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Sweta Mishra
PG Scholar, Agril. Economics and Statistics Section, College of Agriculture, Nagpur, Maharashtra, India

NT Bagde
Assistant Professor and Head, Agricultural Economics, College of Agriculture, Nagpur, Maharashtra, India

MS More
Assistant Professor, Agricultural Economics, College of Agriculture, Nagpur, Maharashtra, India

AB Kayarwar
Assistant Professor, Statistics, College of Agriculture, Nagpur, Maharashtra, India

Rohma Azeem
Assistant Professor, Statistics, College of Agriculture, Nagpur, Maharashtra, India

Corresponding Author:
Sweta Mishra
PG Scholar, Agril. Economics and Statistics Section, College of Agriculture, Nagpur, Maharashtra, India

Study of credit burden on small orange growers in Nagpur district of Maharashtra

Sweta Mishra, NT Bagde, MS More, AB Kayarwar and Rohma Azeem

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Abstract
This study examines the credit burden on small orange growers in Nagpur district, Maharashtra, focusing on their credit utilization patterns and the resulting debt burden. Conducted across 12 villages with 120 growers, the research aimed to assess credit requirements, usage patterns, and debt implications. Results show that 71.67% of the borrowed credit was directed toward productive uses such as fertilizers and pest control, while 28.33% was used for unproductive purposes, including social and household expenses. The study also highlights a substantial debt burden, with an average loan amount of ₹1,34,273.83 per hectare. Growers repaid ₹1,03,575.00 over an average of 11 months and 9 days but retained a debt burden of ₹37,948.74, representing 28.26% of the total loan amount. The findings emphasize the need for timely credit access, reduced interest rates, and improved loan recovery measures to support small orange growers effectively and enhance their financial stability.

Keywords: Small orange growers, credit burden, credit utilization, debt burden, borrowing

Introduction
A significant portion of India's population resides in rural areas and relies on agriculture for their livelihood. Sustained and robust growth in the agricultural sector is crucial, as it not only generates purchasing power among the rural populace by creating employment opportunities but also contributes to maintaining price stability. Agriculture is the backbone of India's economy, with 58.33% of the population dependent on it and contributing 18.20% to the national income.

Agricultural credit is considered a crucial input, alongside modern technology, for increasing productivity. Agricultural credit is anticipated to play a pivotal role in advancing agricultural development. It has long been regarded as a fundamental factor in the growth of India's agricultural sector. The sector's declining contribution to the Indian economy has been attributed to the absence of a formal national credit policy and the shortage of credit institutions to support farmers effectively.

Proper credit utilization boosts agricultural production and borrower farmers' ability to repay loans. Using available credit for productive purposes is crucial for increasing capital formation in the agriculture sector. Measuring credit utilization is crucial for determining whether it is being used properly or diverted. This study examines the sources of finance, credit utilization, and unproductive use.

India's agricultural credit system includes both formal and informal sources of credit supply. Informal sources include friends, relatives, commission agents, traders, and private moneylenders. Formal credit is disbursed through three major channels: commercial banks, cooperatives, and micro-finance institutions (MFI) across the country. The current policy framework assumes that credit is a crucial factor influencing agricultural and rural productivity and has a causal relationship with productivity. Therefore, impulses in the agricultural operations are sought through intervention in credit

Mandarin oranges are highly valued for their excellent nutritional content, particularly their high vitamin C (ascorbic acid) levels. They are also rich in vitamins A, B, and minerals like calcium, phosphorus, and iron, all of which contribute to a healthy diet. Known for their laxative properties, they help relieve constipation and are believed to contain 170 nutrients and 60

flavonoids. Mandarin oranges are also thought to have anti-fever and jaundice-preventing properties. They can be consumed fresh or processed into juice, jam, syrup, and other products, making them profitable for farmers and popular among consumers.

Objectives

1. To work out the credit requirement and utilization pattern of selected growers.
2. To examine the debt burden on orange growers.

Methodology

The present investigation was carried out to study the credit utilization pattern of small orange growers in Nagpur district. The present study was undertaken in Nagpur district of Maharashtra. The production of orange is concentrated in Nagpur district of Maharashtra which is the reason for purposively selecting the district. Out of fourteen tahsils in Nagpur district three tahsils, were selected on the basis of highest area under orange cultivation namely Katol, Kalmeshwar and Narkhed. From the selected three tehsils, four villages from each tehsil were selected on the basis of area under orange cultivation, hence total of 12 villages were selected. From each selected village 10 growers were selected; hence a total 120 growers were selected for study during the year 2023-24.

Simple tabular analysis was used for the utilization of credit, purpose wise utilization of credit. Debt burden was analysed with simple mathematical and statistical tools.

Regression Analysis

Multiple co-efficient estimated through multiple regression analysis for estimation of factors affecting loan amount borrowed. The dependent variable was total amount of loan borrowed and independent variables were age, education, family, annual income, size of holding, etc. The dependent variable was regressed with the independent variables.

$$Y = a + b_1x_1 + b_2x_2 + b_3x_3 + b_4x_4 + b_5x_5 + b_6x_6 + b_7x_7 + b_8x_8 + b_9x_9 + b_{10}x_{10} + u$$

Where

Y = Loan amount (Rs)
X_1 = Age (years)
X_2 = Education (years)
X_3 = Family annual income (Rs.)
X_4 = Size of holding (ha.)
X_5 = Family size (Nos)
X_6 = Cropping intensity (percent)
X_7 = Total Expenditure on FYM (Rs)
X_8 =.Total Expenditure on Intercultural Operations (Rs)
X_9 =Total Expenditure on Insecticides and Pesticides (Rs)
X_{10} =Total Expenditure on Harvesting (Rs)
b_1 to b_{10} = Co-efficient
u = Error Term

Results and Discussion

Purpose wise utilization of credit

The total amount which was borrowed from the different sources were spent for the various purposes. Productive purpose is the use of credit for the crop production and expenses related to them and unproductive purpose are the use of credit for activities like social ceremony, house expenditure, religious functions etc. Purpose wise utilization of credit by the small orange growers are given in Table 1.

Table 1 shows the purpose wise utilization of the credit by the selected small growers. Out of 120 growers, the highest proportion of productive use was associated with funds sourced from friends and relatives, accounting for 19.17% as these loans are generally taken by the grower during cultivation period and is paid back after harvesting. Private cooperative societies also exhibited a significant level of productive use, with 18.33%. In contrast, cooperative societies and Kisan Credit Cards (KCC) contributed minimally to productive usage, both registering only 4.17%. Commercial banks also played a notable role, 15.83% of growers utilizing loan for productive purposes. In aggregate, the table suggests that while a majority (71.67%) of financial support is channelled towards productive uses, a considerable portion (28.33%) still ends up being unproductive.

Table 1: Purpose wise utilization of credit

Sr. No.	Source	No. of growers	Productive use	Percentage of productive use	Unproductive use	Percentage of unproductive use
1	Commercial Bank	29	19	15.83	8	6.67
2	Cooperative Society	14	5	4.17	8	6.67
3	Friends/ Relatives	27	23	19.17	3	2.50
4	Private Co-operative Society	31	22	18.33	7	5.83
5	KCC	5	5	4.17	0	0.00
6	Others	14	09	7.50	05	4.17
7	Total	120	86	71.67	34	28.33

Factors affecting loan borrowed

The factors affecting the loan borrowing of small orange growers was regressed with independent variables like age of the growers, education level, total size of land holding, cropping intensity, family size, annual income of the growers, total expenditure on FYM, total expenditure on Intercultural operations, total expenditure on insecticides and pesticides and total expenditure on harvesting of the growers. Table 2 revealed that the coefficient of multiple determinants was 0.69 and found to be significant at 1% as well as 10% level of significance. The multiple regression stated that most of the independent variables were found to be in positive relation with the amount of loan borrowed, whereas Family size was negative (-4.63) and significant at 10% level of significance which indicates that with an increase in family size, the amount of loan borrowed decreases. Similarly, Education was also negative (-11.49) and significant at 1% level of significance which indicates that with increase in the level of education, the amount of loan borrowed decreases. It is further observed that the coefficient of the Total Expenditure on Pesticides or Insecticides and Harvesting as well as Annual Income was statistically significant at 1% level of significance.

Table 2: Factors affecting loan burrowed

Sr. No.	Particulars	Coefficient
1	Intercept	19.02
2	Age (X1)	0.8259 (0.2355)
3	Education (X2)	-11.499 * (0.0021)
4	Total size of holding (X3)	16.676 (0.5227)
5	Cropping intensity (X4)	-44.2097 (0.8636)
6	Family size (X5)	-4.6344 * * * (0.0551)
7	Annual income (X6)	0.0795 * (0.0005)
8	Total expenditure on FYM(X7)	0.77534 (0.1893)
9	Total Expenditure on Intercultural Operations(X8)	1.6846 (0.2529)
10	Total Expenditure on Insecticides and Pesticides(X9)	9.8338 * (0.0007)
11	Total Expenditure on Harvesting(X10)	1.5751 * (0.0001)
12	R2	0.69
13	F value	31.65

Note: Figures in parenthesis indicates standard error
* Indicates significant at 1% of significance
*** indicates significant at 10% of significance

Utilization of credit by selected small orange growers in orange cultivation: From the table 3, it is revealed that the credit was utilized by the growers for weed management, intercultural operation, plant protection, harvesting etc. The highest percentage of growers, 97.50%, utilized loans for the application of FYM. Similarly, 86.67% of growers relied on credit for both fertilizers and intercultural operations.

Micro-nutrients were financed by 84.17% of growers, while 80.00% used credit for pesticides and insecticides. Fungicides were supported by 64.17% of growers, and weed management saw 60.00% of growers using loans. In contrast, management factors were financed by 54.17% of growers. Both harvesting and transporting and marketing exhibited the lowest credit utilization, at 38.33 and 12.50% respectively, as around 54.46% of the selected growers sell the produce to pre-harvest contractor who bears the harvesting, transportation and marketing charges.

Table 3: Utilization of credit by selected small growers in orange cultivation

Sr. No.	Operations	No of growers utilise loan	Percentage	Average Expenditure
1	Weed Management	72	60.00	₹3,760.00
2	FYM	117	97.50	₹22,868.60
3	Fertilizers	104	86.67	₹8,619.73
4	Micro-nutrients	101	84.17	₹6,069.23
5	Intercultural operation	104	86.67	₹21,865.30
6	Pesticides or Insecticides	96	80.00	₹24,154.60
7	Fungicides	77	64.17	₹7,295.00
8	Management Factors	65	54.17	₹8,142.01
9	Harvesting	46	38.33	₹29,700.00
10	Transporting and marketing	15	12.50	₹8,736.00

4. Debt burden on the selected farmers

The debt burden is the total amount of loan and the interest thereof not paid on due date. The debt burden on the selected small orange growers was calculated and given in the Table 4.

It is revealed from the Table that, the average per hectare loan borrowed by the growers was observed Rs. 1,34,273.83. The average time taken by the growers to repay the loan was about 11 months 9 days. The debt burden Rs. 37,948.74 was recorded in the small orange growers. The debt burden of 28.26% was observed in the small orange growers.

Table 4: Debt Burden on small orange growers

Average amount of Loan Borrowed (Rs)	Time Taken to Repay (Months)	Amount repaid (Rs)	Interest charges (Rs)	Debt burden (Rs)	Percent of Debt Burden
₹1,34,273.50	11 Months 09 days	₹1,03,575.00	₹7,250.00	₹37,948.74	28.26

Conclusions

1. About 71.67% of the borrowed credit was directed towards productive purposes, particularly in essential farming activities like the application of fertilizers (77.50%) and pest control (70.83%).
2. However, 28.33% of the credit was used for unproductive purposes, such as social ceremonies and household expenditures. Thus, it is essential to ensure that credit is made available to growers at the specific times when they need it most.
3. The study identified a significant debt burden among small orange growers, with an average loan amount of ₹1,34,273.83 per hectare. On average, growers took 11 months and 9 days to repay their loans, during which they managed to repay ₹1,03,575.00.
4. Despite these efforts, a remaining debt burden of ₹37,948.74 persisted, representing 28.26% of the total loan amount. Hence, it is recommended that policies be implemented to reduce interest rates and introduce measures to facilitate the smooth recovery of agricultural loans.

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