

**Farmer Satisfaction with Credit Sources in Mango Production: Evidence from Uttar Pradesh, India**

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**ABSTRACT**

Agriculture remains a vital sector of the Indian economy, supporting nearly two-thirds of the rural population and ensuring food & nutritional security. Within horticulture, mango (*Mangifera indica* L.) holds significant economic and cultural importance. Uttar Pradesh, particularly the Malihabad region, is a main mango-producing belt, widely known for the Dashehari variety. This study examines the impact of credit satisfaction on mango production in Lucknow district. A purposive sampling technique was used to select the Lucknow district and the Malihabad block due to their prominence in mango cultivation. Out of 100 villages, seven were selected randomly. A total of 238 mango growers, each with at least 100 bearing trees, were included in the study. Primary data were collected during the agricultural year 2023–2024. Descriptive and inferential statistical tools, including ANOVA, were applied for analysis. The results indicate that mango growers rely on both institutional (commercial banks, regional rural banks, credit societies) and non-institutional sources (moneylenders, relatives and friends, commission agents, pre-harvest contractors) for credit. Mean satisfaction levels across grower categories, owner-cultivators, owner-lessors and lease-in growers are broadly similar. However, ANOVA results reveal statistically significant differences ( $p < 0.05$ ) in satisfaction across most credit sources, except pre-harvest contractors. Informal sources show relatively higher satisfaction due to flexibility and accessibility, while formal institutions exhibit comparatively lower satisfaction, likely due to procedural complexities and delays. The study concludes that although credit is essential for enhancing productivity and income, disparities in satisfaction highlight structural inefficiencies. Strengthening institutional credit systems, improving accessibility and promoting value chain financing are crucial for sustainable growth in the mango sector. This study links SDG 1, 2, 8 and 10 by examining how credit access affects mango productivity, farmer income, rural livelihoods and financial inclusion, highlighting disparities between formal and informal credit sources.

**Key Words:** Credit satisfaction, Institutional credit, Non-institutional credit and Value chain financing etc.

**Introduction:**

Agriculture is one of the most crucial sectors of the Indian economy, supporting the livelihoods of the majority of the rural population and contributing significantly to food and nutrition security. Approximately 65.00% of rural households depend directly or indirectly on agriculture for their livelihoods and sustainability. Mango (*Mangifera indica* L.), a climacteric fruit grown in tropical and subtropical regions worldwide P.R. Kiran and R. A. Parray, 2024, is popularly known as the “king of fruits”. India is one of the largest producers of fruits globally, with an annual production of 43.00 million tonnes from 4.00 million hectares, reflecting an overall growth of 1.80%. Mango remains the dominant fruit in the fresh fruit market, accounting for 32.00% of total exports Hussain M. & Singh A. 2017. In India, Uttar Pradesh is the leading state in mango production, with approximately 250.73 (000 ha) under cultivation and a total production of 4347.50 (000 tons). The state’s mango productivity stands at 17.33 tons/ha, accounting for 11.00% of the total area and 26.54% of the country total mango production Yadav Sharad et al., 2018. Agricultural credit plays a crucial role in enhancing farm productivity across the country. It is essential for the purchase of agricultural inputs such as seeds, fertilizers, pesticides, machinery and tools Rana et al, 2022; Kumar et al., 2022. Farmers are faced multiple challenges that affect their livelihoods. The development of the horticulture sector largely depends on the processing industry, which requires substantial long-term credit investment Manjunath, K., & Bai, D. S. 2019. According to NABARD (2015), approximately 51.90% of farmers, including 85.00% of small and marginal farmers, face financial liabilities. Inadequate capital availability remains one of the most significant constraints in modernizing agriculture. Historically, institutional credit has expanded substantially from 7.00% in 1951 to 98.00% in 2018, reducing dependence on non-institutional sources. Currently, scheduled commercial banks are mandated to allocate 40.00% of their net credit to priority sectors, with 18.00% directed toward agriculture. In the context of Uttar Pradesh, Malihabad is globally renowned for its Dashehari mango. Mango cultivation is a primary source of livelihood for the majority of farmers in this region. In the era of globalization and market competition, strengthening value chains and promoting value addition through processing are essential and credit availability is also one of the crucial factors for enhancing the income of mango growers Gurjar et al., 2018.

**Research Methodology:**

Uttar Pradesh comprises seventy-five districts. Lucknow district was purposively selected based on its significant area and production of mangoes. The Lucknow district, particularly the Malihabad region, is well known for mango cultivation. It is recognized as a major mango belt in India. The district is also considered one of the relatively underprivileged divisions of the state. Its inclusion within the operational jurisdiction of the university further facilitated its purposive selection for data collection. The district comprises eight blocks, namely Mall, Malihabad, Chinhat, BKT (Bakshi Ka Talab), Kakori, Gosai Ganj, Sarojini Nagar, and Mohanlal Ganj. Among these, the Malihabad block was purposively selected for the study. Subsequently, a list of 100 villages was prepared, from which seven villages: - Kasmandi, Malihabad, Nikrozpur, Khalishpur, Kolwa, Hamirpur and Tilsua were selected randomly. From these villages, mango growers were selected randomly, considering only those farmers who had at least 100 bearing trees. A total of 238 samples were collected to ensure a robust academic and scientific evaluation of the study area. The data from the sample households were collected during the agricultural year 2023–2024. The descriptive and hypothetical statistics were used for analyzing the data and various variables for the Impact Assessment of Credit satisfaction on Mango Production of the study area. In this paper ANOVA test is used. Satisfaction level across categories:

$H_0$ : There is no significant difference in the satisfaction levels regarding credit services among different categories of mango growers.

$H_1$ : There is a significant difference in the satisfaction levels regarding credit services among different categories of mango growers.

**Results and discussion:**

**Table No. 01: Distribution Pattern of Credit Sources and their Utilization:**

Descriptives									
Particulars	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Mini mum	Maxi mum	
					Lower Bound	Upper Bound			
Moneylenders	Owned orchards and perform all activities till sale	146	3.7172	.60504	.05007	3.6183	3.8162	1.00	5.00
	Owned orchards but provide to others on Lease	72	3.6825	.55314	.06519	3.5526	3.8125	2.71	5.00
	Don't own orchards but take on lease from others as pre-Harvest contractors	20	4.1286	.42707	.09549	3.9287	4.3284	2.86	5.00
	Total	238	3.7413	.58678	.03804	3.6664	3.8162	1.00	5.00
Relative and friends	Owned orchards and perform all activities till sale	146	4.0949	.58944	.04878	3.9985	4.1913	1.86	5.00
	Owned orchards but provide to others on Lease	72	4.0020	.53155	.06264	3.8771	4.1269	3.00	5.00
	Don't own orchards but take on lease from others as pre-Harvest contractors	20	4.6071	.47465	.10614	4.3850	4.8293	3.29	5.00
	Total	238	4.1098	.58294	.03779	4.0354	4.1843	1.86	5.00
Commission Agents	Owned orchards and perform all activities till sale	146	4.0382	.45680	.03781	3.9634	4.1129	2.57	4.86
	Owned orchards but provide to others on Lease	72	4.0437	.43466	.05122	3.9415	4.1458	2.86	4.86
	Don't own orchards but take on lease from others as pre-Harvest contractors	20	4.5071	.45288	.10127	4.2952	4.7191	3.43	4.86
	Total	238	4.0792	.46646	.03024	4.0197	4.1388	2.57	4.86
Pre harvest Contractors	Owned orchards and perform all activities till sale	146	3.9325	.41546	.03438	3.8645	4.0004	1.00	4.57
	Owned orchards but provide to others on Lease	72	4.0238	.32257	.03802	3.9480	4.0996	3.43	4.57
	Don't own orchards but take on lease from others as pre-Harvest contractors	20	3.8786	.35684	.07979	3.7116	4.0456	3.43	4.57
	Total	238	3.9556	.38630	.02504	3.9063	4.0049	1.00	4.57
Credit	Owned orchards and perform all activities till sale	146	3.7984	.44946	.03720	3.7249	3.8720	2.29	4.71
	Owned orchards but provide to others on Lease	72	3.7599	.37208	.04385	3.6725	3.8474	3.00	4.71
	Don't own orchards but take on lease from others as pre-								

Societies	Harvestcontractors	20	4.0214	.34459	.07705	3.8602	4.1827	3.29	4.57
	Total	238	3.8055	.42331	.02744	3.7515	3.8596	2.29	4.71
RRB	Ownedorchards andPerformallactivities till sale	146	3.7877	.49294	.04080	3.7070	3.8683	1.86	4.71
	Ownedorchardsbut provideto others on Lease	72	3.7421	.43861	.05169	3.6390	3.8451	3.00	4.71
	Don't own orchards but take on lease from others as pre-Harvest contractors	20	4.1500	.42092	.09412	3.9530	4.3470	3.29	4.57
	Total	238	3.8043	.48160	.03122	3.7428	3.8658	1.86	4.71
Commercial Bank	Owned orchards and Perform all activities till sale	146	3.5841	.49684	.04112	3.5029	3.6654	1.57	4.86
	Owned orchards but provide to others on Lease	72	3.5119	.42941	.05061	3.4110	3.6128	2.71	4.57
	Don't own orchards but take on lease from others as pre-Harvest contractors	20	3.9714	.40300	.09011	3.7828	4.1600	3.14	4.86
	Total	238	3.5948	.48313	.03132	3.5331	3.6565	1.57	4.86

Table No. 01 presents the distribution pattern of credit sources and their utilization. The results of mango growers indicate a similar levels of satisfaction across the growers those who own and manage their orchards, those who own but lease them out, and those who cultivate leased orchards across all sources of credit *Girasol, C. M. & Roxas, C. A. 2025*. The mean satisfaction scores for moneylenders range from 3.68 to 4.12, while relatives and friends show higher satisfaction levels between 4.00 and 4.60, slightly favoring leased-in growers. Commission agents exhibit mean values between 4.03 and 4.50, reflecting minimal variation. Satisfaction levels for pre-harvest contractors remain relatively stable (3.87–4.02), and for credit societies range from 3.75 to 4.02. Similarly, regional rural banks (RRBs) show values between 3.74 and 4.15, while commercial banks range from 3.51 to 3.97 *Gupta, A. K. 2018; Chaiya et al., 2023*. The overlapping confidence intervals indicate no significant differences among categories. Thus, the null hypothesis ( $H_0$ ) is accepted, and the alternative hypothesis ( $H_1$ ) is rejected, confirming no significant variation in satisfaction with credit services among the growers *Aggelopoulos et al. 2011 & Patel, H., & Patel, T. 2022*.

**Table No. 02: presents the ANOVA of the pattern of credit sources and their utilization.**

ANOVA		Sum of Squares	df.	Mean Square	F	Sig.
Money lenders	Between Groups	3.333	2	1.666	5.003	0.007
	Within Groups	78.269	235	0.333		
	Total	81.602	237			
Relative and Friends	Between Groups	5.816	2	2.908	9.146	0.0
	Within Groups	74.72	235	0.318		
	Total	80.537	237			
Commission Agents	Between Groups	4	2	2	9.88	0.0
	Within Groups	47.568	235	0.202		
	Total	51.567	237			
Pre harvest Contractors	Between Groups	0.532	2	0.266	1.793	0.169
	Within Groups	34.836	235	0.148		
	Total	35.367	237			
Credit Societies	Between Groups	1.089	2	0.545	3.093	0.047
	Within Groups	41.378	235	0.176		
	Total	42.468	237			
RRB	Between Groups	2.709	2	1.355	6.092	0.003
	Within Groups	52.259	235	0.222		
	Total	54.969	237			
Commercial Banks	Between Groups	3.348	2	1.674	7.57	0.001
	Within Groups	51.97	235	0.221		
	Total	55.319	237			

Table No. 02 presents the ANOVA of the pattern of credit sources and their utilization. The ANOVA results for the unified mango grower group show that they differ in their satisfaction with key sources of credit *Maheswari, P., & Vengatesan, G. 2024*. Satisfaction with Moneylenders ( $p=0.007$ ), Relatives & Friends ( $p=0.000$ ), Commission Agents ( $p=0.000$ ), Credit Societies ( $p=0.047$ ), RRBs ( $p=0.003$ ), and Commercial Banks ( $p=0.001$ ) is significant ( $p < 0.05$ ) and varies among orchard owners, lease-holding orchard owners, and lease-holding orchard growers *Kiruthika, S., & Kiran, S. 2023*. This difference may result from bargaining terms, credit accessibility, repayment leniency, or reliance on informal lenders. Satisfaction with Pre-Harvest Contractors ( $p=0.169$ ) does not differ among the categories *Singhal, R., & Gupta, P. 2020; Singh, P. 2024 & Pavithra, S., & Singh, A. 2025*. Thus, for six credit sources,  $H_1$  (difference) is accepted, and  $H_0$  is rejected. For Pre-Harvest Contractor satisfaction,  $H_0$  is accepted. This confirms that consolidated growers show the most differences in credit satisfaction among the mango producers in the study area.

**Summary and Conclusion:**

Agriculture remains a cornerstone of the Indian economy, supporting nearly two-thirds of rural households and ensuring food and nutritional security. Within horticulture, mango (*Mangifera indica* L.) holds significant economic and cultural value, with Uttar Pradesh, particularly Malihabad's Dashehari variety, playing a vital role in production and livelihoods. Despite its importance, the sector relies heavily on timely and adequate credit for inputs, technology adoption, and value addition. Results indicated that both institutional and non-institutional credit sources are widely used, with no significant differences in satisfaction levels across mango-grower categories. However, continued dependence on informal sources, limited efficiency of formal institutions, and persistent financial constraints suggested systemic gaps. Strengthening credit accessibility, simplifying procedures, and promoting tailored financial support for processing, storage, and value chains are essential to enhancing farmers' incomes and ensuring sustainable growth in the mango sector.

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**References:**

Aggelopoulos, S., Mamalis, S., & Soutsas, K. (2011). Farmers' satisfaction with agricultural credit: The case of Greece. *Food Economics-Acta Agriculturae Scandinavica, Section C*, 8(4), 233-242.

Chaiya, C., Sikandar, S., Pinthong, P., Saqib, S. E., & Ali, N. (2023). The impact of formal agricultural credit on farm productivity and its utilization in Khyber Pakhtunkhwa, Pakistan. *Sustainability*, 15(2), 1217.

Girasol, C. M., & Roxas, C. A. (2025). Effects of Microfinance Credits on Farm Performance of Small-Scale Mango Farmers in Davao del Sur. *Journal of Interdisciplinary Perspectives*, 3(7), 736-750.

Gupta, A. K. (2018). Performance analysis of primary agriculture credit societies (pacs) in chhattisgarh state.

Gurjar, P. S., Verma, A. K., Yadav, S. C., Shukla, D. K., & Mishra, M. (2018). Enhancing Income of Rural Women through Processing and Value Addition of Raw Mango Fruits in Malihabad, Uttar Pradesh: A Case Study. *Asian Journal of Agricultural Extension, Economics & Sociology*, 28 (1), 1-6.

Hussain, Mustfa and Ashutosh Singh. Impact of Amended APMC Act on Apple Business in Himachal Pradesh, India. *Indian Journal of Agricultural Research*, vol. 51, no. 1, 2017, pp. 38–43.

Kiruthika, S., & Kiran, S. (2023). Role of agriculture credit in enhancing livelihood of farmers: Evidence from Northern Tamil Nadu. *International Journal of Social Sciences Review*, 4(2), 68-81.

Kumar, G., Yadav, R. N., Doharey, R. K., Singh, A. P., Yadav, V., & Kumar, D. (2022). A study on the socio-economic background of mango orchardists in Meerut district of Uttar Pradesh, India. *Indian Journal of Extension Education*, 58(2), 77-82.

Maheswari, P., & Vengatesan, G. (2024). A Study On Farmers Satisfaction Towards Agriculture Subsidy Schemes In Erode District. *Frontiers in Health Informatics*, 13 (3).

Manjunath, K., & Bai, D. S. (2019). Profile analysis of mango growers of Karnataka. *J Pharmacognosy and Phytochemistry*, 8(2), 904-908.

P. R. Kiran and R. A. Parry, "Advancing mango ripeness assessment: A comprehensive study integrating VNIR spectroscopy and SIMCA modelling for 'Dashehari' cultivar," *Eur. J. Nutrition Food Saf.*, vol. 16, no. 3, pp. 27–34, Mar. 2024.

Patel, H., & Patel, T. (2022). A study on farmer satisfaction with respect to agricultural finance by co-operative bank. *International Journal of Research Publication and Reviews*, 3 (4), 886–890.

Pavithra, S., & Singh, A. (2025). Effectiveness of financial inclusion programmes for agricultural households: A case of Kisan Credit Card scheme in India. *The Indian Journal of Agricultural Sciences*, 95(5).

Rana, P., Parihar, P., Shah, P., & Singh, N. (2022). A study on the socio-economic status and constraints faced by the mango growers in the adoption of improved post-harvest management practices in the Jammu district of Jammu and Kashmir. *The Pharma Innov. J.*, 11 (6), 2487-2493.

Sharad Yadav, S. Y., Mishra Sarvesh, M. S., & Rai, J. (2018). Economics of marketing of mango in the district Lucknow, UP, India.

Singh, P. (2024). Study on Access Agricultural Credit by Small and Marginal Farmers in India. *RESEARCH REVIEW International Journal of Multidisciplinary*, 9(1), 57-64.

Singhal, R., & Gupta, P. (2020). Institutional credit to agriculture sector: A study of its impact on the agriculture sector of India. *Arthshastra Indian Journal of Economics & Research*, 9(4), 42-52.