

## **Impact of credit on milk production in Kadipur block of distt. Sultanpur (U.P.)**

RENU SINGH, G.P. SINGH AND K.K. SINGH

*Deptt. of Agricultural Economics, N.D. Univ. of Agriculture & Tech., Kumarganj, Faizabad*

### **Abstract**

*The present study covered 5 villages and 50 borrower and 50 non-borrower. The number of farmers were selected through proportionate allocation to the population in different farm size groups of borrower and non-borrowers. The study concluded that financial assistance helped borrowers to improve their economic condition through crop production as well as milk production enterprises.*

*Key words: Production, borrowers, farmers, farm size groups*

### **Introduction**

The credit word is derived from the Latin word *credidum*, which means faith or believes. Borrower can obtain fund from lender at given terms and conditions for certain period after which the borrowed amount should be returned to lender. The system by which goods or services are provided in return for deferred rather than immediate payment. Credit may be provided by the seller or by a bank or finance company. Credit is the reputation for financial soundness which allows individuals or companies to obtain good and services without payment. Farm finance assumes vital importance in the agro-socio-economic development of the country. Its catalytic role strengthens the farming business and augments the productivity of scarce resources. Muniraj (1987) quoted that farm finance is the money extended to the farmer to stimulate the productivity of the limited farm resources. It is not more loan or credit of advance, it is an instrument to provide the well being of society. Farm finance is not just a science to manage the money, but is an applied science of allocating scarce resources to derive the optimum out-put.

For agricultural development the Indian agriculturists need huge financial assistance. The All India Rural Credit Review Committee (1969) estimated that the short term credit requirements in 1973-74 were likely to be of the order of Rs. 2000 crore while the medium and long term credit need for the fourth plan period were estimated to be of the order of Rs. 500 crore and Rs.2000 crore respectively. The National Commission on Agriculture had worked out that the credit requirements by 1985 would be Rs. 7884 crore for short term loan, Rs. 8265 crore for medium and

long term loan and Rs. 402 crore for implements and machinery.

According to the Agricultural Credit Review Committee (1989) the total short term credit requirements for agricultural production for the year 1999-2000 were expected to be of the order of Rs. 39834 crore.

These estimates were made about two decades back. The need for rural credit has in fact gone up after the economic reforms. However, it is clear that, even the earlier estimates for the present period, far exceed the present actual supply of institutional credit the most suitable form of rural credit.

Indian agriculture is mostly in the hand of small peasants who are too poor to finance even their traditional agriculture operation, out of their own resources. The adoption of new technology requires larger budget which are beyond the capacity of the majority of the farming population. Artisans and agricultural labourers constitute the bulk of our rural population. They are also in the grip of poverty and have to depend on outside borrowings for expanding their trades or for setting up new production enterprises.

Marginal farmers constitute a significant part of the farming community in India. They cannot meet their basic needs from agriculture, even when agriculture on their farm is completely modernised. They have to supplement their income by starting some subsidiary occupation. For this purpose they need financial assistance from some external sources.

It is an accepted fact that the best way to reduce unemployment in the country, on a permanent basis is

to provide opportunity for self employment invariably requires the use of some productive physical assets for which they will generally need financial assistance.

Various expert bodies have stressed the need for agricultural credit. As the U.N.O. has observed "Most of the world's farmers have to borrow at some time" mainly of them heavily to raise agricultural production they will have to borrow still more. And more is almost always needed where there is redistribution of right in land. It is thus, in the interest of agriculture and essential to agricultural and general progress, that credit be available to farmers in adequate amounts and at appropriate costs.

Fredrick Nicholson has observed that "The lesson of universal agrarian history from Rome to Scotland is that an essential of agriculture is credit. Neither the condition of the country nor the nature of the land tenure, nor the position of agriculture, affects the one great fact that agriculturists must and will borrow." At another place he observed that "The history of rural economy, alike in Europe, America and India has no less or more distinct than this that agriculturists must and will borrow. This necessity is due to the fact that an agriculturist's capital is blocked up in his stock and land and must be temporarily mobilised. Hence, credit is not necessarily objectionable nor is borrowing necessarily a sign of weakness".

Importance of rural credit in developing economy is crystal clear from the facts mentioned here. No doubt agricultural finance has increased the production and productivity of agriculture and raised the standard of living of weaker section of the society. Since no any systematic study so far has been conducted to asses the impact of credit on agriculture and rural development in the study area.

#### *Objectives:*

- i. To work out the economics of milk production.
- ii. To study the effect of credit on income and employment.

#### **Methodology**

This deals with the various methods and procedure used with respect to the selection of the study area, sampling design, data collection, and statistical methods employed for the analysis of data.

#### *Sampling techniques*

Multi stage stratified purposive and random sampling technique was used to select the district, block, villages and respondents.

#### *Selection of district and block*

The study was conducted in Sultanpur district Of U.P. Out of 14 blocks in the district one block

namely Kadipur was selected purposively keeping in view the convenience of investigator.

#### *Selection of village*

A list of all the village of block Kadipur was prepared with the help of block personnel and 5 villages were selected randomly.

#### *Selection of farmers and data collection*

A list of all the borrowers and non-borrowers farmers both of 5 selected villages were prepared and classified in to 4 groups i.e. marginal (below-1 ha.), small (1-2 ha.), medium (2-3 ha.) and large (above-3 ha.). Farm this list 50 borrowers and 50 non-borrowers farms were selected through proportionate allocation to the population.

Category wise distribution of sample farmers in Kadipur block of district Sultanpur

S. No.	Size group	Borrower		Non-borrower	
		Sample farmers No.	Per cent	Sample farmers No.	Per cent
1	Marginal	18	36	24	48
2	Small	17	34	9	18
3	Medium	8	16	9	18
4	Large	7	14	8	16
	Total	50	100	50	100

It is depicted from table that maximum no. of sample farmers belong to the marginal category followed by small, medium and large size group of farms. Which accounted for 36, 34, 16 and 14 per cent of total sample farms in borrower category and 48, 18, 18 and 16 per cent of total sample farmers in non-borrower category?

Primary data from respondents were collected through survey method with the help of pre structured and pre tested schedule. Secondary data were collected from district; block and tahsil head quarter and published report of commercial bank.

#### *Period of enquiry*

The study was conducted for the agriculture year 2011-2012.

#### *Analytical procedure*

The percentage and averages were used for making simple interpretation and functional analysis was done to find out the efficiency of various resources used in crop production:

#### *i) Percentage*

The frequency of particular cell was divided by the total number of respondents and multiplied by

100 to calculate the percentage.

ii) Average ( $\bar{X}$ )

The average was calculated by adding the total score obtained by the respondents and divided it by the total number of respondent. The following formula was used to calculate the average:

$$\bar{X} = \frac{\sum x}{N}$$

Where,

$\bar{X}$  = Average or Mean

$\sum x$  = Total number of scores obtained by the respondents

$N$  = Total number of respondents

iii) Weighted average

The simplest and important measures of average which have been used into statistical analysis of the collected data are the weighted average, the formula used to estimate the weighted average is;

$$W.A. = \frac{\sum wix_i}{\sum w_i}$$

Where,

W. A. = Weighted average

$X_i$  = Variable's mean

$W_i$  = Weights of  $X_i$

iv) Functional analysis:

To study the production function and resource use efficiency, Cobb-Douglas production function was applied, as it has been observed most appropriate. The form of production function is ;

$$Y = a \cdot X_1^{b_1} \cdot X_2^{b_2} \cdot X_3^{b_3} \cdot X_4^{b_4} \cdot e^u$$

Where,

$Y$  = Per hectare output (Rs.)

$X_1$  = Human labour (Rs./ha.)

$X_2$  = Seed costs (Rs.)

$X_3$  = Manure & fertilizers (Rs.)

$X_4$  = Irrigation changes (Rs.)

$a$  = Constants

$b_1, b_2, b_3$  and  $b_4$  = Elasticity coefficients of the respective input variables.

$e^u$  = Error term or disturbance term.

## Results and Discussion

*Economics of milk production in study area:*

In developing countries, the combination of crop production and livestock rising has a complementary

relationship to a certain extent. It increases the income of farm families, provides fuller employment, maintain soil fertility, besides making full use of farm by products. The cows and buffaloes are the main source of milk and milk products. Certain products of commercial importance such as hides, skins and wool are obtained from the livestock. Seeing importance of dairy enterprise in farming lives the economics of milk production was also studied with regards to impact of agricultural credit in agriculture and rural development. *Economics of milk production on borrower farms*

The costs and return of milk production is presented in Table 1. It is depicted from the table that overall average total cost per animal per lactation on the borrower farms was Rs. 23185.15. This was maximum on large farms followed by medium, small and marginal group of farms accounted for Rs. 26641.19, Rs. 24606.99, Rs. 23036.31 and Rs. 21349.78 respectively. Major portion of overhead costs was shared by costs of milch animal i.e. 48.12 per cent followed by, fixed investments and costs of buildings. Similarly the total costs on variable inputs was found to Rs. 16387.39 on overall farms which was highest at large farms followed by medium, small and marginal size of farms corresponded to Rs. 18578.75, Rs. 17472.26, Rs. 16212.05 and Rs. 15218.64 respectively. The major part of the variable costs was shared by expenditure on concentrate ration which accounted for 27.42 per cent followed by fodder (green + dry), risk cost and charges paid for hired labour which in sequence corresponded to 25.89, 18.84 and 12.21 per cent of total variable costs. The cost of milk production per animal per lactation was found of direct relation with size of holding.

As far as the various income from milk production at borrower sample farms is concerned, the gross income was found to Rs. 31679.33 on an average of overall farms, where as it was highest on large size of farms i.e. Rs. 38051.10 per lactation per animal followed by medium, small and marginal farms accounted for Rs. 35504.63, Rs. 30095.74 and Rs. 28996.90 respectively. Overall average net income per lactation per animal was recorded as Rs. 8902.19. This was maximum on large farms followed by medium, small and marginal size of farms respectively.

It is concluded from the above facts that economics of milk production on borrower farms was positively related with the size of farm.

*Economics of milk production on non-borrower farms:*

Economics of milk production on non-borrower farms of the study area was analysed and displayed in

Table 1: Cost and returns of milk production per animal per lactation in the study area

(A) Borrower

S.No.	Particulars of costs	Marginal	Small	Medium	Large	Overall average
1	Fixed Cost (Initial investment)	18254.10	20842.04	28169.56	31910.00	22632.31
a	Interest on fixed capital	1985.69(32.39)	2134.54(31.28)	2021.86(28.34)	2452.93(30.42)	2107.49(31.00)
2	Cost of milch animal	10197.13	12438.04	16848.85	19130.30	13273.96
b	Depreciation of milch animal	3006.77(49.04)	3357.75(49.20)	3369.77(47.23)	3626.06(44.98)	3270.88(48.12)
3	Building	7340.48	7571.46	10741.44	11776.90	8584.27
c	Depreciation on cost of building	1008.58(16.45)	1177.09(17.25)	1611.21(22.58)	1816.54(22.53)	1275.41(18.76)
4	Cost of equipment	716.49	832.54	879.27	1002.78	822.07
d	Depreciation on cost of equipment	130.10(2.12)	154.88(2.27)	131.89(1.85)	166.91(2.07)	143.96(2.12)
5	Overhead cost (a+b+c+d)	6131.14(100.00)	6824.26(100.00)	7134.73(100.00)	8062.44(100.00)	6797.76(100.00)
6	Working capital					
I	Fodder	4068.62(26.73)	4243.42(26.17)	4376.99(25.05)	4531.83(24.39)	4242.24(25.89)
ii	Concentrate	4154.12(27.30)	4353.31(26.85)	4966.73(28.43)	5147.61(27.71)	4490.95(27.41)
iii	Hired labour charge	2000.00(13.14)	2000.00(12.34)	2000.00(11.45)	2000.00(10.77)	2000.00(12.21)
iv	Medicine	670.29(4.40)	831.45(5.13)	898.14(5.14)	1087.71(5.85)	819.98(5.00)
v	Miscellaneous	435.80(2.87)	480.59(2.96)	515.15(2.95)	580.72(3.13)	483.98(2.95)
vi	Risk cost (25% of the value of the animal)	2874.12(18.89)	3071.96(18.95)	3212.21(18.38)	3532.58(19.01)	3087.66(18.84)
vii	Cost B	14202.95	14980.64	15969.22	16880.50	15124.82
viii	Family labour	1015.69	1231.41	1503.04	1698.25	1262.57
ix	Cost C	15218.64	16212.05	17472.26	18578.75	16387.39
x	Total cost= cost C+ overhead	21349.78	23036.31	24606.99	26641.19	23185.15
	<b>Income measure</b>					1
	Gross income	28996.90	30095.74	35504.63	38051.10	31679.33
2	Family labour income	14793.95	15115.10	19535.41	21170.70	16554.52
3	Net income	7647.12	8259.43	10897.64	11410.00	8902.19
4	Input : Output	1:1.35	1:1.32	1:1.44	1:1.43	1:1.36

Note-Gross income includes the amount received from sale of milk, cow dung and sale of calf.

(Pattern for calculation of economics of milk production is followed from page no-348 of farm management by S.P. Dhondyal)

(Since the sale proceeds from milk and its products are received daily, interest on working capital has been omitted)

Table 2. It is revealed from the table that the overall total costs of milk production per animal per lactation was Rs. 19455.97 which was highest on large farms i.e. Rs. 22597.38 followed by medium, small and marginal farms, accounted for Rs. 21425.54, Rs. 19433.51 and Rs. 17678.66 respectively. Total cost of milk production was constituted with Rs. 5620.00 of overhead costs and Rs. 13835.75 of variable cost. Among different constituents of overhead cost, major portion i.e. 51.78 per cent was shared by costs of milch animal followed by 28.38 per cent on initial investment, and 17.84 per cent on building. Likewise, total variable cost was mainly constituted with 29.76 per cent on concentrate ration followed by 28.19 per cent on fodder, 18.35 per cent as risk cost and 14.46 per cent on hired labour. Very nominal i.e. 2.45 and 2.36 per cent of total variable costs was shared by medicine and miscellaneous charges.

As far as various income measures on non-borrower farms is concerned, the overall average gross income per animal per lactation was found to Rs. 25519.74 which was highest on large size group of farms i.e. Rs.30861.56 followed by medium, small and marginal size of farms, corresponded to Rs. 28051.11, Rs. 25267.29 and Rs. 22884.53 respectively. Net income and family labour income was also found of same trend. The input: output ratio of milk production on overall farm came to 1:1.31, which was highest on large farms followed by medium, small and marginal farms respectively.

It is concluded from above discussion that dairy farming as subsidiary enterprise was found directly associated with size of holdings.

#### *Comparison of economics of milk production*

The impact of financial assistance on milk production is reflected from the different values

Table 2: Cost and returns of milk production per animal per lactation in the study area

(B)Non-borrower

S.No.	Particulars of costs	Marginal	Small	Medium	Large	Overall average
1	Fixed Cost (Initial investment)	13601.07	14781.73	15977.88	16890.95	14767.79
A	Interest on fixed capital	1280.56(26.73)	1555.24(27.41)	1997.46(30.19)	2129.00(30.19)	1594.79(28.38)
2	Cost of milch animal	8672.82	8927.06	9235.64	9857.50	9009.45
B	Depreciation of milch animal	2734.56(57.07)	2925.41(51.56)	3096.63(47.61)	3210.00(45.52)	2910.16(51.78)
3	Building	4591.04	5112.65	5926.87	6112.25	5168.77
C	Depreciation on cost of building	688.65(14.37)	1066.89(18.81)	1284.03(19.74)	1556.88(22.07)	1002.82(17.84)
4	Cost of equipment	337.19	742.02	815.37	921.20	589.57
D	Depreciation on cost of equipment	87.5(1.83)	125.72(2.22)	126.53(1.94)	156.53(2.22)	112.43(2.00)
5	Overhead cost (a+b+c+d)	4791.27(100.00)	5673.26(100.00)	6504.65(100.00)	7052.41(100.00)	5620.22(100.00)
6	Working capital					
i	Fodder	3721.60(28.87)	3869.97(28.87)	4098.98(27.47)	4244.60(27.31)	3899.92(28.19)
ii	Concentrate	3976.85(30.86)	4055.01(29.47)	4255.76(28.52)	4457.50(28.67)	4118.03(29.76)
iii	Hired labour charge	2000.00(15.52)	2000.00(14.53)	2000.00(13.40)	2000.00(12.87)	2000.00(14.46)
iv	Medicine	208.33(1.62)	380.54(2.77)	494.72(3.32)	507.50(3.27)	338.75(2.45)
v	Miscellaneous	300.00(2.33)	325.21(2.37)	340.35(2.28)	395.01(2.54)	327.00(2.36)
vi	Risk cost (25% of the value of the animal)	2215.34(17.19)	2506.76(18.22)	2959.35(19.83)	3070.35(19.75)	2538.52(18.35)
vii	Cost B	12422.12	13137.49	14149.16	14674.96	13222.21
viii	Family labour	465.27	622.76	771.73	870.01	613.54
ix	Cost C	12887.39	13760.25	14920.89	15544.97	13835.75
x	Total cost=Cost C + overhead	17678.66	19433.51	21425.54	22597.38	19455.97
	<b>Income measure</b>					
1	Gross income	22884.53	25267.29	28051.11	30861.56	25519.74
2	Family labour income	10462.41	12129.80	13901.95	16186.60	12297.53
3	Net income	5205.87	5833.78	6625.57	8264.18	6063.76
4	Input : Output	1:1.29	1:1.30	1:1.31	1:1.35	1:1.31

Note- Gross income includes the amount received from sale of milk, cow dung and sale of calf.

(Economics of milk production is calculated on the basis of pattern given at page no.-348 of farm management by S.P.Dhondyal)

(Since the sale proceeds of milk and its products are received daily, interest on working capital has been omitted.)

Table 3: Economics of milk production on borrowers and non-borrower sample farms:

S.No.	Particulars	Income/expenditure/lactation/animal Rs		
		Borrower	Non-borrower	Per cent difference
1	Costs of milch animal	13273.96	9009.45	67.87
2	Feeding cost	8733.19	8017.95	91.81
3	Total costs	23185.15	19455.97	83.92
4	Gross income	31679.33	25519.74	80.56
5	Input : output	1:1.36	1:1.31	83.08

compared for borrower and non-borrower sample farms in the table-3. It is very clearly depicted from the data given in the table that with the help of financial assistance received from the credit the borrowers farmers could do more economic dairy as compared to non-borrowers.

The borrower farmers could spend about 68.00 per cent higher than the non-borrowers to purchase the cross breed or improved breed of milch animal. Similarly borrower farmers spent about 91.81 per cent higher for balance feeding as compared to non-borrower farm. The high cost of production on

Table 4: Income and employment generated in crop production and milk production on borrower and non-borrower farms

S. Particulars	Employment no. of day			Amount of income Rs.		
	Family labour	Hired labour	Total	Family labour	Hired labour	Total
1 Paddy cultivation						
i Borrower	11 (64.54)	24.43 (49.98)	35.43 (54.50)	1650.06 (64.58)	3665.53 (49.98)	5315.59 (54.51)
i Non-borrower	7.10	12.21	19.31	1065.67	1831.87	2897.54
2 Wheat cultivation						
i Borrower	8.76 (88.69)	17.05 (65.81)	25.81 (73.58)	1313.61 (88.78)	2558.15 (65.88)	3871.76 (73.59)
i Non-borrower	7.77	11.22	18.99	1166.18	1683.34	2849.52
Milk production						
i Borrower	8.42 (48.57)	13.33 (0.00)	21.75 (80.09)	1262.57 (48.59)	2000.00	3262.57 (88.11)
i Non-borrower	4.09	13.33	17.42	613.54	2000.00	2613.54

sample borrower farms offered about 81 per cent of higher gross income which lastly create a big gap i.e. 83.08 per cent higher input: output ratio.

#### 4.6. Income and employment:

Income and employment generated at sample borrower and non-borrower farms are analysed and presented in Table-4. It is clearly depicted from the table that income and employment on sample borrower farms are higher than the non-borrower sample farms. It was because of financial assistance extended to the farmers, helped to improve the level of crop production and milk production, through the adoption of scientific and capital intensive technology.

As it is observed that in case of paddy cultivation the total income received out of labour engagement was 54.51 per cent higher on borrower farms as compared to non-borrower. It was due to more labourers engaged on borrower farms in the same ratio.

Similar trend of income and employment was also found in case of wheat cultivation and milk production. As income received through labour employment in wheat cultivation on borrower farms was 73.59 per cent higher than the non-borrower farm, which was due to more human labour employment on borrower farm as compared to non-borrower.

Likewise it was found in case of milk production too. As total income from human labour employment on borrower farm was 88.11% higher as compared to

non-borrower farms which was caused of more labour employed on borrower farms in the same ratio.

It is concluded that financial assistance helped the borrower farmers to improved their economic condition through use of scientific and technical input in crop production and milk production enterprises.

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