CHAPTER-2

Research Methodology

Concepts and Terms Used in the Study

Review of literature
CHAPTER-2

RESEARCH METHODOLOGY & REVIEW OF LITERATURE

"Research comprises defining problems, formulating hypothesis or suggested solutions, collecting, organizing and evaluating data, making deductions and reaching conclusions to determine whether they fit the formulated hypothesis."

(Clifford Woody)

The present chapter deals with the methodological framework used in the present study.

1. SAMPLING DESIGN: -

A multi-stage stratified random sampling design has been adapted to select districts, block, villages and dairy households.

(a) Selection of District: -

The study was conducted in Jhansi district of Bundelkhand region. Jhansi district was selected randomly it represent Bundelkhand region. The cropping intensity of the Jhansi district was 120% in the year 2000-01.
(B) SELECTION OF BLOCK: -

First of all, a list of block of Jhansi district was taken from C.D.O. office, Jhansi. There were 8 blocks in Jhansi viz. Baragaon, Bavina, Month, Chirgaun, Bamaur, Gursaray, Bangra and Mauranipur. Out of these 8 blocks, two block were selected randomly viz Mauranipur and Gursaray.

(C) SELECTION OF VILLAGES: -

First of all, the list of village falling in Mauranipur. block taken from B.D.O.offices. The total number of villages in the block was 83. Simultaneously from block Gursaray also taken a list of villages was taken there were 103 villages falling in the block. All the villages were arranged in alphabetical order. Then a sample of 4 villages, two from block was taken. Hence two villages namely Bhitora and Tejpura were selected randomly from Mauranipur block. Similarly from block Gursaray two villages namely KedarTai and Bagroni Jageer were selected randomly for the present study. “Thus 4 villages selected for the study”.

(D) SELECTION OF SAMPLE HOUSEHOLD: -

A list of all the growers of milk with their owned holdings was prepared for the selected villages. The total number of growers
in the four selected villages was about 600. Then the households were categorized into four-farm size group viz. marginal (0-1 hectares), small (1-2 hectares), medium (2-4 hectares) and large (Above 4 hectares). The number of farmers falling in marginal, small, medium and large farm size groups came to 300, 150, 100 and 50 respectively. After doing so, a sample of 120 cases was taken randomly. The final selection was made from the different strata based on production to its size. Thus 60 cases in marginal, 30 in small, 20 in medium and 10 in large farm size group were selected for the present study randomly as show by the table No. 2:1.

Table No. 2:1 case selected for the present study

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Size group</th>
<th>Total No. of cases</th>
<th>Cases selected</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Marginal (0-1 hect.)</td>
<td>300</td>
<td>60</td>
</tr>
<tr>
<td>2.</td>
<td>Small (1-2 hect.)</td>
<td>150</td>
<td>30</td>
</tr>
<tr>
<td>3.</td>
<td>Medium (2-4 hect.)</td>
<td>100</td>
<td>20</td>
</tr>
<tr>
<td>4.</td>
<td>Large (&lt; 4 hect.)</td>
<td>50</td>
<td>10</td>
</tr>
<tr>
<td>5.</td>
<td>Total</td>
<td>600</td>
<td>120</td>
</tr>
</tbody>
</table>
(E) SELECTION OF MILK MARKETING AGENCIES: -

1. Milkman → Consumer.
5. Milkman → Vender → Milk Co-operative Society → Consumer.

2. COLLECTION OF DATA: -

The present study was based on primary as well as secondary data. The primary data were collected through well prepared Schedules and Questionnaires. A pilot survey was conducted to test the schedule and questionnaire. The whole primary data were collected within three or four meetings with the respondents. The secondary data were recorded from the record of different marketing agencies. The primary data relate to year 2002-2003.

3. SOURCE OF DATA: -

The data to be used have been two types viz.
I. PRIMARY DATA: -

"The primary data is one which is collected by the investigator himself for the first time."

The primary data were gathered through preproposed Schedules and Questionnaire by personal interview

II. SECONDARY DATA: -

"Data which are obtained from published or unpublished sources are known as secondary data."

a) PUBLISHED SOURCES: -

There are certain international, national and local agencies, which publish statistical data on a regular basis.

- Statistical Year Book,
- Indian Journal of Agricultural Economics,
- Yojana,
- Kurukshetra
- Committee Reports,
- Private Publication,
- Newspapers and Magazines,
- Individual Research Scholars, etc.
b) UNPUBLISHED SOURCES: -

There are various sources of unpublished data such as the records maintained by the various governments and private offices, B.D.O. office, Agricultural office, Dairy co-operative office studies made by the Research Scholars in the universities and other research institutions, etc.

4. METHODS OF ANALYSIS: -

(A). ESTIMATION OF COST OF PRODUCTION OF MILK.

(A) EVALUATION OF COST ITEM: FOR COST OF MILK ESTIMATION:

i. FAMILY LABOUR: -

The family labour was charge at the wage rate prevailing the locality for permanent hired labour i.e. Rs. 10/ per labour per day.

ii. MILK PRODUCTION: -

The milk production was evaluated at the rate of the price prevailing during the period in the village i.e. about Rs. 8 per litre of milk.
iii. **EXCHANGE LABOUR**: -

The exchange labour was treated as family labour was treated as family labour was evaluated at the simple rate at which the family labour was evaluated i.e. Rs. 10 per labour per day.

**(B) COST OF PRODUCTION PER LITRE OF MILK**: 

The total cost, which includes variable cost and fixed cost, was estimated. There are two methods for apportionment of total cost among the main and by product.

i. **PROPORTIONATE METHOD**: -

Under this method, the total cost of milk was divided in the ratio of the value of main product and by product is estimated separately.

ii. **DEDUCTIVE METHOD**: -

Under this method, the value of by product is deducted from the total cost of milk production. Then the remaining cost is divided by the amount of main product to calculated the cost of production per litre.

In present study the proportionate method has been used to calculate the cost of production of milk.
5. **STATISTICAL TECHNIQUES TO BE USED:**

Tabular analysis has been mode analysis of data. Ratio, percentage, Weighted, average, mean, statistical deviations etc. have also been calculated for the presentation.

**CONCEPTS AND TERMS USED IN THE STUDY**

**TERMINOLOGY:**

The various terms related to the present study are defined in the chapter.

1. **FARM:**

A farm is defined as unit of land on which the cultivator does the planning with common set of fixed resource. It includes all the area under self-cultivation current fallow.

Or

“A farm is the smallest unit of agriculture which may consist of one or more plots cultivated by one farmer group of farmers in common for raising crop and livestock enterprises. It is both a proroguing unit as well as a consuming unit”.

67
2. FAMILY FARM: -

"A family holding (farm) may be defined briefly as being equivalent, according to the local conditions and under the existing conditions of technique, either to a plough unit or to a work unit for a family of average size working with such assistance as is customary in agricultural operation".

3. FARMSTEAD: -

It is a farmhouse with building belonging to it such as cattle shed, machine and implement shed, hen house, well and the like. It is the center for both the home and business.

4. FARM – FIRM: -

The farm is a firm because production is organized for profit maximization. Hence, it is a business unit of control over factors of production. On the other hand, it is a household unit demanding maximum satisfaction of the farm family. The manager of the farm comes to understating with the twin objectives by linking one with the other.
5. FARMING SYSTEM: -

"A unique and reasonable arrangement of farming enterprises that the household manages according to well defined practices in response to the physical, biological and socio-economic environments with the household goals, preferences and resources."

6. INSTITUTIONAL FARMING: -

The designation and classification of institutional farming depend upon the decision making unit and resource administration.

7. CO-OPERATIVE FARMING: -

Co-operative farming means a system under which all agricultural operations or part of them are carried on jointly by the farmers on a voluntary basis, each farmer retaining right on his own land. The farmer would poor their land, labour and capital. The land would be treated as one unit and cultivated jointly under the direction of an elected management. A part of the profit would be distributed in proportion to the land contributed by each farmer and the rest of the profit would be contributed in proportion to the wages earned by each farmer. If the farmer are not willing to have a full-scale co-operative farming, the can secure some of the economics by joining a particular from of co-operative organization namely, co-
operative purchasing, co-operative better farming, co-operative selling etc.

Co-operative farming is divided into classes:

a- Co-operative joint farming.

b- Co-operative collective farming.

8. CO-OPERATIVE JOINT FARMING :-

The ownership is retained by the individual, but the land is cultivated jointly.

9. CO-OPERATIVE COLLECTIVE FARMING: -

In collective farming, the members of collectives surrender their land, livestock and dead stock to the society. The collectives cannot refuse to admit other members of required qualification. The members work together under a management committee elected by them. The committee direct from management in matter of allocation of work, distribution of income and marketing surpluses and putts all members into labour to see that the work is done efficiently.

10. MIXED FARMING: -

Mixed farming is a type of farming under which crop production is combined with livestock raising. The livestock
enterprise is complementary to crop production so as to provide a balanced productive system of farming. When the livestock begin to compete with crops when the same resource, the relationship between the two enterprises changes from complementary phase to competitive nature.

11. MARGINAL FARM: -

The farm is having holding less than one hectare. This limit only fore illigated area. The limit is based on factor as type of soil cropping pattern.

12. FARM ASSETS (INVESTMENT): -

This includes owned land, farm building (non-residential) well, livestock implements on the farm.

13. FARM BUILDING (CATTLE – SHED): -

A floor space (3 m. X 1.5) provides 4.5 sq. m. for the housing of a pair of bullocks under average conditions.

14. LIABILITIES: -

It includes the list of the different individual or firm to which the farmers own money.
15. **FARM ENTERPRISES:**

The farm enterprise is an income-producing branch of the farm business, such as crops or dairy. Thus it is a type of business followed on the farm.

16. **CAPITAL:**

Capital is their wealth, which yields an income. There are two type of capital:

**(A) FIXED CAPITAL:**

The capital, which does not exhaust within single process of production. It may be used many times for further production. It includes buildings, implements and machinery etc.

**(B) WORKING CAPITAL:**

Working capital is that capital the utility of which exhaust in single process of production. It includes in single process of production. It includes the hired human labour, rops, medicines, feed etc.
17. CROPPING PATTERN: -

Cropping pattern means the distribution of cultivated area among the different crop relations followed on the farm in a particular period.

18. CULTIVATED AREA: -

It is the area under cultivation in any year, it takes into account a particular area of land only once respective of the number of crops raised during the year.

19. CROPPED AREA: -

Cropped area refers to the total area under different crops taking during an agriculture years. If three crops have been taken in a season, then the area sown more than once is counted as many times as number of crops raised during the year.

20. CROPPING INTENSITY: -

The intensity of land used is reflected in the relation between total cropped area and sown during the year, when multiplied by 100, it given the percentage intensity of cropping.

\[
\text{Intensity of Cropping} = \frac{\text{Total Cropped Area}}{\text{Total Cultivated Area}} \times 100
\]
21. NET IRRIGATED AREA: -

It denotes the actual cultivated area irrigated out of the total cultivated area.

22. GROSS IRRIGATED AREA: -

It indicatives the cropped area irrigated out of the total cropped area.

23. FAMILY: -

A family is the composition of various numbers belonging to different status. It includes all members as adult male, female and children.

24. EARNER: -

An adult male family members above the age of 18 years working whole time on the farm is considered as an earner, or. A person who engaged in economically gainful work through out the year and his earning is sufficient to support himself and his family.

25. HELPER: -

A member of the family which is not able to earn inadequate by but he may help to earner by supporting human work when there
is the peak time and heavy load of work, the supporter is called to be a healer.

26. **DEPENDENT:**

   A person who is not engaged in economically gainful work out depends for his livelihood on the earning of the other earners in the family.

27. **FARM FAMILY WORKER:**

   Farm family workers are the number of farm family (earner) for whom work on the farm has first call on their time.

28. **FARM WORKER:**

   Farm worker include farm family worker (earner and permanent hired worker) working on the farm.

29. **FAMILY LABOUR:**

   Family labour is not a variable input but a fixed of production. It takes interest in long and irregular hours of farm operations. On small or marginal farm, family labour is mostly employed. But family is not a stationary unit; it is undergoing a cycle of growth.
Considering the trend in the growth of farm population, it is anticipated that the supply of the member to migrate.

30. HIRED LABOUR: -

Small and large farmers employ hired labour. But the labour cost is concerned more with large farmers as seriously limiting their net income. The necessity of hired labour occurs during the sowing time and more intensely at the harvesting period when there is a great rush of work to be finished within a few days.

The hired labour may be classified as under:

(1) Year – round,
(2) Monthly,
(3) Daily,
(4) Piece work and
(5) Custom labour (exchanging labour with the neighbour).

31. MIGRATORY LABOUR: -

The labour migrates temporarily from the densely populated areas to other regions in search of employment particularly during the rush period.
32. PERMANENT HIRED LABOUR: -

Permanent hired worker is defined as all such male persons of vigorous working whose only is working on the farm where hired.

33. CASUAL LABOUR: -

It is a measure of the number of man-days of temporary hired labour employment as known casual labour.

34. FARM WAGES: -

Farm wages are mostly government by demand for and supply of farm labour. These are of two types: -

A- Nominal Wages: -

Nominal wages are paid in terms of money alone.

B- Real Wages: -

Real wages are generally paid both in case and kind that determine the standard of living of a labourer.

35. COST: -

The term cost refers to the outlay of funds production of services, cost are also involved in the right of franchise to carry on
the production process following type of cost is related with present study-

(A) **FIXED COST:** -

The cost, which is incurred on, fixed capital. It does not vary with the level of production for example depreciation, interest, repairs etc.

(B) **VARIABLE COST:** -

The cost, which is incurred on working capital which varies with the level of production for example cost of hired labour, ropes, medicines and cost of feeding, stuff etc. under crop of example expenses for seed, manure, fertilizers, labour, water change etc.

(C) **TOTAL COST:** -

It is the sum of fixed and variable cost. Thus fixed and variable cost on the farm from the total farm cost. The total cost stand even when the production is zero.

(D) **AVERAGE TOTAL COST:** -

It refers to the average of all costs (fixed plus variable) per unit of output.
(E) **MARGINAL COST: -**

Marginal cost (MC) is the change in cost associated with an increase of one unit of output.

(F) **AVERAGE FIXED COST: -**

Average fixed cost is a fixed cost per unit of output. Since the total fixed cost is the same at all the levels of production, the average fixed cost falls continually at a decreasing rate as more output is produced. It is because the fixed cost is divided by increasingly large numbers as output increases.

(G) **AVERAGE VARIABLE COST: -**

The average variable cost (AVC) refers to total variable cost per unit of output.

36. **DEPRECIATION: -**

It refers to the less or decline in value which occurs intimate in items of fixed farm assets such as building, machinery, equipment and livestock etc.
37. **GROSS INCOME:**

It is the value of total farm product (main and by - product) in the year. It is obtained by multiplying the main and by - products to their prices.

38. **NET INCOME:**

The net income is the different between gross income and total cost incurred in production.

39. **FARM BUSINESS INCOME:**

Farm business income is the gross income minus expenses of the production excluding wages of the labour and interest on working capital. It is a measure of the earning of the farmers and his family for capital investment labour and management work.

40. **FAMILY LABOUR INCOME:**

It includes that form income plus off farm income i.e. the obtained from jobs as well as other than farm jobs.
41. LABOUR INCOME: -

“Labour income is the amount of money that the farmer has left after paying all business expenses of the farm, and deducting both the going rate of interest on the money invested in farm business and the value of the unpaid family labour other than operator’s”.

42. LABOUR EARNINGS OR FARMER’S EARNINGS:

Labour income plus the value of produce and privileges furnished by the farm constitutes labour earnings.

43. PRESENT RETURN ON CAPITAL: -

It represents the rate of interest received on invested capital after subtracting an allowance for unpaid family labour and the operation’s labour. It is calculated as below: -

\[
\text{Farm income – labour income of family & of the operator} \times 100
\]

\[
\text{Average capacity investment}
\]

44. LIVING EXPENSES: -

The expenses incurred in maintaining of a family for their livelihood.
45. MILCH ANIMAL: -

Milch animal are those animal which are capable of producing the milk but may either dry or in milk during any part of the year.

46. COST OF MAINTENANCE: -

Cost of maintenance is the cost which includes the value of feed and fodders, human labour, cost used for up keep and production of milk and miscellaneous charges like depreciation and interest on the value of animals, cattle shed and cheff cutter etc.

47. COST OF MILK PRODUCTION: -

The cost, which comes after deducting the value of dung from the total cost, is taken as cost production of milk as known the maintenance cost.

48. INPUT – OUTPUT RATIO: -

It is the proportionate amount rupees over the per unit rupees of input value used in the production of output.
49. **MAINTENANCE RATIO:**

That amount of ratio, which is given to animal for body maintenance.

50. **PRODUCTION RATIO:**

That amount of ratio, which is given to animal for growth, production or work excluded from maintenance ratio.

51. **ROUGHAGES:**

These fodder which have more than 18 percent of crude fibres and least amount of T.D.N. are known as roughage for e.g. straw, grass etc.

52. **CONCENTRATE RATIO:**

These feed which have more than 60 percent T.D.N. but have least amount of crude fibre for e.g. grains, pulses, cake are known as concentrates.

53. **PREGNANCY PERIOD:**

It is the child-bearing period of animal for example pregnancy period for cow, buffalo and goat are 283 days, 310 days and 150 days respectively.
54. **LACTATION PERIOD:** -

It is the milk-producing period of animal. It varies breed to breed and animal to animal know as lactation period.

55. **BANK:** -

A general and somewhat vague term applying to a large number of different kind of financial institutions carrying an one or more of the functions of deposits, discount, investment, advancement and offering other financial services.

56. **SCHEDULED COMMERCIAL BANK:** -

Scheduled commercial banks are those, which are functioning according to a notification under the Reserve Bank Act, 1949. Banks, which have not less than 5 lakhs capital in reserve can alone be, schedule to Reserve Bank.

57. **NON-SCHEDULED COMMERCIAL BANK:** -

These are the banks, which are not on the schedule list of the Reserve Bank of India, or the banks, which are not functioning under the Banking Companies (Reserve Bank) Act.
58. **NATIONALIZATION:** -

Ownership and operation by the Central Government of a nation of some institutions or enterprises previously a private or local government undertaking.

59. **BORROWER FARMER:** -

It refers the farmer who has taken loans from the financial agencies till it is not repaid to that agency.

60. **CREDIT:** -

Credit is the ability to obtain goods or services of another person by promising to return it the pay for its use at the end of some agreed time in future! The word ‘Credit’ implies trust.

61. **CREDIT REQUIREMENT:** -

The money or goods required to meet the current expenses and for equipping the farm is known as credit requirement.

62. **PRODUCTION CREDIT:** -

The money of goods taken to meet the current expenses in dairying the farm is known as production credit.
63. **INVESTMENT CREDIT: -**

The money or goods taken for equipping the farm is known as investment credit.

64. **INTEREST: -**

A sum paid for the use of capital. The sum is usually expressed in terms of a rate or percentage of the capital involved, called the interest.

65. **SELF LIQUIDATING LONE: -**

Self-liquidating loans are those found (good and services) which are used for short – term purposes such as expenses seeds and fertilizers etc. which depreciate or are used up in the production process in one year or one production session.

66. **LONE – LIQUIDATING LONE: -**

Non - liquidating loans are those where required are not directly consumed or are consumed over a number of year.
67. RECOVERY: -

The term recoveries indicate the amount recovered by lending agency against the amount of lone advanced within specific period.

68. OUTSTANDING LONE: -

Outstanding lone is the amount, which remains unpaid, balances with borrower to pay when the time falls due.

69. REPAYMENT: -

It refers to the amount, which is refunded by the borrowers against the borrowing made.

70. CREDIT ADEQUACY: -

It denotes the availability of money or goods is required quantity.

71. REPAYMENT CAPACITY: -

It is the portion of the amount that a farm family will earn from a year’s operations, which shall be available for repayment of the lone.
72. **COST OF CREDIT:**

Cost of credit consist of interest to be paid and the expenses incurred for fulfilling the formalities to obtain loan such as expenses incurred in transport and communication in taken no dues certificate and other documents etc.

**EVALUATION OF COST ITEMS:**

1. **ANIMAL LABOUR:**

   The animal labour has been valued at the prevailing rates of hired in the villages.

2. **FARM PRODUCED SEED:**

   Farm produced seed have been evaluated on the basis of their price prevailing in the village during the sowing period.

3. **PURCHASED FARM SUPPLIES:**

   Purchased farm supplies like manure, fertilizer and seed have been valued at their purchased price plus transport cost if any.
4. **FARM BUILDING:** -

Farm buildings have been evaluated from the basis of actual cost incurred in the construction.

5. **FARM PRODUCED MENURE:** -

The farm produced farmyard manure has been evaluated at the rate revel and in the village during the period of use.

6. **MACHINERY AND IMPLEMENT:** -

The evaluation of purchased implements has been done on the basis of original purchase price less depreciation. These implements which are prepared locally and far which material such as wood, iron etc. are supplied by the farmers to the village carpenters have been valued at their market price.

7. **PURCHASED LIVESTOCK:** -

Purchased livestock have been evaluated on the basis of original purchase price plus appreciations or less depreciation.

8. **HOME BREED LIVESTOCK:** -

Home breed livestock have been valued at market price.
9. **FARM PRODUCE:**

A farm produce has been evaluated on the basis of harvest price, which refers to the price prevalent during harvesting period when bulk of the produced is disposed off.

10. **INTEREST ON FIXED CAPITAL:**

The interest on owned fixed capital has been calculated at the rate of L.D.B. i.e. 12% per annum. The interest on the fixed capital through borrowed funds is charged at the actual rate of interest. Charged by the banks on the borrowing.

11. **INTEREST ON WORKING CAPITAL:**

The interest on working capital has been calculated at the rate of 10.5 percent for the half of the period the crop remains standing on the field.
REVIEW OF LITERATURE

ELWOOD M. JUREGENON AND MORTENSON W.P.

[1994], (1)

For the most part farmers give their attention to producing farm products and turn the job of marketing over so-called middlemen. About all the farmers attempt to choose their best local market out let. How ever during dairy farmers. In many are as have been quit active in marketing the products they product.

Co-operative bargaining association, though which they bargain with milk dealer for the prose to be paid for milk. The farmers do not handle the milk themselves. The turn it over to dealers who take over all the operation of marketing.

CLARENCE H. ECKLES AND ERNEST L. ANTHONY

[1995], (2)

Martin point out that the native races of Africa, America and Australia, which have never developed beyond the stage of barbarism, do not use milk as food. The primitive race of Europe and western Asia made use of milk, as there decedents have done and this fact according to marketing in no small degree may be the reason for the great intellectual development of Europe and America.
Large parts of the bets and highest price agricultural of the world are utilized for keeping of dairy cattle. It is a well-known fact that the most prosperous nation, as well as the best development physically and mentally is those in which the dairy cow has long been the foundation of agricultural.

KESHARI, SANGEETA AND MALIK B.S. [1997], (3)

The production and consumption and pattern of milk products of rural household belonging to different and holding categories where studied in adopted village of dairy extension division, NDRI, Karnal hundred women’s, belonging to different land holding categories and rising at least one milk animals were taken as the respondents. It was found that production and consumption was maximum in large farmers and at least in landless categories.

The consumption of milk and milk products depends upon various factors, which includes milk. Production socio-economic status season family size and food habits. The linkage between milk production availability and consumption is neither direct nor simple. It would be of interact to examine variation in the consumption of milk and its production different household. The present studies was therefore, take up as on attempt to ascertain the production lies between to different land holding categories consumption of milk and milk product.
SINGH VIR [1998] 4

Small holders in the hills have evolved 2 major systems sedentary and migratory systems of management under this system livestock are kept in a village throughout the year. Migratory systems of livestock management found at different location and stay there for a defined period. This is an essential feature of transhumance pasoralism being practiced by certain seat ions of societies in the region. During summer these animals are herded winter these animal slay in the lower hills or adjoining planning areas.

Dairy farming is one of the most promising enterprises, for small holders in Uttaranchal hills. An increasing trend in milk Production marketing and consumption rates suggests bright prospect of smallholder’s dairy farming. Dairy production, many issues relating to smallholder dairy development in the region as be addressed dairy development specifies associated with these dairy production system. Natural and livestock resource management, proper feeding nutrition education and farming to smallholder dairy farmers hold the key to sustainable development of dairy production in the hills.

MATHUR B.N. (2001), (5)

A state of the art commercial dairy plant was established during May 1995 at NIRI, karnal through the financial assistance of
World Bank and installed on turnkey basis by the National Dairy development board.

The plant has been designed to handle 60,000 liters of milk per day and one-lac liters of milk per day in the second phase of project implementation. The dairy plant has been set up with following objectives:

➢ To provide infrastructure for in plant training of the student of B.Tech. [Dairy technology] of the NDRI University for imparting experience in managing a modern commercial dairy plant and to instill confidence in handling real life problems in production management.

➢ To provide infrastructure facilities to the scientist of NDRI for scaling up R&D concept from laboratory scale to industrial scale under commercial environment.

SHARMA B.L. AND SHARMA R.C., (6)

The per farm net income received from dairy enterprises was Rs.10, 155. Percentage net return over total cost was 21.78 percent, which decreased with increase in the size of farm. Farm business and family labour incomes from dairy farming were Rs. 27,669 and Rs. 27,059 respectively. The crop farming contribution was 64.81 per cent and dairy farming contributed 35.19 per cent to the total income. In dairy farming, percentage share of total income
decreased with increase in the size of farm while reverse trend was observed in crop enterprise. Dairy enterprises provided maximum employment of 338 man-days and crop farming provided 219 man-days. Per worker employment from crop dairy farming were 80 man-days and 123 man-days, respectively. Thus, dairy farming plays a key role in increasing employment and income in the semi and tract of Rajasthan.

**CHAND KHEM AND GAJJA B.L., (7)**

The study revealed an increase in buffalo population in the region while a sharp decline was observed in percent share of cattle in the total livestock population. The major deficiency of fodder was felt in the case of ovines in the arid region. The factors responsible for increase in buffalo population are increase-cropping intensity and rural population density in the arid region while the same factors resulted in a decrease in cattle population. The arid region farmers also adopted buffalo as drought resistance strategy since unproductive buffalo can be sold during drought, which does not affect the religious sentiments as in the case of cattle. The study recommends storage of forage produced in good monsoon year for use in the deficit period. The government of India is also implementing a scheme for this region to develop and rejuvenate the pasturelands available on a large scale to improve the livestock situation in the region.
SHIYANI R.L. AND SINGH RAJ VIR, (8)

The study revealed that, buffalo+ paddy+ fallow+ summer paddy+ sugarcane production system gave the maximum annual net profit of Rs. 26,904 over cost C-2 in Zone-I, whereas buffalo+ crossbred cow+ sugarcane emerged as the most profitable system not only in Zone-II (Rs. 64,298) but among all the system of Gujarat state. In general, buffalo+ groundnut +fallow+fallow system and buffalo+groundnut +wheat + fallow system were found to be most profitable in North Saurashtra and South Saurashtra zones, respectively. The profitability of different system was found relatively less in the case of Bhal and Kutch zone. The study suggest that concerted extension efforts need to be made to popularize the most profitable production systems among the farmers or livestock owners of the respective zone. The government most also accord higher priority to create better infrastructure and marketing facilities of the profitable enterprises.

KALAMKAR SHRIKANT S., (9)

The total livestock population in Maharashtra was about 3.96 crores, which is 8.71 per cent of the country’s livestock population. The milk bovine population, which forms the base of dairy development in the state of Maharashtra was 84.52 lakhs, of which 61 per cent were cattle. Bovine population accounted for two-third of the total livestock population in the state. The cattle population
which accounts near about one-half of the total livestock and more than three-fourth of the total bovine population has increased, but its share in total livestock population has decreased. But still cattle constituted the major milch animal in the state. On the other hand, population of buffaloes showed an increasing trend. The pune region emerged as a region of largest population of milch animals and Nasik region as high livestock density region. The share of the state in country’s milk production has increased from 5.61 in 1985-86 to 6.88 per cent in 2001-02, but still the per capita availability of milk is lower in the state as compared to national average. The growth in the dairy sector has been achieved due to Operation Flood programme which needs to be sustained and improved in figure in order to increase per capita income of the rural downtrodden masses. Although the co-operative sector had made significant improvement of dairy sector in rural areas, efforts should be made to include more areas under the co-operative set-up. The institutional and organizational support in terms of credit delivery and insurance should be stepped up to boost the performance of dairy sector.

AWASTHI MAYA KANT, (10)

The findings of the study reveal that despite the existence of global competitiveness at the basic producer levels, our competitive strength is reduced considerably when compared to global competitiveness at the finished product level, on account of
inefficiency at marketing and the product processing stage. The problems get further aggravated due to very high tax structure. Thus increasing production and processing efficiency along with more favourable tax structure in the livestock sector will be critical for realizing the enormous export growth potential of animal products in India.

SINGH NARESH AND SIDHU J.S., (11)

The study revealed that, dairy farming accounted for more than one-third of land and farm investment, more than two-third employment of family labour, 60 to 90 percent of the family income and more than one-third of the domestic expenditure of the small and marginal framers. The viability of these small economics rests on the optimum integration of dairy with crops by utilising their scarce land resource and surplus family labour. Although, the small and marginal framers were able to minimize the gap between existing and potential productivities of different crops, they failed to bridge the gap in the case of milch animal. The study suggested that a lot of efforts are required on the part of the government and other development agencies to develop high milk-yielding animal breeds, milk production technologies supported by training and extension service, credit, animal health service and effective pricing policy through co-operative milk marketing facilities, to make these tiny enterprises viable.
KAMBLE S.H., TILEKAR S.N. AND VEEKAR P.D. (12)

On all purposively selected sample farms, the share of local and crossbred cow and buffaloes were to the extent of 12 percent, 68 percent and 20 percent respectively. The dominance of crossbred cows was the effect of Intensive Cattle Development Programme. However, possession of crossbred cows was on an average more or less same on small and medium sample farms while it was higher on large farm. The results have shown that the crop production activity resulted in loss on small and medium farms, while it was profitable on large farms. The study concludes that dairy enterprise helps in minimizing the economic losses on small and medium farms, while replacement of local milch animal with crossbred augment the net income substantially on all farms.

SINGH R.K., BABU GOVIND AND SINGH BABU, (13)

The present paper focuses on the livestock wealth and attempts to work out the trends in production of milk, meat, eggs and other products in Uttar Pradesh for judging its future potential. The analysis is based on census and secondary data obtained from various sources. The analysis of data indicated that the annual compound growth rate of agriculture was 2.3 per cent during the 1990s as against 2.9 per cent in the 1980s. Crop; livestock, fisheries and forestry constitute the core sectors of agriculture. Crop sector is
the principle source of generating income in agriculture followed by livestock sector. The share of crop sector has declined by 3 per cent from 79 per cent in TE 1981-82 to 76 per cent in TE 1997-98. The share of livestock sector, on the other hand, has grown by 6 per cent from 18 per cent in TE 1981-82 to 24 per cent in TE 1997-98, while the share of forestry and fisheries is too meager in the state. Livestock sectors, thus, is an important component of agriculture. This sector is growing impressively in Uttar Pradesh. It is reflected from the increasing share of livestock in the gross value of agriculture output from 18 per cent in TE 1981-82 to 27 per cent in 1999-2000. Annually the state produces more than 11 million tones of milk and small ruminants. The share of milk production has grown impressively in the value of livestock output. The potential of this sector has not yet been fully realized. This sector has still great potential to raise the income of the small farm holder and act as an important source of livelihood for the small and marginal farmers. Unlike land, the small and marginal farmers own greater share of cattle and buffalo than the large farmers do. Special emphasis should be laid on this sector to raise income and generate employment opportunities for the landless labourers, marginal and small farmers. The markets are not efficient for trade in livestock and livestock products. Marketing of livestock animals, cattle milk and milk products meat (goats, poultry and pigs) and eggs, wool hides and skins is inefficient in U. P. Hence efforts are required to improve the marketing requirements and production technologies have to be tied together, which would boost the sector. The study
has suggested that market prices, practices and facilities should be
designed in such a way as to give favourable net returns to the
farmers.

PATHANIA M.S. AND VASHIST G.D. (14)

The present study is based on a field study, which has been
supplemented by secondary data. For the purpose of study, a sample
of 150 dairy farmers was randomly selected from all the four agro-
ecological zones of the state. Secondary data relating to livestock
population, livestock development programmes, health care
development, breeding milk production and yield etc. were also
collected. The study revealed that the livestock population of
crossbred increased, while a perceptible decrease was noted in case
of indigenous cattle. The various livestock development
programmes started by the government showed an increasing trend
over the period of study.

The findings of the study have clearly brought out that there
was a positive impact of livestock development technology in
Himachal Pradesh. The important constraints faced by sample
farmers in the adoption of technology were the unsuitability of
bullocks for ploughing due to absence of hump, lack of knowledge
of proper animal health care, higher sterility rate in females, low
level of use of concentrates, lower conception rate, lack of
knowledge of high-yielding varieties strains of fodder, scarcity of
land for cultivation of fodder, lack of availability of animal nutrition bricks in time and lack of knowledge about the benefits of brick technology, lack of knowledge of diseases, expensive medicines and lack of mobile van facilities. Most of the constraints faced by the farmers could be removed through extension education of livestock keepers and by the providing training to them. The research and development efforts must be betterment adoption of livestock technology. There is also need for development of complete package of practices which will go a long way in dissemination and adoption of livestock technology. Research and development efforts need to be focused on breed improvements, improving feed and fodder availability, disease prevention and control etc.

RAO NEERAJ, KUMAR PRASANT, PAL GOVIND AND SEN CHANDRA (15)

The present study was conducted in 2001-02 to examine the economics of milk production and resource use efficiency in the milk production in district Kanpur (Delhi) of Uttar Pradesh. Two blocks from the selected district and five villages from each selected block were selected randomly in proportion to the number of farmers categorized under three size groups of 0-1, 1-2 and above 2 hectares. Production function analysis was used for determining the efficiency of various resources used in the process of milk production. The study reveal that the total maintenance cost of a
milch animal per lactation increased as farm size increased. On an average the maintenance cost of a milch animal during a lactation period came to Rs.10, 278.63. Amongst all costs labour charges accounted for the highest share followed by fodder and concentrates. The gross income from concentrates by large farmers. Input output ratio was the highest on small farms and it was 1:1.31. Elasticity of production for fodder was the highest followed by human labour and concentrates for all farms. The marginal value productivity analysis shows increasing milk production and there is great scope for training facilities on modern animal husbandry, reasonable price of concentrates and planned milk marketing facilities will certainly help in enhancing milk production and profitability in the study area.

**BEOHAR B.B., MISHRA P.K. AND NAHATKAR S.B. (16)**

Regarding the availability of infrastructural facilities in the selected markets it was observed that non-availability of credit, lack of foudns, lack of insurance, more marketing charges, involvement of intermediaries, unfavourable role of local bodies, unlicensed intermediaries and high animal health center, credit, insurance (except Chhindwara), feed fodder facilities and drinking water were available in the markets but cattle shed / lodging- boarding all the main animals ranged between 79-92 per cent. It was the lowest in case of goat and highest in the case of cows and buffaloes. It was
also observed that brokerage charges in the marketing of livestock is the key component sharing maximum percentage of total costs. Regulatory measures are necessary to minimize the exploitation from brokers, only licensed brokers should be entertained. Information network for livestock markets are to be developed, markets should be well equipped by all facilities, records of arrivals and disposal of livestock should be maintained by local bodies. The banking hours should be in tune with the market hours. Livestock transportation is banned in trucks, but unauthorized transportation is still counting, because of this police exploit the traders, which ultimately enhance the marketing cost.

SINGH J.P. "GROWTH OF LIVESTOCK ECONOMY, (17)

The study suggests the need to establish milk co-operative societies as per Anand model to perform efficient disposal of milk as well as input supply, opening of more artificial insemination centers, timely vaccination facility, arrangement for better health care with easy reach and provide adequate knowledge for processing of milk based products. For making efficient goat meat marketing system, goatery owner’s co-operative society/ self- help groups are to be encouraged for performing disposal of goat meat directly to the consumers/ hoteliers/ restaurant on continuous basis. Determination of prices of goat meat are to be followed by considering age, sex and breed and breed and breeding improvement for goats are to be popularized.
The improvement in economic access to food made possible by income growth has resulted in higher consumption of livestock products, especially milk and eggs. Though the absolute consumption expenditure on livestock products increased in the urban areas, the percentage share of these products in total expenditure did not very much in different rounds. The share of consumption expenditure on milk products increased from 7.29 per cent in the NSS 27th Round to a maximum of 9.49 per cent in the NSS 50th Round and then declined to 8.75 per cent in the NSS 55th Round in rural areas. The divergence between rural and urban areas of expenditure on livestock products declined in the recent round. The major source of protein for majority of the population is cereals and pulses. There is a convergence between rural and urban patterns of calorie and protein consumption in spite of the long- term decline in calorie consumption. The contribution of milk and milk products as a source of protein is consistently increasing and the increase was more in urban areas. The contribution from meat, fish and egg to protein slightly increased and was found to be higher urban areas. At lower income levels, cereals dominated the food expenditure pattern, followed by vegetables, pulses and milk in the rural areas. However, with the rise in income the expenditure on livestock products particularly milk rose dramatically. In urban areas, milk products are found to be significantly important even at lower
income levels. As income levels rise, the importance of livestock products in the consumption basket also increase.

**CHOUDHARY V.K., GODARA R.K. AND LAKHERA M.L.** (19)

The dairy unit consists of improved cattle buffalo (Murrah) and cows (Holstein Friesian, Jersey and Sahiwal). Primary data has been collected from the dairy farm from July 2001 to June 2002 for the purpose. It was found that the cost of milk production was the highest for Holstein Friesian followed by Murrah. The returns of milk production was gained maximum by Holstein Friesian followed by Jersey and buffalo. The effect of concentrate on milk output was found to be highly significant in almost all the seasons. Labour also showed its significance in summer season. The study suggests that highly- yielding exotic breeds like Holstein – Friesian and Jersey should be reared, and to generate more net income, market integration practice should be adopted to reduce the channel of marketing.

**KONDAL RIKHI R., SHARMA RAMESH CHAND AND SHARMA B.R.** (20)

An attempt has been made in the paper to study the cost and returns from dairying enterprise and the possibilities of increasing the productivity of milk in Bilaspur district of Himachal Pradesh.
Lanjhta village of this district was purposively selected because it is one of the progressive villages in the district and has a veterinary dispensary situated in the village. A total of 45 households comprising semi-marginal, marginal and small farmers were selected through survey method and the data pertained to the year 2003-2004. The result indicate that the production of proportion of milch improved cows is much less in the total livestock population mainly because the artificial insemination is not successful in the study area and this facility was also not available in the village veterinary dispensary. The seasonal variation in the feeding system affects the yield of the milch animals. The yield gap of improved cow over local buffalo was found to be 55.14 per cent in the overall farm size. The study levels that in the overall size farm size 55.41 per cent milk of improved cows was retained for family consumption, out of which 35.61 per cent was processed for ghee. So for as buffalo’s milk is concerned, about 77.86 were retained for home consumption, out of home consumption 39 per cent was processed for ghee. Since the market is local, there was no marketing margin. Thus the improved cows are found to be more profitable than buffaloes

DIXIT P.K., DHAKA J.P., SAJEESH M.S. AND ARAVINDA KUMAR M.K. (21)
However, lack of green fodder, dry fodder, non-availability of land for fodder, high cost of feeds, low price of milk were the constraints reported by the sample households in milk production. The study suggests the creation of fodder banks, added facilities of veterinary and health care services, improved banking service for dairy sector, guidance of the extension team and better network of dairy co-operatives promotion of healthy linkage among developmental agencies, research institutions, dairy federation and farming community must be encouraged.

SUJATHAV.R. ESWARAPRASADY., SRILATHA CH.
AND ARUNAKUMARI A. (22)

The market structure analysed using Hirschman- Herfindahl index for the presence of monopoly indicated the H value of 2.31 per cent, denoting the lack of monopoly in milk marketing. To estimate seller’s concentration, Bain’s classification was used according to which farmers are said to constitute an “atomistically competitive” market. Four marketing channels were identified for milk marketing in coastal in channel I. Price spread was minimum channel I and highest in channel IV. The highest price spread is due to the fact that the intermediary incurred some costs and retained some portion profit, which added to the inflated price spreads. Channels I was found to be the most efficient channel with a marketing efficiency of 99.81 percent. It was observed that in all the channels price paid to the producer was high in the private sector
compared co-operative sector. It was also found that price spread was less in private sector and hence the consumer price was also less. The major constraints identified in milk marketing were high feed cost, inadequate price for milk, poor credit facilities, disease outbreak, etc. Because of delay in the payment of fee for the milk sold to the co-operative society, the farmers approached the private firms. For enhancing the marketing efficiency of milk, infrastructure facilities like chilling plant, pasteurization and dairy products processing plants have to be developed.

**DUHAN K. VINOD, KHATKAR R.K. AND SINGH V.K. (23)**

The paper is based on a study conducted with reference to 120 respondents scattered in six villages of two blocks in Rewari district of Haryana to analyse the nature of market and role of co-operatives in marketing of milk. It was observed that on medium and large category of farms the milk sold through co-operative was found to be higher than the disposal through milk vendors and directly to the consumers mainly due to more marketable surplus. While on small farms the disposal was found to be almost equal, i.e., 3.5 per cent through milk vendors and directly to the consumers, and the disposal of milk through co-operative was less due to lower marketable surplus owing to smaller herd size. Further, it was observed that although there is difference in the average quantity sold through different channels, yet it was found
significant. That small category of farms were selling relatively lower share through co-operative in all the three seasons. The study medium farmers accounted for a higher share of producer in the consumer rupee could be increased by strengthening the co-operative sector. Thus, there is a need to expend the milk co-operative societies to cover all the milk producers in the rural areas, which will generate higher marketed surplus of milk and in turn provide remunerative prices to the producer on regular basis. Timely supply of necessary inputs to dairy farmers at cheaper rates, timely payments and reasonable price for their milk by the dairy co-operatives could motivate the dairy farmers to sell their marketable surplus milk through co-operatives. Seasonal fluctuation in prices of milk can be controlled through the intervention of milk co-operative societies. The establishment of milk processing units by the co-operative sector and provision of refrigerated vans and storage facilities can overcome the major constraints faced by the producers in marketing of their milk. Thus, co-operative have a big role to play in marketing of milk products in the rural areas.

**SINGH R.B. AND DAYAL REKHA, (24)**

The study examines the economics of production and marketing of milk in the state of Uttar Pradesh. Linear and log-linear functions were used to work out the estimates of factors affecting marketed surplus of milk both for the private and cooperative systems. The results of the study indicate that the feed
and fodder cost was the most important item of the total maintenance cost accounting for 55 to 65 per cent of the total important item of the total maintenance cost accounting for 55 to 65 per cent of the total cost in zone I and 51 to 66 per cent in zone II. The net profit per day a milk buffalo was very low due to the higher maintenance and low milk yield of milch buffalo on each herd size group in each zone of the state. The net profit of milk production per buffalo per day was observed to be higher in the case of small size group due to higher milk yield of milch buffaloes in this size group as compared to medium and large herd size groups in both the zones. Price of milk was found to be most important factor influencing the volume of milk business significantly, besides production level. The establishment of milk co-operative societies in the rural areas had positive impact on the marketed surplus of milk. The study further showed that the milk vendor being an important intermediary in milk marketing made huge profits by adopting various types of malpractices.

TOMER B.S., MALIK D.P., SINGH V.K. AND KAPOOR KIRAN, (25)

The study thus revealed that the livestock maintained on the farms in the state constitute mainly the bovine milch animals and its size was positively correlated with the size of land holding. However, with per unit of land area, the number of livestock declined sharply. This is turn indicate that the small farmers
increase their volume of business through maintaining proportionately higher number of milch animals per unit of land area than the large farmers. The dairying enterprise therefore, was providing employment to the unemployment and under employed rural work force. Thus, the development of dairying in the state can go a long way towards enhancing the income and employment, in addition to the complementary and supplementary relationships of dairying with crop enterprise.

**SHAH DEEPAK, (26)**

The study attempts to evaluate the output and export performance of India vis-a-vis Asia and the world in terms of livestock product during the year 1982-96. The data used in the study show considerable increase in the export trade of India in meat and meat products and also in respect of milk and milk products, both in quantity and value terms. The export trade of India in milk and milk products received a boost only after the early 1990s, i.e., in the era of liberalization. The study shows an increasing trend in export trade of India in processed livestock products. The increase in livestock in export trade of India witnessed after the early nineties period is mainly due to liberalization of trade and several trade policy changes coupled with surge in international prices of many livestock based products. The upswing in live exports of India in due course of time has also filtered in to significant increase in her share not only in Asia but also in world
export trade. But, the results of this study indicate a marginal presence of India in world trade of majority of the livestock products. It is only in the case of bovine meat and also sheep and goat meat that India has shown a considerable share in the global trade of the same. The findings of this study also indicate that where will neither be any exportable surplus for milk nor meat and eggs in the near future. However, India still has enormous and direction can lead us to emerge as the leading producer of milk and meat in the world in the years to come.

KUMAR VIRENDER, SHARMA H. R. AND

SHARMA R. K., (27)

The study has examined (a) the relative importance of livestock in terms of its contribution towards gross state domestic product across district, (b) spatial and temporal changes in the composition of the livestock population and (c) the ecological implications of livestock pressure for the natural resource base of the state of Himachal Pradesh. The findings of the study revealed that during the past twenty-five years while there had been an increase in the population of cattle, buffaloes and goats the population of cattle and sheep declined. Across district, the per cent share of cattle in the total population declined markedly in Una, Kangra, Hamirpur and Bilaspur districts followed by a marginal decline in Solan, Chamba and Sirmaur districts. The share of cattle in total population increased in the districts of Shimla and Lahaul
and Spiti. And in those districts where the per cent share of cattle in total population had declined, there was an increase in the percent share of buffaloes except in Kangra district. The per cent share of goats increased in Bilaspur, Chamba, Kangra, Sirmaur and Solan. Further the number of indigenous cattle per crossbred cattle had also declined significantly from 17 in 1982 to 5 in 1997. In a similar vein, the number of indigenous bulls per crossbred bulls also decreased from 22 to 12 between 1982 to 1992. All the districts, with the notable exception of Lahaul and Spiti, registered a decline of varying degree, the perceptible fall in the number of indigenous bull could be explained in terms of increasing incidence of mechanisation in these districts as was evident from the increase in the number of tractors per thousand hectare of net sown area. The livestock intensity, which is an indicator of the livestock pressure on land and other natural resources, increased from 84 animals per sq km in 1972 to 92 animals in 1997; and among the different districts, the increase in livestock intensity was more marked in Bilaspur, Chamba, Kangra, Mandi and Solan. The analysis further revealed that the number of work animals per thousand of net sown area was positively related to geographical area, proportion of small and marginal farmers, proportion of net sown irrigated and cropping intensity area and negatively related to the extent of mechanisation. The ovine population was also found to have positively relationship with geographical area having direct implications on the fragile environment and eco-system of the hills and mountains.
The study revealed that the highest increase in population was recorded in buffaloes followed by pigs, sheep and goat. The population of male cattle declined by 5.57 percent. This was mainly due to mechanization of agriculture as there was more use of machine power in place of bullock power. The population of female cattle has increased as male cattle were sold after the age of 1 or 2 years and females were maintained for milk production. The density per square kilometer of different types of animals increased in 1997 over 1992 except in the case of male and camels. The density of total livestock per sq. kilometer increased from 138.94 animals in 1992 to 158.18 animals in 1997. The share of different types of animals to total livestock population were almost the same in both the years. The share of goat population was the highest followed by sheep, cattle and buffalo in both the year. The contribution of buffalo milk was the maximum. The meat and egg production has also increased tremendously in 1997-98 over 1992-93.

The livelihood analysis of resource poor farmers reveals that farmer's livelihood is maintained partly by crop and livestock production and partly by sale manual labour. The singular approach
of milk co-operative societies only by support those who have marketing surplus of milk, but the fact remains that most of the resources poor farmers of the drought prone area do not necessarily have a continuous flow of milk round the year or over a few years. A time the farmers face unforeseen difficulties, which come intermittently and ruin all the micro-investment-initiatives of the farmers in the drought prone and difficult areas. The study concludes that a mechanism to support the farmers and with stand the difficulties can occur only if their approach of diversified livelihood option to crop up with complex diverse and risk-prone environment and the development initiatives are design accordingly.

**MONDAL R.C., (30)**

The productive potential of goat depends upon the quality of nutrition. As goat is fed on grazing, it can hardly get adequate nutrition. Hence the reproduction and productivity rates of goats are still below the optimum levels. Since goats are usually sold for emergency purposes, market mechanism has little role to play, so far as the trading of goat is concern. Taking advantage of the system, middlemen usually take away a handsome profit from the transaction of goats. It is suggested that the different government departments like, animal resources development department, financial institutions, non-governmental organization, veterinary department, etc. should come forward to help the goat rearers by
providing arrangement for loan and assistance, veterinary services, development of pasture and grazing lands, introduction of hybrid variety of goats, improvement on the exciting nutrition, genetic and health care services, regulated market and insurance faculties etc.

**SUBRAMANIAN M. AND VERMA N.K., (31)**

The net cost of rearing calf up to the age at first calving in small farmers categories for cross-breed, local and buffalo calves was observed to be Rs. 8,041.22, Rs. 8,038.90, Rs. 7,891.66, respectively. Feed cost emerged as the major component of cost, accounting for about 68.42, 56.70 and 49.43 per cent of gross cost in the respective breeds. The small farmers realized a profit of Rs. 1,888.80, Rs. 717.35 and Rs. 1,093.34 from cross-breed, local and buffalo calves. The observation based on 48 cross-breed, 40 local and 16 buffalo calves for medium farmers stabilized that the average net cost at the age first calving was Rs. 7,781.31, Rs. 8,027.25, Rs. 7,074.18 for the respective breeds. The profit obtain from sale of animals was more in the case of cross-breed calf (Rs. 1,891.69) followed by buffalo calf (Rs. 1,717.82) and local cattle calf (Rs. 651.25). The share of buffalo calves in the cattle market was predominant in relation to cross-breed and local cattle calves respectively. The findings of the study indicate that calf rearing is an economically viable proposition under rural set-up. It holds
promising future in the livestock sector for income and employment generation.

LOKANABHANK K., LOGSMSTHA D., SUBBALAKSHMI L., MANI K. AND KEMPRAJ T. (32)

The results of the study showed that under rainfed and ground water irrigated saturations, the farms were small and milch animals maintenance was constrained by the availability of dry fodder and roughages even through some areas was devoted for fodder sorghum cultivation. The average milch animal maintained was to per ha in CBFS whereas it was five per ha in LBFS. The sheep and goat maintained under LBFS was more than the CBFS. The poultry was maintained under LBFS only 3,000 and birds were maintain by the farm households. The gross income and earned in CBFS was Rs. 52,590 per ha of which the share from crop activities was 70.62 per cent followed by income from livestock in capital in capital LBFS, the gross income and earned was Rs. 6,99,780 per ha and the major share has been obtained through poultry (83.22 per cent). Among the variables included in the function farm women labour and expenditure on other inputs significantly influenced the gross farm income. Thus the livestock rearing is a remunerative activity with respect to income and employment generation and farmwomen contributed more than other labour to the income generation.
The results of the estimated production function revealed that the productivity of the lactating animals is observed to be one of the important variables with statistical level of significance at 5 per cent level. This indicates that the productivity of animals affect the per capita milk availability in different states. In the light of these observation the study suggested that disparity in per capita availability among different state can be reduced by increasing the productivity of animals by introducing high-yielding animals, enhancing fodder availability in deficit state and increasing the ratio of wet animals in the bovines stocks.

The concentration of buffaloes is higher in low hill areas whereas cows are predominant in mid and high-hill areas. The demand and supply projection suggested that excellent opportunity exist for significant brought in small holder dairying with a probable rise of about 145 per cent in milk demand over the next 19 years. The most important variable observed in the success and failure of dairy co-operative is accountability. The price of milk offered by the milk fed is quite low and is reported to be non-remunerative by the farmers. In remote areas of the state there is considerable quantity of
milk available for sale but can not be disposed of, as there are no marketing facilities in some areas where traders operate the prices offered are low. The dairy farmers located in such areas do not have the knowledge of co-operative milk marketing. To improve efficiency of milk marketing system there is a need for training and advocacy of co-operative principal. Existence of a marketing channel is a pre-condition for augmenting surplus milk production. Milk marketing has to be finalized for a cluster or a group of villages rather than going in for organizing the producers.

PUROHIT S.G. AND JAMBAGI H.G. (35)

The study reveals that on a household, generally maintained more milch maintained animals compare to young stock. It is more in case of new animal breeds of cows and buffaloes compare to local breeds. But among milch animals, in the case of cows, the percentage-milking animal is more among cross breed cows compared to local cows but on the other hand in the case of buffaloes face buffaloes milking animals are slightly higher in local buffaloes compare to graded buffaloes. The employment opportunities are also more in new breeds compare to local breeds. The percentage involvement of women is more in all the type of breeds but comparatively more in both the breeds of buffaloes. Per animal per annum production of milk is more in both new breeds compare to local breeds. Prices of milk and milk products are reported to be more in both the breeds buffaloes compare to cows.
From the study it is observed that both new breeds are more profitable compare to local breeds. Maintenance cost per milch animal per year was more in both new breeds compare to local breeds and the percentage of operational cost are more in both local breeds of cows and buffaloes as compare to both new breeds. The study emphasizes that since dairying is the most important activity in supplementing the income and in generating employment opportunities, while extending loans under different dairy and rural development programmes by the government emphasis should be given to new breeds along with the package of credit, veterinary, marketing and other facilities as new breeds are more profitable than local breeds.

REDDY M. JAYACHANDRA, REDDY Y.V.R. AND RAMAKRISHNA Y.S. (36)

The paper attempts a comparative study of economics of milk production in three states, viz., Chittoor district in Andhra Pradesh, Erode district in Karnataka involving aspects related to exiting cost structure of milk production, profitability of crossbred dairy cows in the three states under the changed socio-economic-political scenario and also suggest methods to improve the viability of these enterprises. The data were collected by survey method during the year 2003. Seventy-five farmers were selected at each location giving due importance in the selection of all categories of
households. The number of dairy cows studied were 108 in Chittor, 178 in Erode and 84 in Kolar districts. The net cost of maintenance of a crossbred cow per day was worked out to Rs. 38.99, Rs. 49.36 and Rs. 48.88 in Andhra Pradesh, Tamil Nadu and Karnataka respectively. The cost per liter of milk work out to Rs. 5.48, Rs. 7.20 and Rs. 5.84 in the same order. Feed cost was the major component in grows cost, which accounted for 63.88 percent in Andhra Pradesh 72.14 percent in Tamil Nadu and 73.62 percent in Karnataka. The net profitability varied from 43 percent in Tamil Nadu, 70 percent in Andhra Pradesh to 83 percent in Karnataka. The variations among the three-studied location are due to variation in breed, feeding pattern, maintenance of animals, etc. The study has further brought out the fact the higher fat content provides higher prices as milk is priced based on fat and solid—not-fat (SNF) content by dairies. Hence proper/scientific breeding produce is to be followed to improve fat content in the milk as well as milk production per animal. Besides scientific breeding, feeding, treatment and veterinary care and management would not only increase milk production and fat content in addition to reduction in cost, but also incomes of farmers. Thus dairy farming is considered as an ‘instrument for socio-economic change’ in rural areas.

SAIKIA ANUVA, (37)

The percent study was conducted in six districts selected from six agro-climatic zones of Assam covering 900 households. The
study discusses about the structural composition of livestock, utilization of livestock in agricultural production and returns from milk production. The study pertains to the year 2001-02. The findings of study indicate that local cattle is the major livestock in all zones constituting 84 per cent followed by buffalo at 14 per cent while cross bred cows constituted only 2 per cent. Utilization of drought animal for agricultural production depended on cropping pattern and intensity. Out of total labour days for drought animals, 92.61 per cent was for rice cultivation, 2.71 for jute, 2.68 for vegetables, 0.8 per cent for oilseeds, maize, wheat and sugarcane while 1.17 per cent was for transportation. Thus livestock plays a crucial role in the agricultural production system as the major source of draft power. The study stresses the need to strengthen the feeding practices, breeding management facilities, animal health care facilities, etc., to enhance milk production.

GOVINDARAJAN K., SHANMUGAM T.R. AND KARUNAKARAN K.R.,(38)

The study aims to explore the population dynamics of the draught animals utilized in the farming operations in Tamil Nadu. The study has further explored the changes in the cropping pattern and how it has affected the population draught animals. For the purpose, survey were conducted under cost of cultivation scheme covering 600 farms in Tamil Nadu during 2001-02 to analysis the pattern of
animal power utilization. The data were collected by cost accounted method. The secondary data on population of livestock were collected from various Livestock Census Reports. It is evident from the analysis that though the increase was seen absolute number but it has shown a declining trend in relative terms, i.e., animal population per hectare of net sown area in Tamil Nadu but it was plateaued for the nation as a whole. As far as the farming operations are concerned the large sized farms utilised more number of pair-days than the small sized farms. This was because small farmers were unable to maintain animals separately for milk and draught purposes. The cost of maintenance was yet another cause of concern in catalysis the declining population of draught animals. The cost of maintenance per bullock has also increased with increase in farm size. However, the cost of maintenance per day of work per bullock decreased with an increase in farm size and it was mainly due to a larger utilization of farm animals in big farms. Further, the declining area under cereal crops has hastened the process of decline in the draught animals stock over the years. The study concludes that the increased cost of maintenance, spurt in the number of tractors and the decline in area of cereal crops were found to be the causative factors for the decline in the draught animal population.

THAKUR C.L. AND SINGH V. C., (39)

Surveys were conducted in the year 2003-2003 to assess the energy and cost requirements for milk production in different
commercial dairy farms in four locations, viz., Maharajpur, Imaliya, Pariyat and Mohaniya, around the Panagar block of Jabalpur district, representing the Kymore plateau and Satpura Hills zone of Madhya Pradesh. The locations for conducting the survey was selected at random without following any statistical method as there are enough number of commercial dairy farms to get a good comprehensive data on the different activities in milk production. The animals were all purchased costing between about Rs.15, 000 to Rs.20, 000 per animal. The total number of milch animals were 376, 644, 1,797 and 76 at Maharajpur, Imaliya, Pariyat and Mohaniya, respectively. The energy or cost consumption per day per animal was the highest in Pariyat dairy farms followed by other three dairy farms. The performance of commercial dairies surveyed in the four areas indicated that the cost of production was higher in Mohaniya dairy farms followed by Maharajpur, Imaliya and Pariyat dairy farms, respectively. The output input energy/cost –benefit ratios of main product (milk) was higher in Pariyat area and lowest in Mohaniya dairy farms. The value of specific energy and output and input energy performance of dairy farms in Pariyat area was the best among the other surveyed dairy farms. It is inferred that cattle raising is not only an important occupation for supplying the nutritional diet to the people but also it has greater concern to uplift the socio-economic status of the people related to agricultural sector. Likewise raising goats, cows, buffaloes and birds as a supplementary occupation in the agricultural sector is apparently most economical for the development of socio-economical status of
rural people particularly in weaker sections, having small and marginal holdings or low investment capacity and tribal communities.

**RAJPUT A.M. AND YADAV SANDEEP, (40)**

A study was conducted in Indore district of Madhya Pradesh to study the economics and identify the constrains relating to cross-bred cow milk production. Specifically, it examines the cost and returns per year, the net return, cost of milk production per liter and benefit-cost ratio on small, medium and large size-groups of cross-bred cow farms. Multi-stage stratified random design was used for the selection of the ultimate unit of the sample. Indore block of the Indore district was selected for the study and five villages were selected randomly from Indore block. In all 50 milk-producer householder (cross-bred cow) were selected for one lactation period covering the agricultural year 2003-2004 and the data was collected by survey method. The results of the study revealed that, on an average, the total cost of maintenance of a cross-bred cow per annum was worked out to Rs.21, 657.76. After deducting the income received from cross bred cow dung and sale of young stock, the average net cost of maintenance came to 19,942.15 per cross bred cow. The farmers of large size groups had incurred higher expenditure on the maintenance of a cross-bred cow as they had
maintenance cross-bred of relatively better breed and had made higher investment on fodder and concentrates for maintaining them.

However, large numbers of cross-bred cow dairy entrepreneurs complained that the weak financial status, cost factor and management difficulties were the main constraints is not maintaining good quality of animals on the farms. The respondents’ farm families strongly expressed the dire need for finance for the purchases of animals and also for feed, fodder and veterinary aid. A large number of commercial crossbred cow dairy entrepreneurs reported insufficient storage facilities on their farms. Milk and milk products fall under highly perishable group of commodities and have to be stored under controlled condition of temperature and humidity in cold storage and deep freezers. The cross bred cow enterprise should be organized as an independent enterprise on commercial basis by providing capital and credit at subsidized rates and encouraging the establishment of more co-operative societies to provide production and marketing services to the dairy farms in rural areas of Madhya Pradesh. Government should encourage and help milk producers in organising co-operatives since they are poor and illiterate and cannot do so themselves.

**JANGID B. L. AND ROHILLA P. P., (41)**

A total of 118 farmer respondents owing at least one or more adult unit of cattle or buffalo were selected from two villages, one
each from two tehsils of Pali district of western Rajasthan. Data were collected using pre-tested personal interview schedule during the year 2000-01. The findings of the study clearly revealed that non-availability of green fodder round the year, lack of artificial insemination facilities, lack of improved breed of milch animal, lack of training about improved practices, low risk bearing Capacity, high cost of fodder and concentrates, high cost of modern medicine, non availability of loan facilities, lack of initiative and motivation, traditional attitude of people, uncertainty of monsoon, lack of information about various development programmes, and non-availability of extension services were the major constraints conformed by the farmers in the adoption of improved animal husbandry practices. There is a need to keep all these constraints in mind while developing any transfer of technology or extension programmes meant for the farmers of arid fringes in order to popularize the improved animal husbandry practices.

**PAL KRISHNA PRAN, (42)**

An attempt has been made in this paper to examine the growth and composition of livestock products across the states in India during 1994-95 to 2001-02. The study is based on secondary source of data. Though the composition of milk production by buffalo, cow and goat has not changed in India, but it has varied across the states in India during the period under study. Also, the cow milk composition by cross breed and non-descript has changed
across the states. Compared to eastern region states, the other region states have emerged as the growing states for egg production. Egg production by fowls is comparatively more than that by ducks. The eastern region states have produced more eggs by fowls compared to the other region states. But in case of wool, the northern region states (i.e., Rajasthan and Jammu and Kashmir) have produced more than 50 percent of the total wool production. Inter state disparity of milk has risen over time while the reverse has occurred in case of egg and wool. But the disparity of wool has been relatively more than that of egg and milk. The growth rates have varied across the states during the period under study. Area under fodder crops, area under permanent pastures and other grazing land and fodder production are the determining factors in explaining inter-states (regional) variation of the livestock products, namely, milk and wool in India. The coefficients are positive hand statistically significant. But these are negative and not statistically significant in case of egg. Thus milk and wool production depends on land and agricultural production while egg production is of land-saving and labour and capital intensive in nature. Hence egg is produced commercially in the context of diversification.

GANGWAR L.S., KUMAR SANDEEP AND BHARTI D.K.,

(43)

The result showed that with rapid economic growth, particularly, if accompanied by significant reduction in poverty,
future demand for milk, milk products, eggs and meats would escalate. This is turn requires changes in livestock production methods, with greater use of cereals in poultry and livestock feed. India has a marginal presence in the world trade of livestock products. Meat and meat product is the main livestock product of export, accounting for over 90 per cent to the total export earning from the livestock sector. Most of Indian livestock products do not conform to the international standards of account of sanitary and phyto-senitary restrictions, sub-standard processing, packaging and lack of cold chains for transportation as per specifications. If India would like to sustain its position in the international market, all these constraints must be borne in mind and we should strive to meet the international quality norms for livestock sector. The robust growth in the livestock sector in recent years indicates that if manage properly; livestock could be driving force for the growth of agricultural sector in future decades. Apart from its immense and rising contributions to agricultural gross domestic product, food and nutrition security, livestock has the capacity be reduced interpersonal and inter-regional economic disparity, as there exists considerable scope to enhance the income and employment opportunity.
It was observed that the cost of maintenance per broiler declined with an increase in the size of broiler units. Winter season was the best for production of broilers to a large extend in terms of live weight of broiler, feed conversion ratio and marketed age. The sample broiler units were found to be profitable. The net profit per broiler showed an increasing trend with an increase in the size of the broiler unit. The average number of broilers maintained by the sample broiler units was over and above the optimum level indicated by the break-even points. The problems faced by the broiler rearers were high cost of feed followed by the cost of one-day-old chick, non-availability of credit in time, non-availability of labour, non-co-operation among producers and low price of final produce, etc. The study suggested that the broiler rearers should stabilize producers co-operative society at the tehsil level, in order to provide infrastructure faculty such as timely supply of chick, proper marketing faculties, technical know-how and credit faculties to the broiler producer. The feed manufacturing activity through co-operative society may be initiated so as to reduce cost of feed and facilitate timely availability of feed to broiler the rearers. Short-term poultry training courses for broiler producers have to be organizing at the tehsil level in convenience of the broiler rearers.
Based on secondary data the study examines the spatio-temporal changes in the pace of growth and stocking patterns and major contributions of bovines and ovine in India. All the states were grouped into the northern, western, southern and eastern regions. Later on, the state-wise bovines and ovine data for various census years such as 1972, 1977, 1982 and 1992 were compiled and added in accordance to the states and union territories of the respective regions so as to generate the region-wise livestock population. The region-wise inter-census compound growth rates were computed for bovines and others to inter-census periods such as 1972-77, 1977-82, 1982-87 and 1987-92. Based on these inter-census compound growth rates, the bovine and small ruminants population was intra and extrapolated for the corresponding years so as to generate the continuous time-series data for the period 1972-2002. These data were also grouped into two periods, viz., 1972-1992 and 1972-2002 so as to fit the trend equation for various species. The findings of the study may be summarized as follows: (i) indigenous cattle were mainly reared by the farmers to sustain draught animal power and indigenous cow’s milk had been considered as by-product. Furthermore, the eastern regions accounted for the highest concentration of these cattle followed by the western regions, (ii) Buffaloes were considered as the main
milch animal, followed by crossbreed cattle to sustain the milk production needs. Furthermore, western region accounted for the highest concentration of both buffaloes and crossbreed cattle in milk, followed by the northern region. (iii) A great majority of female bovines were dry and not calved which calls for the concern of animal scientists, planners and development manager. The farmers try to rear the offspring of these species for replacement and / or sales. Mechanization had affected the working bovine stock mainly on medium and large farms, (iv) India ranked first in the world in milk production and buffaloes contributed about 52 percent while cows contributed about 45 percent of the total milk production. Furthermore, the northern region had contributed the highest, followed by southern and western region in the total contribution of bovine's milk. The country has vast potential for export of dairy products provided we improve the quality of our milk products, (v) Sheep and goat and rearing activities though accorded positive growth across regions and at the all India level, yet regional disparity existed in it. 

KUMAR SHALANDER, (46)

The study has also highlighted the housing systems of goats, labour utilization pattern feeding management and flock management of goats in different semi-arid zones. The comprehension of resources flows shows that the goat production system has strong linkages with other components of the farming
system and was largely dependent of the village system it shelf. The analysis further indicated that the family of goat keeper earned a net annual income of Rs. 1,302 to Rs. 1873 per goat in different categories. The losses suffered by goat farmers shows that the scarcity of fodder and losses due to diseases were the major constraints in goat rearing. The paper also examines the various factors constraining productivity improvement and dissemination of goat technologies and suggested ways to overcome these constraints.

**KUMAR VINOD, (47)**

Cheap imports of livestock product are a matter of concern for the Indian livestock industry, particularly for millions of small, marginal and landless dairy farmers. India is committed to zero import duty for milk powders and comparatively low tariffs on other major dairy product such as butter, butter oil, cheese and fresh milk (fat contain more than 6 percent). Unlike major dairy producing countries, India does not have special agricultural safeguard provisions for livestock products. In contrast, the bound rates of tariff for dairy products in most of the developed counties are very high. The study indicated that after liberalization and W.T.O., export of livestock product like meat and meat preparation, cheese, butter, ghee, bovine meat, buffalo, chicken meat and eggs increase by a remarkable rate as compare to pre-liberalization period. India’s
exports of livestock product can be increase if the production and trade-related distortions are drought down, if not eliminated. Since the direct influence of the government, enhancement of the competitiveness of Indian product can be done by bringing down the domestic prices, reducing cost, productivity and efficiency in production, processing, transport and marketing. The country, in the short-run, should try to promote export of livestock product to the neighboring countries where similar all lower quality standard exist. However, the long-term strategy must be in creating efficient institutional framework to comply with the SPS and TBT provisions so that the huge potential of future world market for livestock product can be harnessed with the remover of quantitative restrictions, it would be difficult for Indian product to compete with the highly subsidized milk products of the develop countries, even in the Indian market as the Indian dairy industries is already facing stiff competition because of heavy subsidies by the develop countries, the value added taxes on dairy industry in India have to be brought down to negligible levels.

**KHODASKAR R.D.** (48).

The purpose of this study, 20 farmers grouped marginal, small, medium, large size categories were selected randomly from the study area. The selected dairy farmers possessed 61 cross-bred cows, 34 cross-bred female calves, 3 cross-bred male calves, 12
bullocks and 1 buffalo in the reference year 2003-2004. Dairying was reported as a subsidiary occupation by 80 percent of the dairy farmers. On the average, 2 persons per family worked in the dairy enterprise. The average number of days they worked in dairying was 70 and 90 in the case of male and female adults respectively during the year. Considering the receipts from expenditure on dairy enterprise, the receipts of total milk, dung and sale of animal’s expenditure like rope, veterinary care, etc. the total surplus of dairy farmers worked out to Rs. 15,82,996 during the study year. The data thus shows that the dairy enterprises profitable conditionally. With the production of green fodder round the year the irrigated dairy farmers can conduct dairying with cross-bred cows more profitably than the dry land cultivators or landless.

ASHOK K.R. AND SOMASUNDARAM G., (49)

The result indicated negative change in the size of livestock between 1993 and 2003 for all categories. The employment generation in the livestock sector in the small farm on an average was 4061 hours of work of per month of which 82 per cent was 4 family labours. Among the family labour, males contributed 44 per cent and females contributed 38 per cent and the rest by children. Functional analysis revealed that 41 per cent of the variation in the size of the livestock population was explained by the specified independent variables. The total inputs from livestock from sector to crop sector was Rs. 9,823.85 on an average, with farmyard manure
accounting 444 per cent. Similarly the total input from crop sector to livestock sector was Rs. 2,853 with straw accounting for 45 per cent of the value. The estimated backward linkage of crop sector or forward linkage of livestock sector was 0.37 and forward linkage of crop sector or backward linkage of livestock sector was 0.19. It means while the crop sector utilizes 37 per cent of the value of livestock sector, utilizes only 90 per cent of output from crop sector.

KOSHTA A.K., CHANDRAKAR M.R. AND LALWANI N.R., (50)

Field level analysis revealed that the average acreage of 4.89 hectares among the member were 6.87 and 5.37 for milch and drought cattle whereas, non-members had 8.36 and 5.59 milch and drought cattle in the 3.75 hectares of crop acreage. The empirical result suggested that the competitive market price of milk should be given to members for enhancing the milk procurement, to run the dairy plant up to the break-even level; and producers’ share can be increased by curtailing the axis market network of RDSSM, secondary functions such as cattle feed, fodder seed, medical and veterinary facilities should be strengthened and non-members get the membership of RDSSM/MPCs for improvement in the status of dairy animals through availing the facilities provided by RDSSM.
The study revealed that dairy farming is an activity with great potential and has offered considerable scope for employment and income generation in Kanyakumari district, which is basically rural in nature. Dairy farming activities are concentrated throughout the district. Lot of milk co-operative societies have been stabilized for promoting the welfare of people engaged in dairy farming. From the above analysis, it is inferred that, dairy farming gives employment opportunities in the form of collecting dung cleaning shade, watering and feeding animals, grazing and cutting grass, milking, sale of milk, processing of milk and marketing of milk and milk products to a large numbers of people in the villages of Kanyakumari district. Further, it is found that the income is generated in the form of sale of milk, manure and sale of cattle. It may be conclude that dairy constitutes the major proportion of the cattle population in the sample households. Cattle rearing occupy a pivotal place among women folk of the rural areas thus, dairy farming plays the main source of employment and income and generation in the study area.

This clearly shows that is a positive relationship between return over variable cost and net income with size of farm from the
analysis it can be concluded that broiler farming is a profitable proposition for the villages around Bhubaneswar city. The result of the study recommended that the policy makers give the required emphasis on broiler production in the rural areas around big cities, which can generate additional income and employment. The rural farmers as well as rural youths can be persuaded to take up broiler farming which a comparatively less technical and gives greater farming broiler farming can easily popularized in the villages especially around big cities where there is continuous demand for the broiler meat throughout the year.

TRIPATHI R.S., AJORE RAM AND LAL KHAJANCHI,

The study revealed that the average size of holding was 507 ha out of which 64.26 per cent area was sodic (alkali). These sodic soils have been brought under cultivation after reclamation with chemical amendment, namely, gypsun. Based on the quantity of gypsun applied for sodic soil reclamation, the selected farms were categories into for levels of reclamation technology adopters, viz., very low (amendment applied <5.75 t/ha), low (5.75 to 9.50 t/ha), medium (9.50 to 13.25 t/ha) and high (>13.25 t/ha). Rice-wheat cropping pattern was followed exclusively on all the farms covering more than 90 per cent of the total cropped area, where to fodder crops, namely, sorghum in kharif and berseem in rabi season occupied 3.68 and 3.82 per cent of the cropped area, respectively.
Almost all the selected farms had 100 per cent irrigation facilities and 4-5 milch animals of good quality breed. The proportionate gross income earned from milk production showed a decreasing trend with the increase in the level of sodic soil reclamation technology adoption on the farms. It was mainly due to the fact that the performance of crop enterprises was better and contributed more to the farm income at higher levels of the reclamation technology adoption. As against this, the performance of milk production enterprises was remarkably better on lower level reclamation technology adopter farms where the farmers have to compensate their poor crop income by increased earning from the milk enterprises. A similar trend was noticed in case of contribution made by milk production to net farm income. The study concluded that, in general, milk production has made a visible impact on diversification of the farm economy at all the levels of sodic soil reclamation technology adoption, and more favorable, in particular, to those farms where crop enterprises were less supportive to the farm income because of low levels of the reclamation technology adoption.