IMPACT OF AGRICULTURE CREDIT ON RESOURCE INPUTS USE IN HARYANA

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ABSTRACT : Agriculture is not only the backbone of our food, livelihood and ecological security system, but is also the very soul of our power. In Haryana population is increasing day by day and agricultural land has been decreasing because of fragmenting or converting it into residential plots. To meet the domestic food requirements use of improved production technologies, fertilizers, biocides, improved seeds, mechanization etc. is must for which financial requirements of the farming sector have increased extremely. Therefore objective of the paper is to see impact of agriculture credit on resource inputs use in Haryana. Primary data regarding this study were collected through a well structured questionnaire. At the end it was concluded that availability of credit lead to more use of resource inputs ultimately which increase the agricultural production.

INDEXTERMS **- Agricultural credit, Agriculture production, Resource, Input use, New farm technology.**

1.INTRODUCTION :

In India majority of population depends directly or indirectly on agriculture and its allied sector for their living. Agriculture is one of the oldest and prime occupation of India and also regarded as the backbone of Indian economic system as it employs 52 percent of the workforce. Enhanced and stable growth of the agriculture sector is important as it plays a vital role not only in generating purchasing power among the rural population by creating on-farm and off-farm employment opportunities but also through its contribution to price stability. The increased use of agricultural inputs, technological change and technical efficiency are considered as the key factors that contributed in agricultural growth. Due to increase in adult population, the demand of agricultural production also rise, but in recent years, per capita accessibility of food, mainly cereals and pulses, has fallen significantly and

also the share of agriculture in real GDP has declined below one fifth (Abhiman Das et al.2009). Since, production from the agriculture has decreased at large rate due to various reasons but the dependency on agriculture for their livelihood is not decreasing at same rate so it has been a major policy concern.

Agricultural credit may be defined as the amount of investible funds made available for the purpose of improvement in farm productivity. According to the Agricultural Finance Corporation (AFC), it is the amount of money needed by a farmer to attain a proper combination of productive factor, like, land, labor, inputs, machinery, livestock and managerial skill, so that the planned level of income is generated at his farm. Credit is a chief factor of integrated approach for improving production and productivity, marketing, land tenure, farmers' organization and other feature which are dependent on each other. Most of the cultivators live just below the poverty line. Naturally, they are liable to borrow money for conducting agricultural operations. These needy farmers ought to be helped with the sanction of credit as and when they require it. A strong foundation of credit is necessary to maintain and continue the overall performance of agriculture sector in the economy and for socio- economic development in general.

It is observed that agricultural activities involve three main aspects. The first relates to a variety of variables and inputs that contribute to a remunerative agricultural production activity. These are good quality seeds & soil, appropriate amount of water, sunlight and climatic conditions, right type and right application of fertilizers, tools and equipment, among others. These have an overpowering influence on the other two activities too. The next aspect relates to the process of agricultural production, wherein crops are grown and nurtured. The result of this activity is the crops and other unprocessed food products. The farmers' production depends on fixed production assets, access to variable inputs and technology broadly defined. The access to these inputs in turn depends on valuable tangible and intangible accumulations and access to credit. The final aspect deals with the activities of transportation and sales of the agricultural output. The farmers' income depends on proceeds from sale of agricultural produce (which depends on time of sale), non-agricultural income and wage income. To carry out all these activities, funding is very important.

Most of the agriculturists are deprived with very less savings and depend on the present crop to create income until the next crop grows. Added to this, the effect of the climate, rainfall, pests etc. which may destroy their produce all these circumstances puts the farmers in a very uncertain position with no money, which forces them to totally depend on external borrowings to carry out any additional activities. Thus, credit plays an imperative role in determining the farmer's production as well as income levels. It may be noted that the problem of agricultural finance is not only to meet credit requirements of the farmers on reasonable contract, but it also involves setting up of an effective and efficient institutional structure, which would lead to an integrated development of the agriculture sector.

OBJECTIVES:

The specific objectives set up for the present study are outlined below

1. To examine the impact of bank credit to the utilization of human, bullock and farm machinery labour and investment in various inputs.

2. To examine the effect of various farm inputs use on the borrowers and non-borrowers farm.

II. LITERATURE REVIEW:

Gagan BihariSahu (2004) concluded that interest plays a significant role in determining the supply of agricultural credit. Interest rates on agriculture loans is kept low down to promote agricultural growth and to help the rural poor but several decades of experience on the impact of low interest rates show that cheap loans did not appear to have either increased agriculture output or reached the rural poor. The administered distribution of credit to priority sectors at concessional interest rates is an important policy dimension of directed credit programmes. The better off farmers have superior access to formal credit as compared to small and marginal farmers. The flow of agricultural credit is largely governed by the collateral security. The flow of formal credit is inadequate to meet the production costs of peasant farmers engaged in cultivation. To meet the residual cost, they turn either to self finance or the borrowing from the informal market or both or remain satisfied with poor investment. This is called the credit gap. The credit gap is defined as the unmet credit

needs of potential borrowers from either formal or informal sources. In order to reduce the credit gap, there must be a rethinking of the scale of finance. The farmers, who are incapable to obtain timely credit and adequate formal credit, turn to informal sources.

Burgess and Pande (2005) originate that the bank nationalization in 1969 and the economic liberalization in 1990 were caused opening up of bank branches in more than 30,000 rural locations which had no preceding existence of commercial banks. The access of the rural meager to despicable prescribed credit has been enhanced due to this branch extension and this caused an increase in bank credit and saving to 15 percent each from 1.5 and 3 percent correspondingly. The estimates recommended that if there was 1 percent boost in the figure of rural banks then it reduced rural poverty almost by 0.4 percent and improved total output by 0.30 percent.

Sreeram (2007) concluded that the well being of agriculturists and agricultural efficiency can be improved through the augmented supply and administered pricing of credit. With the accessible data he declared that it is complicated to made connection between the credit and agriculture productivity due to different reasons such as variety in cropping pattern, local variations, productivity and various size of assets. Lastly, he argued enlarge in the supply of credit for agriculture will not generate the trouble of causality if it is accompanied by investments in several other sustain services.

Anjani Kumar (2010) pointed that credit is one of the significant inputs for any agricultural growth. Commercial banks have emerged as a main foundation of institutional credit to agriculture. But there is discrimination in the allocation of institutional credit across various categories of farmers. The option of a credit outlet and the quantum of institutional credit availed by farming households is exaggerated by a figure of socio-demographic factors. At the similar time, the process for the loan payout should be made straightforward so that it will be trouble-free for the less knowledgeable households to access the agencies.

Anil Kumar Soni and Dr. Harjinder Pal Singh Salnja (2012) were of the estimation that cooperative banks are the oldest forms of cooperative accomplishment in providing credit and rural growth. They are the chief banks in India sustaining growth of agriculture. The government should observe that there is an uncomplicated access to the cooperative credit to farmers.

Rehman, Chandio, Hussain and Jingdong (2017) employed a number of econometric techniques to examine data sourced from 1960 to 2015 for the Pakistani economy, so as to identify whether or not functional association exists among agricultural gross domestic product (AGDP) measured by bank credit to agriculture, loan payout, cooperative loan and total expenditure in the economy and entire food yield and cropped area. The study distinguished that

whole food production, loan disbursement have affirmative and noteworthy impact on AGDP with modest or no impact on cropped area.

III. DATA AND METHODOLOGY:

Sampling Design

Multistage sampling design is adopted for conducting the present study. The village are taken as a primary unit and the particular farming household is the ultimate unit of survey. The study is based on both primary and secondary data and pertains to the state of Haryana.

To support the study of data and to make the analysis more useful in planning and research for agricultural growth, Haryana State has been alienated into four uniform agro- climatic zones For the reason of the current study, two districts from each zone are selected at random i.e. Karnal, Panipat, Rohtak, Jhajjar, Bhiwani, CharkhiDadri, Mahendergarh, Rewari. From each district, one block is selected arbitrarily and from each block two villages are selected arbitrarily. Thus, four-stage sampling plan is used to select 16 villages for the study. For the survey 30 households is selected from each villages 15 borrowers and 15 non-borrowers and whole sample size is 480 households from all villages. They are then classified into four size groups, namely marginal, small, medium and large farmers

ANALYSIS OF DATA:

For the purpose of data analysis and drawing conclusions appropriate SPSS statistical tool is used under which Percentage, Mean, Ratio Analysis, Marginal Analysis etc. done.

$$\text{Operating Ratio} = \frac{\text{Total operating expenses}}{\text{Gross Income}}$$

$$\text{Capital turnover} = \frac{\text{Net Income}}{\text{Total expenses}}$$

IV. **Use of Agriculture Inputs**: Use of human and machinery labor, manure,fertilizer and working capital.

Table 1.1

Size-group wise distribution of resource inputs use: human labor, bullock and farm machinery labor, manure, fertilizer and working capital employed on borrowers and non-borrowers in money term for sampled farm of Haryana state in 2018-19 and 2019-2020.

Sr.no	Size Group 2018-2019	Human labor per hectare in wages		Bullock and machinery labor per hectare in wages		Manures and fertilizers per hectare (Rs.)		Working capital per hectare (Rs.)		Operating expenses for total farm area (Rs.)	
		NB	B	NB	B	NB	B	NB	B	NB	B
1	Marginal	5200	5600	9000	9500	3070.00	3650.00	4450.00	4640.00	21720	23390
2	Small	4800	5200	8000	9000	2940.00	3420.00	4200.00	4430.00	40877	46305
3	Medium	4000	4800	7500	8000	2720.00	3150.00	3950.00	4160.00	56327	63346.5
4	Large	3200	4000	7000	7500	2680.00	3010.00	3780.00	3990.00	74970	82510
5	Pooled	4300	4900	7875	8500	2852.50	3307.50	4095.00	4305.00	48476	53890.38

Sr.no	Size Group 2019-2020	Human labor per hectare in wages		Bullock and machinery labor per hectare in wages		Manures and fertilizers per hectare (Rs.)		Working capital per hectare (Rs.)		Operating expenses for total farm area (Rs.)	
		NB	B	NB	B	NB	B	NB	B	NB	B
1	Marginal	6000	6400	9500	10000	23280	23280	4510.00	4940.00	23280	25390
2	Small	5600	6000	8500	9500	43888.6	43888.6	4370.00	4730.00	43888.6	49282
3	Medium	4400	5200	8000	8500	59976	59976	4220.00	4680.00	59976	68764.8
4	Large	4000	4800	7500	8000	82719	82719	3960.00	4330.00	82719	92745
5	Pooled	5000	5600	8375	9000	52465.91	52465.91	4265.00	4670.00	52465.91	59046.71

Note: Wages of family labor per day is Rs400.

Wages of farm machinery labor per day is Rs500.

Working capital includes cost of ploughing ,harrowing ,seeds, irrigation, plant protection, harvesting, threshing , transportation ,any other charge etc.

Examining of the data of table 1.1 indicated that the expenses on hiring or employing the human labor on their per hectare farms slightly increased during 2019-2020 as compared to that of 2018-19 in case of both types of farmers but the increase in expenses on borrowers farm is more than the non borrowers. This finding reveals that the increase in the intensity of cropping created an additional demand for agricultural labor and more expenses on it. The study clearly showed that the credit facilities have a positive impact on the employment human labor on their farms.

The total employment of bullock and machinery labor in wages is more for borrowers than the non borrowers. Thus, the borrowers have resorted to a higher utilization of bullock and farm machinery labor as compared to non- borrowers. This indicated that with the availability of bank finance, there is a definite improvement in the utilization of available bullock and machinery-power.

The calculated figures for “per hectare use of different agricultural inputs” are presented in the tabular form. If all the size-groups are pooled together, than the average levels of the use of fertilizers and manures in the productivity year 2018-19 by the borrowers and non-

borrowers are Rs. 3307.50 and Rs. 2852.50 respectively. This means that there is some difference on an average in the use of the fertilizers by the two categories in the productivity year 2018-19. Thus, between the borrowers and non-borrowers, there is a difference of Rs.455 per hectare in the cost of fertilizers. This difference, however, increased from Rs.455 to Rs. 720 during 2019-2020. It clearly shows that with the passage of time expenditure made by borrowers on farm inputs is increases as compared to non borrowers. This indicates that credit availability encouraged the farmers to more use of fertilizers and manure. Higher level of application of this important input on the holdings of borrowers is obvious on all the size groups during 2019- 2020 being in the case of marginal farms (4050.00) followed by small farms (3810.00), Medium farms (3660.00) and large farms (3480.00). This inverse relationship of the level of use of manures and fertilizers with the size of holdings is also observed on the non-borrowers farms during the year 2019-2020 this is due to the fact that marginal and small farmers have small size of holding and made the more use of fertilizers as they can properly manage and can supervise their farms.

In the case of per hectare working capital use, on an average, there is a difference of Rs.210.00 on the two categories on farms of borrowers and non borrowers during 2018-19 year. However, as can be seen from Table 6.6 the differences widened during the period 2019-2020 the per hectare working capital used on the borrowers holding is Rs. 4670.00 as against 4265.00 on the non-borrowers holdings, showing the difference of Rs.405. Thus, it is interesting to note that the borrowers at present have higher outlay of per hectare working capital due to the credit facilities provided by the Banks.

The differences between the operating expenses of borrowers and non-borrowers farmers in both years clearly shows that bank credit encourages the beneficiaries to made the more expenses on their farm for better results.

V. RATIO ANALYSIS:

The ratio analysis is used to examine the relative use of resource inputs by borrowers and non borrowers for production and its effect on the sampled farms. Two efficiency ratios viz. operating ratio, capital turnover ratio has been worked out under it but before examine these ratio it is necessary to know the per hectare gross income, net income and operating expenses of the sampled farm and are presented in table 1.2.

Table 1.2

Size group wise distribution of operating expenses, farm income, non farm income, gross income and net income per hectare of the sample farms of Haryana state during the year 2018-19 and 2019-2020.

Size Group 2018-2019	Per hec. farm income		Non-farm income		Gross income per hec.		Operating expenses per hec.		Net income per hec.	
	NB	B	NB	B	NB	B	NB	B	NB	B
Marginal	41695.8	46807.1	12438	14082	54133.8	60889.1	21720	23390	32413.8	37499.1
Small	36989.7	43530.8	12546	13902	49535.7	57432.8	19940	22050	29595.7	35382.8
Medium	33753.2	38570.29	10636	12968	44089.2	51538.29	18170	20110	25919.2	31428.29
Large	30459.5	35326.01	9410	10028	39859.5	45354.01	16660	18500	23209.5	26854.01
Pooled	35724.55	41058.55	11257.5	12745	46904.55	53803.55	19122.5	21012.5	27784.55	32791.05

Size Group 2019-2020	Per hec. farm income		Non-farm income		Gross income per hec.		Operating expenses per hec.		Net income per hec.	
	NB	B	NB	B	NB	B	NB	B	NB	B
Marginal	45321.14	52372.5	13530	15150	58851.14	67522.5	23280	25390	35571.14	42132.5
Small	41378.04	48831.0	13070	14860	54448.04	63691.0	21620	24040	32828.04	39651.0
Medium	36772.35	43637.4	11520	13940	48292.35	57577.4	19600	22040	28692.35	35537.4
Large	33061.46	40625.1	10900	11320	43961.49	51945.1	18180	20610	25781.49	31335.1
Pooled	39133.25	46366.5	12255	13817.5	51388.26	60184.0	20670	23020	30718.26	37164.0

Table 1.3

Size group wise distribution of operating ratio and capital turnover ratio of the sampled farms of Haryana state during the year 2018-19 and 2019-2020.

Size Group 2018-2019	Operating ratio		Capital turnover ratio	
	NB	B	NB	B
Marginal	0.40	0.38	1.49	1.60
Small	0.40	0.38	1.48	1.60
Medium	0.41	0.39	1.42	1.56
Large	0.42	0.41	1.39	1.45

Size Group 2019-2020	Operating ratio		Capital turnover ratio	
	NB	B	NB	B
Marginal	0.39	0.37	1.52	1.65
Small	0.39	0.37	1.51	1.64
Medium	0.40	0.38	1.46	1.61
Large	0.41	0.39	1.41	1.52

OPERATING RATIO:

The operating ratio technique is used here to analyze the impact of operating cost (bear on using resource inputs) on the gross revenue of the farming. It shows the efficiency of the farmers to keep expenses low while generating revenue from farm operations. Lower its value more efficient the production which shows better utilization of resource inputs and vice-versa.

As can be seen from the table 1.3 the results of the operating ratio indicates that there is an direct relationship with the farm size i.e. operating ratio increases with the increase in farm size during 2018-19 and 2019-20 it is so because small farmers have less farm holding so they manage resource in a good way as compared to large farmers. During the year 2018-19, operating ratio for non borrowers ranged from 0.42 for large farms to 0.40 for the marginal farm while same for borrowers vary from 0.41 to 0.38. During 1999- 2000, for non-borrowers, the operating ratio ranged from 0.41 for large farms to 0.39 for marginal farms while same for borrowers ranged from 0.39 for large farms to 0.37 for marginal farms. The operating ratio of borrowers is less than the non borrowers in both years of study unrevealed that borrowers are more efficient than the non borrowers so they made better and efficient utilization of resources inputs.

Capital turn over ratio:

The capital turnover ratio indicates how much net revenue has been received for each of total expense used in the farm business. Large net revenue per rupee invested is usually desirable. The results of this analysis are presented in table 1.3. It is interesting to note that this ratio decreased with the increase in the size of holdings, indicating thereby better utilization of the assets by the small farm holders, perhaps the low capital turnover ratio in the large size farms may be due to high cost of irrigation, cultivation etc. in the crops usually grown by these fanners in such type of land. Further, the period from 2018-19 to 2019-2020, has witnessed an improvement in this ratio of all the farm sizes of both the borrowers and the non-borrowers, and this improvement is much more pronounced on the borrowers farms, indicating thereby the favorable impact of the banks scheme on resource input utilization.

VI. CONCLUTION:

This paper ought to investigate the relationship between agriculture credit and resource input use. Collectively, the results suggest that the credit is effective and encourage the farmers for more resource input uses. There are strong facts that credit is definitely playing its part of supporting the purchase of inputs in aiding the agricultural production. The data

reveals that borrower made the more use of human labor, bullock labor, manure, fertilizer and working capital on their farms than the non-borrowers. It clearly shows that bank credit encourages the beneficiaries to made the more expenses on their farm for better results. In order to calculate the effect of various farm input uses on sampled farms SPSS tool was used under which ratio analysis was done for the per hectare farm, in which operating ratio and capital turnover ratio was calculated. The operating ratio values of borrower farms is comparatively less than the non-borrower farms in both year of study which indicate borrowers have more efficient production than the non-borrowers by using various farm inputs while the capital turnover ratio of borrowers is higher than the non-borrower farms in both year of study which indicate borrower farms gives more returns on inputs used.

All these results collectively suggest that the agriculture credit facilitate the increase in use of various inputs and supporting in the changing face of agriculture sector. So, for more and better utilization of resource inputs strengthen flow of agriculture credit is needed which would helpful for masses.

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