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Impacts of seasonal variation on livestock productivity and its abatement strategies

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ARTICLE ID: 061

Abstract

India has largest livestock population in the world. India is fortunate as the huge heterogeneous livestock population, which includes cattle, buffalo, seep, goat, pig, mithun, yak, horse, pony, mule, donkey, camel, dog, rabbit, elephant and poultry. Such world's largest livestock population is the back bone of Indian economy and basis of daily livelihood of rural population. Productivity through such huge livestock population and efficient sustainability of livestock owners depends upon highly influential seasonal variables i.e. winter, spring, summer and monsoon persist in the country. Thus, above article assigned to elaborate various manage mental strategies to minimize the influences of environmental variable and year round sustainable productivity through livestock.

Key words: Livestock, Season, productivity

Introduction

India is agriculture dominated country. Agriculture and its allied sectors are among the major contributor in Indian economy (around 14% contribution), which generates jobs opportunities for around 50% population of country. Such vital agriculture sector critically depends upon livestock productivity as livestock rearing provides direct day to day income and sustainability for livestock owners. India has 536 million livestock population (DAHDF, 2019). The total livestock population showed 4.6%increasing trend, as compared with DAHDF, 2012 livestock census (DAHDF, 2019). Indian total bovine population (i.e. cattle, buffalo, mithun, yak around 302.79 million) showed 1% increasing trend over the last census (DAHDF, 2019). Among the bovine population, cattle showed highly variable trend i.e. 0.8%

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increasing trend, female cattle showed 18.0% increasing trend over last census, indigenous/ non- descript cattle population showed 10.0% influential trend over the last census (DAHDF, 2019). However, total indigenous/ non- descript cattle population showed 6.0% declining trend over the last census (DAHDF, 2019). Total exotic/ crossbred cattle showed 26.9% increasing trend over the last census (DAHDF, 2019). Total buffaloes population (109.85 million) showed positive growth rate of 1.0%, as compared with last census (DAHDF, 2019). Total milch population of cattle and buffalo (125.34) showed positive growth rate of 6.0% (DAHDF, 2019). Total small ruminant livestock i.e. sheep (74.26 million) and goat (148.88 million) showed positive growth rate of 14.1% and 10.1%, respectively (DAHDF, 2019). Total pig population (9.06million) declined by 12.03% over the previous census (DAHDF, 2019). Total poultry population (851.81 million) influenced by 16.8% over the last census (DAHDF, 2019). However, total backyard poultry (317.07 million) and total commercial poultry (534.74 million) enhanced by 46% and 4.5%, respectively, over the last census (DAHDF, 2019). Survivability, adoptability and profitability through such world's largest livestock population directly influences of marked seasonal variations. Fifteen agro-climatic zones persist throughout the country; those are highly influential for various aspects of livestock rearing. Four contrasting types of climate i.e. winter (persist during December to January), spring (February to march), summer (April to June), monsoon (July to mid September) also highly influential for animal Survivability, adoptability and profitability.

Thus aforesaid article has been designed for critical scientific seasonal management of livestock to influence the productivity through livestock rearing and harvest more and more profitability through livestock sector.

Winter management of livestock

Winter, especially extreme cold (December to January) drastically affects the survivability and adoptability of livestock. A higher mortality and disease incidence, especially during calf hood stage is more common in winter season. Extreme cold is challenging condition for survival. Thus, various manage mental aspects such as, farm orientation (Design in East-West direction to get rid of excessive exposure of west direction cold wind), shed design (Proper covering of all air entrance except few ventilators to get rid of excessive ammonia accumulation), floor bedding materiali.e. dry roughage such as "Puaal" (Fig: 1), heating

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source (such as bulbs, heaters etc) should be sufficiently available to decline the possible chances of pneumonia,congestion, hypothermia or other respiratory ailments, clean moderate warm drinking water, artificial or natural sun light exposure (if available during afternoon hours), shifting of grazing in day time and avoidance during early morning and evening hours, jute beg wear for livestock to minimize cold stress.

Fig:1 Small ruminants shed management to minimize cold stress

(*Source: ILFC-II Unit, SVPUAT- Meerut*)

Some long day breeder species such as ovine, caprine and equine are long day breeder and requires longer day length and light intensity. Thus, artificial lightening or melatonin implants helps to sustain the reproduction efficiency of such species. Nutritional management is quiet efficient in winter season as lot of green fodder (Rabi crops) are available to justify nutritional requirement of livestock. Various Rabi season green fodder such as berseem, jai, oat etc. are available to fullfill the daily maintenance requirement of livestock. Ad lib availability of such green fodder is sufficient for maintenance requirement as well as the production requirement of low yielding livestock. Excess availability of such Rabi crops in winter season is able to minimize the feeding cost of livestock. Proper proportion of green leguminous Rabi fodders and dry roughage (2/3rd and 1/3, respectively) can full fill the daily need of livestock. Nutrition, especially concentrate feeding is most expensive investment in livestock rearing and livestock owners have to invest 65-70% cost of rearing in nutrition

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alone. Thus, minimizing the cost of feeding through adlib green leguminous fodder, kitchen left over and dry fodder will surely influence the profit margin to livestock owners. Spare green fodder during winter season can be conserved as hay, haylage, silage to feed the livestock during lean period of fodder availability. Hay, silage manufacturing process is commonly used in commercial dairy farm to insure year round availability of green fodder.

Summer management of livestock

Likewise winter livestock management, summer management is also tough task to sustain the productivity through livestock. Heat stress during summer declines the productivity and fertility of livestock. Poor fertility, scarcity of green fodder etc factors during summer season creates lot of hindrance to rear livestock. Thus, various manage mental factors such as, availability of open area (with facility of natural of artificial shed) and covered area with sufficient windows and ventilators. Whole time availability of good quality clean drinking water should be available. Nutritional resources are scarce during summer season as less availability of green fodder crops and seasonal grasses. Thus, hay, silage feeding practices are prolific during summer season. Processing of green and dry roughage (cutting, soaking, grinding etc) enhance the nutritional value of available feed resources. Early morning or late night grazing should practice during summer season. Large ruminants, especially buffaloes are very prone for summer heat stress. Thus, pond, fountain, sprinklers should provide to lesser the effect of heat stress.

Rainy season management of livestock

Lot of green grasses and other feeding ingredients are available for livestock feeding during rainy season but side by side chances of infectious diseases, compromised hygiene enhances during rainy season. Thus, proper covered area, routine cleaning practices should be implementing. Water logging conditions in covered as well as open areas of shed are big issues during rainy seasons. Thus, proper drainage of floor should be available around the vicinity of farm. Maintenance feeding requirement cane be full fill through available grasses and feeding cost may be minimized. Pre monsoon vaccination should strictly follow to minimize the occurrences of various infectious diseases such as foot and mouth disease, haemorrhagic septicaemia etc.

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Spring season management of livestock

Overall manage mental, climatic conditions are favourable during spring season. Thus, extra care minimized during such season. Manage mental aspects are favourable, optimum temperature for survival of livestock is available, chances of infectious diseases are less, sufficient availability of fee resource. Thus, free range grazing (Fig: 2) should offer to the livestock

Fig:2 Free range feeding facility to enhance livestock's productivity and sustainability

(*Source: ILFC-II Unit, SVPUAT- Meerut*)

Conclusion

Seasonal variation directly or indirectly affects the well being of livestock. Changing environmental conditions such as temperature, relative humidity, disease incidences are quiet differ in various season and livestock response accordingly. Thus, modulations of season wise manage mental, nutritional and clinical approaches surely enhance the productivity, sustainability and well being of livestock.

Acknowledgement

Sincere thanks and acknowledge to the administration of Instructional Livestock Farm Complex, Sardar Vallabhbhai Patel University of Agriculture & Technology, Modipuram-Meerut- 250110 for providing various facilities and infrastructure to develop such article

Bibliography

DAHDF, 2019. 20th livestock census, *Department of animal husbandry dairy and fisheries. Govt of India.*

ILFC II (2020). Instructional Livestock Farm Complex, *Sardar Vallabhbhai Patel University of Agriculture & Technology, Modipuram- Meerut.*