# Socio-Psychological Paradigms and Economic Metrics of Beneficiary Farmers under Centrally Sponsored Agricultural Schemes: A Comprehensive Evaluation


## ABSTRACT

The present study focused on assessing the socio-psychological constructs and economic variables of beneficiaries of centrally sponsored agricultural schemes namely Paramparagat Krishi Vikas Yojana (PKVY), Pradhan Mantri Krishi Sinchayee Yojana (PMKSY), and the Soil Health Card Scheme (SHC). An ex post facto research design was employed in the present study. Amravati and Buldhanadistricts in Vidarbha region of Maharashtra was selected for the study. For the proposed study 60 beneficiary farmers were selected from Amravati districts and 60 beneficiary farmers were selected from Buldhana districts for each scheme. Thus, for the three schemes, a total of 360 beneficiary farmers were selected from seven selected talukas of two districts of Vidarbha for three schemes.Majority of the middle aged respondents (61.11%) having secondary school level of education (39.44%) received low level of training (59.00%), but PKVY beneficiaries received high level of training (73.33%). Majority of the overall respondents had small land holdings (40.28%) with 1.01 to 1.50 ha. of irrigation potential (41.39%) having biseasonal cropping system (96.94%). Beneficiary farmers had sound financial background with 35.83 per cent of PKVY respondents with annual income in the range of Rs. 2,07,901 to 3,35,301/-, 56.67 per cent of PMKSY respondents in an annual income range of Rs. 2,86,962 to Rs. 4,77,753/-, and 40.83 per cent of SHC respondents in the range of Rs. 2,10,101 to 3,29,701/- annual income respectively. In overall beneficiaries of centrally sponsored agricultural schemes, 63.89 per cent of the respondents had medium level of social participation, source of information (65.00%), innovativeness (58.33%), economic motivation (47.50 %) and benefits accrued (43.06%).The study revealed lower participation of older farmers, indicating a need for targeted outreach and simplified training. Educated farmers benefited more, suggesting their role in promoting new technologies. Local information sources, like friends and relatives, were crucial, emphasizing the need for Gram Sabhas and exhibitions to improve awareness and participation.



*Keywords: Socio-psychological constructs, perceived economic variables, Paramparagat Krishi Vikas Yojana (PKVY), Pradhan Mantri Krishi Sinchayee Yojana (PMKSY), Soil Health Card Scheme (SHC), Vidarbha, Maharashtra, Agricultural schemes*


## 1.INTRODUCTION

The importance of agriculture sector in the Indian economy can be understood from the fact that it contributes to 20.21 per cent of GDP of the country [6]. But agriculture sector in India has been affected with conspicuous problems like declining area of cultivation, productivity and increasing cost of cultivation.

These problems have caused a serious threat to household income of farming community. Therefore, in order to supplement the efforts to promote agricultural production and productivity through technical and financial interventions, formulation of new policies and programmes have been initiated at regular intervals aiming at achieving rapid agricultural growth and development through optimum utilization of agro-based resources of the country [15].Since independence, India's agricultural policies have focused on reducing hunger, malnutrition, and poverty [1]. In the 1950s, emphasis was on irrigation and fertilizers, followed by High Yielding Varieties (HYV) in the 1960s for food self-sufficiency. The 1970s focused on agricultural diversification for nutrition and employment, while the 1980s addressed oilseeds, pulses, and resource conservation. In the 1990s, priorities included post-harvest technologies and quality improvements. Recently, sustainable agriculture has been emphasized. By 2023, key Centrally Sponsored Schemes like PMKSY, PMFBY, SHC, PKVY, and NFSM were launched to boost farmer income and address regional needs.

In this study, the three agricultural schemes chosen for analysis are Paramparagat Krishi Vikas Yojana (PKVY), Pradhan Mantri Krishi Sinchayee Yojana (PMKSY), and the Soil Health Card Scheme. These schemes were selected because they address key components of sustainable agriculture: organic farming through PKVY, efficient water management through PMKSY, and soil health improvement through the Soil Health Card Scheme. By targeting these critical areas, the schemes contribute significantly to enhancing productivity, promoting resource conservation, and helping farmers adopt environmentally friendly practices, making them highly relevant for evaluating their impact on beneficiaries in the current agricultural landscape.

### 1.1 Paramparagat Krishi Vikas Yojana (PKVY)

The Indian agricultural sector is facing challenges due to declining profitability caused by rising input costs and stagnant output prices. According to [24], these twin issues can be effectively addressed through the broader adoption of organic farming. Organic agriculture is gaining importance in India, as it offers a solution to increasing costs and the growing impact of climate change, including erratic rainfall and extreme weather events such as floods and droughts. In response, the Indian government is promoting organic farming through the centrally sponsored Paramparagat Krishi Vikas Yojana (PKVY). Globally, around two million farmers practice certified organic farming, with approximately 80% of these farms located in India [19]. Organic farming is a production system that largely eliminates the use of synthetic fertilizers, pesticides, growth regulators, and livestock feed additives. Various global and national agencies have defined organic farming. The Food and Agriculture Organization (FAO) describes it as a unique production system that enhances agro-ecosystem health, biodiversity, and biological activity through agronomic, biological, and mechanical methods, avoiding synthetic off-farm inputs. The International Federation of Organic Agriculture Movements (IFOAM) defines organic farming as a system that maintains the health of soils, ecosystems, and people, relying on ecological processes and biodiversity adapted to local conditions rather than harmful inputs. Organic agriculture, according to

IFOAM, blends tradition, innovation, and science to benefit the environment and promote fair relationships and improved quality of life for all participants. Additionally, the Codex Alimentarius Commission, a joint body of the FAO, defines organic farming as a holistic food production system that promotes ecosystem health by enhancing biodiversity, biological cycles, and soil activity, focusing on management practices over external inputs and emphasizing locally adapted systems [19].

#### 1.1.1 Objectives ofParamparagat Krishi Vikas Yojana (PKVY)

i. To encourage the adoption of integrated, climate-resilient farming systems based on natural resources, aimed at preserving and enhancing soil fertility, conserving natural resources, promoting on-farm nutrient recycling, and minimizing farmers' reliance on external inputs.
ii. To lower agricultural costs for farmers by promoting sustainable organic farming practices, thereby increasing their net income per unit of land.
iii. To produce healthy, chemical-free, and nutritious food sustainably for human consumption.
iv. To protect the environment from harmful inorganic chemicals by encouraging eco-friendly, cost-effective traditional methods and farmer-friendly technologies.
v. To empower farmers by fostering their institutional development through the formation of clusters and groups capable of managing production, processing, value addition, and certification processes.
vi. To turn farmers into entrepreneurs by establishing direct market linkages with both local and national markets. [8]

### 1.2 Pradhan Mantri Krishi Sinchayee Yojana (PMKSY)

India is categorized as a water-stressed nation, as its available water supply ranges between 1,000 and 1,700 cubic meters per person annually [6]. The Pradhan Mantri Krishi Sinchayee Yojana (PMKSY) was introduced by the Central Government with the objective of providing protective irrigation to all agricultural lands and increasing crop output per unit of water [6]. The scheme comprises four main components: the Accelerated Irrigation Benefits Programme (AIBP), Har Khet Ko Pani, Per Drop More Crop, and Watershed Development. AIBP focuses on Major and Medium Irrigation projects, including National Projects, while ‘Har Khet Ko Pani’ emphasizes Command Area Development, Water Management (CAD&WM), and the Repair, Renovation, and Restoration (RRR) of water bodies. Renovating existing water bodies to store rainwater remains a key water-management strategy, especially in drought-prone regions. The task force on micro irrigation identified a potential of 69.5 million hectares for micro irrigation in India, but currently, only 7.73 million hectares are covered, with 3.37 million hectares under drip irrigation and 4.36 million hectares under sprinkler irrigation [12]. Micro irrigation can potentially double irrigated areas by using water more efficiently, achieving up to 80-90 percent efficiency compared to 30-50 percent with surface irrigation.

#### 1.2.1 Objectives ofPradhan Mantri Krishi Sinchayee Yojana (PMKSY)

i. Expand the use of micro irrigation technologies to improve water use efficiency nationwide.
ii. Boost crop yields and farmer incomes through precision water management techniques.
iii. Optimize the use of micro irrigation systems for fertigation practices.
iv. Encourage the adoption of micro irrigation in water-scarce, stressed, and critical groundwater regions.
v. Integrate tube-well and river-lift irrigation with micro irrigation technologies to maximize energy efficiency in both water lifting and pressurized irrigation.
vi. Advance and share micro irrigation technologies for agriculture and horticulture using modern scientific approaches.
vii. Generate employment opportunities, especially for youth, in the installation and maintenance of micro irrigation systems [6].

### 1.3 Soil Health Card Scheme

Soil test-based fertilizer application is crucial for improving fertilizer efficiency and boosting crop yields [10]. To address soil-related issues, the Government of India launched the Soil Health Card (SHC) Scheme on February 19, 2015. The scheme provides farmers with crop-specific recommendations for nutrients and fertilizers tailored to their individual farms, helping them enhance productivity through optimized input use [23]. The SHC offers a detailed analysis of soil quality, including its functional characteristics, water, nutrient content, and other biological properties, along with corrective measures for better yields [25].

#### 1.3.1 Objectives ofSoil Health Card Scheme

i. Enhance soil quality and increase farmers' profitability.
ii. Keep soil analysis information up-to-date.
iii. Offer farmers soil testing services at their doorstep.
iv. Promote Integrated Nutrient Management (INM) by encouraging the balanced use of chemical fertilizers (including secondary and micro-nutrients) alongside organic and bio-fertilizers to boost soil health and productivity.
v. Ensure compliance with the quality control standards for fertilizers, bio-fertilizers, and organic fertilizers as per the Fertilizer Control Order, 1985.
vi. Improve the skills and knowledge of soil testing lab staff, extension workers, and farmers through training and demonstrations. [7]

The present study focused on assessing the socio-psychological constructs and economic variables of beneficiaries of centrally sponsored agricultural schemes namely Paramparagat Krishi Vikas Yojana (PKVY), Pradhan Mantri Krishi Sinchayee Yojana (PMKSY), and the Soil Health Card Scheme (SHC). The reason for selecting these scheme is due to the critical aspects of sustainable agriculture, including organic farming (PKVY), efficient water use (PMKSY), and soil health management (Soil Health Card). By

focusing on these areas, the schemes play a significant role in improving productivity, promoting resource conservation, and supporting farmers in adopting eco-friendly practices, making them relevant for assessing their impact on beneficiaries in the current agricultural context.

A scientific rationale for studying the profile of beneficiary farmers of centrally sponsored agricultural schemes lies in the need for evidence-based evaluation of policy impacts. Understanding the demographic, socio-economic, and agricultural characteristics of beneficiary farmers enables the identification of specific factors that influence the effectiveness of these schemes. By systematically analyzing these variables, the study can reveal patterns of success or underperformance, highlight disparities in access and benefits, and provide insights into how different farming profiles respond to interventions. This data-driven approach ensures that agricultural policies can be refined to optimize resource allocation, improve equity, and enhance the overall productivity and sustainability of the agricultural sector.

The study was conducted in only a few districts due to the limitations of the student's research project in terms of time, funding, and other resources, which restricted the scope of the study. As a result, 360 respondents were selected. Therefore, the conclusions cannot be generalized to a larger population. The findings are based on the respondents' expressed opinions, limiting the objectivity of the data to their subjective views. Additionally, the study's accuracy depended on the respondents' ability to recall information and their honesty in providing the necessary details, further constraining its objectivity.

## 2. METHODOLOGY

An ex post facto research design was employed in the present study. As defined by [13], ex post facto research involves investigating a situation where the independent variable(s) have already occurred, and researchers begin by observing the dependent variable(s). The term 'ex post facto' translates to 'from what is done afterwards,' indicating that the independent variable is not manipulated. This quasi-experimental study aimed to explore how an independent variable affected a dependent variable.

The present investigation was carried out in Vidarbha region of Maharashtra state. Vidarbha area includes Amravati and Nagpur revenue division comprises of eleven districts namely. For each selected centrally sponsored agricultural schemes, two districts were selected purposively having maximum number of beneficiaries of the respective schemes and convenient to investigator for data collection.

Paramparagat Krishi Vikas Yojana (PKVY) is implemented in seven districts in Maharashtra namely, Ahmednagar, Amravati, Jalgaon, Buldhana, Nasik, Pune and Solapur. Out of these, this scheme is implemented in Amravati and Buldhanadistricts in Vidarbha region [8]. Thus, these districts were purposively selected. From selected Amravati district, Chandurbazar and Amravati talukas were selected and from Buldhana district Chikhli and Khamgaon talukas were selected as they were having a greater number of beneficiaries in these selected talukas.Pradhan Mantri Krishi Sinchayee Yojana (PMKSY) was implemented in all the eleven districts of Vidarbha region in Maharashtra. Out of these, most of the

beneficiaries of this scheme were from Amravati and Buldhanadistricts in Vidarbha region [6]. Thus, these districts were purposively selected. Morshi and Chandurbazar taluka were selected from Amravati district and Chikhli and Buldhana taluka were selected from Buldhana district for the present study.Soil Health Card scheme is implemented in all the eleven districts of Vidarbha region in Maharashtra. Out of these, most of the beneficiaries of this scheme resides in Buldhana, Yavatmal and Amravati districts in Vidarbha region [7]. Since Amravati district is already selected for the other centrally sponsored agricultural schemes and due to convenience, Amravati was selected for the study instead of Yavatmal. Thus, Buldhana and Amravati were purposively selected for the study, as per having more number of beneficiaries of this scheme, Chikhli and Buldhana talukas were selected from Buldhana district and Chandurbazar and Morshi talukas were selected from Amravati district for the present study. Thus, Amravati and Buldhana districts of Vidarbha region of Maharashtra were selected for the present study.

Villages from each taluka were selected purposively which were having maximum number of beneficiaries of selected centrally sponsored agricultural schemes from the respective four talukas of two districts for each scheme.From the list of beneficiary farmers in each selected village, beneficiaries who were taking benefits of selected respective centrally sponsored agricultural schemes for at least three years were selected by proportionate random sampling method. Thus, for the proposed study 60 beneficiary farmers were selected from Amravati districts and 60 beneficiary farmers were selected from Buldhana districts for each scheme. Thus, for the three schemes, a total of 360 beneficiary farmers were selected from seven selected talukas of two districts of Vidarbha for three schemes. These 360 beneficiary farmers were considered as respondents for the present study.

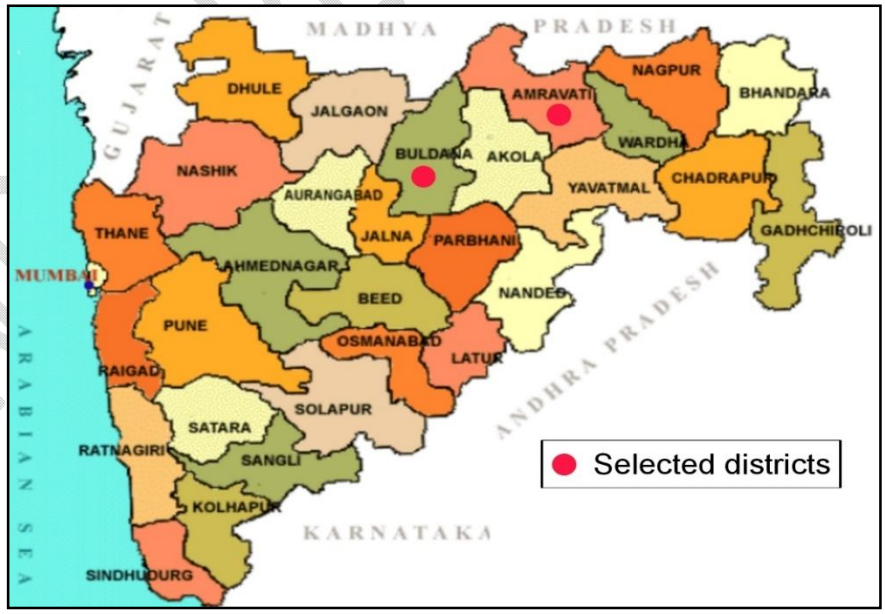


**Figure 1: Map of Maharashtra state indicating selected district for the study**

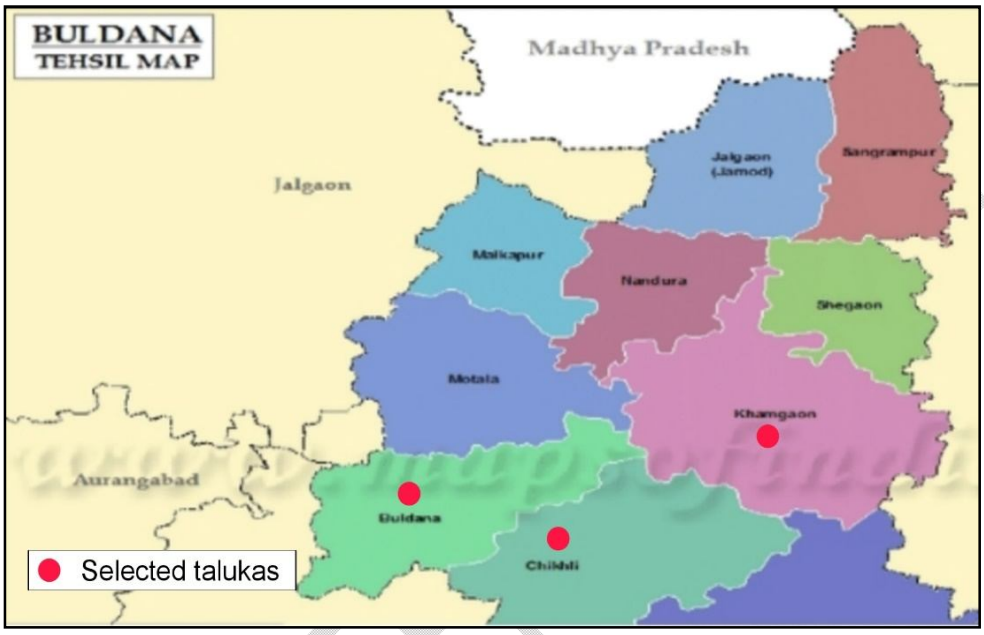


**Figure 2: Map of Buldhana district indicating selected taluka for the study**

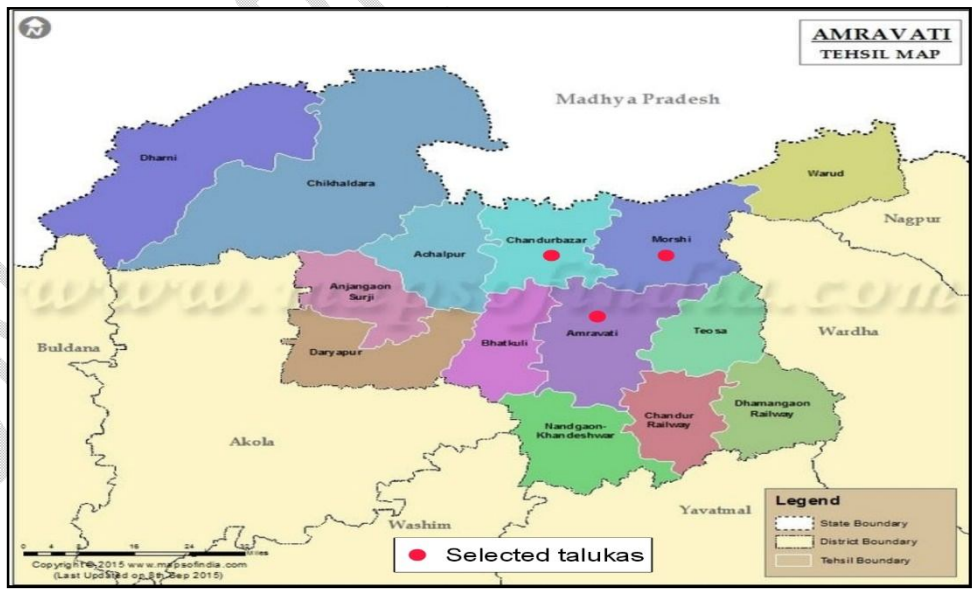


**Figure 3: Map of Amravati district indicating selected taluka for the study**

Based on the review of literature, considering the relevancy and opinion of experts in the field of agricultural extension education, the variables for the study were selected. The variables selected for the

study included age, education, training received, land holding, type of soil, irrigation potential, cropping pattern, annual income, social participation, source of information, innovativeness, economic motivation and benefits accrued.

A well-structured interview schedule was used for data collection, developed after consultations with experts to align with the study's objectives. The collected data were organized into a master table in an Excel sheet, and basic statistical tools such as frequency, percentage, mean, and standard deviation were applied for analysis. Final categories were determined based on the mean and standard deviation.

## 3. RESULT AND DISCUSSION

### 3.1 Age

Age denotes the chronologically completed calendar years by the respondent. This measure signifies the maturity, experience and knowledge acquired by the respondent, which can influence their decisions regarding the adoption of modern technologies. Therefore, age of the respondent was considered as an essential aspect in the present study.

It could be inferred from the Table 6 that, more than half of the PKVY respondents (53.33%) belonged to middle age (36 to 50 years) category, followed by 30.00 per cent belonged to young age (up to 35 years) category while 16.67 per cent of the respondents belonged to old age (above 50 years) category. In the case of PMKSY respondents, majority (66.67%) of the respondents belonged to middle age (36 to 50 years) category, followed by 25.00 per cent belonged to young age (up to 35 years) category while 8.33 per cent of the respondents belonged to old age (above 50 years) category. Regarding the SHC respondents, majority (63.33%) of the respondents belonged to middle age (36 to 50 years) category, followed by 26.67 per cent belonged to young age (up to 35 years) category while 10.00 per cent of the respondents belonged to old age (above 50 years) category. Thus, in the case of total respondents, maximum number of beneficiaries (61.11%) belonged to middle age (36 to 50 years) category, followed by 27.22 per cent belonged to young age (up to 35 years) category while 11.67 per cent of the respondents belonged to old age (above 50 years) category.

The prevalence of middle aged farmers in this above result could be attributed due to their strong commitment and active involvement, which might have likely facilitated the adoption of modern scientific technologies such as water-efficient irrigation and soil test-based fertilizer application, while it might also have potentially motivated them to embrace organic farming due to their concerns about unsustainable practices and the impacts of climate change. Young farmers are enthusiast and have a higher propensity for adopting innovative practices and have a longer time horizon for realizing the benefits of investments in agriculture. However, the lower representation of young beneficiaries might be due to their limited access to land, capital and information along with the challenges related to the attractiveness of agriculture as a career. Older farmers may continue to sustain their livelihoods through agriculture due to their long-term dependence on it and their belief in their extensive knowledge of

agricultural practices. However, they may be reluctant to be a beneficiary of the centrally sponsored agricultural schemes due to both physical constraints and their preference for familiar methods.

These findings were in accordance with the findings of [20], [28], [5], [17], [27], [16], [9], [22], [2]i.e. majority of respondents belonged to middle age category.

### 3.2 Education

Education denotes the number of standards of formal education accomplished by the respondent. It influences an individuals' ability to understand and interpret the information, decision making ability, including their choices related to adoption of new technologies or practices. Therefore, education of the respondent was considered as a crucial variable in the present study.

The results from the Table 6, pertained that, more than one third of the PKVY respondents (38.33%) were educated up to secondary school level, followed by 21.67 per cent of the respondents were educated up to higher secondary school level and 15.00 per cent of the respondents were educated up to secondary school level. The 8.33 per cent of the respondents each were educated up to primary school level and under graduate level whereas 5.00 per cent of the respondents were educated up to post graduate level. Only 1.67 per cent of the respondents were educated up to diploma or technical education level and 1.67 per cent of the respondents were illiterate. In the case of PMKSY respondents, two fifth of the respondents (40.00%) were educated up to secondary school level, followed by 21.67 per cent of the respondents were educated up to middle school level and 15.00 per cent were educated up to primary school level. The 13.33 per cent of the respondents were educated up to higher secondary school level whereas 5.00 per cent of the respondents were educated up to diploma or technical education level. The meagre per cent of the PMKSY respondents (1.67%) each were educated up to under graduate and post graduate level respectively and 1.67 per cent of the respondents were found illiterates also. Regarding SHC respondents, two fifth of the respondents (40.00%) were educated up to secondary school level, followed by 16.67 per cent of the respondents were educated up to higher secondary school level and 11.67 per cent of the respondents were educated up to middle school level. Whereas, 8.33 per cent were educated up to under graduate level and 6.67 per cent of the SHC respondents were educated up to primary school level, diploma level and illiterates each respectively. Only 3.33 per cent of the SHC respondents were educated up to post graduate level. Thus in overall of the centrally sponsored agricultural schemes beneficiary respondents, almost two fifth of the respondents (39.44%) were educated up to secondary school level, followed by 17.22 per cent were educated up to higher secondary school level and 16.11 per cent of the respondents were educated up to middle school level. One tenth of the beneficiary respondents (10.00%) were educated up to primary school level, whereas 6.11 per cent and 4.44 per cent of the respondents were educated up to undergraduate and diploma or technical education level respectively. Only 3.33 per cent of the beneficiary respondents were educated up to post graduate level and 3.33 per cent were illiterates.

The above result shows that the overall education background of the centrally sponsored agricultural schemes beneficiary respondents were good. This could be attributed due to the success of post-independence educational initiatives aimed at providing educational resources in rural areas, facilitating basic literacy among rural populations. Thus, the majority of respondents might have achieved school level education. However, it could also be observed that only a very few proportions of respondents have achieved college level or technical education. This might be due to the insufficient facilities for higher education along with the non-availability of colleges nearby their villages, which would have forced them to travel to cities to pursue college education and thus made the percentage lesser. The reason behind illiterates could be their lack of interest and encouragement, increased family responsibility along with their poor economic status. These findings are in line with the results of [28], [21], [12], [22], [2]i.e. majority of respondents had education up to secondary school level.

### 3.3Training received

Training received denotes the number of trainings attended by the beneficiary farmers about agricultural activities. Farmer training programs aim to impart knowledge and skills related to modern agricultural practices, technologies and management strategies. The quality of training received can significantly influence farmers' abilities to adopt new methods and improve their productivity. Therefore, training received by the farmers was considered as an essential variable in the present study.

It could be inferred from the Table 6 that, almost three fourth (73.33%) of the PKVY respondents received high leveltraining (above 4 trainings), followed by 20.00 per cent of respondents received medium level training (3 to 4 trainings) and 6.67 per cent of respondents received low level training (up to 2 training) respectively. In the case of PMKSY respondents, 80.83 per cent of the respondents received low level training (up to 2 training) whereas 19.17 per cent of respondents had not received any training. Regarding SHC respondents, majority of the respondents (60.00%) received low leveltraining (up to 2 trainings), 28.33 per cent of them received no training whereas 11.67 per cent of respondents received medium leveltraining (3 to 4 training). In total, 59.00 per cent of the respondents received low leveltraining (up to 2 trainings), followed by 29.33 per cent of them received high level training (above 4 trainings) and 19.00 per cent of respondents had not received any training whereas 12.67 per cent of respondents received medium leveltraining (3 to 4 training).

The above result shows that majority of the PKVY beneficiary respondents received high level of training. This might be due to the frequent training provided by the Agricultural Technology Management Agency (ATMA) as part of their Participator Guarantee System (PGS) organic certification program for over three years, during which participants gained practical experience in the preparation of Jeevamruth, Panchagavya, Beejamruth, and Neemastra, as well as comprehensive knowledge of organic cultivation methods. In contrast, majority of the PMKSY and SHC beneficiary respondents received low level of training from input dealers and soil testing agencies, respectively. PMKSY training focused on installation and maintenance of drip and sprinkler irrigation system, while SHC training covered guidelines for soil sample collection and interpretation of Soil Health Cards. Overall, the majority of respondents

received low level of training, likely due to the prevalence of low level of training among PMKSY and SHC beneficiaries, in contrast to the high level of trainings received by most PKVY beneficiaries. These findings were in accordance with the findings of [3] and [12], where majority of the beneficiaries received low level of training.

### 3.4Land holding

Land holdingindicates the capacity of the farmer to bear risks for investment in farming inputs, technology and infrastructure, which can influence the farmer's ability to adopt modern agricultural practices, potential yields and economic outcomes. Therefore, land holding possessed by the respondent was considered as an essential variable in the present study.

It could be inferred from the Table 6 that, majority of the PKVY respondents (43.33%) had small size of land holding (1.01 to 2.00 ha.), 37.50 per cent of the respondent beneficiaries had semi medium size of land holding (2.01 to 4.00 ha) and 9.17 per cent of them had medium size land holding (4.01 to 10.00 ha.) respectively. Only 5.00 per cent of the PKVY respondents each had large (above 10.01 ha.) and marginal (up to 1.00 ha) size land holdings respectively. In the case of PMKSY respondents, 38.33 per cent of the respondent beneficiaries had small size of land holding (1.01 to 2.00 ha.), 37.50 per cent had semi medium size of land holding (2.01 to 4.00 ha) and 14.17 per cent had medium size of land holding (4.01 to 10.00 ha.). Whereas 6.67 per cent of the PMKSY respondents had marginal size of land holding (up to 1.00 ha) and 3.33 per cent had large size of land holding (above 10.01 ha.) respectively. Regarding SHC respondents, 39.17 per cent of the respondents had small size of land holding (1.01 to 2.00 ha.), followed by 36.67 per cent of the respondent beneficiaries had semi medium size of land holding (2.01 to 4.00 ha) and 12.50 per cent had medium size of land holding (4.01 to 10.00 ha.). Whereas one tenth of the SHC respondents (10.00%) had marginal size of land holding (up to 1.00 ha) and 1.67 per cent of the respondents had large size of land holding (above 10.01 ha.) respectively. In overall beneficiaries of centrally sponsored agricultural schemes, almost two fifth of the respondents (40.28%) had small size of land holding (1.01 to 2.00 ha.), 37.22 per cent had semi medium size of land holding (2.01 to 4.00 ha) and 11.94 per cent had medium size of land holding (4.01 to 10.00 ha.) respectively. Only 7.22 per cent and 3.33 per cent of the respondents had marginal (up to 1.00 ha) and large (above 10.01 ha.) size of land holding.

The result shows that majority of the respondents belonged to small to semi medium size of land holding. This might be due to the fact that, land is an inherited property, which becomes fragmented among family members when new members get added through marriage or birth, resulting in smaller plots with each successive generation.The result is on par with [17], [9], [22], [2]i.e. majority of respondents possessed small to semi medium size of land holding.

### 3.5Type of soil

Type of soil indicate depth of soil profile from the top to parent material or bed rock. It can influence the availability of water and nutrients to plant. It could be inferred from the Table 6 that, majority

of the PKVY respondents (35.00%) had deep type of soil and 24.17 per cent had moderately deep type of soil. One fifth of PKVY respondents (20.00%) had very deep type of soil, followed by 15.83 per cent and 5.00 per cent had shallow and very shallow type of soil. Majority of the PMKSY respondents (35.83%) had deep type of soil and 24.17 per cent had moderately deep type of soil. Less than one fifth of PMKSY respondents (18.33%) had very deep type of soil, followed by 16.67 per cent and 5.00 of respondents had shallow and very shallow type of soil respectively. Regarding SHC respondents, majority (35.00%) had deep type of soil and one fourth of the respondent beneficiaries (25.00%) had moderately deep type of soil. One fifth of SHC respondents (20.00%) had very deep type of soil, followed by 15.83 per cent and 4.17 per cent of respondent beneficiaries had shallow and very shallow type of soil respectively. Thus, in the case of overall beneficiaries of centrally sponsored agricultural schemes, majority of the beneficiaries (35.28%) had deep type of soil and 24.44 per cent had moderately deep type of soil. Nearly one fifth of beneficiaries (19.44%) had very deep type of soil, followed by 16.11 per cent and 4.72 of respondents had shallow and very shallow type of soil respectively.

Chikhli and Khamgaon taluka of Buldana districts were dominated by very deep, deep and moderately deep type of soil, whereas Chandurbazar, Morshi and Amravati taluka of Amravati district was dominated by deep and moderately deep type of soil.The result is in agreement with the findings of [16] and [22], i.e. majority of respondents were having deep to moderately deep type of soil.

### 3.6Irrigation potential

Irrigation potential refers to hectares of land that come under irrigation during a year by Pradhan Mantri Krishi Sinchayee Yojana (PMKSY).Irrigation has a direct impact on agricultural productivity, especially in areas where rainfall is insufficient or unreliable. Access to irrigation can enhance food security by stabilizing crop yields and ensure consistent production even during periods of low rainfall or drought. Therefore, irrigation potential was considered as an important variable in the present study.

It could be inferred from the Table 6 that, majority (53.33%) of the PKVY respondents had an irrigation potential of up to 0.50 ha of land, followed by 23.33 per cent with irrigation potential of 1.51 to 2.00 ha of land and 11.67 per cent with irrigation potential of 0.51 to 1.00 ha of land. The 5.00 per cent of PKVY respondents had irrigation potential of 1.01 to 1.50 ha of land, followed by 4.17 per cent with irrigation potential of 2.01 to 2.50 ha of land, whereas 2.50 per cent of respondents with irrigation potential above 2.51 ha of land respectively. In case of PMKSY respondents, 33.33 per cent of the respondents had an irrigation potential of 0.51 to 1.00 ha of land, followed by 29.17 per cent with irrigation potential of up to 0.50 ha of land and 17.50 per cent with irrigation potential of 1.51 to 2.00 ha. More than one tenth (10.83%) of respondents had irrigation potential of 2.01 to 2.50 ha of land, followed by 6.67 per cent with irrigation potential above 2.51 ha of land. Only 2.50 per cent of respondents with irrigation potential of 1.01 to 1.50 ha of land. Regarding SHC respondents, 41.67 per cent of the respondents had an irrigation potential of up to 0.50 ha of land, followed by 23.33 per cent with irrigation potential of 1.51 to

2.00 ha of land, followed by 15.00 per cent with irrigation potential of 0.51 to 1.00 ha of land and 11.67 per cent with irrigation potential of 2.01 to 2.50 ha of land. There was 5.00 per cent of SHC respondents with irrigation potential above 2.51 ha of land and 3.33 per cent with irrigation potential of 1.01 to 1.50 ha respectively. In overall beneficiaries of centrally sponsored agricultural schemes, more than two fifth (41.39%) of the respondents had an irrigation potential of up to 0.50 ha of land, followed by 21.39 per cent with irrigation potential of 1.51 to 2.00 ha of land and one fifth (20.00%) with irrigation potential of 0.51 to 1.00 ha of land, whereas 8.89 per cent of beneficiary respondentshad an irrigation potential of 2.01 to 2.50 ha of land respectively. Only 4.72 per cent and 3.61 per cent of respondents had irrigation potential above 2.51 ha and 1.01 to 1.50 ha respectively.

The finding suggests that PMKSY beneficiaries, who are likely to have received support for subsidized micro irrigation infrastructure development, tend to have larger irrigated areas compared to the beneficiaries of other schemes. However, geographical variations in water availability influence the sources of irrigation, which in turn can play a significant role in determining the irrigation potential of farmland. For instance, Telara reservoir in Chikhli taluka of Buldana district has played a significant role in increasing the irrigation potential for farmers in the villages of Shelgaon Jahangir and KhandalaMakardwaj.The result is in agreement with the findings of [16], i.e. majority of respondents were having irrigation potential of 1.01 to 1.50 hectares.

### 3.7Cropping pattern

Cropping pattern indicatescrops grown by the respondents in kharif, rabi and summer season, as well as annual and perennial crops on his/her land. Therefore, cropping pattern was considered as an important variable in the present study.

It could be inferred from the Table 6 that, 95.83 per cent of the PKVY respondentshad biseasonal cropping system, followed by 18.33 per cent of them had perennial cropping system and 6.67 per cent of them had seasonal cropping system. Only 5.83 per cent of them had annual and 2.50 per cent had biannual cropping system respectively. Regarding PMKSY respondents, 98.33 per cent of the respondents had biseasonal cropping system and more than one forth (26.67%) had perennial cropping system. More than one tenth (11.67%) of PMKSY respondents had seasonal cropping system, whereas 13.33 per cent and 6.67 per cent had annual and biannual cropping system respectively. In the case of SHC respondents, 96.67 per cent of the respondents had biseasonal cropping system, followed by 17.50 per cent of them had perennial cropping system. Only 5.00 per cent of SHC respondents had seasonal cropping system, whereas 3.33 per cent of them had annual cropping system and 2.50 per cent of SHC respondents had biannual cropping system. In overall, 96.94 per cent of the respondents had biseasonal cropping system, 20.83 per cent of them had perennial cropping system, 7.78 per cent of them had seasonal cropping system, 7.50 per cent and 3.89 per cent of them had annual and biannual cropping system respectively. Hence from the results, it could be concluded that majority of the respondents had seasonal cropping system followed by perennial cropping system.

An interesting fact is that among all three schemes, PMKSY beneficiaries had the highest percentage under various cropping systems, with the highest found in the perennial cropping system. This could be due to the drip irrigation system provided to PMKSY beneficiaries, which may have improved access to water-efficient micro irrigation and influenced their cropping patterns. The result is in agreement with the findings of [16], i.e. majority of respondents where majority of respondents had seasonal cropping system.

### 3.8 Annual income

Annual income reflects the financial capacity of farmers, which in turn can impact their ability to invest in agricultural inputs, technology adoption and overall farm productivity. Therefore, annual income was considered as an important variable in the present study. The distribution of the respondents according to annual income is presented in Table 1, 2 and 3.

**Table 1: Distribution of the PKVY respondents according to annual income**

| Sl. No | Annual income | Respondents of PKVY(n=120) | |
|---|---|---|---|
| | | Frequency | Percentage |
| 1 | Up to Rs. 2,07,900/- | 41 | 34.17 |
| 2 | Rs. 2,07,901 to 3,35,300/- | 43 | 35.83 |
| 3 | Rs. 3,35,301 to 4,62,700/- | 20 | 16.67 |
| 4 | Rs.4,62,701 to 5,90,100/- | 10 | 8.33 |
| 5 | Above Rs. 5,90,100/- | 06 | 5.00 |
| | **Total** | **120** | **100.00** |

**Table 2: Distribution of the PMKSY respondents according to annual income**

| Sl. No | Annual income | Respondents of PMKSY (n=120) | |
|---|---|---|---|
| | | Frequency | Percentage |
| 1 | Up to Rs.2,86,961/- | 22 | 18.33 |
| 2 | Rs. 2,86,962 to Rs. 4,77,753/- | 68 | 56.67 |
| 3 | Rs. 4,77,754 to Rs. 6,68,545/- | 22 | 18.33 |
| 4 | Rs. 6,68,546 to Rs. 8,59,337/- | 05 | 4.17 |
| 5 | Above Rs. 8,59,337/- | 03 | 2.50 |
| | **Total** | **120** | **100.00** |

**Table 3: Distribution of the SHC respondents according to annual income**

| Sl. No | Annual income | Respondents of SHC(n=120) | |
|---|---|---|---|
| | | Frequency | Percentage |

| | | | |
|---|---|---|---|
| 1 | Up to Rs. 2,10,100/- | 35 | 29.17 |
| 2 | Rs. 2,10,101 to 3,29,700/- | 49 | 40.83 |
| 3 | Rs.3,29,701 to 4,49,300/- | 20 | 16.67 |
| 4 | Rs. 4,49,301 to 5,68,900/- | 10 | 8.33 |
| 5 | Above Rs. 5,68,900/- | 06 | 5.00 |
| | **Total** | **120** | **100.00** |

The result in Table 1 shows that, majority of the PKVY respondents (35.83%) had annual income in the range of Rs. 2,07,901 to 3,35,300/-, followed by 34.17 per cent of them had annual income up to Rs. 2,07,900/- and 16.67 per cent of them had annual income in the range of Rs. 3,35,301 to 4,62,700/-. Near to one tenth (8.33%) of the beneficiary respondents had annual income in the range of Rs.4,62,7021 to 5,90,100/- and 5.00 per cent had annual income above Rs. 5,90,100/- respectively.From Table 2, it is clear that majority of the PMKSY respondents (56.67%) had annual income in the range of Rs. 2,86,962 to Rs. 4,77,753/-, followed by 18.33 per cent each had annual income in the range of Rs. 4,77,754 to Rs. 6,68,545/- and up to Rs.2,86,961/- respectively. Whereas 4.17 per cent of the PMKSY respondents had annual income in the range of Rs. 6,68,546 to Rs. 8,59,337/- and 2.50 per cent annual income above Rs.8,59,337/- respectively.The result in Table 3 shows that, majority of the SHC respondents (40.83%) had annual income in the range of Rs. 2,10,101 to 3,29,700/-, 29.17 per cent had annual income up to Rs. 2,10,100/-, 16.67 per cent had annual income in the range of Rs.3,29,701 to 4,49,300/- and 8.33 per cent of them had annual income in the range of Rs.4,49,301 to 5,68,900/- respectively. Only 5.00 per cent of them had annual income above Rs. 5,68,900/-. The result shows that 56.67 per cent of the PMKSY respondents had annual income in the range of Rs. 2,86,962 to Rs. 4,77,753/-, followed by 40.83 per cent of the SHC respondents had annual income in the range of Rs. 2,10,101 to 3,29,700/-, followed by 35.83 per cent of the PKVY respondents had annual income in the range of Rs. 2,07,901 to 3,35,300/- respectively.

This might be due to the fact that, PMKSY respondents have larger proportion of the agriculture land area under micro irrigation, which might have increased the crop productivity whereas PKVY respondents were organic farmers with larger proportion under rainfed agriculture land, which might have resulted in low crop productivity. These might have reflected towards their annual income. However, there are various other factors such as soil type, geographical distribution of water sources, cropping pattern and subsidiary occupation that also might have influenced the above result. It is also observed that smaller proportion of the respondents belonged to larger annual income category, this might be due to the ownership of guava and orange orchards by a small number of farmers in Buldana and Amravati respectively.The result is in agreement with the finding of [16], [22], [2]i.e. majority of respondents had annual income between Rs.2,00,000 to 4,00,000/-.

### 3.9 Social participation

Social participation aids in understanding the extent of respondents' engagement in social activities, facilitating interactions within the community and fostering interpersonal connections beyond the confines of their homes. Thus, it helps to comprehending the impact of social networks, community structures and cultural dynamics on individual and collective well-being. Therefore, social participation was considered as an important variable in the present study. The distribution of the respondents according to social participation is presented in Table 6.

It could be inferred from the Table 6 that, majority of the PKVY respondents(60.00%) had medium level of social participation, followed by 26.67 per cent of them had high level of social participation and 13.33 per cent of respondents had low level of social participation. Regarding PMKSY respondents, more than three forth of the respondents (75.83%) had medium level of social participation and 15.00 per cent had high level of social participation. The 8.33 per cent of PMKSY respondents had low level of social participation, whereas, 0.83 per cent had no social participation category. In the case of SHC respondents, 55.83 per cent of the respondents had medium level of social participation, followed by 22.50 per cent had high level and 14.17 per cent of SHC respondents had low level of social participation, whereas, 07.50 per cent of respondents had no social participation category respectively. In overall beneficiaries of centrally sponsored agricultural schemes, 63.89 per cent of the respondents had medium level of social participation, 18.61 per cent of the overall respondents had high level of social participation and 14.72 per cent had low level of social participation respectively. Only 2.78 per cent of the overall respondents belonged to no social participation category.

Hence from the results, it could be concluded that majority of the respondents had medium to high level of social participation. A predominant portion of the respondents in the study area were engaged in farming. Many of them acquired information about crop cultivation and related topics by joining in farmer groups, while a substantial number of participants were involved in cooperatives. The PKVY scheme operated through organic farmers' groups, utilizing these groups as the conduit for disseminating information, delivering training, providing inputs and facilitating all associated benefits, which might have led to have their zero respondents in no participation category. Since, all the three schemes have majority respondents in medium social participation category, this might be the probable reasons behind the results for the total respondents having majority respondents in medium social participation category. The result is in agreement with the finding of [26], Trupthi Rathod (2014), [18], [22], [2]i.e. majority of respondents belonged to medium social participation category.

### 3.10 Source of information

Sources of information helps respondents to get information related to agricultural schemes available for them that in turn help farmers to increase their knowledge. Therefore, source of information was considered as an important variable in the present study. The distribution of the respondents according to their source of information is presented in Table 4.

**Table 4: Distribution of the respondents according to source of information**

| Sl. No. | Sources of information | Frequency of Contact | | |
|---|---|---|---|---|
| | | Regular | Occasional | Never |
| **A)** | **Localite sources** | | | |
| 1 | Sarpanch | 170 (47.22) | 110 (30.55) | 25 (6.94) |
| 2 | Friends/relatives | 230 (63.88) | 100 (27.77) | 19 (5.27) |
| 3 | Neighbours | 182 (50.55) | 93 (25.83) | 42 (11.66) |
| 4 | Progressive farmer | 155 (43.05) | 120 (33.33) | 30 (8.33) |
| **B)** | **Cosmopolite sources** | | | |
| 1 | Gramsevak | 250 (69.44) | 49 (13.61) | 18 (5.00) |
| 2 | Talathi | 170 (47.22) | 130 (36.11) | 29 (8.05) |
| 3 | Agricultural Assistant | 215 (59.72) | 71 (19.72) | 41 (11.38) |
| 4 | Agricultural Supervisor | 150 (41.66) | 140 (38.88) | 29 (8.06) |
| 5 | Mandal Agriculture Officer | 110 (30.55) | 99 (27.50) | 105 (29.17) |
| 6 | Taluka Agriculture Officer | 91 (25.27) | 115 (31.94) | 120 (33.33) |
| 7 | Sub Divisional Agriculture Officer | 8 (2.22) | 40 (11.11) | 270 (75.00) |
| 8 | District Superintendent Agriculture Officer | 5 (1.38) | 28 (7.78) | 290 (80.55) |
| 9 | University scientist | 25 (6.94) | 14 (3.88) | 280 (77.77) |
| 10 | KVK scientist (University and NGO) | 165 (45.22) | 120 (26.11) | 29 (8.05) |
| 11 | Representatives of NGO's/ Company | 10 (2.77) | 59 (16.38) | 240 (66.66) |
| 12 | ATMA | 89 (24.72) | 19 (15.83) | 11 (9.17) |
| 13 | Others (Input dealers) | 49 (13.61) | 69 (19.17) | 04 (1.11) |
| **C)** | **Mass media** | | | |
| 1 | Radio | 70 (19.44) | 122 (33.88) | 130 (36.11) |
| 2 | Television | 190 (52.77) | 111 (30.83) | 13 (3.61) |
| 3 | Newspaper | 176 (48.88) | 88 (24.44) | 50 (13.88) |
| 4 | Farm magazine | 120 (33.33) | 108 (30.00) | 80 (22.22) |
| 5 | WhatsApp/ Facebook | 249 (69.16) | 70 (19.44) | 11 (3.05) |

| | | | | |
|---|---|---|---|---|
| 6 | Computer with internet | 30 (8.33) | 50 (13.89) | 240 (66.66) |

*(Figures in parentheses indicate percentage)*

The data depicted in Table 4 revealed that, from the localite sources of information, majority of the respondents (63.88%) were regularly using friends/ relatives as source of information, followed by 27.77 per cent of respondents occasionally and 5.27 per cent of respondents never used this source of information. On the second position, 50.55 per cent of respondents were regularly using neighbors as source of information, followed by 25.83 per cent of respondents occasionally and 11.66 per cent of respondents never used this source of information. Other localite sources of information used regularly by majority of respondents were sarpanch (47.22%) and progressive farmers (43.05%) respectively. In case of cosmopolite sources, majority of the respondents were using gramsevak (69.44%), agriculture assistant (59.72%), talathi (47.22%), KVK scientist (45.22%), agriculture supervisor (41.66%), Mandal Agricultural Officer (30.55%) and Taluka Agricultural Officer (25.27%) as a regular source of information respectively. Whereas majority of the respondents never used information from sources like District Superintendent Agriculture Officer (80.55%), University scientist (77.77%), Sub Divisional Agricultural Officer (75.00%) and representatives of NGOs (66.66%) respectively. Regarding mass media sources, majority of the respondents were regularly using WhatsApp/ Facebook (69.16%), television (52.77%), newspaper (48.88%) and farm magazine (33.33%) respectively. Whereas 66.66 per cent and 36.11 per cent of the respondents never used computer with internet and radio as a source of information, respectively.

From the above findings, it could be concluded that, friends/relatives and neighbors were regularly used as localite source of information by majority of the respondents, whereas from cosmopolite sources, gramsevak and agriculture assistant were commonly used source of information. From mass media sources, WhatsApp/ Facebook, television and newspaper were regularly used as a source of information by majority of the respondents.

The Paramparagat Krishi Vikas Yojana (PKVY) operates through farmer groups, where the group leader acts as a liaison with ATMA (Agricultural Technology Management Agency) officials. The group leader coordinates with ATMA officials to procure organic inputs, and in return, ATMA officials inform the group leaders about training programs or additional benefits, making communication with farmers more efficient. For immediate solutions to pest or disease outbreaks in their organic fields, farmers typically consult the Agriculture Assistant. Under the PMKSY scheme, beneficiaries purchase micro irrigation equipment directly from input dealers by paying the full amount upfront. The input dealer then submits the necessary documents to the District Agriculture Office to process the subsidy reimbursement. To be eligible as a PMKSY beneficiary, a farmer must own land and have access to an irrigation source. For drip irrigation, the farmer is required to have well and an electric motor pump. In the Soil Health Card (SHC) scheme, farmers frequently interact with the Agriculture Assistant. The Agriculture Assistant collects soil samples from farmers' fields, provides the soil health card report, and explains the

nutrient status of the soil. They also guide the farmers on the appropriate application of fertilizers (both organic and inorganic) and soil amendments based on the report. The cost for soil testing at a government soil testing lab is Rs. 250 per sample, while the cost at a private lab range from Rs. 1,200 to Rs. 1,500 per sample.The result is in agreement with the finding of [29], [16], [22] where majority of respondents used friends/relatives, gramsevak, agriculture assistant, newspaper and facebook/ whatsapp as a major source of information.

It could be inferred from the Table 6 that, 71.67 per cent of the PKVY respondentsbelonged to medium level of source of information, followed by 25.83 per cent and 2.50 per cent of them belonged to high and low level of source of information respectively. Regarding PMKSY respondents, 65.83 per cent of the respondents belonged to medium level of source of information, followed by 20.83 per cent and 13.33 per cent of them belonged to high and low level of source of information respectively. Regarding SHC respondents, 57.50 per cent of the respondents belonged to medium level of source of information, followed by 25.00 per cent and 17.50 per cent of them belonged to high and low level of source of information respectively. In overall beneficiaries of centrally sponsored agricultural schemes, 65.00 per cent of the respondents belonged to medium level of source of information, followed by 23.89 per cent of them belonged to high level of source of information, followed by 11.11 per cent of them belonged to low level of source of information.Hence from the results, it could be concluded that majority of the respondents had medium to high level of source of information. This might be due to the fact that respondents have more trust on localite sources like friends, relatives, neighbors and sarpanch of their village for getting information. While from cosmopolite sources, they derive information from local authorities like Gramsevak and Agriculture Assistant as they work at grass root level in villages. Revolution in mass media brought people closer to the use of whatspp/facebook, television and newspaper as a source of information as they are available at affordable rates. The result is in agreement with the finding of [29], [16], [22] i.e. majority of respondents used medium source of information.

### 3.11 Innovativeness

Innovativeness indicates interest and desire of the respondents to seek changes in traditional methods and introduce such changes in farming whenever it is practical and feasible. Adopting new agricultural technologies in the farming activities helps the farmers to get more income and to change the present economic conditions. Therefore, innovativeness was considered as an important variable in the present study.

It could be inferred from the Table 6 that, majority of the PKVY respondents (63.33%) belonged to medium level of innovativeness, followed by 25.00 per cent of them belonged to high level of innovativeness and 11.67 per cent had low level of innovativeness. Regarding PMKSY respondents, 55.00 per cent of the respondents belonged to medium level of innovativeness, followed by 26.67 per cent and 18.33 per cent belonged to high and low level of innovativeness. In the case of SHC respondents, 56.67 per cent of the respondents belonged to medium level of innovativeness, 28.33 per

cent belonged to high level of innovativeness. The 15.00 per cent of SHC respondents belonged to low level of innovativeness.Thus, in overall beneficiaries of centrally sponsored agricultural schemes, more than half of the beneficiary respondents (58.33%) belonged to medium level of innovativeness, followed by 26.67 per cent and 15.00 per cent of them belonged to high and low level of innovativeness respectively.

Hence from the results, it could be concluded that majority of the respondents had medium to high level of innovativeness. This might be due to the fact that majority of the respondents received medium level of training, which might have helped them to acquire knowledge about modern and scientific methods of agriculture. Along with this, the revolution in mass media brought people closer to the information sources like WhatsApp/Facebook, television and newspaper, which led to their adoption of modern technologies to improve the crop productivity. The result is in agreement with the finding [16], [22] i.e. majority of respondents belong to medium level of innovativeness.

### 3.12 Economic motivation

Economic motivation influences the farmer's willingness for investment in adopting recommended agricultural practices. Therefore, economic motivation was considered as an important variable in the present study. The distribution of the respondents according to their economic motivation is presented in Table 6.

It could be inferred from the Table 6 that, half of the PKVY respondents (50.00%) had medium level of economic motivation and 26.67 per cent of them had high level of economic motivation, whereas 23.33 per cent had low level of economic motivation. Regarding PMKSY respondents, 46.67 per cent of the beneficiary respondents had medium level of economic motivation, followed by 33.33 per cent had high level of economic motivation and 20.00 per cent had low level of economic motivation. In the case of SHC respondents, 45.83 per cent of the beneficiary respondents had medium level of economic motivation and 35.00 per cent had high level of economic motivation, whereas 19.17 per cent had low level of economic motivation. In total, 47.50 per cent of the beneficiary respondents had medium level and 31.67 per cent had high level of economic motivation. The 20.83 per cent of the beneficiary respondents had low level of economic motivation. Hence from the results, it could be concluded that majority of the respondents had medium to high level of economic motivation. The probable reason might be that the primary source of occupation of majority of the respondents were agriculture and they might have understood that it is not feasible to stick to old methods of farming in this era, which might have made them to rely more towards scientific methods of agriculture by adopting modern technologies to perform agricultural activities & improve the crop productivity. They hope for sooner or later changes in their current economic conditions.The result is in agreement with the finding of [29], [22] i.e. majority of respondents belong to medium level of economic motivation.

### 3.13 Benefits accrued

Benefits accrued determines the benefits received by respondent beneficiaries in terms of inputs, services, incentives and subsidies by being a beneficiary of the centrally sponsored schemes. Therefore, benefits accruedwas considered as an important variable in the present study. The distribution of the respondents according to their benefits accrued is presented in Table 5.

**Table 5: Distribution of the respondents according to benefits accrued**

| Sl. No. | Benefits accrued | Frequency | Percentage |
|---|---|---|---|
| **A)** | **Benefits accrued from PKVY scheme** | | |
| 1 | PGS certification | 120 | 100.00 |
| 2 | Skill for preparation of organic inputs | 94 | 78.33 |
| 3 | Availability of organic inputs | 105 | 87.55 |
| **B)** | **Benefits accrued from PMKSY scheme** | | |
| 1 | Availability of subsidy for micro irrigation equipments | 39 | 32.50 |
| 2 | Subsidized micro irrigation equipment | 120 | 100.00 |
| 3 | Increase in area under irrigation | 71 | 59.16 |
| 4 | Increase in the source of irrigation | 23 | 19.17 |
| **C)** | **Benefits accrued from SHC scheme** | | |
| 1 | Knowledge about calculating fertilizer doses from soil test reports | 27 | 22.50 |
| 2 | Timely availability of SHC | 10 | 08.33 |
| 3 | Skill in soil sample collection | 75 | 62.50 |
| 4 | Soil Health Card Report | 120 | 100.00 |

It could be understood from the Table 5 that, cent per cent of the PKVY respondents (100.00%) received PGS certification, whereas, 87.55 per cent of respondent received the benefit of availability of organic inputs (neem based insecticide, micronutrient mix, organic NPK mix) and 78.33 per cent of respondent received the benefit of learning the skill of preparation of organic inputs like panchagavya, jeevamrutha, neemastra and vermicompost. It should be noted that, micronutrients are allowed to be used in organic farming (mined mineral in their natural composition). In the case of PMKSY respondents, cent per cent of the respondents (100.00%) received subsidized micro irrigation equipment, 59.16 per cent of respondents received the benefit of increase in area under irrigation, 32.50 per cent of the respondent's received subsidy for micro irrigation equipments. Whereas only 19.17 per cent of the respondents received the benefit of increase in the sources of irrigation. In the case of SHC respondents, 100.00 per cent of the respondents received Soil Health Card report, 62.50 per cent of the respondents

received skill in soil sample collection for soil testing, 22.50 per cent of the respondents had received soil test based fertilizer recommendation and only 8.33 per cent of the respondents received Soil Health Card on time. The variation among the respondents with regard to the benefits accrued might be due to their variation in social participation, personal contact, trainings received and resources available.

It could be understood from the Table 6 that, majority of the PKVY beneficiaries (61.67%) belonged to high level of benefits accrued, followed by 30.83 per cent of beneficiaries received medium and 7.50 per cent of the PKVY beneficiaries belonged low level of benefits accrued. Regarding PMKSY beneficiaries, majority (52.50%) of the PMKSY beneficiaries belonged to high level of benefits accrued, 34.17 per cent of beneficiaries received medium and 13.33 per cent of the PMKSY beneficiaries belonged low level of benefits accrued respectively. With respect to SHC beneficiaries, almost two third (64.17%) of the beneficiaries belonged to medium level of benefits accrued, followed by 26.67 per cent and 9.17 per cent of beneficiaries belonged to low and high level of benefits accrued. Thus, in the case of overall beneficiaries of centrally sponsored agricultural schemes, 43.06 per cent belonged to medium level of benefits accrued and 41.11 per cent belonged to high level of benefits accrued, whereas 15.83 per cent of the beneficiary respondents belonged to low level of benefits accrued respectively.

From the results in Table 6, it could be concluded that majority of the PKVY beneficiary respondents (61.67%) and more than half (52.50%) of the PMKSY beneficiary respondents belonged to high level of benefits accrued, whereas majority of the SHC beneficiary respondents (64.17 %) belonged to medium level of benefits accrued. This could be attributed to the fact that 91.67 per cent of the SHC beneficiaries reported the non timely availability of Soil Health Card, whereas more than half (58.33%) of the beneficiaries did not had knowledge about calculating fertilizer doses from soil test reports even though the main objective of SHC scheme was to encourage Integrated Nutrient Management (INM) by providing fertilizer recommendations based on soil test reports. In the case of PMKSY beneficiaries, 83.33 per cent of the beneficiaries reported no increase in the sources of irrigation and two third of the PMKSY beneficiaries (66.67%) reported the non availability of the subsidy in timely. However, the availability of subsidized micro-irrigation systems has enabled them to expand their irrigated agriculture land area without much increase in the source of irrigation due to the water efficient micro irrigation system. Whereas in the case of PKVY beneficiaries, 21.67 per cent of the PKVY beneficiaries did not receive the skill for the preparation of organic inputs. In summary, the benefits received by the beneficiaries of centrally sponsored agricultural schemes is highest for Paramparagat Krishi Vikas Yojana (PKVY) beneficiaries, followed by Pradhan Mantri Krishi Sinchayee Yojana (PMKSY) and least for Soil Health Card (SHC) scheme beneficiaries respectively. The result is in agreement with [11], [4], [14] and revealed that all schemes are beneficial to farmers in terms of inputs, services, incentives and subsidies.

**Table 6: Distribution of respondents according to their profile characteristics**

| Sl. No | Variable | Category | PKVY | PMKSY | SHC | Overall |
|---|---|---|---|---|---|---|

| | | | (n=120) | | (n=120) | | (n=120) | | (n=360) | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | F | % | F | % | F | % | F | % |
| 1 | Age | Up to 35 years | 36 | 30 | 30 | 25 | 32 | 26.7 | 98 | 27.22 |
| | | 36 to 50 years | 64 | 53.33 | 80 | 66.67 | 76 | 63.3 | 220 | 61.11 |
| | | Above 50 years | 20 | 16.67 | 10 | 8.33 | 12 | 10 | 42 | 11.67 |
| 2 | Education | Illiterate | 2 | 1.67 | 2 | 1.67 | 8 | 6.67 | 12 | 3.33 |
| | | Primary school | 10 | 8.33 | 18 | 15 | 8 | 6.67 | 36 | 10 |
| | | Middle school | 18 | 15 | 26 | 21.67 | 14 | 11.7 | 58 | 16.11 |
| | | Secondary school | 46 | 38.33 | 48 | 40 | 48 | 40 | 142 | 39.44 |
| | | Higher Secondary school | 26 | 21.67 | 16 | 13.33 | 20 | 16.7 | 62 | 17.22 |
| | | Diploma/ technical education | 2 | 1.67 | 6 | 5 | 8 | 6.67 | 16 | 4.44 |
| | | Under graduate | 10 | 8.33 | 2 | 1.67 | 10 | 8.33 | 22 | 6.11 |
| | | Post graduate | 6 | 5 | 2 | 1.67 | 4 | 3.33 | 12 | 3.33 |
| 3 | Training received | No training | 0 | 0 | 23 | 19.17 | 34 | 28.3 | 57 | 19 |
| | | Low (Up to 2 trainings) | 8 | 6.67 | 97 | 80.83 | 72 | 60 | 177 | 59 |
| | | Medium (3 to 4 trainings) | 24 | 20 | 0 | 0 | 14 | 11.7 | 38 | 12.67 |
| | | High (Above 4 trainings) | 88 | 73.33 | 0 | 0 | 0 | 0 | 88 | 29.33 |
| 4 | Land holding | Marginal (Up to 1.00 ha) | 6 | 5 | 8 | 6.67 | 12 | 10 | 26 | 7.22 |
| | | Small (1.01 to 2.00 ha) | 52 | 43.33 | 46 | 38.33 | 47 | 39.2 | 145 | 40.28 |
| | | Semi medium (2.01 to 4.00ha) | 45 | 37.5 | 45 | 37.5 | 44 | 36.7 | 134 | 37.22 |
| | | Medium (4.01 to10.00 ha) | 11 | 9.17 | 17 | 14.17 | 15 | 12.5 | 43 | 11.94 |
| | | Large (Above 10.01 ha) | 6 | 5 | 4 | 3.33 | 2 | 1.67 | 12 | 3.33 |
| 5 | Type of soil | Very deep | 24 | 20 | 22 | 18.33 | 24 | 20 | 70 | 19.44 |
| | | Deep | 42 | 35 | 43 | 35.83 | 42 | 35 | 127 | 35.28 |
| | | Moderately deep | 29 | 24.17 | 29 | 24.17 | 30 | 25 | 88 | 24.44 |
| | | Shallow | 19 | 15.83 | 20 | 16.67 | 19 | 15.8 | 58 | 16.11 |
| | | Very shallow | 6 | 5 | 6 | 5 | 5 | 4.17 | 17 | 4.72 |
| 6 | Irrigation potential | Up to 0.50 ha | 64 | 53.33 | 35 | 29.17 | 50 | 41.7 | 149 | 41.39 |
| | | 0.51 to 1.00 ha | 14 | 11.67 | 40 | 33.33 | 18 | 15 | 72 | 20 |
| | | 1.01 to 1.50 ha | 6 | 5 | 3 | 2.5 | 4 | 3.33 | 13 | 3.61 |
| | | 1.51 to 2.00 ha | 28 | 23.33 | 21 | 17.5 | 28 | 23.3 | 77 | 21.39 |
| | | 2.01 to 2.50 ha | 5 | 4.17 | 13 | 10.83 | 14 | 11.7 | 32 | 8.89 |
| | | Above 2.51 ha | 3 | 2.5 | 8 | 6.67 | 6 | 5 | 17 | 4.72 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 7 | Cropping pattern | Seasonal cropping | 8 | 6.67 | 14 | 11.67 | 6 | 5 | 28 | 7.78 |
| | | Biseasonal cropping | 115 | 95.83 | 118 | 98.33 | 116 | 96.7 | 349 | 96.94 |
| | | Annual cropping | 7 | 5.83 | 16 | 13.33 | 4 | 3.33 | 27 | 7.5 |
| | | Biannual cropping | 3 | 2.5 | 8 | 6.67 | 3 | 2.5 | 14 | 3.89 |
| | | Perennial cropping | 22 | 18.33 | 32 | 26.67 | 21 | 17.5 | 75 | 20.83 |
| 8 | Social participation | No participation | 0 | 0 | 1 | 0.83 | 9 | 7.5 | 10 | 2.78 |
| | | Low | 16 | 13.33 | 10 | 8.33 | 27 | 22.5 | 53 | 14.72 |
| | | Medium | 72 | 60 | 91 | 75.83 | 67 | 55.8 | 230 | 63.89 |
| | | High | 32 | 26.67 | 18 | 15 | 17 | 14.2 | 67 | 18.61 |
| 9 | Source of information | Low | 3 | 2.5 | 16 | 13.33 | 21 | 17.5 | 40 | 11.11 |
| | | Medium | 86 | 71.67 | 79 | 65.83 | 69 | 57.5 | 234 | 65 |
| | | High | 31 | 25.83 | 25 | 20.83 | 30 | 25 | 86 | 23.89 |
| 10 | Innovativeness | Low | 14 | 11.67 | 22 | 18.33 | 18 | 15 | 54 | 15 |
| | | Medium | 76 | 63.33 | 66 | 55 | 68 | 56.7 | 210 | 58.33 |
| | | High | 30 | 25 | 32 | 26.67 | 34 | 28.3 | 96 | 26.67 |
| 11 | Economic motivation | Low | 28 | 23.33 | 24 | 20 | 23 | 19.2 | 75 | 20.83 |
| | | Medium | 60 | 50 | 56 | 46.67 | 55 | 45.8 | 171 | 47.5 |
| | | High | 32 | 26.67 | 40 | 33.33 | 42 | 35 | 114 | 31.67 |

## CONCLUSION

In conclusion, this research paper presents a scientific exploration of the profile of beneficiaries of centrally sponsored agricultural schemes, encompassing various dimensions of their characteristics and attributes. The study rigorously examined parameters such asage, education, training received, land holding, type of soil, irrigation potential, cropping pattern, annual income, social participation, source of information, innovativeness, economic motivation and benefits accrued.It has been concluded that majority of the middle aged respondents (61.11%) having secondary school level of education (39.44%) received low level of training (59.00%), but PKVY beneficiaries received high level of training (73.33%). Majority of the respondents had small land holdings (40.28%) with 1.01 to 1.50 ha. of irrigation potential (41.39%) having biseasonal cropping system (96.94%). Beneficiary farmers had sound financial background with 35.83 per cent of PKVY respondents with annual income in the range of Rs. 2,07,901 to 3,35,301/-, 56.67 per cent of PMKSY respondents in an annual income range of Rs. 2,86,962 to Rs. 4,77,753/-, and 40.83 per cent of SHC respondents in the range of Rs. 2,10,101 to 3,29,701/- annual income respectively. In overall beneficiaries of centrally sponsored agricultural schemes, 63.89 per cent of the respondents had medium level of social participation, source of information (65.00%), innovativeness (58.33%), economic motivation (47.50 %) and benefits accrued (43.06%).The study revealed that older farmers were less involved in the selected centrally sponsored schemes, indicating a need to increase their participation through targeted outreach and simplified training. Educated farmers, who had better

awareness of sustainable farming practices, benefited more from these schemes, suggesting the importance of involving them in promoting new technologies. PKVY respondents received high levels of training, highlighting the need for continuous, need-based training to ensure scheme sustainability and effectiveness. Local sources, such as friends and relatives, were major information channels, implying that extension agencies should utilize Gram Sabhas and agricultural exhibitions for better outreach. Tailored strategies can improve inclusivity and the impact of these schemes across all farmer demographics.

**Disclaimer (Artificial intelligence)**

Author(s) hereby declares that NO generative AI technologies such as Large Language Models (ChatGPT, COPILOT, etc.) and text-to-image generators have been used during the writing or editing of this manuscript.

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