd
Adult Male	Bull	Buffalo Bull
Adult Female	Cow	She Buffalo
Young Male	Bull Calf	Buffalo bull calf
Young Female	Heifer calf	Buffalo Heifer calf
New- Born	Calf	Buffalo calf

General details

Detail	Cow	Buffalo
Body Temperature (in Celsius)	38.5 °C	38.3 °C
Body Temperature (in Fahrenheit)	101 °F	101 °F
Age of Puberty	24-30 months	28-30 months
Gestation Period	285 days	310 days
Oestrous Cycle	21 days	24 days
Heat Period	18 hours	24 hours

Conclusion

Feeding management is most crucial part to maintain milking cows as the feed decides the outcomes. The good quality of fodder or pasture they consume and good, healthy, nutritious milk they secrete.

Diet plan or Feed Formulation-

- Corn/maize (makki)-30 kg.
- Rice polish-20kg.
- Mustard cake-15 kg.
- Cotton seeds-20 kg.
- Gram (Channe)-10 kg.
- Taramira-5kg.

Above mentioned ingredients are grinded into fine powdered textured form as all these quantities are followed to prepare 1 quintal feed. It is poured above the grass then give to the livestock.

Farmers add 2 tablespoons of normal or black salt above the feed which helps to maintain the digestive system and water intake capacity of the animals.

Guar fodder is also given to the animals here like it's a green drought tolerant crop its fruit is also used by human beings for consumption and for animals it is also beneficial as it helps to increase the SNF and fat content in the milk.

The farmers give 25-50% of green fodder combined with the majority of dry fodder. As with the increment in the green fodder leads to decrease the fat content from the milk.

Marketing: The majority of milk is sold to the dairy plants in urban areas. Dairies buy milk from villages by the trucks every morning and evening and bring it to the firm where the milk is initially tested to determine fat and SNF and the price of milk given to the farmers are according to the fat and SNF resulted from the everyday tested milk multiplied to its quantity sold.

Milk based on fat content

The milk product is determined by the fat percentile availability it also varies with the seasons such as summer and winter, feed composition to livestock and some products and its energy provided are explained below:-

Whole milk or Full fat milk- It usually have fat percentum around 3.2% to 3.5%. It is the milk of that fat is not removed.

Pasteurized milk- In this type the milk is heated to the high temperature for short span to kill the bacteria or pathogens.

Skimmed Milk- In this type the fat is removed from the whole milk.

Semi: Skimmed Milk-in this a type a part of milk fat is removed from whole milk.

Yoghurt: Lactic acid bacteria ferments the milk and converts it into semi solid form.

Butter: It a solidified churned cream particles color ranging from white to yellow with high fat content.

Cream: It is skimmed layer of fat collected over the top of the milk consist of high fat-soluble parts.

Product	Energy (kcal/100g)	Fat (g/100g)
Milk, full fat	64	3.7
Milk, semi skimmed	44	1.6
Milk, skimmed	31	0.2
Yoghurt, full fat	77	3.1
Yoghurt, skimmed	55	1.1
Butter	750	83
Cream	240	24

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