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ASSESSMENT OF LIVESTOCK FEED AND FODDER IN THE STATE OF WEST BENGAL

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Study sponsored by Ministry of Agriculture and Farmers Welfare
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Agro-Economic Research Centre
(For the States of West Bengal, Sikkim and Andaman & Nicobar Islands)
Visva-Bharati, Santiniketan
West Bengal

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Preface

The present study entitled "Assessment of Livestock Feed and Fodder in the State of West Bengal" has been assigned by the Directorate of Economics and Statistics, Ministry of Agriculture and Farmers Welfare, Government of India, New Delhi with full financial endorsement and under the close coordination of Agricultural Development and Rural Transformation Centre, Institute for Social and Economic Change, Bangalore, Karnataka.

Most of the rural poor in West Bengal are dependent on mixed crop-livestock farming system for their livelihood. Livestock rearing plays a major role in supplementing family income and generating gainful employment, particularly among the landless laborers, small and marginal farmers and especially women. But scarcity of feed and fodder is also a serious constraint for development of this sector in the state. The availability and efficient use of feed resources are the primary drivers to maximize the livestock production and productivity. There is a lack of reliable estimates for availability and requirements of feed and fodder at state level. The FAO standards of feed requirements are based on animal body weight but available only for dry matter. The NATP standards are average for whole of the country and are available only for four different categories of cattle and buffaloes. However, actual feeding practices differ across the regions as well as livestock species; breed types, stages of life, feeding practices, age and sex of the animal. Therefore, assessment of livestock feed resources based on actual feeding practices at state level are very important for effective planning and policymaking for this sector.

During our course of investigation, we find that actual amount of feed and fodder fed to different species of livestock is significantly different from both the NATP standards as well as FAO standards. The results of the study find that there are three distinct constraints to the development of livestock sector in West Bengal. One, predominance of indigenous breeds with low productivity; second serious constraints is acute shortages of feed and fodder; and third important constraint is inadequate livestock extension services in the state. Empirical studies have shown that enhancing quality and quantity of feed and fodder input has greater impact than breed improvement on increasing milk productivity in the state. Therefore, augmentation of feed and fodder production is the most challenging constraint that needs to address immediately.

The task of completion of this study was assigned to Prof. B. C. Roy for overall coordination and to Dr. R. K. Biswas for field survey and to Dr. Bitan Mondal and Mr. A. Roy for compilation of secondary data. The study team also consist of Mr. D. Majumder, Dr. D. Roy and Mr. K. S. Chattopadhyay for field survey. Collection, compilation and analysis of secondary data were done by Prof. B. C. Roy, Dr. B. Mondal & Mr. A. Roy while that of household survey data was done by Dr. R. K. Biswas (and by Mr. A. Roy for the unfinished part). Drafting of the report was done by Prof. B. C. Roy, Dr. B. Mondal, Mr. D. Majumder, Dr. R. K. Biswas and Mr. A. Roy. Secretarial assistance for the study was provided by Munshi Abdul Khaleque, Mr. Nrityananda Maji, Mr. D. Mondal, and Mr. D. Das. Mr. B. Singh and Mr. S. Hansda also extended support in office maintenance.

We convey our sincere gratitude to Dr. Sabyasachi Ojha and Mr. Amiran Choudhury, Azimganj Rai Budh Singh Bahadur High School for their help and cooperation in conducting field survey. We also take this opportunity to thank the officials of the Animal Resource Development Department, Government of West Bengal for their kind help and cooperation in carrying out the study.

We acknowledge the niceties of Prof. Bidyut Kumar Chakraborty, Vice Chancellor, Visva-Bharati and Shri P. C. Bodh (Adviser-AER Division) of Directorate of Economics and Statistics, Ministry of Agriculture and Farmers Welfare, Government of India, New Delhi for their guidance and necessary support in completion of the study.

We are extremely thankful to Prof. I. Maruthi, ADRTC, ISEC, Bangalore for his effective and encouraging coordination of the study. A word of appreciation is not sufficient for his candid suggestions and comments on the draft of this report. And finally, we convey our sincere gratitude to the hundreds of livestock farmers and extension workers in the study districts for their ungrudging responses to our questions for the days together.

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Contents

List of Tables

List of Figures

Executive Summary

Background

One of the pillars of the West Bengal's economy is the animal husbandry and dairy sector. The importance of the livestock sector in the economy of West Bengal can be judged from the fact that it contributes nearly 20.34 per cent of the state's total agricultural production (AgSDP). It is pertinent to mention here that employment opportunities in traditional agriculture sector are shrinking rapidly and there is virtually no scope for employment of rural unskilled youths in capital intensive industrial units. On the other hand, due to ever increasing population growth and changing food habits, demands for milk, meat, egg & other livestock related products are growing fast. Livestock rearing is therefore can be a major source of livelihood, particularly among the landless laborers, small and marginal farmers, and especially women in West Bengal.

Availability and efficient use of feed resources are the primary drivers to maximize the livestock production and productivity. But there is a lack of reliable estimates for availability and requirements of feed and fodder at state level. The FAO standards of feed requirements are based on animal body weight but available only for dry matter. The NATP standards are average for whole of the country and are available only for four different categories of cattle and buffaloes. However, actual feeding practices differ across the regions as well as livestock species; breed types, stages of life, feeding practices, age and sex of the animal. Assessment of livestock feed resources based on actual feeding practices at state level are very important for effective planning and policymaking for this sector. Therefore, considering the magnitude of dependence on livestock sector in West Bengal in one hand, and low animal productivity on the other hand, the present study was undertaken to assess livestock feed and fodder resources in the state with the following objectives.

Objectives of the study

The study was conducted in the state of West Bengal with the following specific objectives:

1. To estimate the area, production and productivity of major green and dry fodder crops.
2. To study the growth pattern of major livestock production.
3. To assess feed and fodder availability, requirement, deficit/surplus to improve productivity.

Study design

The study was based on both secondary information and primary survey. Primary survey was carried out in three districts of West Bengal, namely, North 24-Parganas, Burdwan and Murshidabad covering 120 sample farmers each for cattle, buffalo, and goat.

Major Findings of the Study

The major findings of the study are as follows:

1. The state of West Bengal is home to 37.48 million livestock which is 4th largest number in the country. However, most of livestock are indigenous (82.46 per cent) in nature which is one of the important constraints to boost up the productivity.

2. Indigenous cattle and goat dominates the livestock sector in West Bengal, together they constitutes more than 85 per cent of total livestock population in the state. While cattle accounted for 50.92 per cent of total livestock in the state, goat accounted for as high as 43.44 per cent against the national average of 27.80 per cent only.
3. It is encouraging that crossbred cattle have been increased by 21.33 per cent and that of female crossbred by a whopping 33.74 per cent during last 7 years. However, total numbers as well as relative share of buffalo, sheep, pig and other livestock showed a declining trend during last five censuses.
4. Rural people in West Bengal are highly dependent on mixed crop-livestock farming system for their livelihood. Crossbred cattle and buffaloes are mostly reared with commercial motive for milk production and goat for mutton. Rearing indigenous cattle is an important part and parcel of subsistence farming in meeting both the requirements of milk and animal power for farming operations.
5. Livestock rearing in West Bengal is a highly labour intensive and profitable enterprise primarily run by the family members, particularly women. Livestock rearing plays a major role in supplementing their family income and generating gainful employment.
6. Besides fish and rosgolla, West Bengal has an insatiable appetite for goat meat, chicken and eggs. Therefore, both goat and poultry farming represents a golden opportunity for off-farm livelihood diversification for unemployed youths in the state.
7. Production of egg is growing at an annual rate of 13.54 per cent per annum in West Bengal. The growth rate in meat production is also more than 5 per cent per annum. However, growth in milk production as well as milk yield in West Bengal is much lower than All India averages. Production of wool is very negligible in West Bengal.
8. Goat rearing is very much profitable and has huge economic potentiality. Because of low rearing cost, low initial investment, early maturity (at the age of 10–12 months), short gestation period, and above all delicious meat and high quality skin, rearing Black Bengal breed of goat is very popular among the poor farmers of the state. They can efficiently survive on household waste, and available shrubs and trees.
9. There is severe feed and fodder scarcity at household level. On an average, the livestock farmers could produce only 40 per cent of their feed requirement. This is a matter of serious concern as the quantity and quality of feed resources are the primary drivers to maximize the livestock production and productivity.
10. West Bengal is an acute fodder deficient state. It is partly due to non-availability of fodder land which is far below the all India average, and partly due to lack of adequate pasture and grazing land. Only 0.07 per cent of the total land is available for pasture and grazing in the state. Total area under fodder crops in West Bengal is only 0.04 per cent of gross sown area as compared to a national average of 4.6 per cent.
11. Availability of feed ingredients is also bleak. Estimated availability of green fodder, dry fodder and concentrates in the state is 2.29 million tonnes, 27.14 million tonnes and 3.10 million tonnes, respectively. Availability of feed and fodder in terms of Dry Matter (DM), Total Digestible Nutrient (TDN), and Crude Protein (CP) are estimated at 27.87 million tonnes (MT), 16.63 million tonnes (MT), and 1.18 million tonnes (MT), respectively.

12. There exist a huge gap between availability and requirements of all types of feed resources, particularly, green fodder, dry fodder and in terms of TDN & CP. This is a matter of serious concern for the development of livestock sector as both the quantity and quality of feed resources are primary drivers to maximize the livestock production and productivity.
13. As per NATP standards, the state falls short by 27.45 MT of green fodder which is as high as 92.30 per cent of its total requirement and by 1.00 MT (3.55 per cent of requirement) of dry fodder. However, the state is self-sufficient in concentrate feed with a surplus of 0.34 MT (11.93 per cent of requirements). The deficit in terms of DM, TDN and CP is estimated at 7.46 MT, 14.87 MT and 1.96 MT, respectively.
14. As per FAO standards, total dry matter requirement in the state is estimated at 33.74 million tonnes against the availability of 27.87 MT, resulting a shortfall of 17.40 per cent of total requirement.
15. Actual feed consumption rates in the study area are different from the NATP standards. Actual rates are slightly lower for green fodders but significantly higher for dry fodder and concentrates. As per actual feeding practices, total annual requirement of feed and fodder in West Bengal during 2019 is 69.03 MT against the total availability of only 32.62 MT i.e., there is a deficit of 52.75 per cent.
16. Bulk of the feed requirement, as expected, came from cattle. Though the share of goat in total livestock population in the state is as high as 43.44 per cent, its share in the total requirement of feed and fodder is only 4.22 per cent of dry fodder, 12.52 per cent of concentrate, and 20.78 per cent of green fodder in West Bengal.
17. Due to small farm subsistence farming, farmers are not inclined to put their scarce land into fodder cultivation because of household requirement for staple food and low returns from fodder cultivation. However, majority of livestock farmers are eager to take up fodder cultivation and interested in learning post harvest management techniques of fodder crops, but unable to do so due to lack of technical knowhow about fodder cultivation and post harvest management, non-availability of quality seed, low productivity, and high cost of fodder seeds.
18. There are several programmes for livestock development in the state but very few livestock farmers actually benefited from such schemes. Main benefit derived by them is free advice from the block veterinary surgeon on livestock diseases. Only 8 per cent sample farmers received free vaccination and training and a mere 3.33 per cent received benefits from artificial insemination (AI) programme. However, as high as 42.67 per cent household did not receive any kind of benefit, not even free advice.

Policy Recommendations from the Study

The finding of the study shows that there are three distinct constraints to the development of livestock sector in West Bengal. One, predominance of indigenous breeds with low productivity; second serious constraints is acute shortages of feed and fodder; and third important constraint is limited reach/coverage of livestock extension services in the state. However, livestock rearing is a highly labour intensive and profitable enterprise in West Bengal. Therefore, based on the findings of the study, the following policy interventions are suggested for sustainable development of livestock sector in West Bengal:

1. Increase feed and prodder production in West Bengal: The findings of the study have amply demonstrated that there existed an overall shortage of all types of feed resources and in order to increase feed and fodder availability in the state following interventions are suggested.
    - Arrange training programme to popularize fodder cultivation
    - Ensure timely availability of quality fodder seed at subsidized rate
    - Promote maize and other fodder crops to meet the growing feed demand
2. Breed Improvement: Since as high as 82.46 per cent of livestock in West Bengal are indigenous breeds with low productivity, breed improvement is must to boost up the animal productivity. And for that the following interventions are needed.
    - Increase coverage under crossbred cattle through the production of superior quality bulls.
    - Upgrading indigenous cattle through the production of superior quality semen and extensive coverage under artificial insemination programme.
    - Upgrading Black Bengal goat through selective breeding with high yielding purebreds.
    - Replacement of old bucks/rams/bulls for the promotion of profitable goat/ sheep/cattle farming among the smallholder farmers.
3. Livestock Extension Services: Inadequate coverage of livestock extension services in West Bengal remains a major area of concern. There is a felt need of various extension services in the state like:
    - Training on fodder cultivation and post harvest management
    - Promotion of balanced feeding with mineral fortified feed mixture
    - Encouraging commercial livestock farming
4. Others: The animal husbandry and livestock sectors are critical for the rural economy, especially for the land less labourers, women, and small and marginal farmers. Therefore, there is a need to ensure the followings.
    - Promote backyard poultry and rearing Black Bengal breed of goat as they represent a golden opportunity for off-farm livelihood diversification for unemployed youths in the state.
    - Conserve the world famous meat type prolific Black Bengal breed of goat, adopting a definite breeding policy is urgently required.
    - Promote FPOs in Livestock for procurement of inputs as well as marketing of animal products.
    - Ensure provision for animal shed to keep the animals stress free.
    - Promote processing facilities for dairy and livestock products in the state.
    - Demand for a separate National Livestock Policy with greater emphasis on feed and fodder.

Conclusion

Livestock rearing is one of the most important economic activities in West Bengal but scarcity of feed and fodder is a serious constraint for the development of this sector. Predominance of indigenous breeds with low productivity; and poor reach of livestock extension services adds to the problem. The share of crossbred livestock population is increasing in West Bengal, but the state is not able to raise feed and fodder availability due to the heavy pressure of growing staple and commercial crops. However, augmentation of animal productivity is the most challenging constraint that needs to be addressed immediately. And for this, increase in feed and fodder along with breed improvement is a must. The present study estimated feed and fodder availability and requirement based on NATP standards as well as actual feeding practices followed by the livestock rearing farmers in West Bengal. Since there was hardly any reliable estimate at state level, these state level estimates will provide a sound basis for determining the input output relations for the livestock sector in West Bengal and in effective planning and policymaking for this sector.

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