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An assessment of profile characteristics of beneficiary and non-beneficiary pomegranate growers of National Horticulture Mission (NHM) scheme in Karnataka

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Abstract
The present study was conducted to analyze the comparison between Profile characteristics of beneficiary and non-beneficiary pomegranate growers National Horticulture Mission (NHM). Regarding profile characteristics of beneficiary pomegranate growers, overall respondents were middle age (36.67 percent), overall education were coming under PUC with 31.67 percent of education. The landholding the overall holds medium sized land holdings (49.17 percent), overall at 35.83 percent respondents had farming experience. The overall have medium level management orientation with 40.83 percent, overall with 42.50 percent fall under medium level. Innovativeness, the overall with 40.00 percent fall under low level. Economic orientation revealed overall 43.33 percent displaying a medium level. Scientific orientation revealed overall 35.83 percent of high levels. Additionally, risk orientation revealed with overall 42.50 percent into the medium category, overall with 34.17 percent into the low to high category of credit orientation, 47.50 percent as medium category of Cosmopoliteness, overall 39.17 percent as low level of extension participation. The overall 39.17 percent as medium level of mass media participation, overall 37.50 percent as medium level of extension contact and overall 46.67 percent as medium level of extension participation, overall 35.00 percent as medium level of decision making ability and overall 40.00 percent as medium level of materials possessed. Regarding personal characteristics of non-beneficiary pomegranate growers, the overall were middle age group with 38.33 percent, overall education of respondents fall under PUC with 30.00 percent. overall holds medium sized land holdings (38.33 %), overall at 41.67 percent between 10-20 farming experience they possessed, overall respondents have a medium level of at 50.00 percent of management orientation. overall with 41.67 percent fall under medium level of achievement motivation. Innovativeness of overall with 43.33 percent fall under medium level, overall 41.67 percent with low level of economic orientation. Scientific orientation revealed with overall 45.00 percent were medium levels. Additionally, risk orientation revealed overall with 35.00 percent into the low category. The overall with 43.33 percent into the high category of credit orientation, overall with 41.67 percent as high category of Cosmopoliteness, overall 38.33 percent as low level of socio-political participation. The 50.00 percent of them exhibit a medium level in overall level of Mass media participation, overall 40.00 percent as low and high level of extension contact. Extension participation with overall 36.67 percent as high level of participation, overall 41.67 percent as medium level of decision making ability and overall 45.00 percent as medium level of materials possessed. The findings highlighted the importance of their participation and get benefit from the scheme and for better scheme implementation NHM.

Keywords: Pomegranate growers, National Horticulture Mission (NHM), mean, frequency, percentage, mean, standard deviation

1. Introduction
Agriculture occupies a pivotal position in the Indian economy, serving as one of the largest and most significant economic sectors and remaining the primary source of livelihood for a substantial proportion of the population. It continues to be the backbone of employment and sustenance for millions of Indians. According to the 2011 Census, about 54.6 percent of India's population was engaged in agriculture and allied activities. Recognizing agriculture as a major income-generating sector, the Government of India has introduced several programmes and policy initiatives aimed at strengthening and developing the sector. These interventions are designed not only to enhance agricultural productivity but also to improve

farmers' incomes. Over time, the contribution of agriculture to the national economy has shown a progressive upward trend, reflecting its continuing importance in the country's development. Within the agricultural sector, horticulture has emerged as an important and high-value sub-sector due to its potential for higher productivity, employment generation, and income enhancement. States such as Karnataka, Maharashtra, Andhra Pradesh, Kerala, and West Bengal occupy prominent positions in terms of area and production of horticultural crops. Karnataka accounts for about 8.4 percent of the total area under horticultural crops in India; however, it contributes only 6.8 percent to total horticultural production, placing the state at the 18th position in terms of productivity. This disparity between area and output indicates the need for focused efforts to improve efficiency and yield in the horticulture sector.

The National Horticulture Mission (NHM) was launched during 2005-06 by the Department of Agriculture and Cooperation under the Ministry of Agriculture, Government of India, with the objective of achieving holistic development of the horticulture sector. The mission emphasizes the creation of forward and backward linkages among various stakeholders, including farmers, institutions, and private entrepreneurs. Initially, NHM covered all states and three Union Territories Andaman and Nicobar Islands, Lakshadweep, and Puducherry excluding the eight North-Eastern states, including Sikkim, and the Himalayan states of Jammu & Kashmir, Himachal Pradesh, and Uttarakhand. These regions were brought under a separate programme known as the Horticulture Mission for North East and Himalayan States (HMNEH). At present, out of 483 districts across 18 states and three Union Territories, NHM is operational in 384 districts. From 2014-15 onwards, NHM has been implemented as a sub-scheme under the Mission for Integrated Development of Horticulture (MIDH), which serves as the nodal agency for the comprehensive development of horticulture in the country. Under MIDH, the mission aims to harness the full potential of horticulture by enhancing the production of fruits, vegetables, flowers, spices, medicinal plants, and other horticultural crops, along with strengthening post-harvest management, processing, and marketing infrastructure.

In Karnataka, the National Horticulture Mission was implemented on June 30, 2005, in two phases. During the first phase (2004-05), the scheme covered 15 districts, namely Bengaluru (Urban), Bengaluru (Rural), Tumkur, Kolar, Chitradurga, Hassan, Mysore, Kodagu, Udupi, Dakshina Kannada, Belgaum, Bijapur, Bagalkot, Gulbarga, and Koppal. In the second phase, during 2015-16, the scheme was extended to the remaining 15 districts—Chikkaballapur, Ramanagara, Mandya, Chamarajnagar, Chikkamagaluru, Shivamogga, Davangere, Haveri, Uttara Kannada, Dharwad, Gadag, Bellary, Bidar, Raichur, and Yadgir—thereby covering all 30 districts of the state. Under NHM, emphasis has been placed on 16 major horticultural crops, including mango, grapes, pomegranate, banana, pineapple, cashew, cocoa, pepper, ginger, aromatic plants, and flowers, along with support for post-harvest management, processing, and marketing. Among fruit crops, pomegranate has shown notable progress in Karnataka. During 2017-18, pomegranate was cultivated over an area of 25,967 hectares with a production of 268,228 metric tonnes. By 2021-22, the area increased to 27,693 hectares and production rose to 302,451 metric tonnes, accounting for 3.60 percent of the total fruit production in the state. At present, pomegranate cultivation covers about 28.09 thousand hectares with a production of 328.92 thousand metric tonnes and an average yield of 11.71 metric tonnes per hectare, which is marginally higher than the national average of 11.70 metric tonnes per hectare. Major pomegranate-producing districts include Chitradurga, Tumkur, Koppal, Bagalkot, Bijapur, Raichur, Belgaum, Bellary, and Dharwad. Despite the expansion in area and production, studies indicate considerable scope for further improvement in productivity due to constraints such as inadequate farmer knowledge, limited adoption of improved technologies, and restricted access to markets.

In this context, the implementation of the National Horticulture Mission in Karnataka assumes significance, particularly in assessing its impact on the economic performance of pomegranate growers. Understanding these factors and addressing the associated challenges are essential for enhancing productivity and profitability. Therefore, the present study aims to analyse the Profile characteristics of beneficiary and non-beneficiary pomegranate growers of National Horticulture Mission (NHM) scheme in Karnataka in relation to the implementation of the NHM scheme.

2. Methodology

The present study was taken up during 2023-24 to analyse the Profile characteristics of beneficiary and non-beneficiary pomegranate growers of National Horticulture Mission (NHM) scheme in Karnataka. This study was purposively carried out in Chitradurga and Chikkaballapura district of Karnataka State. As NHM is wide spread in all the districts of Karnataka state, Chitradurga was selected as NHM was started first in that region and Chikkaballapura district was selected based on its wide spread activities in this region because NHM was started in second phase in this district. These two districts were purposively selected for the study as the number of beneficiary pomegranate growers were more in these districts. The ex-post facto design was used. The selection of respondents was by following simple random sampling technique has been employed for the selection of respondents of pomegranate growers from Chitradurga and Chikkaballapura. From each district 60 beneficiaries and 30 non-beneficiaries were selected. which constituted the total sample size of 180 pomegranate grower respondents. The data were collected from the respondents through personal interview method using pre-tested and well-structured schedule.

3. Results

3.1 Overall profile characteristics of beneficiary pomegranate growers of NHM in Chikkaballapura and Chitradurga districts

The results from table 1 interprets the survey across two districts, Chikkaballapura and Chitradurga district, along with the overall beneficiaries, present a wide array of socio-economic and profile characteristics that highlight key differences and similarities between the two districts.

3.1.1 Age

The age distribution of the beneficiary pomegranate growers in Chikkaballapura and Chitradurga districts showed a balanced spread across different age groups. In both districts, 35% of the beneficiaries were in the young age

group. The middle-aged group (36-50 years) constitutes 38.33 percent in Chikkaballapura and 35.00 percent in Chitradurga district, with a combined 36.67 percent for the overall group. The older age group makes up 26.67 percent in Chikkaballapura and 30% in Chitradurga, with an overall representation of 28.33 percent. This indicated that while a substantial portion of growers were in their later years, there was still a diverse mix of ages involved in pomegranate cultivation under the National Horticulture Mission (NHM).

3.1.2 Education Levels

The educational distribution among the respondents revealed various levels of literacy. A significant portion, 40.00 percent of individuals, have completed their Pre-University Course (PUC), followed by 21.67 percent who have completed their Secondary School Leaving Certificate (SSLC). Further 16.67 percent hold a degree, and 13.33 percent have reached the middle school level. The number of people with just primary school education was 3.33%, and an additional 3.33 percent were illiterate. Only 1.67 percent have pursued post-graduation education, while a very small proportion, 0.83 percent, can only read and write. In total, 30.00 percent of people have completed at least some level of secondary education, with 28.33 percent holding SSLC qualifications and 5.0 percent having pursued higher education like post-graduation. Meanwhile, 3.33 percent were illiterate, and 1.67 percent can only read and write, indicated a noticeable gap in literacy levels. Overall, the data reflects a blend of educational achievement, with a clear tendency toward higher school completion rates in PUC and SSLC education.

3.1.3 Land holding

The landholding sizes of beneficiary pomegranate growers in Chikkaballapura and Chitradurga districts showed a varied distribution. In Chikkaballapura district, 21.67 percent of beneficiaries own small landholdings, while in Chitradurga district, this proportion is notably higher at 41.67 percent, resulting in an overall 31.67 percent of beneficiaries across both the districts owning small landholdings. For medium-sized landholdings, the majority of beneficiaries in Chikkaballapura district (63.33%) fall under this category, while in Chitradurga district, the percentage was lower at 35.00 percent. The overall proportion of beneficiaries with medium-sized landholdings across both the districts is 49.17 percent, indicated that a substantial number of pomegranate growers have moderate land resources. In terms of large landholdings, Chitradurga has a higher proportion of beneficiaries (23.33%) compared to Chikkaballapura (15.00%), resulting in an overall 19.17 percent of beneficiaries owning large landholdings.

3.1.4 Farming experience

The farming experience of beneficiary pomegranate growers in Chikkaballapura and Chitradurga districts showed fairly balanced distribution across various experience categories. In Chikkaballapura district, 35.00% of beneficiaries have less than 10 years of farming experience, while in Chitradurga, the percentage was slightly higher at 36.67 percent. Overall, 35.83 percent of beneficiaries across both the districts have relatively less farming experience. In the 10-20 years of farming experience category, 31.67 percent of Chikkaballapura beneficiaries fall under this group, while Chitradurga has a slightly higher percentage at 36.67 percent. This category, which accounts for 34.17 percent of beneficiaries across both the districts, indicated a moderately experienced group of farmers. For those with over 20 years of farming experience, Chikkaballapura district has 33.33 percent of beneficiaries, whereas Chitradurga has a lower percentage of 26.67 percent. Overall, 30.00 percent of beneficiaries across both the districts fall under this category.

3.1.5 Management orientation

The management orientation of beneficiary pomegranate growers in Chikkaballapura and Chitradurga districts reflects a varied distribution across different levels. In Chikkaballapura, 28.33 percent of beneficiaries have a low management orientation, scoring below 35.80 percent, while in Chitradurga district, the percentage was slightly higher at 31.67 percent. The overall, 30.00 percent of beneficiaries across both the districts fall under the low category. A larger proportion of beneficiaries from both the districts fall in the medium category. In Chikkaballapura district, 46.67 percent of beneficiaries score within the medium range (35.80-39.50), while in Chitradurga, 35.00 percent of beneficiaries fall under this range. In total, 40.83 percent of beneficiaries across both districts exhibit a medium management orientation, a smaller proportion of beneficiaries score in the high management orientation category, with 25.00 percent in Chikkaballapura district and 33.33 percent in Chitradurga district. Overall, 29.17 percent of beneficiaries across both districts have high management orientation.

3.1.6 Achievement motivation

The achievement motivation of beneficiary pomegranate growers in Chikkaballapura and Chitradurga districts varies across different levels, with a significant portion of farmers showing moderate to high motivation. In Chikkaballapura, 25.00 percent of beneficiaries exhibit low achievement motivation, while in Chitradurga, this percentage rises to 28.33 percent. The overall, 26.67 percent of beneficiaries across both the districts were categorized in the low motivation group. A larger proportion of beneficiaries in both districts fall within the medium achievement motivation range. In Chikkaballapura, 46.67 percent of beneficiaries score within the medium range, while in Chitradurga district, the figure was slightly lower at 38.33 percent. This results in 42.5 percent of the overall beneficiaries across both districts showing medium levels of achievement motivation. Finally, 28.33 percent of beneficiaries in Chikkaballapura and 33.33 percent in Chitradurga showed high achievement motivation, with an overall 30.83 percent of beneficiaries across both the districts falling under this category.

3.1.7 Innovativeness

The innovativeness of the beneficiary pomegranate growers in Chikkaballapura and Chitradurga districts indicated a relatively balanced distribution across different levels. In both districts, 40.00 percent of the beneficiaries fall under the low innovativeness category. This suggested that a significant proportion of growers in both the districts exhibit limited innovation in their farming practices. These farmers might be more inclined to stick to traditional methods and may not readily adopt new technologies or practices, potentially hindering improvements in productivity and sustainability. On the other hand, 21.67 percent of

beneficiaries in Chikkaballapura and 23.33 percent in Chitradurga score within the medium innovativeness range, indicating that a smaller group of growers were moderately open to adopting new techniques and practices. A notable proportion of growers also exhibit high innovativeness, with 38.33 percent in Chikkaballapura and 36.67 percent in Chitradurga district scoring above 5.84. Overall, 37.5 percent of beneficiaries across both districts fall under the high innovativeness category. They might play a crucial role in the successful adoption of the NHM's objectives, setting an example for other farmers and contributing to the overall growth and innovation in the pomegranate cultivation sector.

3.1.8 Economic Orientation

In Chikkaballapura, 45.00 percent of the beneficiaries have a medium economic orientation, this indicated that a large proportion of growers in this district were somewhat focused on the economic aspects of farming, making decisions that likely balance both profitability and sustainability. Similarly, 41.67 percent of the beneficiaries in Chitradurga fall under the medium range, showcasing a similar inclination towards economic considerations in their agricultural practices. In terms of low economic orientation, 25.00 percent of the beneficiaries in Chikkaballapura and 28.33 percent in Chitradurga fall under this category. These farmers might be less focused on the financial implications of their farming practices, potentially hindering the maximization of profits and the effective management of resources. Their farming decisions might be more influenced by traditional practices, without adequate emphasis on market dynamics or cost-benefit analysis. Interestingly, 30.00 percent of the beneficiaries in both the districts exhibited a high economic orientation. These farmers were likely to prioritize profitability, cost management, and the overall economic viability of their farming activities. This group might be more inclined to adopt market-driven approaches, optimize inputs, and focus on practices that enhance financial returns from their pomegranate cultivation.

3.1.9 Scientific Orientation

In Chikkaballapura district, 31.67 percent of the beneficiaries fall into the low scientific orientation category suggesting that a portion of farmers might not have fully utilizing scientific advancements or modern farming techniques. In contrast, 35.00 percent of the beneficiaries in this district fall under the medium range, which indicated that many farmers have a moderate level of awareness and application of scientific methods in their pomegranate cultivation. Further 33.33 percent of the farmers in Chikkaballapura district exhibit a high scientific orientation, reflecting a significant adoption of scientific principles, including advanced cultivation techniques, pest management, and soil health practices. In Chitradurga district, a similar trend was observed, with 30.00 percent of the beneficiaries in the low scientific orientation category. However, the majority of farmers in Chitradurga district, 31.67 percent, have a medium scientific orientation, and 38.33 percent of the beneficiaries showed a high scientific orientation. The overall data revealed that the majority of beneficiaries from both the districts fall under the medium to high scientific orientation categories, with 33.33 percent of Chikkaballapura and 38.33 percent of Chitradurga farmers demonstrating a high level of scientific orientation. This suggests that many farmers were actively engaging with research-based methods, innovative technologies, and expert advice to improve the quality and productivity of their pomegranate cultivation.

3.1.10 Risk Orientation

In Chikkaballapura district, 20.00 percent of the beneficiaries were classified as having low risk orientation, scoring below 17.31, which suggests that these farmers might be more conservative in their approach and avoid risky farming practices. A significant 48.33 percent of farmers in Chikkaballapura district fall under the medium risk orientation category, indicating that they were willing to take calculated risks in their farming activities, but they likely seek a balance between caution and innovation. Additionally, 31.67 percent of farmers in Chikkaballapura were classified as having a high risk orientation, suggesting that these farmers are more open to adopting new and untested practices, potentially seeking higher rewards from their pomegranate cultivation. In Chitradurga, the trend was similar, though a slightly larger proportion of farmers, 30.00 percent, exhibit low risk orientation. On the other hand, 36.67 percent of Chitradurga farmers fall under the medium risk orientation range and 33.33 percent showed high risk orientation. When looking at the overall picture, 25.00 percent of the total beneficiaries exhibit a low risk orientation, while 42.50 percent have a medium risk orientation, and 32.50 percent show high risk orientation. This suggests that the majority of pomegranate growers in both the districts are willing to take moderate to high risks, likely engaging in more innovative practices to enhance their production and productivity. The farmers with low risk orientation might benefit from support systems such as financial security programmes or risk management strategies to encourage them to gradually adopt more progressive farming techniques.

3.1.11 Credit Orientation

In Chikkaballapura district, 25.00 percent of the beneficiaries have a low credit orientation, indicating a hesitancy or lack of reliance on credit for their farming activities. These farmers might be either lack awareness of available financial support options or prefer to avoid borrowing, possibly due to financial constraints or a risk-averse attitude toward debt. A larger portion, 33.33 percent, falls into the medium credit orientation category, the remaining 41.67 percent of farmers in Chikkaballapura demonstrated a high credit orientation. This indicated that these farmers were more proactive in seeking credit to fund their pomegranate farming, likely using it for investments in inputs, infrastructure, or expansion of their farms. In Chitradurga district, the trend was somewhat different. A significant portion 43.33 percent of the beneficiaries fall under the low credit orientation category. On the other hand, 30.00 percent of Chitradurga district farmers showed medium credit orientation and 26.67 percent exhibit high credit orientation. Looking at the overall data, 34.17 percent of the total beneficiaries fall into the low credit orientation category, 31.67 percent were in the medium category, and 34.17 percent have a high credit orientation. The relatively high proportion of farmers with low credit orientation might indicate an opportunity to improve access to and awareness about agricultural credit schemes.

3.1.12 Cosmopoliteness

In Chikkaballapura district, 31.67 percent of the beneficiaries exhibit a low level of cosmopoliteness, scoring below 4.15. These farmers likely have limited exposure to external sources contact with external world for information or innovations and might primarily rely on local knowledge and traditional practices. However, a significant portion, 31.67 percent, have a medium level of cosmopoliteness, A larger proportion, 36.67 percent, demonstrated a high level of cosmopoliteness, suggesting that they are well-connected to external networks and were likely to incorporate innovations and best practices from beyond their immediate locality into their farming practices. In Chitradurga district, the distribution of respondents was notably different. A smaller 16.67 percent of farmers show low cosmopoliteness, implying that most farmers in this district were more connected to external sources of information. This was further reflected in the large 63.33 percent of them who fall under the medium category, indicating that a substantial portion of Chitradurga farmers are engaged with broader networks and sources of agricultural knowledge. Only 20.00 percent of farmers in Chitradurga have a high level of cosmopoliteness, which was lower than that observed in Chikkaballapura. Overall, the total data showed that 24.17 percent of beneficiaries have low cosmopoliteness, 47.50 percent have medium cosmopoliteness, and 28.33 percent have high cosmopoliteness. However, the fact that only 28.33 percent have high cosmopoliteness highlighted a potential area for improvement, where greater exposure to advanced farming techniques, technologies, and broader markets could be encouraged.

3.1.13 Socio-political participation

In Chikkaballapura district, 35.00 percent of the beneficiaries had low level of socio-political participation, which was characterized by limited engagement in such activities. A moderate proportion, 40.00 percent, showed a medium level of participation. The remaining 25.00 percent of the farmers fall under the high socio-political participation category, meaning they were actively involved in local decision-making processes and are likely to influence agricultural practices or policies at the community level. In contrast, Chitradurga district shows a slightly higher proportion of farmers with low socio-political participation. Specifically, 43.33 percent of the farmers in this district fall under the low category, indicating that a significant number of farmers had limited involvement in socio-political activities. Only 26.67 percent of farmers have medium participation, while 30.00 percent were highly engaged in socio-political activities, showing a somewhat better level of involvement compared to Chikkaballapura in terms of active participation. When we look at the overall data, 39.17 percent of the beneficiaries across both districts fall into the low socio-political participation category, reflecting a significant portion of farmers who do not actively engage in socio-political activities. However, 33.33 percent had a medium level of participation, indicating that a substantial proportion of farmers were moderately involved in local issues. The remaining 27.50 percent of farmers display high socio-political participation, showing that a smaller but notable proportion of beneficiaries are active in local governance and community matters.

3.1.14 Mass media participation

In Chikkaballapura district, 33.33 percent of the beneficiaries had low mass media participation, indicating that a considerable proportion of farmers had limited access or engagement with mass media. In comparison, 40.00 percent of farmers in Chikkaballapura district exhibited medium participation, showing that a significant number of farmers engage regularly with mass media, though not at a highly intensive level. The remaining 26.67 percent of the beneficiaries were in the high participation category, demonstrating that they actively seek out and engage with media to gain insights into agriculture and related fields. Chitradurga district shows a somewhat different pattern. Only 20.00 percent of the farmers in this district have low mass media participation. A larger proportion, 38.33 percent, falls into the medium participation category, suggesting that the majority of farmers in this district engage with mass media moderately. Furthermore, 41.67 percent of farmers exhibit high mass media participation, which is higher compared to Chikkaballapura district, indicating a greater reliance on media for information. Across both districts, 26.67 percent of the beneficiaries exhibited low mass media participation, highlighting a notable portion of farmers who were less involved in consuming media content. Meanwhile, 39.17 percent of farmers show medium participation, suggesting a fairly consistent level of media engagement. The remaining 34.17 percent of farmers were highly engaged with mass media, demonstrating a significant portion of farmers who actively use media channels to keep themselves informed.

3.1.15 Extension contact

In Chikkaballapura, 28.33 percent of the beneficiary farmers report low extension contact, indicating that a relatively significant proportion of farmers had limited access to or interaction with extension services. Another 28.33 percent of farmers fall under the medium extension contact category, suggesting that these farmers engage with extension services to a moderate extent. However, the largest proportion of farmers in Chikkaballapura district (43.33%) reported high extension contact, highlighting that a substantial number of farmers actively seek guidance from extension workers and utilize their services and guidance to improve their farming practices. In contrast, Chitradurga district has a lower percentage of farmers with high extension contact, with only 26.67 percent under this category. However, 46.67 percent of farmers in Chitradurga reported medium extension contact, which was a relatively high proportion compared to Chikkaballapura district. Furthermore, 26.67 percent of Chitradurga district farmers had low extension contact, similar to Chikkaballapura, suggesting that some farmers might still lack sufficient outreach or communication with extension workers. Across both districts, the overall distribution showed that 27.50 percent of farmers report low extension contact. A larger proportion, 37.50 percent, fall under the medium extension contact category, highlighting moderate engagement with extension services. The remaining 35.00 percent of farmers had high extension contact, showing that a significant proportion of farmers were actively participating in extension activities and receiving expert advice.

3.1.16 Extension participation

In Chikkaballapura district, 30.00 percent of beneficiaries reported low extension participation, which was a notable proportion, indicating that a significant number of farmers had limited involvement in extension activities. A larger proportion, 38.33 percent, fall under the medium participation category, demonstrating that many farmers in this district participate in extension activities to a moderate extent. The remaining 31.67 percent of farmers reported high extension participation. In contrast, Chitradurga showed a slightly different distribution. Only 21.67 percent of farmers reported low extension participation, which is lower than Chikkaballapura district, indicated that fewer farmers in Chitradurga are not involved in extension activities. A significant portion of 55.00 percent of Chitradurga farmers reported medium extension participation, which is notably higher compared to Chikkaballapura district. However, only 23.33 percent of farmers in Chitradurga district had high extension participation, which was lower than the proportion in Chikkaballapura, indicated that fewer farmers in Chitradurga were fully engaged in extension activities. Across both districts, the overall participation pattern shows that 25.83 percent of the beneficiaries report low extension participation. A larger proportion, 46.67 percent had medium participation, showing moderate engagement in extension activities. The remaining 27.50 percent of farmers report high participation, indicating that many farmers actively engage in extension services to enhance their agricultural knowledge and practices for modify their skills and attitudes.

3.1.17 Decision making ability

In Chikkaballapura, 31.67 percent of the beneficiaries fall under the low decision-making ability category, indicating that a significant portion of farmers in this district face challenges in making effective decisions related to their farming practices. However, 38.33 percent of farmers had medium decision-making ability, which was the largest group in Chikkaballapura district. Additionally, 30.00 percent of farmers in Chikkaballapura district have high decision-making ability, demonstrating that a substantial proportion of farmers are capable of making confident and informed decisions for their pomegranate farming. In Chitradurga, the distribution of decision-making ability is somewhat different. Here, 30.00 percent of farmers fall under the low decision-making ability category, a proportion similar to Chikkaballapura district. However, 31.67 percent of farmers in Chitradurga exhibited medium decision-making ability, which is slightly lower than in Chikkaballapura district. Notably, 38.33 percent of farmers in Chitradurga district had high decision-making ability, which was the largest group in the district. The overall, across both the districts, 30.83 percent of the beneficiaries fall under the low decision-making ability category, indicating that a portion of farmers in the study sample might be struggle with making effective decisions for their agricultural operations. A larger proportion, 35.00 percent, exhibited medium decision-making ability, signifying that many farmers were capable of making reasonable decisions but might benefit from further training or exposure to improved decision-making strategies. Lastly, 34.17 percent of farmers had high decision-making ability, reflecting a substantial portion of farmers who were confident and proficient in making critical decisions for their farms.

3.1.18 Material possession

In Chikkaballapura, 40.00 percent of the farmers fall under the low material possession category, indicating that a significant portion of the beneficiaries in the district might have limited access to assets that can enhance their farming practices. These farmers might be facing challenges in acquiring necessary tools, equipment, or resources that were crucial for efficient farm management. Meanwhile, 31.67 percent of the farmers in Chikkaballapura have medium material possession. However, 28.33 percent of farmers in Chikkaballapura have high material possession, indicating that a considerable portion of farmers in the district have access to a wide range of resources and equipment, which can support more efficient and productive farming practices. In Chitradurga district, 23.33 percent of farmers had low material possession, which was a smaller proportion compared to Chikkaballapura. On the other hand, 48.33 percent of farmers in Chitradurga have medium material possession, which was the highest percentage in the district. Additionally, 28.33 percent of farmers in Chitradurga district fall under the high material possession category. Overall, across both districts, 31.67 percent of farmers fall into the low material possession category, On the other hand, 40.00 percent of farmers have medium material possession, suggesting that a larger proportion had access to some resources but may still face challenges in fully optimizing their farming potential. A smaller portion, 28.33 percent, of farmers possess high material possession, suggesting that while some farmers were better equipped with resources, there was scope for improvement in terms of material wealth and access to assets for a significant portion of the farming population.

Table 1: Overall Profile characteristics of beneficiary pomegranate growers of NHM in Chikkaballapura and Chitradurga districts

(n = 120)

Sl. No.	Profile Characteristics	Category	Chikkaballapura Beneficiaries (n_1 = 60)		Chitradurga Beneficiaries (n_1 = 60)		Overall Beneficiaries (n = 120)	
			f	%	f	%	f	%
1.	Age	Young age (18-35)	21	35.00	21	35.00	42	35.00
		Middle age Between (36-50)	23	38.33	21	35.00	44	36.67
		Old age (>50)	16	26.67	18	30.00	34	28.33
2.	Education	Illiterate(0)	2	3.33	8	13.33	10	8.33
		Can only read and write	0	0.00	1	1.67	1	0.83
		Primary school	2	3.33	5	8.33	7	5.83
		Middle school	8	13.33	4	6.67	12	10.00
		SSLC	13	21.67	17	28.33	30	25.00
		PUC	24	40.00	14	23.33	38	31.67
		Degree	10	16.67	8	13.33	18	15.00
		Post-graduation	1	1.67	3	5.00	4	3.33
3.	Land holding	Small Upto 2.5 acres	13	21.67	25	41.67	38	31.67
		Medium (2.51 to 5.0 acres)	38	63.33	21	35.00	59	49.17
		Large Above 5 acres	9	15.00	14	23.33	23	19.17
4.	Farming experience	< 10 years	21	35.00	22	36.67	43	35.83
		10-20 years	19	31.67	22	36.67	41	34.17
		> 20 years	20	33.33	16	26.67	36	30.00
5.	Management orientation Mean = 37.65 SD = 3.70	Low < (35.80)	17	28.33	19	31.67	36	30.00
		Medium (35.80-39.50)	28	46.67	21	35.00	49	40.83
		High >(39.50)	15	25.00	20	33.33	35	29.17
6.	Achievement motivation Mean = 18.94 SD = 2.93	Low < (17.48)	15	25.00	17	28.33	32	26.67
		Medium (17.48-20.41)	28	46.67	23	38.33	51	42.50
		High >(20.41)	17	28.33	20	33.33	37	30.83
7.	Innovativeness Mean = 5.01 SD = 1.67	Low < (4.17)	24	40.00	24	40.00	48	40.00
		Medium (4.17-5.84)	13	21.67	14	23.33	27	22.50
		High >(5.84)	23	38.33	22	36.67	45	37.50
8.	Economic orientation Mean = 17.20 SD = 2.55	Low < (15.93)	15	25.00	17	28.33	32	26.67
		Medium (15.93-18.47)	27	45.00	25	41.67	52	43.33
		High >(18.47)	18	30.00	18	30.00	36	30.00
9.	Scientific orientation Mean = 23.60 SD = 3.21	Low < (22.00)	19	31.67	18	30.00	37	30.83
		Medium (22.00-25.20)	21	35.00	19	31.67	40	33.33
		High >(25.20)	20	33.33	23	38.33	43	35.83
10.	Risk orientation Mean = 18.70 SD = 2.78	Low < (17.31)	12	20.00	18	30.00	30	25.00
		Medium (17.31-20.09)	29	48.33	22	36.67	51	42.50
		High >(20.09)	19	31.67	20	33.33	39	32.50
11.	Credit orientation Mean = 3.93 SD = 1.28	Low < (3.30)	15	25.00	26	43.33	41	34.17
		Medium (3.30-4.57)	20	33.33	18	30.00	38	31.67
		High >(4.57)	25	41.67	16	26.67	41	34.17
12.	Cosmopoliteness Mean = 4.77 SD = 1.23	Low < (4.15)	19	31.67	10	16.67	29	24.17
		Medium (4.15-5.38)	19	31.67	38	63.33	57	47.50
		High >(5.38)	22	36.67	12	20.00	34	28.33
13.	Socio-political participation Mean = 21.51 SD = 3.05	Low < (19.98)	21	35.00	26	43.33	47	39.17
		Medium (19.98-23.03)	24	40.00	16	26.67	40	33.33
		High >(23.03)	15	25.00	18	30.00	33	27.50
14.	Mass media participation Mean = 10.16 SD = 1.81	Low < (9.26)	20	33.33	12	20.00	32	26.67
		Medium (9.26-11.06)	24	40.00	23	38.33	47	39.17
		High >(11.06)	16	26.67	25	41.67	41	34.17
15.	Extension contact Mean = 21.42 SD = 2.16	Low < (20.34)	17	28.33	16	26.67	33	27.50
		Medium (20.34-22.49)	17	28.33	28	46.67	45	37.50
		High >(22.49)	26	43.33	16	26.67	42	35.00
16.	Extension participation Mean = 20.80 SD = 3.26	Low < (19.17)	18	30.00	13	21.67	31	25.83
		Medium (19.17-22.43)	23	38.33	33	55.00	56	46.67
		High >(22.43)	19	31.67	14	23.33	33	27.50
17.	Decision making ability Mean = 13.03 SD = 2.23	Low < (11.92)	19	31.67	18	30.00	37	30.83
		Medium (11.92-14.15)	23	38.33	19	31.67	42	35.00
		High >(14.15)	18	30.00	23	38.33	41	34.17
18.	Material possession Mean = 3.56 SD = 1.24	Low < (2.94)	24	40.00	14	23.33	38	31.67
		Medium (2.94-4.18)	19	31.67	29	48.33	48	40.00
		High >(4.18)	17	28.33	17	28.33	34	28.33

3.2 Overall profile characteristics of non-beneficiary pomegranate growers of NHM in Chikkaballapura and Chitradurga districts

The table 2 depicts results from the survey across two districts, Chikkaballapura and Chitradurga, along with the overall Non-beneficiaries, present a wide array of socio-economic and profile characteristics that highlight key differences and similarities between the two districts.

3.2.1 Age

The age distribution of non-beneficiary pomegranate growers in Chikkaballapura and Chitradurga districts revealed a fairly balanced representation across different age groups. Among the young age group (18-35 years), 33.33 percent of farmers from Chikkaballapura district and 30.00 percent from Chitradurga districts were represented, totaling 31.67 percent of non-beneficiaries across both the districts. In the middle age group (36-50 years), 33.33 percent of non-beneficiaries from Chikkaballapura district and 43.33 percent from Chitradurga were represented, making up a combined total of 38.33 percent across both districts. For the older age group (above 50 years), 33.33 percent of farmers from Chikkaballapura and 26.67 percent from Chitradurga are represented, amounting to 30.00 percent of non-beneficiaries in both districts combined. This group likely has substantial farming experience, though they might face challenges in adopting modern farming techniques or accessing new technologies due to factors such as limited physical mobility or resistance to change. However, their involvement in pomegranate cultivation indicated a sustained interest in farming even in later years.

3.2.2 Education

The educational distribution among the respondents showed varied levels of attainment. A notable 33.33 percent of the individuals had completed their Secondary School Leaving Certificate (SSLC), while 26.67 percent have completed their Pre-University Course (PUC), and 30.00 percent overall hold secondary education credentials. Additionally, 6.67 percent of people have attained post-graduation qualifications, and 6.67 percent have reached primary school level education.The percentage of individuals who were illiterate was 8.33%, with 1.67 percent of the group only able to read and write. Furthermore, 11.67 percent of people had completed middle school education, while 6.67 percent completed primary school. A smaller portion, 6.67 percent, had a degree qualification, while 10.00 percent of the respondents completed post-graduate studies. The data reflects a uniform spread of education levels, with a larger portion having completed their secondary education (SSLC and PUC), while higher education levels such as degree and post-graduation qualifications were less common.

Overall, the educational profile of non-beneficiary pomegranate growers indicated that while there was a significant portion with some level of formal education, there was also a notable proportion of illiterate and lower-educated farmers who might face challenges in accessing modern agricultural knowledge and Government schemes. Increasing educational outreach and providing training that considers varying educational backgrounds could help improve their participation in schemes such as NHM and other programmes organized by development departments. Additionally, awareness programs could help bridge the knowledge gap for less-educated farmers, fostering their engagement in contemporary farming practices.

3.2.3 Land holding

The landholding distribution among non-beneficiary pomegranate growers in Chikkaballapura and Chitradurga districts revealed a mix of small, medium, and large landowners. A significant proportion of non-beneficiaries possess small landholdings, with 43.33 percent of farmers in Chikkaballapura district and 33.33 percent in Chitradurga district having holdings of up to 2.5 acres. This accounts for 38.33 percent of non-beneficiaries overall. Small landholders were often limited in their ability to invest in advanced agricultural technologies or expand their farming operations, which might be hinder their participation in large-scale schemes such as the National Horticulture Mission (NHM). In terms of medium-sized landholdings (ranging from 2.51 to 5 acres), 26.67 percent of non-beneficiaries in Chikkaballapura district and 50.00 percent in Chitradurga district fall under this category, totaling 38.33 percent of non-beneficiaries overall. Medium-sized landholders were likely to have more access to resources compared to small landholders, allowing them to adopt improved farming techniques, invest in infrastructure, and potentially benefit from Government schemes. A smaller proportion of non-beneficiaries own large landholdings (above 5 acres), with 30.00 percent of farmers from Chikkaballapura district and 16.67 percent from Chitradurga representing this category, totaling 23.33 percent. However, the relatively lower percentage of large landholders among non-beneficiaries suggested that factors other than land size, such as financial resources, lack of awareness, or a reluctance to participate in Government programmes, could be preventing these farmers from benefiting from NHM.

3.2.4 Farming experience

The farming experience distribution among non-beneficiary pomegranate growers in Chikkaballapura and Chitradurga districts highlighted a varied level of expertise in pomegranate cultivation. A significant proportion of farmers, 33.33 percent in Chikkaballapura district and 26.67 percent in Chitradurga district, have less than 10 years of farming experience, representing 30.00 percent of the overall non-beneficiary group. The group with farming experience between 10 to 20 years forms the largest segment, with 36.67 percent in Chikkaballapura district and 46.67 percent in Chitradurga district, accounting for 41.67 percent of non-beneficiaries overall. These farmers likely possess a moderate level of expertise and practical knowledge, which could make them more open to adopting improved farming techniques. However, despite their experience, they might still face obstacles such as limited access to advanced technology, new emergent of pest and diseases, financial resources, or information about Government schemes like NHM, which could help them increase their productivity. Finally, the farmers with over 20 years of experience constitute 30.00 percent in Chikkaballapura district and 26.67 percent in Chitradurga district, making up 28.33 percent of the total group of non-beneficiaries. With their extensive farming backgrounds, these farmers were likely well-versed in traditional farming practices and have a deeper understanding of the challenges specific to pomegranate cultivation.

3.2.5 Management orientation

The management orientation of non-beneficiary pomegranate growers in Chikkaballapura and Chitradurga districts exhibited a predominantly medium level of management orientation among the farmers. In Chikkaballapura district, 23.33 percent of farmers fall under the low management orientation category, while in Chitradurga, 33.33 percent of farmers were classified as having low management orientation. Together, this category accounts for 28.33 percent of the total non-beneficiary group. The majority of farmers, 50.00 percent in both Chikkaballapura district and Chitradurga, fall into the medium management orientation category, representing 50.00 percent of the total non-beneficiary group. A smaller proportion of farmers, 26.67 percent in Chikkaballapura and 16.67 percent in Chitradurga, are classified as having a high management orientation, making up 21.67 percent of the overall group. These farmers were likely to demonstrate strong organizational and decision-making abilities, which could significantly contribute to the success of their pomegranate farming operations. However, despite their high management orientation, this group remains a minority, indicating that most farmers could benefit from additional training and support to further develop their management skills.

3.2.6 Achievement motivation

The achievement motivation of non-beneficiary pomegranate growers in Chikkaballapura and Chitradurga districts showed a varied distribution, 30.00 percent of farmers in Chikkaballapura district and 30.00 percent in Chitradurga district fall under the low achievement motivation category, representing 30.00 percent of the total non-beneficiary group. A larger proportion, 40.00 percent in Chikkaballapura district and 43.33 percent in Chitradurga district, are in the medium achievement motivation category, representing 41.67 percent of the overall group. In the high achievement motivation category, 30.00 percent of farmers in Chikkaballapura district and 26.67 percent in Chitradurga district fall under this group, collectively representing 28.33 percent of the total non-beneficiary group. These farmers likely had a strong desire to improve their farming operations, pursue higher yields, and adopt more innovative practices. They tend to set higher goals and are more driven to succeed. Nevertheless, as this group still forms a minority, it was crucial to focus on boosting the achievement motivation of the other groups to help all farmers reach their full potential.

3.2.7 Innovativeness

In Chikkaballapura, 23.33 percent of farmers fall under the low innovativeness category, while in Chitradurga, 26.67 percent of farmers were categorized similarly. Together, these low innovators make up 25.00 percent of the overall non-beneficiary group. Farmers in this category might exhibit limited interest in exploring and implementing new practices or technologies in their farming operations. The medium innovativeness group comprises 36.67 percent of farmers in Chikkaballapura district and 50.00 percent in Chitradurga district, totaling 43.33 percent of the overall group. These farmers show a moderate willingness to explore new ideas and methods but might need additional motivation or support to fully embrace innovation. In the high innovativeness category, 40.00 percent of farmers in Chikkaballapura and 23.33 percent in Chitradurga, or 31.67 percent of the total non-beneficiary group, demonstrate a strong inclination towards adopting innovative practices. These farmers were likely to experiment with new farming techniques, tools, and technologies that could lead to enhanced productivity and sustainability. They were more likely to be early adopters of new practices that could improve the overall efficiency and profitability of their pomegranate farming operations.

3.2.8 Economic orientation

In Chikkaballapura, 40.00 percent of the farmers fall under the low economic orientation category, while in Chitradurga, 43.33 percent were categorized as having a low economic orientation. Overall, 41.67 percent of the non-beneficiary farmers exhibited low economic orientation. These farmers might have limited attention toward economic aspects such as cost-effectiveness, profitability, or financial planning in their farming practices. The medium economic orientation category was represented by 33.33 percent of farmers in Chikkaballapura and only 3.33 percent in Chitradurga, accounting for 18.33 percent of the total non-beneficiary group. These farmers likely pay moderate attention to the economic factors in their farming decisions, balancing production goals with financial considerations. In the high economic orientation category, 26.67 percent of farmers in Chikkaballapura district and 53.33 percent in Chitradurga district or 40.00 percent of the total non-beneficiary group, demonstrate a strong focus on the economic aspects of their farming. Their strong economic orientation positions them to adopt more profitable and financially sustainable farming practices. Encouraging the sharing of best practices among high-economic-orientation farmers could help disseminate more efficient farming methods across the broader farming community.

3.2.9 Scientific orientation

In Chikkaballapura, 30.00 percent of farmers fall under the low scientific orientation category, while in Chitradurga district, 40.00 percent of farmers belong to this group. This resulted in a combined 35.00 percent of non-beneficiary farmers across both the districts showing low scientific orientation. To address this, efforts should be made to educate and train these farmers on the benefits of scientific approaches, such as the use of improved varieties, pest and disease management, and soil health improvement. The medium scientific orientation category includes 46.67 percent of farmers from Chikkaballapura district and 43.33 percent from Chitradurga district, making up a total of 45.00 percent of all non-beneficiary farmers. These farmers exhibited a moderate level of scientific engagement, indicating that they might occasionally use scientific techniques but might not consistently integrate them into their day-to-day farming operations. The high scientific orientation category comprises 23.33 percent of farmers in Chikkaballapura district and 16.67 percent in Chitradurga district, resulting in a total of 20.00 percent of the non-beneficiary farmers with a high scientific orientation. These farmers were more likely to adopt and apply advanced agricultural technologies, scientific research and innovations in their farming practices. Their scientific orientation positions them to make informed decisions that could improve productivity, sustainability, and long-term viability in pomegranate farming.

3.2.10 Risk orientation

In Chikkaballapura, 23.33 percent of farmers fall under the low risk orientation category, indicating that these farmers tend to avoid risk and prefer more stable, less uncertain farming practices. In contrast, Chitradurga district has a higher percentage (46.67%) of farmers in the low-risk category, suggesting that farmers in this district are more cautious and risk-averse. The medium-risk orientation category includes 50.00 percent of farmers in Chikkaballapura district and 10.00 percent in Chitradurga district, resulting in a combined total of 30.00 percent of non-beneficiary farmers across both districts. Given that a significant portion of farmers in Chikkaballapura fall under this category, there was an opportunity to further educate and encourage them to move towards higher risk-taking behaviors, particularly when it comes to adopting new technologies or practices that could improve their productivity. The high-risk orientation category comprises 26.67 percent of farmers in Chikkaballapura district and 43.33 percent in Chitradurga district, making up a total of 35.00 percent of the non-beneficiary farmers. Their higher risk orientation suggested they might be more open to experimenting with new techniques and innovations, which could lead to greater productivity and potentially higher profits. Encouraging these farmers to share their experiences and findings with other growers could help foster a more risk-acceptant culture in the community, further driving the adoption of innovative and productive farming practices.

3.2.11 Credit orientation

In Chikkaballapura, 23.33 percent of farmers fall under the low credit orientation category, meaning they have limited access to or interest in utilizing credit for their farming operations. In contrast, Chitradurga district has a slightly higher percentage (30.00%) of farmers in the low credit category, suggesting that these farmers were more hesitant to engage with financial institutions or rely on credit for their agricultural needs. The medium credit orientation category includes 53.33 percent of farmers in Chikkaballapura district, but only 6.67 percent of farmers in Chitradurga district, leading to a combined total of 30.00 percent of non-beneficiary farmers across both districts.

This indicated that a significant portion of Chikkaballapura district farmers were somewhat engaged with credit, using it on occasion to support their farming activities. The high credit orientation category showed a noticeable difference between the districts: 23.33 percent of farmers in Chikkaballapura district and 63.33 percent in Chitradurga district are in this category. In total, 43.33 percent of non-beneficiary farmers across both districts have a high orientation toward credit, indicating that a substantial proportion of Chitradurga district farmers were more comfortable using credit for agricultural investment and expansion of farm operations.

3.2.12 Cosmopoliteness

In Chikkaballapura, 26.67 percent of farmers fall under the low cosmopoliteness category, suggesting that these farmers had limited exposure to external information and practices. In contrast, in Chitradurga district, 36.67 percent of farmers fall under the low cosmopoliteness category, showing that a relatively higher percentage of farmers in this district had limited external exposure, which could impact their awareness of technological advancements, agricultural policies, or new market opportunities which were happening around them. The medium cosmopoliteness category in Chikkaballapura district includes 53.33 percent of the farmers, signifying that more than half of the farmers in this district have a moderate level of exposure to outside influences. However, no farmers in Chitradurga fall under this medium category, and the combined total for both districts is 26.67 percent. This suggested that Chitradurga's farmers had either a stronger preference for local sources of information or lack the necessary exposure to broader agricultural networks and knowledge. In the high cosmopoliteness category, 20.00 percent of farmers in Chikkaballapura district and 63.33 percent in Chitradurga district were represented, indicating that Chitradurga has a significantly higher proportion of farmers with strong exposure to external agricultural practices, innovations, and knowledge. In comparison, only a smaller percentage of Chikkaballapura district farmers (20.00%) fall into the high cosmopoliteness category, which could imply that fewer farmers in this district were as outward-looking or connected to external agricultural networks.

3.2.13 Socio-political participation

In Chikkaballapura, 36.67 percent of the farmers fall under the low socio-political participation category, indicating that a significant proportion of farmers in this district were less involved in activities such as local governance, community organizations, or social movements. In Chitradurga district, the percentage of farmers in the low participation category was slightly higher at 40.00 percent, suggesting that farmers in this district were somewhat less likely to participate in socio-political activities compared to their counterparts in Chikkaballapura district. The medium socio-political participation category was the largest in both districts, with 36.67 percent of Chikkaballapura district farmers and 36.67 percent of Chitradurga district farmers falling into this category. This level of engagement could provide them with a platform for voicing their concerns, gaining access to Government schemes, or learning about new farming technologies or market trends. The high socio-political participation category includes 26.67 percent of farmers in Chikkaballapura district and 23.33 percent in Chitradurga district. This level of engagement can empower them to influence local governance and agricultural policies, potentially benefiting their farming practices and improving community welfare.

3.2.14 Mass media participation

In Chikkaballapura, 20.00 percent of farmers were classified in the low mass media participation category, indicating that a small proportion of farmers in this district have limited engagement with media. In contrast, 50.00 percent of the farmers in Chikkaballapura district fall under the medium participation category, suggesting that half of the farmers utilize media to a moderate extent, likely accessing agricultural news, updates, and other relevant information through newspapers, radio programmes, or television broadcasts. Additionally, 30.00 percent of Chikkaballapura district farmers were highly engaged with mass media, implying that these individuals frequently access media outlets for information, possibly using digital platforms, agricultural websites, and news broadcasts to stay informed about market trends, Government schemes, and new farming techniques. Similarly, in Chitradurga district, the low participation group was slightly higher at 30.00 percent, indicating that a greater portion of farmers in this district have limited access to or engagement with mass media.

However, 50.00 percent of Chitradurga district farmers fall under the medium participation category, aligning with the trend observed in Chikkaballapura district, suggesting that half of the farmers in this district engage moderately with media. The remaining 20.00 percent of Chitradurga district farmers were highly involved in mass media, indicated that they are more actively engaged in seeking information from media sources.

Table 2: Overall Profile characteristics of non-beneficiary pomegranate growers of NHM in Chikkaballapura and Chitradurga districts

(n = 60)

Sl. No.	Profile Characteristics	Category	Chikkaballapura Non-beneficiaries (n_1 = 30)		Chitradurga Non-beneficiaries (n_2 = 30)		Overall Non-beneficiaries (n = 60)	
			f	%	f	%	f	%
1.	Age	Young age (18-35)	10	33.33	9	30.00	19	31.67
		Middle age between (36-50)	10	33.33	13	43.33	23	38.33
		Old age (>50)	10	33.33	8	26.67	18	30.00
2.	Education	Illiterate(0)	4	13.33	1	3.33	5	8.33
		Can only read and write	0	0.00	1	3.33	1	1.67
		Primary school	2	6.67	2	6.67	4	6.67
		Middle school	1	3.33	6	20.00	7	11.67
		SSLC	10	33.33	8	26.67	18	30.00
		PUC	8	26.67	8	26.67	16	26.67
		Degree	3	10.00	1	3.33	4	6.67
		Post-graduation	2	6.67	4	13.33	6	10.00
3.	Land holding	Small Upto 2.5 acres	13	43.33	10	33.33	23	38.33
		Medium (2.51 to 5.0 acres)	8	26.67	15	50.00	23	38.33
		Large Above 5 acres	9	30.00	5	16.67	14	23.33
4.	Farming experience	< 10 years	10	33.33	8	26.67	18	30.00
		10-20 years	11	36.67	14	46.67	25	41.67
		> 20 years	9	30.00	8	26.67	17	28.33
5.	Management orientation Mean = 36.25 SD = 3.68	Low < (34.41)	7	23.33	10	33.33	17	28.33
		Medium (34.41-38.09)	15	50.00	15	50.00	30	50.00
		High >(38.09)	8	26.67	5	16.67	13	21.67
6.	Achievement motivation Mean = 18.20 SD = 3.70	Low < (16.35)	9	30.00	9	30.00	18	30.00
		Medium (16.35-20.05)	12	40.00	13	43.33	25	41.67
		High >(20.05)	9	30.00	8	26.67	17	28.33
7.	Innovativeness Mean = 5.52 SD = 1.97	Low < (4.53)	7	23.33	8	26.67	15	25.00
		Medium (4.53-6.50)	11	36.67	15	50.00	26	43.33
		High >(6.50)	12	40.00	7	23.33	19	31.67
8.	Economic orientation Mean = 16.38 SD = 2.60	Low < (15.08)	12	40.00	13	43.33	25	41.67
		Medium (15.08-17.69)	10	33.33	1	3.33	11	18.33
		High >(17.69)	8	26.67	16	53.33	24	40.00
9.	Scientific orientation Mean = 23.67 SD = 2.68	Low < (22.24)	9	30.00	12	40.00	21	35.00
		Medium (22.24-25.09)	14	46.67	13	43.33	27	45.00
		High >(25.09)	7	23.33	5	16.67	12	20.00
10.	Risk orientation Mean = 18.63 SD = 2.73	Low < (17.27)	7	23.33	14	46.67	21	35.00
		Medium (17.27-20.00)	15	50.00	3	10.00	18	30.00
		High >(20.00)	8	26.67	13	43.33	21	35.00
11.	Credit orientation Mean = 3.20 SD = 1.38	Low < (2.51)	7	23.33	9	30.00	16	26.67
		Medium (2.51-3.89)	16	53.33	2	6.67	18	30.00
		High >(3.89)	7	23.33	19	63.33	26	43.33
12.	Cosmopoliteness Mean = 4.18 SD = 1.43	Low < (3.47)	8	26.67	11	36.67	19	31.67
		Medium (3.47-4.90)	16	53.33	0	0.00	16	26.67
		High >(4.90)	6	20.00	19	63.33	25	41.67
13.	Socio-political participation Mean = 19.92 SD = 2.71	Low < (18.56)	11	36.67	12	40.00	23	38.33
		Medium (18.56-21.2)	11	36.67	11	36.67	22	36.67
		High >(21.27)	8	26.67	7	23.33	15	25.00
14.	Mass media participation Mean = 10.45 SD = 1.84	Low < (9.53)	6	20.00	9	30.00	15	25.00
		Medium (9.53-11.37)	15	50.00	15	50.00	30	50.00
		High >(11.37)	9	30.00	6	20.00	15	25.00
15.	Extension contact Mean = 20.52 SD = 2.51	Low < (19.26)	11	36.67	13	43.33	24	40.00
		Medium (19.26-21.77)	11	36.67	1	3.33	12	20.00
		High >(21.77)	8	26.67	16	53.33	24	40.00
16.	Extension participation Mean = 19.18 SD = 2.73	Low < (17.82)	12	40.00	6	20.00	18	30.00
		Medium (17.82-20.55)	7	23.33	13	43.33	20	33.33
		High >(20.55)	11	36.67	11	36.67	22	36.67
17.	Decision making ability Mean = 12.60 SD = 2.02	Low < (11.59)	5	16.67	9	30.00	14	23.33
		Medium (11.59-13.61)	10	33.33	11	36.67	21	35.00
		High >(13.61)	15	50.00	10	33.33	25	41.67
18.	Material possession Mean = 3.40 SD = 1.38	Low < (2.71)	6	20.00	10	33.33	16	26.67
		Medium (2.71-4.09)	14	46.67	13	43.33	27	45.00
		High >(4.09)	10	33.33	7	23.33	17	28.33

3.2.15 Extension contact

In Chikkaballapura, 36.67 percent of farmers fall into the low extension contact category, showing that a considerable proportion of farmers have limited interaction with extension services. Another 36.67 percent of farmers in this district were classified as medium, which indicates a moderate level of contact. Interestingly, only 26.67 percent of farmers had high extension contact, suggested that fewer farmers in this district are engaging regularly with extension services. In contrast, Chitradurga district shows a different pattern. A higher proportion of farmers, 43.33 percent, fall under the low extension contact category, which is higher than in Chikkaballapura. However, only 3.33 percent of Chitradurga district farmers were in the medium category and 53.33 percent were classified as having high extension contact. This suggested that a larger proportion of farmers in Chitradurga district had frequent interaction with extension services compared to Chikkaballapura district. When comparing both districts to the overall profile, Chitradurga farmers stand out with a higher percentage (53.33%) of high extension contact compared to Chikkaballapura (26.67%). This indicated that Chitradurga farmers were more actively engaged with extension services. On the other hand, Chikkaballapura has a more balanced distribution, with 36.67 percent in both the low and medium categories. Overall, there was a clear contrast between the two districts in terms of extension contact.

3.2.16 Extension participation

In Chikkaballapura, 40.00 percent of farmers had low extension participation, which was the highest proportion across all categories. This suggested that a significant number of farmers in this district were either unaware of or less engaged in extension activities. A smaller group, 23.33 percent, have medium participation, indicating occasional engagement with extension programs, while 36.67 % reported high participation, showing that some farmers were actively involved in these activities. On the other hand, Chitradurga district has a different pattern of participation. Only 20.00 percent of farmers have low extension participation, indicating that fewer farmers in this district were disengaged from extension programs compared to Chikkaballapura district. A larger proportion, 43.33 percent, fall under the medium participation category. suggesting that many farmers in Chitradurga district participated in extension activities to a moderate extent. Additionally, 36.67 percent of farmers in Chitradurga district were highly engaged in extension services, which mirrors the high participation rate seen in Chikkaballapura district. Overall, when comparing the two districts, Chikkaballapura district has a higher proportion of farmers in the low participation category (40.00 % compared to 20.00 % in Chitradurga). On the other hand, Chitradurga district showed a relatively balanced participation pattern, with a strong portion (43.33 %) in the medium participation category. Both districts have a similar percentage of farmers (36.67%) in the high participation category, highlighting that a significant number of farmers in both areas were actively involved in extension programs.

3.2.17 Decision making ability

In Chikkaballapura, half of the farmers exhibited a high decision-making ability, which was the largest proportion in the district. However, 33.33 percent of farmers fall under the medium category, indicating that a moderate portion of the population demonstrates average decision-making skills. The remaining 16.67 percent were in the low category, indicating that a smaller portion struggles with decision-making. In Chitradurga district, 33.33 percent of farmers also exhibited a high decision-making ability, but this was a smaller proportion compared to Chikkaballapura district. This district has a slightly higher proportion (36.67 %) in the medium decision-making category, indicating that more farmers here have average decision-making skills. Interestingly, the low decision-making category in Chitradurga district was higher at 30.00 percent, which means a larger number of farmers in this district might face challenges in making decisions related to their farming practices. When comparing both the districts to the overall profile of non-beneficiary pomegranate growers, Chikkaballapura stands out with a higher proportion of farmers exhibiting high decision-making ability (50.00 %), which is significantly higher than Chitradurga's 33.33 percent. Conversely, Chitradurga has a larger proportion of farmers (36.67 %) in the medium decision-making category compared to Chikkaballapura district, indicated that while Chitradurga farmers might have a more balanced skill set, they still showed more average decision-making abilities.

3.2.18 Material possession

In Chikkaballapura district, nearly half of farmers fall into the medium material possession category, indicating that a significant proportion of farmers in this district possess a moderate level of material assets. Around 1/3rd of the farmers were classified as high, suggesting that a notable portion of farmers own more substantial assets. However, 1/5th of the farmers falls under the low material possession category, indicating that fewer farmers in this district have minimal assets. Chitradurga district has a more evenly distributed pattern, with 43.33 percent of farmers falling under the medium category, which is similar to Chikkaballapura. However, Chitradurga has a higher proportion 1/3rd of farmers were in low material possession category. The high material possession category is smaller, with 23.33 percent of farmers in this district, indicating fewer farmers with substantial material assets compared to Chikkaballapura district. A larger proportion of Chikkaballapura farmers (33.33%) possess high levels of material assets compared to Chitradurga district (23.33 %), indicated that Chikkaballapura district farmers are relatively better off in terms of material resources. On the other hand, Chitradurga's district higher percentage of them had low material possession category (33.33 %) indicated that some farmers in this district might face challenges in accumulating significant assets, which could affect their overall productivity.

3.3 Comparison between profile characteristics between beneficiary & non-beneficiary pomegranate growers of NHM in Chikkaballapura district

The table 3 presented the results of a Mann-Whitney U test comparing various profile characteristics between beneficiary and non-beneficiary pomegranate growers of the National Horticulture Mission (NHM) in Chikkaballapura district. The analysis focused on differences in multiple profile characteristics.

Table 3: Comparison between profile characteristics between beneficiary & non-beneficiary pomegranate growers of NHM in Chikkaballapura district

(n-90)

Sl. No.	Profile characteristics	Mann Whitney U Test statistic	Z Value	P Value
1.	Age	863.0^{NS}	0.32	0.75
2.	Education	780.0^{NS}	1.06	0.29
3.	Land holding	765.0^{NS}	1.16	0.25
4.	Farming experience	863.0^{NS}	0.31	0.75
5.	Management orientation	640.0*	2.24	0.03
6.	Achievement motivation	629.0*	2.34	0.02
7.	Innovativeness	669.0*	2.01	0.04
8.	Economic motivation	801.0^{NS}	0.85	0.39
9.	Scientific orientation	842.0^{NS}	0.50	0.62
10.	Risk orientation	850.0^{NS}	0.43	0.67
11.	Credit orientation	619.0*	2.47	0.01
12.	Cosmopoliteness	673.0*	2.00	0.05
13.	Socio-political participation	567.5*	2.86	0.00
14.	Mass media exposure	823.0^{NS}	0.67	0.50
15.	Extension contact	698.0^{NS}	1.74	0.08
16.	Extension participation	606.0*	2.53	0.01
17.	Decision making ability	808.0^{NS}	0.80	0.43
18.	Material possession	892.0^{NS}	0.07	0.95

*:Significant at 5% level of significance, NS:Non significant

A comparison between beneficiary and non-beneficiary pomegranate growers revealed significant differences in several key characteristics. Beneficiary growers exhibited a stronger management orientation, higher achievement motivation, greater innovativeness and a more favorable orientation toward credit. They also scored higher on cosmopoliteness, were more engaged in socio-political activities, and participated more actively in extension programmes. These findings highlighted that beneficiaries of the NHM programme tend to be more motivated, innovative, community-oriented, and involved with extension services.

However, no significant differences were found between the two groups in several personal and socio-economic factors, including age, education, landholding size, farming experience, economic motivation, scientific orientation, risk orientation, mass media exposure, extension contact, decision-making ability and material possession. These results inferred that the NHM programme did not discriminate based on these factors for participation. Overall, while several characteristics related to motivation, innovation, and community engagement significantly differentiate beneficiaries from non-beneficiaries, personal and socio-economic factors like age, education and landholding did not show any significant differences.

3.4 Comparison between profile characteristics between beneficiary & non-beneficiary pomegranate growers of NHM in Chitradurga district

The table 4 presented the results of the Mann-Whitney U test comparing various profile characteristics between beneficiary and non-beneficiary pomegranate growers of the National Horticulture Mission (NHM) in Chitradurga district. Below is a discussion of the findings,

A Mann Whitney U test was conducted to compare various profile characteristics between beneficiary and non-beneficiary pomegranate growers under the National Horticulture Mission (NHM) in Chitradurga district, revealed both significant and non-significant differences. Significant differences were found in several areas, with beneficiary growers having more farming experience, higher innovativeness, and a stronger orientation towards credit use. Additionally, beneficiaries showed greater cosmopoliteness, more interaction with extension services, and higher participation in extension programs compared to non-beneficiaries.

The profile characteristics like age, education, landholding, management orientation, achievement motivation, and economic motivation did not show significant differences, beneficiary pomegranate growers in Chitradurga district demonstrated greater advantages in farming experience, innovativeness, credit orientation, cosmopoliteness, extension contact, and extension participation compared to their non-beneficiary counterparts.

Table 4: Comparison between profile characteristics between beneficiary & non-beneficiary pomegranate growers of NHM in Chitradurga district

(n = 90)

Sl. No.	Profile characteristics	Mann Whitney U Test statistic	Z Value	P Value
1.	Age	711.0^{NS}	1.61	0.15
2.	Education	763.0^{NS}	1.16	0.24
3.	Land holding	774.0^{NS}	1.06	0.28
4.	Farming experience	665.5*	7.97	0.05
5.	Management orientation	786.5^{NS}	0.96	0.27
6.	Achievement motivation	880.0^{NS}	0.16	0.11
7.	Innovativeness	657.5*	2.14	0.03
8.	Economic motivation	716.5^{NS}	1.56	0.74
9.	Scientific orientation	854.5^{NS}	0.38	0.16
10.	Risk orientation	860.5^{NS}	0.33	0.74
11.	Credit orientation	667.5*	1.98	0.04
12.	Cosmopoliteness	665.5*	2.00	0.05
13.	Socio-political participation	738.0^{NS}	1.38	0.14
14.	Mass media exposure	862.0^{NS}	0.32	0.07
15.	Extension contact	629.5*	2.45	0.03
16.	Extension participation	656.5*	2.13	0.04
17.	Decision making ability	815.0^{NS}	0.72	0.41
18.	Material possession	795.0^{NS}	0.89	0.47

*:Significant at 5% level of significance, NS:Non significant

3.5 Overall Comparison between profile characteristics between Chikkaballapura and Chitradurga district NHM beneficiary pomegranate growers

The table 5 depicts the results of the Mann-Whitney U test comparing various profile characteristics between NHM beneficiary pomegranate growers in Chikkaballapura and Chitradurga districts. Below is a discussion of the findings:

The Mann Whitney U test was used to compare the profile characteristics of NHM beneficiary pomegranate growers from Chikkaballapura and Chitradurga districts, revealing both significant and non-significant differences across various factors. Significant differences were observed in several areas, with Chikkaballapura growers displaying higher levels of management orientation, achievement motivation, and a stronger orientation toward credit use. They also scored higher in cosmopoliteness, were more

engaged in socio-political activities, and had more frequent extension contacts compared to their counterparts in Chitradurga district.

On the other hand, no significant differences were found between the two groups in characteristics such as age, education, landholding size, farming experience, innovativeness, economic motivation, scientific orientation, risk orientation, mass media exposure, extension participation, decision-making ability, and material possession.

Table 5: Overall Comparison between profile characteristics between Chikkaballapura and Chitradurga district NHM beneficiary pomegranate growers

(n = 120)

Sl. No	Profile characteristics	Mann Whitney U Test statistic	Z Value	P Value
1.	Age	1697.0^{NS}	0.54	0.59
2.	Education	1500.0^{NS}	1.62	0.11
3.	Land holding	1562.0^{NS}	1.25	0.21
4.	Farming experience	1791.0^{NS}	0.05	0.96
5.	Management orientation	1345.0*	2.40	0.02
6.	Achievement motivation	1037.0*	4.03	0.00
7.	Innovativeness	1786.0^{NS}	0.07	0.94
8.	Economic motivation	1753.0^{NS}	0.25	0.81
9.	Scientific orientation	1573.0^{NS}	1.20	0.23
10.	Risk orientation	1477.0^{NS}	1.71	0.09
11.	Credit orientation	1392.0*	2.20	0.03
12.	Cosmopoliteness	1428.0*	2.02	0.04
13.	Socio-political participation	1307.0*	2.61	0.01
14.	Mass media exposure	1614.0^{NS}	0.99	0.32
15.	Extension contact	1413.5*	2.05	0.04
16.	Extension participation	1517.0^{NS}	1.49	0.14
17.	Decision making ability	1487.0^{NS}	1.66	0.10
18.	Material possession	1716.0^{NS}	0.45	0.65

*:Significant at 5% level of significance, NS:Non significant

The results showed that several characteristics, including management orientation, achievement motivation, credit orientation, cosmopoliteness, socio-political participation, extension contact, and extension participation, significantly differentiate between NHM beneficiary pomegranate growers in Chikkaballapura and Chitradurga districts. These factors suggested that farmers who were more motivated, open to external influences and engaged with extension services were more likely to benefit from the NHM program. However, characteristics such as age, education, land holding, farming experience and material possession did not show significant differences, implying that these factors did not strongly influence the selection of beneficiaries in either district.

3.6 Overall comparison between profile characteristics between Chikkaballapura and Chitradurga NHM non-beneficiary pomegranate growers

The table 6 presented the results of the Mann-Whitney U test comparing the profile characteristics of NHM non-beneficiary pomegranate growers between Chikkaballapura and Chitradurga districts. Below is the interpretation of the findings.

Table 6: Overall comparison between profile characteristics between Chikkaballapura and Chitradurga NHM non-beneficiary pomegranate growers

(n = 60)

Sl. No.	Profile characteristics	Mann Whitney U Test statistic	Z Value	P Value
1.	Age	349.0^{NS}	1.50	0.13
2.	Education	393.0^{NS}	0.86	0.39
3.	Land holding	394.0^{NS}	0.82	0.41
4.	Farming experience	349.0^{NS}	1.49	0.14
5.	Management orientation	398.0^{NS}	0.77	0.44
6.	Achievement motivation	410.0^{NS}	0.59	0.56
7.	Innovativeness	387.0^{NS}	0.95	0.34
8.	Economic motivation	402.0^{NS}	0.71	0.48
9.	Scientific orientation	369.0^{NS}	1.20	0.23
10.	Risk orientation	329.0^{NS}	1.80	0.07
11.	Credit orientation	371.0^{NS}	1.19	0.23
12.	Cosmopoliteness	363.0^{NS}	1.31	0.19
13.	Socio-political participation	418.0^{NS}	0.47	0.64
14.	Mass media exposure	386.0^{NS}	0.97	0.33
15.	Extension contact	390.0^{NS}	0.90	0.37
16.	Extension participation	412.0^{NS}	0.57	0.57
17.	Decision making ability	363.0^{NS}	1.31	0.19
18.	Material possession	377.0^{NS}	1.10	0.27

*:Significant at 5% level of significance, NS:Non significant

The findings indicated that there were no significant differences between NHM non-beneficiary pomegranate growers from Chikkaballapura and Chitradurga districts across various profile characteristics. Both the districts groups exhibited similar levels in factors such as age, education, land holding size, and farming experience. Additionally, management orientation, achievement motivation, and innovativeness were comparable between the two groups. Economic motivation, scientific orientation and risk orientation did not differ significantly, nor did credit orientation, cosmopoliteness, socio-political participation, mass media exposure, extension contact and extension participation. Moreover, decision-making ability and material possession were similar across both groups. In conclusion, the analysis showed that NHM non-beneficiary growers in both the districts shared similar characteristics in terms of socio-economic factors and other personal attributes.

4. Conclusion

The present study was concluded that, the study revealed that both beneficiary and non-beneficiary pomegranate growers under the National Horticulture Mission (NHM) largely belonged to the middle age group and had PUC-level education, indicating a fairly comparable demographic background. Beneficiary growers generally exhibited medium levels of landholding, farming experience, management orientation, achievement motivation, economic orientation, risk orientation, and decision-making ability, with relatively higher scientific orientation and moderate exposure to extension services and mass media. However, innovativeness and extension participation were comparatively low among beneficiaries, suggesting the need for greater emphasis on capacity-building and technology adoption. Further, non-beneficiary growers also showed predominantly medium levels across most profile characteristics, including management orientation, achievement motivation, innovativeness, scientific orientation, mass media participation, and material

possession. They demonstrated higher levels of credit orientation, cosmopoliteness, and extension participation compared to beneficiaries, but lower economic and risk orientation. Overall, the findings underscore that participation in NHM plays a significant role in shaping growers' characteristics and highlights the importance of strengthening farmer involvement and extension support for more effective implementation and enhanced benefits of the NHM scheme.

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