



**AgEcon** SEARCH  
RESEARCH IN AGRICULTURAL & APPLIED ECONOMICS

*The World's Largest Open Access Agricultural & Applied Economics Digital Library*

**This document is discoverable and free to researchers across the globe due to the work of AgEcon Search.**

**Help ensure our sustainability.**

Give to AgEcon Search

AgEcon Search  
<http://ageconsearch.umn.edu>  
[aesearch@umn.edu](mailto:aesearch@umn.edu)

*Papers downloaded from **AgEcon Search** may be used for non-commercial purposes and personal study only. No other use, including posting to another Internet site, is permitted without permission from the copyright owner (not AgEcon Search), or as allowed under the provisions of Fair Use, U.S. Copyright Act, Title 17 U.S.C.*

Vol XX  
No. 1

ISSN 0019-5014

CONFERENCE  
NUMBER

JANUARY-  
MARCH  
1965

# INDIAN JOURNAL OF AGRICULTURAL ECONOMICS



INDIAN SOCIETY OF  
AGRICULTURAL ECONOMICS,  
BOMBAY

**RAPPORTEUR'S REPORT**  
**ON**  
**ECONOMICS OF LIVESTOCK ENTERPRISE (INCLUDING DAIRY)**  
**WITH PARTICULAR REFERENCE TO THE SCALE**  
**OF THE ENTERPRISE**

*Rapporteur :* DR. P. BHATTACHARYA\*

A total of 10 papers on the subject of economics of livestock enterprise with particular reference to the scale of the enterprise have been submitted to this Conference. One paper deals with the scale of livestock enterprise as judged from the household data collected in the 1961 population census and relates the various components constituting the livestock enterprise with (i) the number of workers in the household associated with livestock rearing, (ii) the size of holding, (iii) duration of engagement in livestock during the year and (iv) the proportion of hired workers to family workers. In another interesting paper the livestock census data have been utilized for assessing the extent to which cows are used for draught in different parts of India and the results of a case study on the nature of work done by the cows and the variation in intensity of their use with size of holding are given. There is only one paper dealing with the important problem of the country's cattle feed resources, the requirements for the livestock population in the next few years and the possibilities of meeting them. All other papers deal with the study of data relating to economics of cattle and buffaloes. While one of the papers makes use of the data collected in the course of the socio-economic enquiries by the National Sample Survey, the others draw mostly upon the farm management and other agro-economic enquiries.

The paper by Shri P. S. Sharma on the scale of livestock enterprise leaves untouched the economic value of different enterprises and the distribution of the enterprises in various States according to value. It seems useful to initiate studies on the economics of alternative livestock enterprises available to the rural population of an area. This will help in planning for possible changes in the composition and intensity of livestock enterprises so as to improve rural economy.

In their paper Sarvashri A. R. Rajapurohit and S. W. Muranjan discuss the usefulness of extending to other parts of the country the practice prevalent in some areas of using cows for draught purposes. This would reduce the number of bullocks needed for agriculture and would thus make available more feed for milch animals. In this context the extent to which mechanization can replace bullock power also needs examination. Studies designed to assess the relative economies of mechanical power as against bullock power under various conditions of farming and size of holding need to be undertaken.

The paper by Shri V. N. Amble on the feed requirements of bovines and possibilities of meeting them brings out the urgent necessity of increasing intensive

---

\* Animal Husbandry Commissioner with the Government of India, Indian Council of Agricultural Research, New Delhi.

production of irrigated fodders in order to meet the nutritional needs particularly of milch animals so as to make available the minimum per capita requirement of milk for the Indian population. With the population of cattle and buffaloes increasing at the rate of 106 and 139 per thousand in 5 years as against an increase of 110 per thousand in the human population of the country, and there being no immediate prospect of any delimitation of population in sight, there does not seem to be any possibility of meeting the nutritional needs of all categories of livestock. Apart from drawing attention to the low level of milk yield and feeding of cattle and buffaloes in this country, the paper draws attention to the need for intensifying studies on the response of milk to feed in order to arrive at more dependable estimates of the nutritional requirements of livestock for maintenance, growth, milk production and work. The values of these requirements are mostly based on the work in U. S. A. and cannot be taken to hold necessarily for Indian livestock. Animal nutritionists, statisticians and economists will all have to collaborate in these studies requiring as they do the planning and conduct of nutritional experiments, and sound econometric analysis of the available data. Another point which arises in estimating the availability of cattle feeds is the need for improving the estimates of various technical conversion factors for assessing the residues and by-products of agricultural commodities such as oil-cakes, bran, husk, etc., available to animals.

Turning to the papers on the study of economics of cattle and buffaloes, it must be pointed out that in most of the papers the coverage of the studies is confined to cultivator type of producers. This is partly due to the data being taken from Farm Management Surveys which did not have as the main objective the study of livestock management. It would be desirable to undertake more studies specifically designed for assessing the economics of livestock management. It would also be desirable to separate out in such studies the commercial class of producers, *i.e.*, those who habitually sell milk, livestock, etc., from the others who keep a milch animal or two, for home consumption of milk. It needs no emphasis that the studies should aim at estimating the economics of production of cows and buffaloes separately. It is necessary also to stress on the need for selecting a representative sample of the producer households in the area. This can be ensured only by adopting random selection with suitable stratification, etc. Purposive selection adopted in some of the studies may have a place in limited case studies, but would not lead to results of general validity in an enquiry on a larger scale. Inadequate sample size such as a single village in a whole district would again very much restrict the usefulness of the conclusions drawn. The livestock enterprise in our country is in the hands of millions of rural producers most of whom have no comprehension of the quantitative aspects of the enterprise. It has been shown by critical studies that in these conditions it is only the cost accounting approach, involving periodic visits by trained investigators to the selected households for securing the relevant data by direct observation and measurement in respect of whatever items it is possible and by careful enquiry in respect of other items, that a proper assessment of the economics of the enterprise can be made. In many of the papers presented an attempt has been made to correlate the input-output factors with the size of holding. In studying livestock economics it would seem more fruitful to correlate with the strength of livestock maintained in the household. It seems necessary to point out that extreme care is needed in applying sophisticated econometric techniques in studying and interpreting

economic relationships. The economic conceptual appropriateness and the statistical requirements of the study such as good fit to the data, etc., should be the criteria for the adoption of an approach rather than the simplicity of the method as has been suggested in one of the papers. In some of the cases of production functions fitted, the percentage valuation explained by the fitted relationship is extremely low. It should be recognized that this is a limiting feature of survey data for the study of relationships on account of the operation of a number of extraneous factors other than those under study. However, a remedy for this would be to base such studies on an adequately large sample of data which could be split into homogeneous groups according to the characteristics such as breed, lactation order of the animal, etc., and fit the production function to each group separately. It is also necessary to emphasise the need for a thorough understanding of the agricultural and animal husbandry background involved in carrying out the economic studies and drawing conclusions. To point out some instances by way of illustration, it is far from appropriate to classify feeds as 'gram, bran, oilcakes, seeds and oilseeds, and concentrates.' Concentrates include grains, bran, husk and cakes. Similarly, it would not be correct to judge the level of feeding of a group of animals by comparing with a so-called standard ration given in terms of greens, dry fodder and concentrates without specifying the amount of nutrients such as digestible crude proteins (D.C.P.) and total digestible nutrients (T.D.N.) the feeds contained, unless it were ensured that the composition of the feeds fed to the group of animals was the same as stipulated in the standard ration. In fact the subject under discussion points to the need and usefulness of interdisciplinary collaboration among animal scientists, economists and statisticians. The subject of livestock economics has so far been almost completely neglected. It is time that more interest in this field were roused and intensive economic investigations, planned on sound statistical lines and with proper account of the animal husbandry background are undertaken.

## SUMMARY OF GROUP DISCUSSION

*Chairman:* DR. P. BHATTACHARYA

At the very outset the Group took note of the fact that at present there was a lack of interest in studying problems of livestock economics. The Group devoted some time in discussing the reasons for this. One reason advanced was a feeling of helplessness with regard to development of livestock industry because of the enormity of numbers for the reduction of which no rational steps were being taken. Lack of data could be another reason. It was also pointed out that the study of economics did not receive adequate attention in the animal husbandry curriculum. According to the Group, the most important reason was that livestock keeping was looked upon more as a way of living than an economic enterprise and as such received scant attention from the economists, and the tools of economic investigations were not consequently applied to problems in the field requiring solution. As a result, the development of livestock enterprise on sound economic lines had been hampered. The Group was of the opinion that it was essential in the interest of proper development of this important sector of rural economy to promote intensive economic studies in the field.

The Group decided to divide the papers into the following four groups for the purpose of discussion :—

- (i) Scale of livestock enterprise;
- (ii) Use of cows for the dual purpose of milk and draught;
- (iii) Availability of feed for livestock; and
- (iv) Studies on the economics of production.

#### *Scale of Livestock Enterprise*

It was felt that the study of the distribution of livestock enterprises from population census would be made more informative and useful by incorporating in such studies information on the economic returns from the enterprises. It was pointed out that families engaged in milk production alone constituted a small fraction of the total number in the country which showed that the traditional approach to specialization has made a debut in this country, though the scope for specialization remains yet to be fully exploited. The Group suggested that in land use planning it was necessary to take into account possibilities of using the land for raising fodder for livestock. It was also important to make judicious utilisation of resources for development of different types of livestock enterprises.

#### *Use of Cows for the Dual Purpose of Milk and Draught*

The Group noted with interest that in some parts of the country milch cows were also being used as draught animals, mostly for cultivation. It was of the opinion that it would be desirable to carry out careful investigations on the economics of using cows for draught as well as milk production. It was important to know the level of production of the cows which could be used economically in this manner. In this connection the study of relative economics of use of mechanized power *vis-a-vis* use of bullocks and cows for draught was desirable.

#### *Availability of Feed for Livestock*

It was recognized that better feeding was the only rapid means of bringing about improvement in the productivity of our livestock. At present there was an enormous shortage of both feeds and fodder for meeting the requirements of the large livestock population in the country, and there seemed to be no prospect of any improvement in the situation in view of the high rate of growth of population both of humans and livestock. While appreciating the need for making available more land for fodder production, the Group felt that the only rational approach to solve the problem satisfactorily was to take effective steps to check the growth of the bovine population by elimination of uneconomic animals.

While discussing the subject, the attention of the Group was drawn to the serious lack of reliable statistics of livestock products. The Group stressed the need for strengthening the statistical units in the animal husbandry departments for collection of such statistics. In this connection, it was pointed out that with the progressive increase in per capita income the demand for protective foods such as milk, meat and eggs would rise and therefore the need for dependable estimates of livestock products at frequent intervals would become increasingly

more important. In a rapidly changing economy it was very appropriate that attention to the statistics of livestock numbers and products should be drawn. In this connection the need for an inter-censal sample survey for estimating livestock numbers in different categories was stressed. This was not only necessary for estimating national income but it would also help in focussing attention on the problem of the enormous economic loss sustained by the nation owing to our inability to pursue the right policy to contain the cattle population. It was also pointed out that there was a need for intensifying nutritional investigations to determine the correct standards of nutritional requirements of Indian livestock instead of operating entirely on Morrison's standards.

#### *Studies on the Economics of Production*

The Group stressed the need for careful application of econometric tools in the analysis and interpretation of data in the studies on economics of production. It was pointed out that the handling of survey data for the study of input-output relationship required particular care by way of appropriate stratification into homogeneous data. As an example, it was cited that in milk production studies such homogeneity had to be attained with regard to species, breed, order of lactation, stage of lactation, etc. In fact the most appropriate data for this purpose could come only from carefully planned experiments. The form of the production function fitted also needed careful consideration. It was also pointed out that the precision of the estimates was even more important than their mere "significance."

The Group was of the view that it was necessary to conduct proper enquiries for ascertaining cost of production of livestock products in different agro-climatic regions of the country and to study the cost-price relationships with a view to determining not only whether the livestock enterprises were remunerative, but also whether and to what extent a feed composition at the relative prices could be so worked out as to minimise costs and maximize returns.

The Group emphasized the great need for close collaboration between economists and statisticians on the one hand and the animal husbandry and dairy scientists on the other, in studying problems of livestock economy. Only through such collaboration it would be possible to secure maximum returns from these investigations.

In the end, the Group considered problems in the field of livestock economics awaiting investigations. Some of these were :

1. Study of the type of livestock enterprise suited to a particular area.
2. Studies on economics of raising livestock.
3. Study of the economics of mixed farming, specialised livestock farming, and traditional arable farming in different agro-climatic regions.
4. The institutional factors in livestock economics, *e.g.*, suitability of co-operative system *versus* proprietary or State managed industries.
5. Studies on the scale of enterprise in (a) rural areas, (b) urban or semi-urban areas, (c) around industrial townships.
6. Studies on the economically viable size of State livestock farms.

7. Studies on the economics of feeding and management of livestock.
8. Cost of production surveys.
9. Studies on the impact of livestock enterprise on the economy of the community.
10. Studies on the economics of losses in livestock and their products due to pests and diseases.
11. Studies on the suitability of producing different livestock products under varying conditions.
12. Studies on the location of livestock and dairy industries.
13. Studies on the variation in the density of cattle population and their age and sex composition in different parts of the country, and the economic implications of such variation.