

SYMPOSIUM ON ASSESSMENT OF LIVESTOCK DEVELOPMENT PROGRAMMES IN RELATION TO SMALL AND MARGINAL FARMERS

Chairman: DR. Y. PRASAD¹

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The symposium was held during the 31st Annual Conference of the Society on 16th December, 1977. It was presided over by Dr. Y. Prasad, Animal Husbandry Commissioner, Ministry of Agriculture and Irrigation, Government of India, New Delhi. The introductory remarks of the chairman are as follows :

In the context of increasing the availability of essential articles of mass consumption and improving the nutritional standards of the people, the need for enhancing the production of various animal products, particularly milk, eggs and meat at a faster rate of growth, needs no emphasis. While the benefits accruing from the impact of intensive agricultural programmes have largely been shared by progressive farmers with large holdings and irrigation facilities, farmers with small holdings have not benefited and some sort of imbalance has developed in the rural areas in terms of social benefits. Thus, not only there is need for augmenting the production of foods of animal origin to fill up shortage of animal protein in the diets of the poorer sections of the people in the rural areas but also, efforts are required for providing greater opportunities for productive employment to the weaker sections in the rural areas. In the efforts to achieve these objectives, special livestock production programmes to benefit small/marginal farmers and agricultural labourers, supported by necessary infrastructural facilities including a ready market for the produce play an important and vital role. A study of the livestock economy shows that 70 to 75 percent of the household possessing cattle come under the categories of small/marginal farmers

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and agricultural labourers. Thus the livestock production enhancement programmes through small/marginal farmers and agricultural improvement in the productivity of bovine poultry, sheep, goats and pigs through the weaker sections of the people in the rural areas will act as an instrument of economic change. A beginning was made during the 4th Plan, when special programmes benefiting SF/MF/AL were taken up by establishing of SFDA/MFAL agencies. The thrust main thrust of these agencies was to enable these categories of agriculturists to increase their income through intensive crop and animal husbandry with improved inputs. During the Fifth Five Year Plan the programmes to benefit the weaker sections of the community were initiated at an intensive scale and special livestock production schemes were formulated. Under the programme it is envisaged to cover 98 projects under cross-bred calf rearing programmes, 68 under poultry programme, 50 projects for piggery development and 51 for sheep production covering about 183 districts in the country.

Under each project it is contemplated to assist 5,000 beneficiaries under calf rearing, 3,000 beneficiaries under poultry and 3,000 under sheep and 500 under piggery.

A poultry unit comprises of 50/100 layers, a sheep unit, 20 ewes, one ram and piggery unit for 3 sows or 10 piglets for fattening. The programme-wise position of the project is as follows :

<i>Programme</i>	<i>Project</i>
Cross-bred calf rearing	98
Poultry production	68
Piggery production	50
Sheep production	51

The 5th Plan outlay for the central sector scheme for poultry, piggery and sheep production benefiting small/marginal farmers and agricultural labourers is of the order of Rs. 2,000 lakhs. Similarly for the centrally sponsored scheme for cross-bred heifers is Rs. 2,000 lakhs.

The main objective of the cross-bred calf rearing programme is to enable the selected/identified small/marginal farmers and Agricultural labourers to produce high quality cross-bred cows from the indigenous cattle already with them. In order to produce the high quality cows the selected groups of farmers will be provided with necessary assistance in the form of package of services and inputs as part of overall programme for dairy cattle development in the area. The assistance that will be extended in the form of feed

subsidy for rearing of cross-bred calves up to production stage will form one of the inputs of the overall programme.

The main objective of the poultry/sheep piggery programmes is to enable the selected/identified small/marginal farmers and agricultural labourers to supplement their income through poultry/sheep pig production activity. The assistance will be in the form of subsidy towards capital investment for setting up a poultry/sheep pig production unit, of recommended size, supported by the requisite services and inputs.

For implementation of the above programmes, the 5th Plan outlay provided for cross-bred calf-rearing is Rs. 20 crores (Central share) and for Poultry, Sheep and Piggery production programmes, the outlay is Rs. 20.00 crores.

By now although work has been taken up in most of these projects, initial difficulties have been experienced of providing inputs to the farmers such as cross-bred calves, feed and fodder for rearing adequate livestock, health cover and also financial assistance from nationalised banks and other agencies. As such the activities of indentifying the requisite number of farmers, making available necessary financial assistance and inputs etc. has yet to catch up. For reasons mentioned above the expenditure, so far, under the programmes has not been satisfactory. The expenditure incurred for the two schemes till 1976-77 is respectively Rs. 238.34 lakhs and 71.50 lakhs.

During the 6th Plan being formulated now under the new government, considerable stress is being laid on the development of the rural areas and in improving the lot of weaker sections of the people. The programme for special livestock production programmes for small/marginal farmers and agricultural labourers is therefore to get impetus during the next five years. As a large amount of money is likely to be invested for implementation of these schemes, the need for statistical assessment of these programmes is very essential to judge the performance of the various programmes and to measure the extent of benefits that will accrue to these weaker sections for which these schemes are essentially being formulated. At present there is no machinery available even for collection and compilation of data on indicators of the progress of these projects. The National Commission on Agriculture has also stressed the need for continuous monitoring of the various development projects. For assessing the progress at various stages of implementation, as well as monitoring the impact of these programmes, data indicators of various activities need to be systematically

collected, processed and analysed. The statistical staff should undertake surveys for assessment and evaluation of different programmes including the scheme for special livestock production programmes benefiting small/marginal farmers and agricultural labourers.

I am glad that the Indian Society of Agricultural Statistics has included the assessment of livestock development programmes in relation to small and marginal farmers and agricultural labourers as one of the subjects of the symposium. Although it is not possible to have a broad and detailed assessment of these programmes at this stage, it is worthwhile for us to know the present status of these programmes in the field and at the administrative level. I am sure the various speakers will point out the lacunae and difficulties that are being experienced in the smooth implementation of the scheme. The symposium will therefore, provide future guidelines and other corrections that are necessary for the proper implementation of the scheme. Besides having a symposium of this type, I feel it is necessary that assessment surveys are taken up in the development projects including the projects for special livestock production programmes for small/marginal farmers and agricultural labourers. I understand the sub-group for Animal Husbandry Statistics that has been set for formulation of Sixth Five Year Plan has made a broad recommendation for initiating a scheme during the next five years for the monitoring and assessment of livestock development programmes. It may be worthwhile for the Indian Society of Agricultural Statistics to arrange symposium on the same topic after 2 to 3 years, where the progress of the various programmes could be discussed with adequate data.

I once again thank Indian Society of Agricultural Statistics for giving me an opportunity to preside over the symposium. I also thank the participants who have prepared papers and have come a long way to present them.

After introductory remarks of the chairman, the participants presented their papers. Detailed summaries of the papers presented are given in the following pages.

Some Conceptual Aspects on Evaluation Studies for the Special Livestock Production Programmes to be Implemented through Small Farmers/Marginal Farmers/Agricultural Labourers—By R. Sangeetha Rao, Directorate of Economics & Statistics, Ministry of Agriculture & Irrigation, New Delhi.

Evaluation as a concept has gained considerable importance in India in recent years as it helps both the planning and implementing

agency in formulating policies and programmes and in their implementation. This approach has been accepted as an integral part of developmental programmes. All the Five Year Plans of the country have acknowledged the increasing need for evaluation, the results of which would indicate the direction of the progress.

Evaluation can be defined as a method of studying the progress in the achievement of its objectives and impact/changes brought about in the socio-economic conditions of the people on account of implementation of the developmental programmes, communication between programme implementing agency and the beneficiaries, identifying and analysing the factors contributing for such change or otherwise, interactions and attitude of the people towards the programme, motivational capacity of the programme, organizational adequacy and efficiency as also suggesting measures for improvement on the basis of the experience in the formulation of the programme.

The distinctive aspects of evaluation are as follows :

- (a) Analysis of the objectives of the programme under study, the approach to its formulation and target setting at different levels and the system evolved for its implementation ;
- (b) Examination of the suitability and effectiveness of the organisation, methods, procedures and schedules used for its administration and execution at different levels ;
- (c) Assessment, in the light of the programme objectives of the impact through analysis of the flow and distribution of benefits and the use made of these ;
- (d) Ascertaining the factors and reasons underlying the differential—impact-success and failure on different areas and groups, and people's acceptance, cooperation and involvement at the level of execution ;
- (e) Ascertaining wastages of men, materials and money, if any ; and
- (f) Suggesting methods of improvement in programming, administration, organisation, execution and extension.

Kinds of Evaluation

There are two kinds of evaluation, *viz.* concurrent evaluation and independent evaluation. Concurrent evaluation is also called internal or continuous evaluation. This kind of study is undertaken by the programme implementing agency. The objective of such a study is to help the programme implementing agency to decide on the course of strategy and action in the problems arising out of the

implementing agency and not by the outsiders. This arrangement would help the implementing agency to have the knowledge of and touch with the field conditions.

Independent evaluation is also called as external evaluation. Since internal evaluation by the implementing agency might suffer from bias and might not be considered objective, independent evaluation or external evaluation becomes necessary. The studies of this need objectivity type and should be carried out by an agency other than one charged with the administration of the programme.

Methods of Evaluation

The methods of evaluation should have their basis in the methodology of social sciences. Objectivity in approach requires the adoption of scientific methods evolved for social sciences research. All the developmental programmes have monetary budget and physical targets of achievements. There are periodical reviews of the budget and achievement of targets and the indicators of the progress of the project on the basis of the expenditure. The programme may be short term or long term but in the final analysis all the short term programmes usually emerge as long term programmes. Thus evaluation must be continuous operation.

Once the programme is in operation the implementing agency will start getting information about the progress of achievement of physical targets and expenditure, programme efforts like organisation, management, development and supply of inputs and services and credit to the beneficiaries. These are called progress data. For assessing the progress a comparison has to be made with reference to a particular year taken as the base year. If this analysis is repeated for a period, it is called a bench mark study. Thus the bench mark data, progress data (time series) and quantification of achievements are the basic requirements of the evaluation. It is only with the help of this information that evaluation studies proceed to probe the factors affecting the progress or otherwise. Hence, the progress and assessment of a programme are complementary.

Since the object of the programme is to help ultimately the beneficiaries, it is necessary to study the beneficiaries at micro level. The beneficiaries are in large number and the methods of complete enumeration would involve considerable time-lag and also huge expenditure. The same results can be achieved through a study of certain percentage of sample of the beneficiaries. It is, therefore, that one may take recourse to a sample study.

To assess the impact and achievement of objectives of the programme, the data has to be broken up into measurable quantity

and assess against criteria, norms and yardsticks that have to be developed or worked out as objectively as possible. Once these criteria, yardsticks and norms are decided, the requirements of the data are automatically determined. In the case of the study under reference the criteria and the norms are to be determined in terms of expenditure, staff, institutions, services and qualities on the one hand and benefits in terms of employment, income, number of cross-bred cows, sheep, hens, pigs and quantities of milk, meat, wool, etc. on the other. Though these are direct benefits but there are some indirect benefits which are outside the programme. The demonstration effect, for example, is outside the programme area.

The impact or assessment of a developmental programme is measured by three ways, *viz.* social costs and benefits analysis, comparison over space and comparison over time (time-series).

The programme starts from a point of equilibrium from where it moves towards new equilibrium point. During this period there will be several inter-actions. The inter-action of the programme can be realised to some extent during the gestation period and fully thereafter. The length of the gestation period depends on the capital intensity of the programme. If it is labour intensive, it will be shorter and if capital intensive, it will be comparatively longer. The natural reaction and inter-action as a result of the implementation of the programme would be reduction in under-employment, increase in incomes and consequent increasing demand for goods and services. If the programme is both intensive and extensive, it will absorb most of the rural labour there by creating effective demand for labour and stop labour migration to urban areas. It also creates organised markets and credit institutions and evolves a suitable pricing system. It also helps in establishment of communication between urban and rural areas. Thus, this process would help in the development of economic, social and civilisation of the society.

The strength of the programme depends on the extent to which it motivates the people to avail the benefits under the programme. The present programme being demonstrative in character assumes that through its demonstrational effects it would motivate the non-beneficiaries who want to take up the benefits by adopting the package approach as recommended in the programme. It is a matter to be considered whether the incentives and other facilities provided under the programme would induce the people to adopt the same when majority of the people are living below the poverty line and owning only small quantity of capital assets.

Planning of Livestock Production Programmes Benefitting Small and Marginal Farmers and Agricultural Labourers—By Dr. N.R. Bhasin, Rajasthan State Dairy Development Corporation Ltd., Jaipur

1. In the new phase of planning, greater emphasis is being laid on programmes that would generate employment and distribute benefits of development to weaker sections of the society. Livestock development programmes taken up for small and marginal farmers and agricultural labourers would generate employment for the weaker sections and improve their economic status and are therefore likely to be accorded high priority in planning. Keeping this in view, the Government of India has already launched Special Animal Husbandry Programme to assist the small and marginal farmers and agricultural labourers in rearing of cross-bred heifers, sheep farming, poultry production and pig keeping.

2. Small and marginal farmers and agricultural labourers have poor means and therefore it is difficult to achieve their economic upliftment through general schemes of development. It is well-known that the Green Revolution has been achieved, at a social cost not wholly desirable. Though the technology adopted for achieving the objective was not selective, the relatively affluent farmers, because of their bigger land holdings, irrigation facilities and financial resources, derived maximum benefits from the programmes whereas its adoption by the poor farmer in general was hampered because of lack of resources. It is not difficult to see that the benefits of such developments have not been shared to any considerable extent by the small and marginal farmers. In the field of Animal Husbandry the position has not been any better. The notable development programmes which were launched during the plan periods are the Key Village Scheme, Intensive Cattle Development Project, Cross-breeding of cattle in hilly and heavy rainfall areas, Intensive Sheep Development Project, Sheep and Wool Extension Centre, Establishment of Bacon Factories and Piggery Development Blocks, Intensive Poultry Development Projects and coordinated Poultry Breeding Programmes. Most of these programmes were excellent in concept but their success has been limited. Little data is available on how for these programmes benefited the weaker sections. It is, therefore, essential that in future the Animal Husbandry programmes should not only aim at increasing the production from livestock but should also ensure that the benefits of higher production through application of technology go to small and marginal farmers.

3. The National Commission on Agriculture examined the question of milk production as a source of subsidiary income to

small and marginal farmers and agriculture labourers and came to the conclusion that there is a very good scope of augmenting milk production rapidly by harnessing and developing the facilities available with the small and marginal farmers and agricultural labourers. In view of the fact that most of the small and marginal farmers and agricultural labourers already have cattle, the milk production programme envisaged to assist these categories of farmers aim primarily at replacement of the indigenous cows by cross-bred progenies produced by the farmers themselves or by supply of cross-bred heifers and calves to them. Since small and marginal farmers do not have capacity to feed the cross-bred animals properly, at the recommendations of NCA, such an assistance is now available under the Centrally Sponsored Scheme. Thus while the Centrally Sponsored Scheme envisages assistance for rearing the cross-bred calves the Intensive Cattle Development Programme in the area would provide inputs required to produce such calves and also organise marketing of the milk. The success of the special Animal Husbandry Programme would depend to great extent on how the delivery of inputs is made and how marketing of the milk is organised in the area.

4. The reason is the inability of small and marginal farmers and agricultural labourers to take advantage of the developmental programmes for their poor receptibility. They, therefore, require personalised services which are seldom available in programmes implemented by the conventional departments. Therefore, with a view to help these farmers organisations providing personalised services will be required to be built up. The Cooperatives of Milk Producers' when organised on Anand model appear to be the most effective organs for providing technical inputs for increasing the milk production and marketing of the milk. These societies have got deeper penetrance and their benefits by and large go to small and marginal farmers and agricultural labourers in the rural areas. The village level milk producers' cooperative society is managed by a committee elected by the members. Only milk producers' can become members of these societies. In Rajasthan an improvement has been made in the bye-laws of these cooperative societies that 1/3rd members of the executive committee of the society would be from small and marginal farmers and agricultural labourers. This will ensure the participation of the weaker sections of the villages in the management of the societies. The village level cooperative society besides collection of the milk, also provides technical inputs in the form of veterinary aid, supply of balanced feed, fodder seeds of improved varieties and Artificial Inseminations. What has to be

ensured is that the small and marginal farmers and agricultural labourers take advantages of the input services available to them otherwise the aim of producing the cross-bred calf from the existing low producing indigenous cows would not be achieved. In every milk producers' cooperative society a roster of small and marginal farmers and agricultural labourers possessing cows should be prepared and it should be ensured that when a cow comes in heat she is inseminated with semen from exotic bull. The village level cooperative societies in AMUL model are federated into a District Level Union. The Union sets up the Dairy Plant, a Feed Mixing Plant and Semen Bank. The trucks that go to the society for collection of milk also carry semen every day. Such a model provides an easy source of dispensing the inputs required by the farmers. Experience in many states other than Gujarat also shows that cooperative model is very effective in providing inputs.

5. Under the Special Animal Husbandry Programme to provide assistance to small and marginal farmers and agricultural labourers in rearing of the cross-bred heifers followings are some of the points requiring consideration :-

- (a) Under the Special Animal Husbandry Programme assistance to small and marginal farmers and agricultural labourers is given in the form of concentrate feed. 50% of the assistance in case of small and marginal farmers and 66.7% in case of agricultural labourers is treated as subsidy and the remaining as loan. The proposition has therefore to be the bankable proposal. The cash flows of the farmer having cross-bred cow provide high financial and economic returns, therefore, there is no difficulty in accepting this as a financially viable proposition. However, in many cases it becomes difficult for the beneficiaries to complete the formalities required by most of the financing institutions before sanctioning the loans which are quite cumbersome and time consuming. Many banks still insist on securities, charges over land and no dues certificate from a number of institutions.
- (b) Some of the small and marginal farmers do not have breed cows. The number of crossbred cows that can be made available is also small. There is little linkage between the facilities available under SFDA and those under Social Animal Husbandry Programme.
- (c) Most dairy organisations of the country purchase milk on the basis of its fat content rather than on total solids.

Such a practice has placed cows at a disadvantageous position and is likely to affect the programme adversely. It is, therefore, essential that pricing policy giving weightage to the solids both fat and non-fat is followed in the area where the schemes are in operation.

- (d) During the last two years, the market trend shows a rise in the price of ingredients requiring for manufacture of concentrate feed. Concentrate feeding is becoming uneconomical. How far the feed cost can be controlled is a point for consideration. One can also examine whether a farmer who can produce leguminous fodder to replace concentrate feed of cross-bred calves can be given some assistance.

6. In case of Sheep Farming the programme is limited to provide assistance for purchase of a unit of sheep. The success of the programme would depend on how technical inputs are organised and delivered to the farmers. This would require creation of new organisational set-up. In Rajasthan organisation of cooperatives of the sheep farmers managing pastures linked to sheep development have been taken up on small scale. Sheep development programme require organisation who can undertake pasture development, provide inputs for sheep development and organise marketing of the wool, mutton and live animals. The loaning programme for sheep unit is also suffering due to cumbersome bank procedure.

7. The Poultry farming and Pig keeping can benefit the small and marginal farmers and agricultural labourers, provided it is possible to make available concentrate feed at the reasonable price. With the prevailing market prices these are becoming increasingly less economical. Unless some way is found out to reduce the price of feed ingredients their scope to provide employment to weaker sections of the rural areas may disappear. These programmes would also require organisations which can deliver inputs and personalised services and provide the close tie up between the delivery of inputs and marketing of the produce.

Special Livestock Production Programmes Benefiting Small Marginal Farmers and Need for Statistical Assessment—By C.L. Malik & S.P. Singh, Department of Agriculture, Ministry of Agriculture & Irrigation, New Delhi

This is an axiomatic truth that India is predominantly an agricultural country with bountiful natural resources, variegated landscape and well distributed rainfall. Paradoxically, 80% of the

people living in the country fall below the poverty line. There is considerable regional and intra-regional imbalance in the distribution of the poorer segment of the people. This is due mainly to the variation in the agro-climatic conditions, customs and living practices. Next to agriculture, Animal Husbandry provide the largest sustenance to the people in the rural areas. Despite recent technological advances, the Animal Husbandry sector has not yet made a dent on the economy of the people. However, in recent years, Animal Husbandry and Dairying have acquired a new dimension in the developmental programmes of the country. In the Dairying Sector alone the per capita availability of milk at 110 gms. falls far too short of the standard nutritional requirements *i.e.* 210 gms. Similarly, in the case of other livestock products, *viz.* eggs, meat etc. we have to go a long way before the existing protein gap in the dietary of the people could be covered. This is, particularly, significant in the context of the fast changing dietic habits of the people. Thus, in order to make up the leeway in livestock production and to bridge the protein gap, special development programmes were ushered in during the 5th Five Year Plan. The special programme popularly known as SFDA/MFAL have the broad objectives of increasing the availability of essential articles of mass consumption such as milk, eggs, wool and meat to improve the nutritive status of the people and to raise the economic standards of the small/marginal farmers and agricultural labourers. These objectives are intended to be achieved through the special programmes mentioned below :

- (i) cross-breed calf rearing for milk production enhancement ;
and
- (ii) Development of poultry, piggery and sheep for production of eggs-wool and meat.

As per the intitial plans prepared for the implementation of this programme about 267 projects covering 183 districts in the country are to be taken up. The programme-wise position of projects is as under :

(a) Cross-breed calf rearing	98 projects
(b) Poultry production	68 projects
(c) Piggery production	50 projects
(d) Sheep production	51 projects

Total	267 projects

Under each cross-breed calf rearing project, 50,00 selected families are to be benefited in a period of 5 years. Similarly in each

poultry and sheep project, 3,000 selected families are to be covered and under piggery projects 500 families are to be benefitted. Thus, the total number of beneficiaries will be as under :—

(a) Cross-bred calf rearing projects	4,90,000
(b) Poultry projects	2,04,000
(c) Sheep projects	1,53,000
(d) Piggery projects	25,000
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Total	8,72,000
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During Fifth Plan period the outlay for cross-bred calf rearing scheme was Rs. 20 crores. Similarly, for poultry, piggery and sheep production programmes, the outlay available was Rs. 20 crores.

During the Sixth Plan period these programmes are not only to be continued but may be implemented in some more areas and number of beneficiaries per project may also be increased.

Need for Statistical Assessment

In view of the size and technical content of these programmes there is need for statistical assessment of these programmes. This would enable us to measure the extent of benefits in physical and financial terms accruing to the beneficiaries in particular and project areas in general. As the existing programmes are to be strengthened further and also more projects are to be taken up, assessment and evaluation of these programmes requires to be taken up in a systematic manner. Moreover, a band of Statistical Investigators and Enumerators have to be trained for undertaking field studies, processing and analysis of data for purposes of systematic studies of the results thrown up by field observations.

The first step required in this direction is to create necessary statistical set up supported by field staff in the State Directorates of Animal Husbandry. At present there is no machinery available even for collection and compilation of data on indicators of the progress of these projects. The National Commission on Agriculture has also stressed the need for continuous monitoring of the various development projects, including the projects for special livestock production programmes benefiting small farmers/marginal farmers and agricultural labourers. Further it is recommended that for assessing the progress at various stages of implementation, as well as monitoring the impact of these programmes, data indicators of various activities need to be systematically collected, processed and analysed. Data on various developmental projects should be collected regularly and appropriately

compiled and analysed. In addition, the statistical staff should undertake surveys for assessment and evaluation of different programmes. It is, therefore, imperative that arrangements are made for creating appropriate statistical set up for various development schemes including the schemes for special livestock production programmes benefiting small/marginal farmers and agricultural labourers.

The main items on which regular data are required to be collected for continuous monitoring of these programmes are discussed as under :

(a) *Financial* : Number of beneficiaries, assistance provided from cooperatives, commercial banks, Nationalised banks and amount provided as subsidy and loans.

(b) *Technical Inputs* : Quantity of feed, health cover measures, breeding data on number of artificial inseminations, natural services conception rates, cross-breed calves born, dams production.

(c) *Economic benefits* : Quantity of production of livestock products and by products, utilisation pattern of production, sale price and income by sale of products and by products.

(d) *Employment generation* : Number of family members engaged wholly or partly male/female-adults/children. Labour employed etc.

(e) *Mortality statistics*. Death rates at important age groups breed-wise.

Bench mark and assessment surveys

To assess the impact of the programme the bench-mark and assessment surveys at regular intervals are necessary in the project areas. For this the data on additional economic gains to the beneficiaries, increased production of milk/eggs/wool/meat in the project area and adoption of improved husbandry and management practice etc. is necessary.

Data requirement for financial assistance from ARDC

Agricultural Refinance Development Corporation is also rendering valuable financial assistance for such programmes. The various types of statistics are required by them for providing such assistance.

Taking into consideration all these points it becomes essential to collect regular statistical data impact on various aspects of performance for evaluation of the programmes.

Selection of project area

Presently the programmes are being implemented in the existing SFDA/MFAL districts. Some of them are within the milk sheds of

the metropolitan cities and some are those which are to be covered by the State Dairy Schemes. In the case of poultry, piggery and wool programmes also the districts covered are those where SFDA/MFAL programmes are already running. Suitable criteria as mentioned below are proposed for selection of the project areas to enable us to study how far the programmes have attained their objectives, (i) climatic conditions suitable for different species, (ii) per capita income (rural areas), (iii) rural human population and extent of unemployment, (iv) livestock and poultry population, (v) existing level of production of major livestock products, (vi) market facilities for sale and purchase of livestock commodities, (vii) availability of feed and fodder, (viii) existing livestock health facilities, (ix) availability of cross-bred calves for milk production, and (x) other inputs for livestock production.

Data requirements for monitoring and assesment of the Special Livestock Development Programmes benefiting Small/Marginal farmers and Agricultural Labourers.—By K.C. Raut, Indian Agricultural Statistics Research, Institute, New Delhi

Development programmes are launched with the ultimate aim of improving the economic status of the people. Special livestock production programmes covering dairy, poultry, piggery and sheep have been undertaken to benefit primarily the small/marginal farmers and landless labourers by providing them productive employment and supplementing their income. In order to make such programme a success, information on various items needs to be collected at different stages of operation. Even before the implementation of the programme data on some specific items should be collected to provide guidelines and necessary frame. Before launching the special livestock developmental programme in an area, the items of information required are as follows :

- (i) Distribution of landless livestock-owners and farmers of marginal, small, medium and large holdings;
- (ii) Composition of stock maintained by each category of farmers and landless labourers;
- (iii) Proportion of produce accounted for by each category of household;
- (iv) Asset and equipment owned;
- (v) Level of production of animals maintained and some of their production traits;
- (vi) Quality and quantity of feed fed for maintenance and production;

- (vii) Production and pattern of utilization of livestock products in each category of household;
- (viii) Employment pattern of the members of the producer families;
- (ix) Cropping pattern followed by the farmers;
- (x) Facilities existing for disease control, veterinary aid to animals, insemination, etc ;
- (xi) Marketing facilities for procurement of essential items and for disposal of produce ;
- (xii) Age specific mortality rates of animals;
- (xiii) Other management practices like housing etc.;
- (xiv) Cost of production of various products; and
- (xv) Income realised.

The data on items just enumerated will serve as a bench-mark to gauge the effectiveness of the developmental programme. The much needed basic information regarding the distribution of holdings according to size has been obtained through Agricultural Census ; but the distribution of landless labourers and other categories of farmers according to the number of livestock maintained is not available. The distribution of different categories of farmers and agricultural labourers will be useful in working out the fraction of population from each category to be covered under the programme and subsequently the extent of benefit realised. Since the major source of income for landless labourers is through livestock, detailed information about the classification and number of livestock maintained by this category of people is essential. After working out the total production of each product in the area where the programme is to be launched, it would be useful to have the estimates of the various livestock products contributed by each category of producers. The level of production of animals initially maintained in the area and their production traits such as age at first calving, lactation length, calving interval, etc. in the case of cows and buffaloes; lambings/farrowing and birth weight, etc. for sheep and pigs; egg size, weight, etc. for poultry birds etc. should be recorded. In addition, the data on mortality rate for each category of animals will be useful in subsequently knowing the effectiveness of disease control measures and veterinary aid provided under the programme.

Once the decision is taken about the area and pattern of operation, the next important consideration would be proper monitoring for efficient implementation. A phased programme should be drawn

and progress assessed through collection of data on the items as follows:

- (i) Since loan and subsidies are given for purchase of stock and feed, for construction of sheds and poultry houses, etc., it should be ensured that the money is properly utilised. The field staff should regularly visit the households selected under the programme and record the purchases made (stock, equipment, feeds, etc.), progress of construction work and setting up production units, etc.
- (ii) When the subsidies are given in kind (stock, feed, etc.), it should be ensured that the material is supplied in time. The staff should record the number of stock, acquired by identified beneficiaries, additions at subsequent period, losses due to death, feed-stock utilised, etc.
- (iii) There should be adequate health care and other disease control measures. Proper data should be maintained regarding nature of disease spread, number of animals vaccinated and aids provided, the gap between the time of reporting about any attack of disease and aid given, number died and survived, etc.
- (iv) Adequate facilities for artificial insemination of animals for scientific breeding and other servicing facilities should be provided. Records should be maintained regarding the number inseminated, number of successful service, follow-up action, etc.
- (v) Enhancing production will have its impact only if there is proper marketing facilities for disposal of products. Assured market for produce can provide incentives for increasing production. The nature and quantum of products marketed in different seasons along with their price at disposal should be recorded. Regular transport facilities should be ensured to lift the produce even from the producer's door.
- (vi) The extension workers should educate the farmers regarding proper maintenance, management and health care of animals. The workers can serve as agency for communicating the difficulties experienced by the producers to the appropriate authorities and guide them in attaining the objectives envisaged in the programme.
- (vii) After ascertaining the cropping pattern followed by the farmers, they can be advised to revise the pattern by introducing fodder crops. Agronomists and other crop Scien-

tists may be associated to study the cropping programme and draw suitable crop rotation schedule to be followed by the farmers. There should be adequate facility to supply seeds for fodder crops timely.

- (viii) There should be one co-ordinating cell both at the Centre and each State for drawing programme of work for each category of staff and to see that these are implemented successfully and to keep a close watch on the developments.

After the programme is in progress for a period of six months or one year depending upon the nature of project (cattle, sheep, poultry and pig); trained staff should collect requisite data for assessment of the project. The items on which data need to be collected are almost same as enumerated in Section 1. Broadly these should be as follows:

- (i) Performance of animals include :

For cows & buffaloes : level of milk production, age at calvings, lactation length, lactation yield, calving interval, mortality, age at death, number of calves born, etc.

For sheep : wool yield, quality of wool, lambings, birth weight, rate of fattening, mortality, etc.

For pig : number of piglets, their birth weights, growth rate, mortality, etc.

For poultry : number and size of eggs, egg-weight, categories like hatching & table eggs, mortality, etc.

- (ii) Under pattern of utilization, data should be collected on sale, consumption, conversion, etc.
- (iii) Extent of labour utilised on maintenance of livestock, production processing and marketing may be recorded at regular interval.
- (iv) Assessment of the total production of each product on the basis of a suitable sampling design should be done. The contribution from each category of producer to the total production may be estimated.
- (v) Quantity of feed given to animals should be worked out along with the nutritional status.
- (vi) Cost of production of each product should be worked out and compared with the prevailing market rates. This will give the margin of net return realised by producers.

- (vii) Gross and net income, realised by each category of farmers and agricultural labourers should be worked out to know the change in their income status due to implementation of the Special Livestock Development Programme.

Collection of data as enumerated at various stages of operation of programme and their timely analysis will ensure proper monitoring and assessment and thereby lead to successful implementation of the programme.

Financing by ARDC of Live Stock Production Programmes Benefiting Small Farmers, Marginal Farmers and Agricultural Labourers — by Agricultural Refinance and Development Corporation

1. *Refinance for SFDA/MFAL Schemes*

During the Fourth Five Year Plan period, the Government of India introduced two schemes of (a) Small Farmers Development Agency and (b) Marginal Farmers and Agricultural Labourers Agency as Central Sector Schemes in 87 project areas. The object of these schemes was to make available small farmers and the weaker sections of the population, the benefits of the improved techniques of agriculture which they by themselves could not avail of. Agricultural Refinance and Development Corporation took interest in these schemes from their very inception by extending various concessions under the financial assistance available from the Corporation.

(a) *Enhanced quantum of refinance*

Normally, depending upon the nature of investment, the refinance facilities available from the Corporation are limited to 75 to 90 per cent of bank loans and the balance of 25 to 10 per cent are to be found from the State Government resources or the banks' own resources. But in the case of viable schemes of agricultural development initiated by the SFDA, ARDC extended its refinance facilities to 100% of the bank loans and the concession was available up to June 1971. This concession was extended from time to time and was available up to March 1976. With increasing commitment for expanding the flow of credit to weaker sections, it was considered necessary that the financing institutions should also have a stake in the programmes. Beginning from 1 April 1976, the refinance facility has been slightly reduced to 90% under all types of SFDA/MFAL schemes.

(b) *Relaxation in security*

ARDC was, till September 1973 obliged under the Act to obtain either Government guarantee or other security, which meant

sub-mortgage of immovable properties and/or sub-hypothecation of movable properties. One of the constraints for the commercial banks, which have steadily been enlarging their participation in ARDC schemes, was the procedural difficulties in re-conveying securities to ARDC. Effective from 1 September 1973, the ARDC has been empowered to waive the guarantee or security or both on merits of each case. This amendment has enabled the Corporation to ensure a larger flow of credit particularly to small farmers and agricultural labourers who may not be in a position to offer adequate security for the loans which they require for undertaking subsidiary occupations such as poultry, dairy, etc.

(c) *Exemption from down payment*

In the schemes refinanced by ARDC, the beneficiaries are required to contribute by way of down payment a certain percentage of the cost of development. In the case of small/marginal farmer, it is 5% as against 10-15 per cent for other farmers. The share capital already contributed by the beneficiaries in the co-operative bank may be considered as part of the down payment. Further, in the case of beneficiaries eligible for a subsidy from SFDA/MFAL, the subsidy is treated as down payment and separate down payment is not insisted upon.

2. *Live Stock Production Programmes*

(a) *General*

(i) *Relative proportion of Animal Husbandry Schemes*

With the entry of commercial banks in recent years into the field of agricultural lending and the efforts of ARDC at diversifying its lending purposes, the schemes approved by ARDC relating to dairy development, poultry farming, sheep rearing, etc. have shown a rising trend, as shown below:

(Rs lakhs)

Up to (July-June)	Dairy			Poultry & Sheep		
	No. of schemes	ARDC Commit- ment	Disburse- ment	No. of schemes	ARDC commit- ment	Disburse- ment
1974-75	119	1807	305	56	270	96
1975-76	195	2461	593	74	353	164
1976-77	325	3003	953	124	666	232

(ii) *Issue of Guidelines*

ARDC issued detailed guidelines in 1967 and 1968 for preparation of dairy and poultry development schemes. More recently a handbook on, 'Technical Aspects of Agricultural Projects' has been published by ARDC.

(b) *Schemes of small farmers/marginal farmers and agricultural labourers*

As of 30 June 1977 ARDC had approved 253 schemes in all for various purposes sponsored by SFDA/MFALs involving bank loans of Rs. 64 crores. Out of ARDC commitment of Rs. 62 crores, the disbursements amounted to Rs. 27 crores. Dairy development, poultry and sheep breeding together accounted for Rs.7.84 crores or about 12% of the total commitments.

While the ARDC commitments on SFDA schemes for all purposes formed a little over 4 per cent of the total ARDC commitments, such commitments on SFDA schemes relating to poultry, dairy etc. accounted for a fifth of the total of ARDC commitments for animal husbandry.

The number of schemes, ARDC assistance etc. have shown a rising trend.

The disbursements as compared to the commitment are low. The attention of State Governments has been drawn to the slow pace of disbursements. It is hoped that the pace will improve with the increasing emphasis on the small farmer programmes.

Under the dairy development programmes, the schemes approved are for acquiring murrhah, mehsana, surit and other graded buffaloes, cross-bred cows etc. The poultry schemes are generally for setting up of small poultry units of 100 layers, while the sheep rearing schemes are for units of 20/25 ewes and 1 ram.

Another feature of the animal husbandry schemes sanctioned by ARDC is that the commercial banks have sponsored a major portion of those schemes.

3. *Experience in implementation of SFDA/MFAL schemes*

ARDC has conducted a few follow-up studies of the schemes sanctioned for SFDA/MFAL Agencies. The purpose of these studies was limited as it was mainly intended to check financial aspects of the schemes sanctioned, arrangements for supply of inputs and disposal of produce. ARDC has recently taken up the evaluation study of dairy development schemes in Punjab and Haryana. These studies have wider scope as they aim at assessing the overall

benefits under the schemes sanctioned. Besides, RBI has also undertaken field studies relating to 13 SFD and MFAL agencies each with 1973 as the reference year. The important findings of the ARDC and RBI studies are briefly indicated below.

4. *Developmental Role*

In addition to schemes for financing the production of liquid milk and raising other animals for their meat and other products, ARDC has financed projects for (a) upgrading of the local breed, (b) manufacture of vaccine for the treatment of the cross-bred progeny which is prone to diseases, and (c) construction of slaughter houses. It has also conducted survey for identification of areas having potential for development.

5. *Conclusions*

The functioning of SFDA's during the 4th Plan period seem to have attached importance to the development of irrigation from the view point of crop husbandry, though the agencies were required to draw up programmes for subsidiary occupations such as dairy, poultry, etc. wherever feasible. The Fifth Plan also laid emphasis on intensive agriculture for crop husbandry and dry farming. However, the animal husbandry programmes were considered to be highly suitable supplementary occupations for the small and marginal farmers and agricultural labourers on the basis of the recommendations of the National Commission on Agriculture and sought to be superimposed on the SFDA activities. Detailed guidelines for live-stock programmes, indicating districts selected for implementation of dairy, poultry, piggery and sheep production programmes through SFDA's as also other districts such as DPAP, areas covered by dairy development corporations, tribal development corporation etc. were issued only in 1975. The guidelines provided the basis for integrated development in association with cattle development programmes of the Central/State governments. It is understood that certain State Governments have prepared detailed project reports. The system of cattle insurance in SFDA areas by sharing of premium among the SFDA, financing bank and the beneficiaries have been very recently finalised. It is, therefore, expected that rapid progress in the livestock programmes would take place in the near future. The schemes sanctioned by ARDC (1) for upgradation of the local breed of milch animals, (2) for manufacture of foot and mouth disease vaccine should make available in the country side a large number of upgraded milch animals and the vaccine to protect them from disease. Since financial assistance for cross-breeding of the non-descript cow and rearing of the female calf till

lactation is available from ARDC, the small farmers can avail of this facility and make dairying a lucrative subsidiary occupation.

It may be seen from the above that the main obstacles to sound development of the animal husbandry schemes have been shortage of good breed of cattle, absence of breeding facilities, inadequate veterinary facilities, lack of well-organised marketing arrangements sometimes accompanied by transport bottlenecks, high cost of feed, inadequate emphasis on cultivation of fodder, lack of co-ordination with institutional agencies/government departments etc. The removal of these difficulties should engage the attention of the SFDA's, State governments and the financing agencies for the success of these programmes.

Nutritional Requirements of Livestock and Poultry Maintained by Small and Marginal Farmers and Agricultural Labourers Engaged in Livestock Production Programmes—by S.P. Arora, National Dairy Research Institute, Karnal (Haryana)

Livestock and poultry can provide subsidiary income to the small and marginal farmers as there is a great demand of protective foods such as milk, meat and eggs for human consumption. As per the estimates, the cows and buffaloes yielding 2,000 litres in a lactation period of 300 days would be profitable if they are fed according to nutritional requirements. The dietary requirements for cows and buffaloes for maintenance at 400 kg body weight are 0.245 kg DCP, 3.1 kg TDN and for milk production of 4.5 % fat, DCP requirement is 0.055 kg and TDN 0.055 kg per kg of milk production. In buffaloes with 7.0 fat, the requirements of DCP and TDN are 0.061 kg and 0.455 kg respectively. The total TDN requirement will range from 2.5% to 4% according to body weight. It is good practice to feed good quality green fodder and concentrate may be supplemented to meet the total requirements e.g., a cow yielding 8 litres of milk if fed 50% berseem/lucerne and 50 per cent maize/oat green fodder, it would require only 1 kg concentrate ration to meet the requirements. Usually it is a practice to give 1 kg concentrate ration for every 3 kg of milk in cows and 1 kg concentrate ration for every 2.5 kg of milk in buffaloes. On the other hand if wheat straw or any other straw is fed to cows yielding the same quantity of milk, the requirements of concentrate ration would be about 4.5 kg per day. If green fodder or silage is not available as is usually experienced in villages, then vitamin A supplement is necessary. It is also important to supplement all required minerals in the form of mineral mixture to be given to cows and buffaloes so as to meet the demand of the animal system. All cows and buffaloes should be dried off in the last two months of

gestation and extra quantity of nutrients for pregnancy should be fed. For low yielding animals, urea to the extent of 1 per cent of the total ration along with 10 per cent molasses can also be fed. In contrast to cows and buffaloes, poultry being monogastric species would require protein of very good quality along with less percentage of crude fibre. The minimum of 3 per cent fat is necessary in the diet to carry fat soluble vitamins. All required minerals, just as in ruminants, are necessary to be provided in the diet such as Ca, P, Mg, Na, K, Mn, Cl, Fe, Cu, Co, Zn, I, Se, F, In addition to these nutrients, vitamins both water soluble and fat soluble are a must to be supplemented because these are not synthesized by any system in poultry. Since it is not possible for a marginal farmer or landless labourer to mix his own feed, it may be better for them to depend upon the Compounded Feed Industry.

Special problems faced during the implementation of the livestock production programme benefiting Small/Marginal Farmers and Agricultural Labourers in Madhya Pradesh—by Dr. S.S. Majumdar, Veterinary Services, Bhopal (M.P.)

Initially total of 18 programmes covering 13 districts were taken up in this State. The programmes are—12 Jersey cross-bred calf rearing, 4 poultry production, one sheep production and one pig production, out of which pig-production programme has been abandoned. During the year 1976-77 a total of 583 calves, involving Rs. 4,38,210 as subsidy component and corresponding Rs. 2,75,694 as loan, have been extended. Similarly a total of 414 and 303 poultry production units and sheep production unit respectively have been established by extending Rs. 3,13,258 and Rs. 2,98,750 as subsidy and Rs. 8,10,232 and Rs. 60,900 as loan by the commercial banks.

The State is mainly facing the following problems in implementation of these programmes.

1. *Bank Problems*: Inordinate delay on the part of banks in disposal of these cases is hampering the pace of progress and this procedure needs to be simplified. The category of beneficiaries under the programme gets scared of the cumbersome procedure. Poor beneficiaries are really not in a position to spare much of their time to wait for months together to derive benefit under the programme about which they are not certain, which otherwise is meant for them. Spot decision by bank personnel would go a long way to hasten up the speed of the programme.

2. *Transport*: The beneficiaries being of special economic character certainly deserve the provision of inputs at the door-step.

With the provision of only one jeep in each project it is very difficult to maintain the supply line of feed, which forms the back bone of the programmes. The sole jeep is mostly busy in follow-up of previous cases, selection of fresh cases, contact with bank/insurance authorities etc. It would be desirable to have one transport unit (truck) in each project to maintain an uninterrupted supply of feed to beneficiaries.

3. *Selection of proper person for poultry programme.* Even though utmost care is being exercised in selection of beneficiaries, but in certain cases if the beneficiary changes his mind and sells out every thing after continuing for a certain period, it becomes very difficult to recover the subsidy portion. This needs to be given due consideration.

4. *Marketing of poultry produce.* This aspect is facing problem even though provision for assistance to co-operatives has been made. Till such time the co-operatives come-up, the State department may be permitted to make use of the fund through the "Poultry Production cum Development Projects". This will to a great extent help in ameliorating the problem.

5. *Lack of Jersey Crossbred Calves with the beneficiaries.* No doubt the number of beneficiaries (persons) under the scheme is quite appreciable in the State but the actual number of Jersey cross-bred calves with the beneficiaries is modified as per recommendations of the Agricultural Refinance Development Corporation, this will hasten implementation of the schemes and help can be extended to a large number of needy persons.

6. *Trained staff with proper aptitude.* Lack in trained staff having aptitude to work in such projects is another bottle neck. Provision of special allowance to the staff working in the scheme will go a long way to solve the difficulty thereby enticing interest in the workers.

7. *Staff.* No Veterinary Asstt. Surgeons have been provided in any of the projects and the absence is being felt very badly. One V.A.S. in each project (18 old and 9 new) will be of much use to the project officers in analysis of the records and other office technical matters since the P.O. and A.P.O. are mostly busy in the field work, hence the necessity of 27 V.A. Ss.

Similarly no APOs have been provided in the 7 new districts to be taken up in the State except for one where two programmes are being taken up. To smoothen the working, it would be desirable to sanction seven more A.P.O.S. for the new projects as has been sanctioned by Government of India in old projects.

8. *Health Cover of Calves.* The scheme make no provision for health cover of the calves and would be mothers, on which the programme rests. Lack of this point is also being felt. As in case of poultry and sheep programmes provision under "Health Cover" may solve the difficulty to a great extent.

Arrangements for health cover to animals maintained by small farmers, marginal farmers, agricultural labourers lacunae, and improvements needed—by R.M. Sharma, Haryana Agricultural University, Hissar

Health cover to the animals, belonging to the weaker sections of the society, the small farmers/marginal farmers and agricultural labourers, is of great importance, as otherwise the poor farmers are likely to suffer financial losses on account of the occurrence of various diseases in their animals. The losses may occur not only on account of mortality but also as a result of reduced productivity.

For supplementing the income of weaker sections of the society/rural population of our country, it is necessary to provide efficient health cover at the village level, preferably right at the door of owners of livestock/poultry. To achieve this objective, in the State of Haryana, which is the homeland of important breeds of cattle and buffaloes, facilities for health cover to the animals, provided by the State Animal Husbandry Department, are amply supported by the Haryana Agricultural University through disease investigation service and extension education programme. Both the agencies, HAU Disease Investigation Unit and Directorate of State Animal Husbandry Department work hand in hand, in close collaboration, with each other, with the prime objective of providing prompt and efficient health cover to animals in the rural areas.

The Animal Husbandry Department of the State through the field veterinarians provides veterinary aid for treatment of ailing animals of the farmers/livestock owners. They also undertake regular vaccination programmes against the various infectious diseases prevalent in the State. The Haryana Agricultural University provides, besides the expertise regarding animal health programmes, disease diagnostic and investigation services to the field veterinarians and livestock owners/poultry farmers and, thus, helps in the prevention and control, including treatment, of diseases among livestock and poultry. The efficiency and vigilance on the part of veterinarians and live stock owners for early detection and prompt notification of the disease, efficient and prompt disease investigation service for early correct diagnosis of the disease, and judicious adoption of preventive measures (quarantine, isolation, vaccination, chemopro-

phylaxis, etc.) are the essential prerequisites for the health cover to the animals.

In order to provide prompt disease investigation and diagnostic service, it is essential to have disease investigation facilities at a place, quite close and easily accessible to those who need this service. Any delay in the diagnosis of infectious diseases obviously causes delay in instituting preventive and control measures. Accordingly, the HAU plans to provide animal disease investigation and diagnostic laboratory in each district. The University has already established such laboratories in four of the districts (Gurgaon, Rohtak, Karnal and Ambala), besides a central Disease Investigation Unit at Hissar. The Scientist Incharge of the District Disease Investigation Laboratory is a well qualified person, designated as Disease Investigation Officer. At Hissar, the Disease Investigation Unit is staffed with persons having specialized training in different disciplines like Pathology, Bacteriology, Virology and Parasitology. Recently, the Unit has further been strengthened by the addition of Diagnostic Toxicology Laboratory to deal with toxic conditions, encountered in animals. In case of need, the Disease Investigation Unit takes the help from the specialists of other departments of the University.

Immediately on the receipt of a call for help, the disease investigation staff (subject matter specialists) leave for the scene of disease outbreak in the University vehicle so as to reach there at the earliest to make an on-the-spot investigation. The field veterinarians and livestock owners are advised preventive and control measures against the diseases. Besides this, the Disease Investigation Unit undertakes testing of animals for some of the economically important diseases, particularly tuberculosis, Johne's disease, brucellosis, mastitis, pullorum disease in poultry, etc. It also provides technical advice for the prevention of these diseases. This service has proved very useful to render prompt help to the veterinarians and livestock owners, including marginal farmers/small farmers and agricultural labourers, in diagnosing and treating animal diseases, and, thus, preventing their spread to healthy animals; otherwise they could have caused heavy financial losses to the farmers.

From the past experience, it has been observed that a number of disease conditions of infectious nature are not reported by the livestock owners to the field veterinary staff. In cases where the occurrence of disease outbreak is reported, it is done too late, when the disease has already caused considerable damage by spreading to other villages/areas. There is an urgent need for an efficient disease reporting system and effective disease surveillance programme. To

develop these facilities in the State of Haryana, the University has already taken an initiative to establish, besides disease investigation laboratories, the institution of Extension Specialists (Veterinary) at the district level, under the administrative control of the Directorate of Extension of the University. It needs no emphasis that for having efficient disease surveillance programme and disease reporting system, there is need for collaborative efforts by field veterinary staff, district extension specialists and disease investigation staff, located in each district. This also calls for efficient arrangement for the quick communication of information regarding the occurrence of disease in animals, from the village to the Veterinary Surgeon, District Extension Specialist and Disease Investigation staff. This will enable the disease investigation and field veterinary staff to provide assistance without any delay to the livestock owner/poultry farmer for the treatment and control of the disease.

Scope for improvement

There may be certain lacunae in the present system. The gap may be filled by adopting the following suggestions :

1. Disease surveillance programme may be strengthened by establishing well-equipped Epidemiological Units/Disease Investigation Laboratories at district level.
2. Animal health orientation programme for the SF/MF/AL needs to be strengthened so that the farmers may be educated regarding sound animal husbandry practices and effective health cover to their animals.
3. Schedule regarding vaccination and chemoprophylaxis for economically important diseases may be laid down to be adhered to strictly and regularly.
4. Periodical inspection of animals by the field veterinarians may be carried out in the villages.
5. Record of the animals may be maintained on the prescribed proforma by the Animal Husbandry Department/Animal Disease Investigation Laboratory.
6. Loan/subsidy giving agencies (banks, etc.) should take an initiative in educating the farmers regarding importance of health cover to animals, particularly at the time of granting the loan/subsidy to the farmers.