Original Research Article

Impact of Institutional and Non-institutional Agricultural Credit on Farmers' Incomeand Constraint analysis in Telangana

Suggested Title: Cost and Return analysis between Institutional and Non-institutional Farmers in Telangana

Comment [H1]: This article have not mentioned anything on the institutional and non-institutional agricultural credit, but solely concentrate on institutional and non-institutional farmers. And from literatures, discussions have been on institutional and non-institutional agricultural credit. The former means credit that farmers get from formal sources such as banks, cooperative societies, while the later means credit that farmers get from informal sources- money lenders, relatives.
However, if the study is on institutional and non-institutional farmers. The topic has to be modified as such and explaining this term in the introduction.

ABSTRACT

Aim: To analyse Impact of institutional and non-institutional Agricultural credit on farm household income and Constraint analysis.

Comment [H2]: Your concentration in this study is on institutional and non-institutional farmers

Methodology: The study was conducted in3 districts, 6 mandals, 12 villages and 120 sample farmers were selected for the study. Cost of cultivation (cost concepts)and income measures ~~are~~ wereused to analyse impact of agricultural credit on farm household income. Garette's ranking technique was used to analyse the constraints faced by ~~institutional~~ farmers in availing Agricultural credit.

Results: The cost of paddy cultivation was ₹78212.78 for institutional farmers and ₹80,726.78 for non-institutional farmers. ₹62050.96 is the Net Return for institutional farmers, whereas ₹54879.66 is for non-institutional farmers. Institutional farmers had a return on investment per rupee of 1.81, while non-institutional farmers had a return of 1.69. The major constraint faced by ~~institutional~~ farmers is delays in loan disbursement.

Conclusion: Agricultural credit has positive impact on farm income. Therefore, the increase in institutional loans has improved the borrower farmers' economies. Timely disbursement of loans, simplifying the application procedure/documentation procedure and educating farmers about agricultural loans are suggested to improve crop loans availing in institutions.

Key words: institutional farmers, non-institutional farmers, cost concepts, income measures,constraints

1. INTRODUCTION

India's economy is based primarily on agriculture. Compared to other sectors, agriculture and allied sectors contribute more to the nation's GDP, accounting for 17.5-18 %. The Agricultural sector provides a direct or indirect source of income for almost 60 % of the nation's rural residents. One of the most crucial components in advancing sustainable agriculture is credit for agricultural investment. Modern technology, capital investments, and timely access to agricultural inputs are essential components of the agricultural sector's development and expansion (Akmal *et al*., 2012). India's agriculture plays a unique role in the macroeconomic framework and in mitigating poverty, which highlights the significance of farm financing as an essential input to agriculture (Golait, 2007). Just as sin and laziness are the open enemies of thrift, debt is its hidden adversary. Poverty's twin brother is the debt habit. It's a terrible but genuine fact that an Indian peasant has debt from birth, throughout their life, and until death (Darling, 1925).

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Acknowledgment of agricultural investments is among the most crucial components in advancing sustainable agriculture. In order to help small and marginal farmers implement the newest technologies and increase crop yields and cultivation income, the government places a strong emphasis on providing timely and sufficient loan support.

According to NABARD, the amount of institutional credit flowing into India's agriculture sector went from ₹ 46268 crores in 1999–2000 to ₹1392729 crores in 2019–20. Telangana saw the largest increase, going from ₹601.94 Cr in 1996–1997 to ₹7827920 Cr in 2019–2020. The farm credit flow has consistently increased over time and has exceeded the objective annually for the past several years as a result of the actions made and the steps to reinforce current policies.In India, household debt is split between institutional and non-institutional lenders, with 24.8 % of families owing money to the former and 17.1 % to the latter. In Telangana, the total amount of institutional agricultural loan went up from ₹ 2727616 lakhs in 2014–15 to 10102492.65 lakhs in 2022. Crop loan disbursements increased from ₹7.5 lakh crore in 2018 to ₹13.6 lakh crore in 2023. In states in the South, a large number of crop loans were disbursed. With an increase from ₹105,276.16 crore in 2017–18 to ₹179,368 crore in 2021–22, Tamil Nadu topped the list of states with the highest disbursement figures annually. In Telangana, the amount disbursed for crop loans climbed from ₹44,960.82 crore in 2017–18 to ₹50,671.6 crore in 2021–2022. Over the course of the five years, this indicates an overall growth of about 12.7 %.

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1.1 Objectives of the study:

1. To analyse the impact of institutional and non-institutional agricultural credit on farm household income.

2. To identify constraints in availing Agricultural credit.

Comment [H5]: Whose constraints? Farmers or farm household

2. MATERIALS AND METHODS

The study was conducted in Agro-climatic zones of Telangana. Nizamabad, Nalgonda and Khammam districts were selected from Northern Telangana Zone (NTZ), Central Telangana Zone

(CTZ) and Southern Telangana Zone (STZ) respectively. 3 districts each from each zone, 6 mandals with highest and lowest credit disbursement particulars, 12 villages and 120 sample farmers were selected randomly for the study. Each district 20 institutional farmers and 20 non institutional farmers were selected ~~was selected~~ randomly. The data was obtained from sampled farmers through personal interview with pre-scheduled questionnaire. The data was analysed using Cost concepts and income measures and Garrette's ranking technique.

Comment [H6]: There is need to introduce the key concepts of your research "institutional and non-institutional agricultural credit" and "institutional and non-institutional farmers". This will avoid confusion in the terms.

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2.1 Cost of cultivation and Income measures

Cost concepts were worked out to know the income levels of institutional and non-institutional farmers. The components of cost of cultivation are mentioned below:

Cost A1: All actual expenses in cash and kind incurred in production

Cost A2: Cost A1 + rent paid for leased in land

Cost B1: Cost A1 + interest on value of owned fixed capital assets (excluding land)

Cost B2: Cost B1 + rental value of owned land (net of land revenue) and rent paid for

leased in land

Cost C1: Cost B1 + imputed value of family labour

Cost C2: Cost B2 +imputed value of family labour

Cost C3: Cost C2 + value of management input at 10% of total cost

2.1.1 Income measures

Gross income, net income, family labour income, farm business income and farm investment income are calculated with following formulae:

Gross income = Value of total output (main product + byproduct)

Net income = Gross income - Cost C2

Family labour income = Gross income - Cost B2

Farm business income = Gross income - Cost A1 or Cost A2

Farm investment income = Farm business income- imputed value of family labour

Returns per rupee of investment = Gross returns/Total cost of cultivation

2.2 Garrett's ranking technique:

To analyse farmers' constraints in availing Agricultural credit, ~~are analysed through~~the Garrett's ranking technique was adopted. The order of merit given by the respondents was changed into ranks by using the following formula.

$$\text{Percent position} = \frac{100*(Rij-0.5)}{Nj}$$

Where, Rij = Ranking given to the ith attribute by the jth individual

Nj = Number of attributes ranked by the jth individual

Garrett and Woodworth's (1969) table was used to translate each rank's percentage position into a score. Next, for every element, the total number of respondents for whose scores were collected was divided by the sum of the individual respondents' scores. The respondents' order of preference was ordered based on the mean score for each factor, with a higher value indicating greater importance.

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3. RESULTS AND DISCUSSION

3.1 ~~Impact of institutional and non-institutional agricultural credit on farm household~~ income-

Comment [H9]: Have you mentioned any of the agricultural credit earlier, before analysing their impact

Analysis of Cost of cultivation of Paddy ~~for~~ by Institutional and Non-institutional Farmers

The cost of cultivating paddy per hectare was highest in Nalgonda at ₹83,162.45, followed by Khammam at ₹76743.92, and Nizamabad at ₹74,731.96. The average cost (pooled) for these three regions combined was ₹78212.78 for institutional farmers. In contrast, for non-institutional farmers, the cost of cultivating paddy per hectare was highest at ₹86,882.34 in Nalgonda, followed by ₹81,243.50 in Khammam, and ₹74,054.52 in Nizamabad. The average cost for these three regions combined was ₹80,726.78.

The cost of cultivation of paddy involves various expenses, both variable and fixed. For institutional farmers, the total variable costs were highest in Nalgonda at ₹56,780.92 (68.6% of total cost) and lowest in Nizamabad at ₹50,232.87 (67.21% of total cost), with pooled average of ₹53672.12. Non-institutional farmers showed a similar trend with the highest variable cost in Nalgonda at ₹59,722.39 (68.75%of total cost) and the lowest in Nizamabad at ₹50,485.89 (68.17%of total cost), with pooled average of ₹55,879.13.These variationsare attributed to differences in input prices and regional agricultural practices like land preparation.

The total fixed cost includes expenses that do not vary with the level of output. Institutional farmers had the highest fixed costs in Nalgonda at ₹26,381.52 (31.72%of total cost) and the lowest in Khammam at ₹22,741.34 (29.65%of total cost). The pooled average for institutional farmers was ₹24,540.65 (31.38%of total cost). Non-institutional farmers showed a similar trend, with the highest costs in Nizamabad at ₹24,847.65 (30.78%of total cost) and the lowest in Khammam at ₹23,568.62 (31.83%of total cost), with the pooled average being ₹24,847.65 (30.78%of total cost).

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Table 1 Comparing Cost of Cultivation of institutional and non-institutional farmers of Paddy (₹/ha)

S.NO.	Cost components	Institutional farmers				Non-institutional farmers			
		Nizamabad	Khammam	Nalgonda	Pooled	Nizamabad	Khammam	Nalgonda	Pooled
I	**Total variable cost**	**50232.87 (67.21)**	**54002.58 (70.36)**	**56780.92 (68.2)**	**53672.12 (68.6)**	**50485.89 (68.17)**	**57429.10 (70.6)**	**59722.39 (68.75)**	**55879.13 (69.22)**
A	Hired Human labour	11962.50 (16.00)	8059.37 (10.50)	7762.50 (9.3)	9261.45 (11.84)	11196.25 (15.12)	7675.00 (9.45)	7762.50 (8.93)	8877.91 (10.9)
B	Owned human labour	10018.75 (13.4)	14003.13 (18.24)	13981.25 (1.68)	12667.70 (16.19)	10536.25 (14.22)	14000.00 (17.23)	13900.00 (16)	12812.08 (15.8)
C	Owned machine labour	1750.00 (2.34)	2812.50 (3.67)	4075.00 (4.9)	2879.16 (3.68)	2771.25 (3.74)	3687.50 (4.54)	3612.50 (4.16)	3350.00 (4.15)
D	Hired machine labour	11487.50 (15.3)	12250.00 (15.9)	11112.50 (13.3)	11616.66 (14.85)	10790.00 (14.57)	13625.00 (16.77)	12700.00 (14.62)	12364.58 (15.32)
E	Seed	2560.00 (3.42)	2600.00 (3.38)	2570.00 (3.1)	2576.60 (3.30)	2520.00 (3.4)	2700.00 (3.32)	2675.00 (3.08)	2631.66 (3.26)
F	FYM	1428.00 (1.92)	2340.00 (3.04)	1740.00 (2.1)	1836.00 (2.35)	1248.00 (1.6)	2738.40 (3.37)	2234.40 (2.57)	2073.60 (2.57)
G	Fertilizers	6183.25 (8.30)	6412.50 (8.35)	7801.25 (9.4)	6799.00 (8.70)	6141.75 (8.29)	7143.75 (8.79)	7920.00 (9.12)	7068.50 (8.76)
H	Plant protection chemicals	2717.50 (3.65)	2943.75 (3.83)	4856.25 (5.8)	3505.80 (4.48)	2775.00 (3.74)	3156.00 (3.88)	5512.50 (6.34)	3812.50 (4.72)
I	Weedicide	980.00 (1.31)	1350.00 (1.76)	1587.50 (1.9)	1305.80 (1.67)	1356.25 (1.83)	1400.00 (1.72)	2043.75 (2.35)	1600.00 (1.98)
K	Interest on working capital @ 7%	1145.37 (1.53)	1230.01 (1.6)	1294.67 (1.5)	1221.30 (1.56)	1151.14 (1.55)	1309.45 (1.61)	1361.74 (1.57)	1274.11 (1.58)

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II	**Total fixed cost**	**24499.089 (32.87)**	**22741.34 (29.7)**	**26381.52 (31.72)**	**24540.65 (31.38)**	**23568.62 (31.8)**	**23814.39 (29.3)**	**27159.94 (31.26)**	**24847.65 (30.78)**
A	Depreciation@10%	3067.35 (4.10)	5673.95 (7.4)	6937.75 (8.3)	5226.35 (6.69)	2903.29 (3.92)	8013.30 (9.86)	9690.86 (11.15)	6869.08 (8.51)
B	Rental value of owned land	15000.00 (20.07)	15000.00 (19.5)	15000.00 (18.03)	15000.00 (19.17)	15000.00 (20.25)	15000.00 (18.46)	15000.00 (17.26)	15000.00 (18.58)
C	Rental paid for leased-in land	6125.00 (8.19)	1500.00 (1.9)	3750.00 (4.5)	3791.66 (4.85)	5375.00 (0.7)	0	1500.00 (1.7)	1191.00 (1.4)
D	Interest on fixed capital @ 10%	306.73 (0.41)	567.39 (0.74)	693.77 (0.83)	522.63 (0.67)	290.32 (0.39)	801.30 (0.99)	969.08 (1.12)	686.90 (0.85)
III	**Total cost**	**74731.96 (100)**	**76743.92 (100)**	**83162.45 (100)**	**78212.78 (100)**	**74054.52 (100)**	**81243.501 (100)**	**86882.34 (100)**	**80726.78 (100)**

Note: Figures in parenthesis indicate percentage (%) of total cost C2.

Table 2 Cost concepts of institutional and non-institutional Paddy farmers

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Cost concepts	**Institutional**				**Non-institutional**			
	Nizamabad	**Khammam**	**Nalgonda**	**Pooled**	**Nizamabad**	**Khammam**	**Nalgonda**	**Pooled**
Cost A1	43281.47	45673.40	49737.42	46230.77	42852.94	54242.19	55513.26	49936.13
Cost A2	49406.47	47173.40	53487.42	50022.43	48227.94	54242.19	57013.26	52227.79
Cost B1	43588.21	46240.80	50431.20	46753.40	43143.26	55043.50	56482.34	50623.03
Cost B2	64713.21	62740.80	69181.20	65545.07	63518.26	70043.50	72982.34	67914.70
Cost C1	53606.96	60243.92	64412.45	59421.11	53679.51	69043.50	70382.34	63435.12
Cost C2	74731.96	76743.92	83162.45	78212.78	74054.51	81243.50	86882.34	80726.78
Cost C3	82205.16	84418.32	91478.72	86034.06	81459.97	92447.85	95570.58	88799.46

Table 3 Returns and farm business analysis of institutional and non-institutional farmers of Paddy

Returns and farm business analysis	Institutional				Non-institutional			
	Nizamabad	**Khammam**	**Nalgonda**	**Pooled**	**Nizamabad**	**Khammam**	**Nalgonda**	**Pooled**
Total cost of cultivation (Rs./ha)	74731.96	76686.36	83162.45	**78125.37**	74054.51	81243.50	86882.34	**80726.78**
Average production (q/ha)	69.50	65.62	66.87	**67.33**	66.62	64.69	66.62	**65.98**
Price (Rs./q)	2085.00	2064.50	2098.50	**2082.60**	2092.50	2037.50	2035.50	**2055.16**
Gross returns (Rs./ha)	144925	135558.75	140307.50	**140263.75**	139380.00	131834.38	135605.00	**135606.40**
Net returns (Rs./ha)	70193.035	58814.82	57145.04	**62050.96**	65325.48	47790.87	48722.65	**54879.66**
Family labour income	80211.78	72817.94	71126.29	**74718.67**	75861.73	61790.87	62622.65	**67691.75**
Farm business income	95518.52	88385.34	86820.07	**90241.31**	91152.05	77592.18	78591.73	**83378.66**
Farm investment income	85499.77	74382.21	72838.82	**77573.60**	80615.80	63592.18	64691.73	**70566.57**
Return per rupee investment	1.95	1.78	1.7	**1.81**	1.89	1.57	1.56	**1.69**

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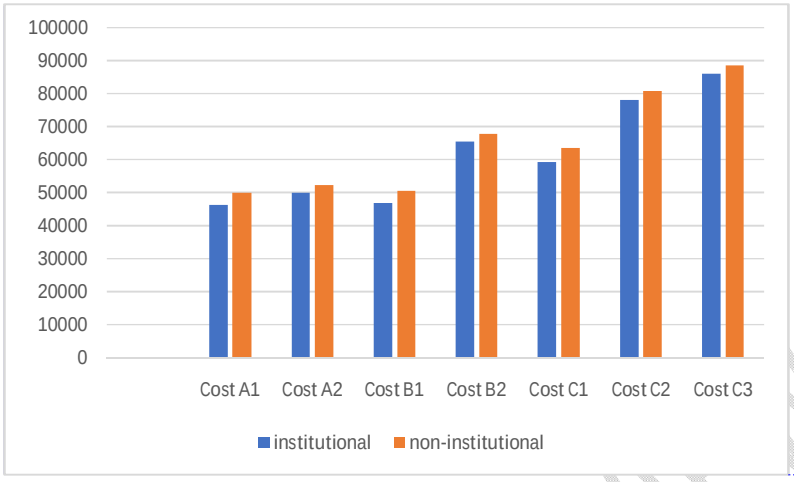

Fig. 1 Cost concepts of institutional and non-institutional farmers

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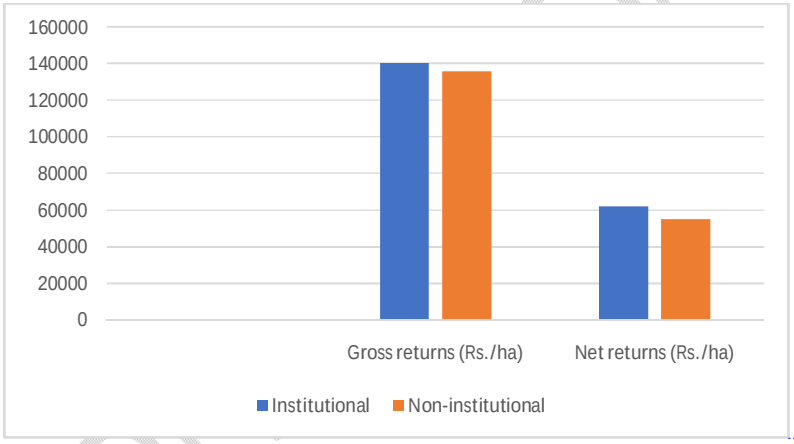

Fig.2 Comparing returns of institutional and non-institutional farmers

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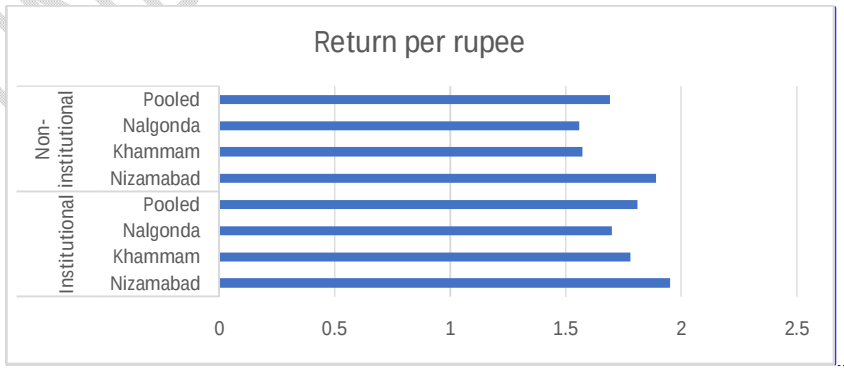

Fig.3 Comparing returns per rupee of investment of institutional and non-institutional farmers

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Findings in Table 3 show that Nizamabad leads in Average Production for institutional farmers with 69.5 quintals per hectare and the lowest in Khammam at 65.625 quintals, averaging 67.33 quintals, while non-institutional farmers show both Nizamabad and Nalgonda at 66.625 quintals, and Khammam lowest at 64.69 quintals, averaging 65.98 quintals. These results are in line with Pathak *et al.* (2021). Institutional farmers in Nalgonda receive the highest Price at ₹2,098.50 per quintal and Khammam the lowest at ₹2,064.50, averaging ₹2,082.60, whereas non-institutional farmers see Nizamabad receiving ₹2,092.50 and Khammam ₹2,037.50, averaging ₹2,055.16.

Gross Returns for institutional farmers are highest in Nizamabad at ₹144,925 per hectare and lowest in Khammam at ₹135,558.75, averaging ₹140,263.75, while for non-institutional farmers, Nizamabad achieves ₹139,380 and Khammam ₹131,834.38, averaging ₹135,606.45.

Institutional farmers Net Returns are highest in Nizamabad at ₹70,193.035 and lowest in Khammam at ₹558814.82, averaging ₹62050.96, whereas non-institutional farmers in Nizamabad see ₹65325.48 and lowest in Khammam ₹447790.87, averaging ₹54879.66.

Return per Rupee Investment for institutional farmers is highest in Nizamabad at 1.95 and lowest in Nalgonda at 1.70, averaging 1.81, while non-institutional farmers see Nizamabad at 1.89 and Khammam at 1.57, averaging 1.69. These results are in line with Pathak *et al.* (2021) and Deogam (2020).

Overall, institutional farmers tend to incur higher costs but achieve higher returns compared to non-institutional farmers, with Nizamabad consistently exhibiting the highest returns and income across most metrics, while Khammam often shows the lowest, highlighting regional disparities in production efficiency, input costs, and market prices. These insights can guide targeted interventions to enhance productivity and profitability for paddy farmers in these regions. In summary, non-institutional farmers generally face higher variable and total costs compared to institutional farmers across the regions, with significant variations in labour and machine costs. The income levels of institutional farmers are much better than non-institutional farmers implying significance of institutional credit.

3.2 Constraints faced by farmers in availing Agricultural credit.

The primary constraint faced by institutional farm households is the delay in loan disbursement, with an average impact of 77.47 mean score. Timely disbursement is crucial for farmers needing funds for time-sensitive agricultural activities, making this the most critical issue. The second major constraint is the complex and lengthy application process, affecting with mean score of 76.55, particularly in Khammam. This result is similar with Mann and Chauhan (2023) and Ranguwal and Kaur (2022). Additionally, unaware of available credit options, highlighting the need for improved outreach and educational initiatives with mean score of 63.25.

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Table 4 Constraints faced by ~~Institutional farm households~~farmers in availing Agriculture credit

S.No.	Factors	Nizamabad	Khammam	Nalgonda	Total
1.	Lack of collateral/security	42.2 (7)	42.2 (7)	42.2 (7)	42.2 (7)
2.	High interest rates	38.3 (9)	35.8 (9)	36.15 (10)	36.75 (10)
3.	Lengthy and complex application process	76.1 (2)	78.8 (1)	74.75 (2)	76.55 (2)
4.	Lack of awareness about available credit	63.95 (3)	62.55 (4)	63.25 (3)	63.25 (3)
5.	Limited availability of credit in rural areas	59.8 (4)	63.05 (3)	60.75 (4)	61.2 (4)
6.	Dissatisfied with the behaviour of bank staff	37.6 (10)	41.15 (8)	41.45 (8)	40.06 (8)
7.	Delays in loan disbursement/ no timely disbursement	77.45 (1)	75.8 (2)	79.15 (1)	77.4667 (1)
8.	Illiteracy	52.1 (6)	51.95 (6)	51.9 (6)	51.883 (6)
9.	Repayment procedures were too rigid	54.2 (5)	53.95 (5)	53.5 (5)	53.98 (5)
10.	Lack of capital in banks	33.3 (11)	32.25 (11)	31.85 (11)	34.13 (11)
11.	Other loans	39.7 (8)	33.95 (10)	38.55 (9)	37.4 (9)
12.	No trust on banks	23.3	21.55	24.5	23.116

		(12)	(12)	(12)	(12)

Note: Figures in parentheses indicate ranks

4. CONCLUSION

Agricultural credit has positive impact on farm income.Given the positive impact of institutional credit on farm income, policymakers should focus on improving farmers' access to affordable and timely institutional credit. Expanding the reach of crop loans, reducing barriers to credit access, and offering tailored financial products for small and marginal farmers can help maximize farm productivity and income. To boost farm income, policies should enhance access to institutional credit, promote the use of quality seeds and mechanization, and encourage balanced input use, particularly reducing reliance on chemical fertilizers and pesticides. Supporting organic practices and optimizing labour efficiency are also important. Various constraints were faced by institutional and non-institutional farmers in availing crop loans. Institutional source dependent farmers face major constraints as delay in disbursement, lengthy and complex procedure and lack of awareness about credit facilities. Timely disbursement of loans, simplifying the application procedure/documentation procedure and educating farmers about agricultural loans are suggested to improve crop loans availing in institutions.

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Comment [H20]: You need to re-work on your reference list
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4.Follow the journal preferred reference style

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