**A Study on Knowledge Level of Farmers towards Organic Farming Practices in Jhansi District of Uttar Pradesh**

**ABSTRACT**

*Context*: Organic farming is an ancient practice that is gaining popularity since the recent trend for achieving agricultural sustainability. Bundelkhand region which is characterized by its extreme weather and erratic rainfall is showing a rapid rise in organic cultivation in the last two decades. Organic farming not just benefits the environment but also decreases the cost of cultivation for the farmers.

*Objectives:* The Study was undertaken in Jhansi district of Uttar Pradesh to assess the knowledge level of farmers towards organic farming practices and to identify the relationship between socio-economic profile of respondents and their knowledge level.

*Methods:* The data was collected through a well-structured interview schedule from 100 respondents selected randomly from 10 villages of Gursarai Block in Jhansi District. Pearson Correlation was used to understand the relationship between independent and dependent variables.

*Results & Discussion:* The study found that most of the farmers had medium knowledge about organic farming practices followed by high and low knowledge, respectively. The findings also revealed that independent variables such as scientific orientation, Attitude towards improved technology, Exposure to demonstration, Extension participation and information seeking behaviour were all significantly correlated with knowledge level of the respondents.

*Significance:*  The study advocates the need for specialized training programmes to increase the knowledge level of farmers along with development of a well-organized supply chain for organic products to make it more attractive for farmers.

Keywords: - *Organic farming, sustainability, knowledge, environment, climate.*

**INTRODUCTION**

Organic farming system is not new in our country and is being followed from ancient time (Kumar, 2016). It is a dynamic interaction between the soil, the plants, the ecosystem and the environment which primarily aimed at cultivating land and raising crops in such a way as to keep the soil alive and in good health by use of organic waste (Das et al., 2019). Organic farming is essential for promoting environmental sustainability, improving public health, and supporting local economies (Lepcha et al., 2018). It reduces the use of harmful pesticides and chemicals, protecting soil, water, and biodiversity (Satyajeet et al., 2018). Organic practices enhance soil health, sequester carbon, and reduce greenhouse gas emissions (Badodiya et al., 2011). By producing nutrient-rich food without synthetic inputs, organic farming offers safer, healthier options for consumers (Alzaidi et al., 2013). Additionally, it provides economic opportunities through h higher-value markets and supports fair labor practices. As global challenges like climate change and resource depletion intensify, organic farming is a crucial step toward sustainable, long-term agricultural practices and a resilient food system (Narain, 2024).

In India, organic farming faces challenges such as limited awareness, inadequate infrastructure, and high initial costs (Raghuwanshi, 2018). However, growing consumer demand for organic products, government support through subsidies, and rising awareness about health and environmental issues are driving the sector's growth (Jaganathan et al., 2019). Rural farmers are increasingly adopting organic methods for sustainability. The future profit of organic farming looks promising, driven by rising consumer demand for healthier, eco-friendly products (Mondal et al., 2014). Organic food markets are expanding as awareness of environmental and health issues increases. With government support, improved practices, and higher premium prices, organic farming offers long-term financial benefits for farmers and businesses (Patidar and Patidar, 2015). Keeping these points in view the following study was conducted to assess the knowledge level of farmers towards organic farming practices and understand the relationship of socio-economic profile of farmers with their knowledge level.

**METHODOLOGY**

The study was carried out in 2020-21 in Jhansi district of Uttar Pradesh. The study used exploratory and ex post facto research design. Exploratory research design used to find out personal characteristics and the knowledge level of farmers towards organic farming practices. Jhansi district selected purposively on the basis of availability of respondents and area under organic farming. Gursarai block was selected randomly from Jhansi district. Further the list of villages was prepared on the basis of secondary data collected from the block regarding area and production of organic produce, from the list 10 villages were selected randomly using lottery method from Gursarai. A total of 10 farmers were selected Randomly from each of the village. Thus, a total sample size of 100 respondents were used for the study. A well-structured interview schedule was constructed after pilot survey and thorough discussion with experts to assess the knowledge level of farmers towards organic farming practises. The interview schedule two parts i.e., questions on integrated plant nutrients management and integrated pest management. The responses were obtained on a three-point continuum with the score of 3,2,1 for full knowledge, partial knowledge and no knowledge, respectively. Furthermore, the practises were ranked based on their weighted mean score (WMS). Also, the respondents were grouped into three categories based on their obtained score using mean and standard deviation. Percentage, mean, standard deviation, weightage mean score and correlation were used for the analysis of the data.

**RESULTS**

**Socio-economic Profile of the Respondents**

The data presented in Table 1 reveals that, majority of the respondent (55.00%) were old age group followed by middle (38.00%) and young (7.00%) . Further, the study found that 36.00 per cent respondents had high school education, and 25.00 per cent had college education. Also, majority of respondents (51.00%) respondents were having medium size of land holding followed by 27.00 per cent respondents with small size of land holding. Also, 47.00 per cent respondents were having high category of animal owned whereas 39.00 per cent respondents were in medium category. Furthermore, most of the respondents (45.00%) were having medium information seeking behaviour followed by 41.00 per cent respondents with low level of information seeking behaviour. Also, 45.00 per cent respondents were having low mass media exposure followed by 44.00 per cent respondents with medium mass media exposure. Moreover, majority of respondents (62.00%) were having low exposure to demonstration followed by 28.00 per cent respondents with medium exposure to demonstration. Further, about two-third of respondents (64.00%) were having low exposure to training followed by 27.00 per cent respondents with medium exposure to training. Further, 46.00 per cent respondents were having low extension participation followed by 40.00 per cent with medium extension participation. Further, majority of respondents (67.00%) were having low innovativeness category followed by 24.00 per cent respondents with medium innovativeness. Further, more than half of the respondents (58.00%) were having low management orientation followed by 31.00 per cent respondents with medium management orientation. Further, most of the respondents (64.00%) were having low scientific orientation followed by 26.00 per cent respondents with medium scientific orientation category. Further, 49.00 per cent were having medium attitude towards improved technology category followed by 33.00 per cent respondents with low attitude towards improved technology category. Further, majority (52.00%) of respondents were having medium cosmopoliteness followed by 29.00 per cent respondents with low cosmopoliteness. Furthermore, 40.00 per cent respondents were having medium socio-economic status followed by 37.00 per cent respondents with low socio-economic status. Moreover, 38.00 percent respondents were having high economic motivation followed by 32.00 per cent respondents with medium economic motivation.

**Table: 1 Distribution of the respondents according to their socio-economic profile**

**(n=100)**

|  |  |  |  |
| --- | --- | --- | --- |
| **S.**  **No.** | **Characteristics** | **Categories** | **Percentage** |
|  | **Age** | Young (<20-30 years) | 7.00 |
| Middle (31-40 years) | 38.00 |
| Old (>50 years) | 55.00 |
| **Total** | **100** |
|  | **Education level** | **Literate** | 3.00 |
| Functionally literate | 4.00 |
| Primary school | 12.00 |
| Middle school | 20.00 |
| High school | 36.00 |
| Collage | 25.00 |
| **Total** | **100** |
|  | **Size of land holding** | Small (Below 2 ha) | 27.00 |
| Medium (2-4 ha) | 51.00 |
| Large (above 4 ha) | 22.00 |
| **Total** | **100** |
|  | **Animal owned** | Low (< 4 score) | 14.00 |
| Medium (4 to 5 score) | 39.00 |
| High (> 5 score) | 47.00 |
| **Mean = 5.49** | **S.D = 0.71** |
|  | **Information seeking behaviour** | Low (< 7 score) | 41.00 |
| Medium (7 to 9 score) | 45.00 |
| High (>9 score) | 14.00 |
| **Mean = 9.05** | **S.D = 1.13** |
|  | **Mass media exposure** | Low (< 1 score) | 44.00 |
| Medium (1 to 3 score) | 45.00 |
| High (> 3 score) | 11.00 |
| **Mean = 3.01** | **S.D = 0.68** |
|  | **Exposure to demonstration** | Low (<3 score) | 62.00 |
| Medium (3 to 4 score) | 28.00 |
| High (> 4 score) | 10.00 |
| **Mean = 3.68** | **S.D =0.72** |
|  | **Exposure to training** | Low (< 1 score) | 64.00 |
| Medium (1 to 2 score) | 27.00 |
| High (>2 score) | 9.00 |
| **Mean = 1.28** | **S.D = 0.829** |
|  | **Extension participation** | Low (< 5 score) | 46.00 |
| Medium (5 to 8 score) | 40.00 |
| High (> 8 score) | 14.00 |
| **Mean = 8.52** | **S.D = 0.61** |
|  | **Innovativeness** | Low (< 2 score) | 67.00 |
| Medium (2 to 3 score) | 24.00 |
| High (> 3 score) | 9.00 |
| **Mean = 2.5** | **S.D = 0.65** |
|  | **Management orientation** | Low (< 29 score) | 58.00 |
| Medium (29 to 35 score) | 31.00 |
| High (> 35 score) | 11.00 |
| **Mean = 34.81** | **S.D = 0.69** |
|  | **Scientific orientation** | Low (< 20 score) | 64.00 |
| Medium (20 to 23 score) | 26.00 |
| High (> 23 score) | 10.00 |
| **Mean = 23.13** | **S.D = 1.13** |
|  | **Attitude towards improved technologies** | Low (< 1 score) | 33.00 |
| Medium (1 to 3 score) | 49.00 |
| High (> 3 score) | 18.00 |
| **Mean = 3.67** | **S.D = 0.64** |
|  | **Cosmopoliteness** | Low (< 8 score) | 29.00 |
| Medium (8 to 12 score) | 52.00 |
| High (>12 score) | 19.00 |
| **Mean = 12.03** | **S.D = 0.46** |
|  | **Socio-economic status** | Low (< 1 score) | 37.00 |
| Medium (1 to 2 score) | 40.00 |
| High (>2 score) | 23.00 |
| **Mean = 1.95** | **S.D = 0.82** |
|  | **Economic motivation** | Low (> 21 score) | 30.00 |
| Medium (21 to 24 score) | 32.00 |
| High (> 24 score) | 38.00 |
| **Mean = 23.58** | **S.D = 0.82** |
| Medium (1 to 2 score) | 40.00 |
| High (> 2 score) | 14.00 |
| **Mean = 1.88** | **S.D = 0.71** |

**Extent of knowledge possessed by the farmers about organic farming**

The findings reveal that about half respondents ware medium category in terms of the knowledge level followed by 27.00 per cent and 26.00 per cent respondents in high and low knowledge level category, respectively. In terms of knowledge level of integrated plant nutrient management practices application of FYM/nadep compost was ranked first with weighted mean score of 2.69 followed by seed inoculation, selection of good seed, In situ incorporation of crop residues with weighted mean scores of 2.57, 2.47, 2.45 respectively. further it was found that use of amrit sanjivani (rank XVII), use of amrt pani (rank XVI), use of khali khad (rank XV), use of tank silt (rank XIV) had the least knowledge level among the farmers with weighted mean score of 1.78, 1.88, 1.89, 2.00 respectively.

**Table: 2 Practice wise knowledge level of farmers regarding recommended organic farming practices**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **S.**  **No.** | **Integrated Plant nutrient management** | **FK** | **PK** | **NK** | **TWS** | **WMS** | **Rank** |
| **1.** | In situ incorporation of crop residues | 55 | 35 | 10 | 245 | 2.45 | IV |
| **2.** | Selection of good seed | 52 | 43 | 5 | 247 | 2.47 | III |
| **3.** | Seed inoculation | 66 | 25 | 9 | 257 | 2.57 | II |
| **4.** | Application of FYM/ Nadep compost | 71 | 27 | 2 | 269 | 2.69 | I |
| **5.** | Raising green manure and incorporation. | 44 | 48 | 8 | 236 | 2.36 | V |
| **6.** | Application of vermin compost | 44 | 44 | 12 | 232 | 2.32 | VI |
| **7.** | Use of biogas slurry | 36 | 51 | 13 | 223 | 2.23 | VII |
| **8.** | Use of amrt pani | 20 | 48 | 32 | 188 | 1.88 | XVI |
| **9.** | Use of amrit sanjivani | 17 | 44 | 39 | 178 | 1.78 | XVII |
| **10.** | Use of matka khad | 24 | 54 | 22 | 202 | 2.02 | XII |
| **11.** | Use of litter | 29 | 48 | 23 | 206 | 2.06 | XI |
| **12.** | Use of khali khad | 18 | 53 | 29 | 189 | 1.89 | XV |
| **13.** | Use of press mud | 32 | 51 | 17 | 215 | 2.15 | VIII |
| **14.** | Use of poultry manure | 29 | 52 | 19 | 210 | 2.10 | IX |
| **15.** | Use of tank silt | 18 | 64 | 18 | 200 | 2.00 | XIV |
| **16.** | Use of sing khad | 26 | 52 | 22 | 202 | 2.02 | XII |
| **17.** | Use of neem khali | 28 | 52 | 20 | 208 | 2.08 | X |

In terms of knowledge level of integrated pest management practices hand weeding was ranked first with weighted mean score of 2.78 followed by summer ploughing, use of cow urine, use of neem leaf extract, with weight mean score of 2.62, 2.31, 2.25 respectively. further it was found use of tobacco decoction (rank XIII), spray of Ha NPVI Bt at early infestation stage (rank XII), use of neem oil (rank XI) installation of bird perches before flowering (rank X) had the lest knowledge level among the farmers with weighted mean score of 1.37, 1.53, 1.78, 1.85 respectively. The findings were backed by Sapbamrer and Thammachai (2021) who observed that most of the farmers possessed sound knowledge of organic farming practices such as hand weeding, summer ploughing and use of neem extract as biopesticide. These practices were also having higher adoption as they are inexpensive.

**Table: 3 Practice wise knowledge level of farmers regarding recommended organic farming practices**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **S.**  **No.** | **Integrated pest management** | **FK** | **PK** | **NK** | **TWS** | **WMS** | **Rank** |
| **1.** | Summer ploughing | 65 | 32 | 3 | 262 | 2.62 | II |
| **2.** | Hand weeding | 57 | 34 | 9 | 248 | 2.78 | I |
| **3.** | Use of neem oil | 22 | 34 | 44 | 178 | 1.78 | XI |
| **4.** | Use of neem leaf extract | 43 | 45 | 6 | 225 | 2.25 | IV |
| **5.** | Use of tobacco decoction | 4 | 29 | 67 | 137 | 1.37 | XIII |
| **6.** | Use of light trap/ pheromone | 35 | 46 | 19 | 216 | 2.16 | V |
| **7.** | Installation of bird perches before flowering | 21 | 43 | 36 | 185 | 1.85 | X |
| **8.** | Spray of Ha NPVI Bt at early infestation stage | 9 | 35 | 56 | 153 | 1.53 | XII |
| **9.** | Use of cow urine | 42 | 47 | 11 | 231 | 2.31 | III |
| **10.** | Use of rotated/ fermented curd milk | 19 | 54 | 27 | 192 | 1.92 | IX |
| **11.** | Use of ipomiya (besharm) | 23 | 58 | 19 | 204 | 2.04 | VIII |
| **12.** | Trichoderma | 35 | 46 | 19 | 216 | 2.16 | V |
| **13.** | Use of chilli/ garlic | 32 | 48 | 20 | 212 | 2.12 | VII |

**Relationship between selected characteristics with the Knowle level with organic farming practices**

The Table 4 reveals that independent variables such as education, animal owned, Information seeking behaviour, mass media exposure, exposure to demonstration, exposure to training, extension participation. innovativeness, management orientation was all positively and significantly correlated with knowledge level of respondents’ relationship whereas economic motivation was found to be negatively correlated. This could be attributed to the fact that increased education and exposure leads to increase awareness and knowledge of new innovations and techniques among the farmers. Furthermore, variable such as age and land holding were found to be showing non-significantly correlated with knowledge level of respondents.

**Table: 4 Correlation Coefficient between independent variables with of knowledge about organic farming practices by the farmers.**

|  |  |  |
| --- | --- | --- |
| **S. No.** | **Independent variables** | **Correlations coefficient (r)** |
| **1.** | Age | 0.02288 |
| **2.** | Education | 0.31644\*\* |
| **3,** | Size of land holding | 0.05724 |
| **4,** | Animal owned | 0.31324\*\* |
| **5.** | Information seeking behaviour | 0.49786\*\* |
| **6.** | Mass media exposure | 0.45527\*\* |
| **7.** | Exposure to demonstration | 0.48544\*\* |
| **8.** | Exposure to training. | 0.47862\*\* |
| **9.** | Extension participation | 0.48430\*\* |
| **10.** | Innovativeness | 0.28394\*\* |
| **11.** | Management orientation | 0.45938\*\* |
| **12.** | Scientific orientation | 0.53812\* |
| **13.** | Attitude towards improved technology | 0.50857\*\* |
| **14.** | Cosmopoliteness | 0.22454\* |
| **15.** | Socio-economic status | 0.54266\*\* |
| **16.** | Economic motivation | -0.1338\* |

\*Significant at 0.05 level probability, \*\* Significant at 0.01 level probability.

**DISCUSSION**

The findings on knowledge level of respondents towards integrated pest management practices were in line with Goswami et al. (2021) who reported that most of farmers possessed good knowledge of FYM application, seed treatment and in-situ residue management. The findings were also supported by Sahoo et al. (2022) who revealed that most of the farmers had medium knowledge about organic farming practices. Assis (2011) also reported that most of the organic farmers practiced seed inoculation, in-situ residue management and application of vermicompost in the fields. The findings on knowledge level of respondents towards integrated pest management practices were backed by Sapbamrer and Thammachai (2021) who observed that most of the farmers possessed sound knowledge of organic farming practices such as hand weeding, summer ploughing and use of neem extract as biopesticide. These practices were also having higher adoption as they are inexpensive. Narain et al., (2024) also found that farmers possess greater knowledge of simpler practices such as using neem oil and summer ploughing as they do not require any specialized skill sets. Satyajeet et al. (2019) also observed that while farmers possess knowledge about biological control, they find it difficult to adopt such practices.

The results on relationship of independent variables with knowledge level of respondents were supported by Adesope et al. (2012) who revealed that variables such as education, mass media exposure, extension participation and innovativeness were all significantly correlated with awareness of farmers towards organic farming practices. Furthermore, variable such as age and land holding were found to be showing non-significantly correlated with knowledge level of respondents. The similar results were obtained by Sams and Fard (2017) who found that age and landholding size showed non-significant relationship with knowledge level of farmers. Islam and Islam (2020) also observed that socio-personal variables such as education, mass media exposure, scientific orientation and extension participation showed positive and significant correlation with the knowledge level of farmers. Kumar et al. (2024) also found that trainings increase the knowledge level of farmers towards organic farming practices.

**CONCLUSION**

The study was conducted in 2020-21 to find out the knowledge level of farmers towards organic farming practises in Jhansi district of utter Pradesh. The finding reveals that most of the respondents possessed full knowledge of organic farming practices, such as application of FYM, seed inoculation, In situ incorporation of crop residues, selection of good seed, summer ploughing and hand weeding while for practices such as use of amrt pani, use of amrit sanjivani, use of neem oil, use of tobacco decoction, installation of bird perches before flowering and spray of Ha NPVI Bt at early infestation stage most of the farmers had partial to no knowledge. The study also observed that most of the farmers had medium knowledge about organic farming practices followed by high and low knowledge, respectively. Also, independent variables such as Scientific orientation, Attitude towards improved technology, Exposure to demonstration, Extension participation and information seeking behaviour were all significantly correlated with knowledge level whereas age and size of land holding had non-significant correlation with knowledge level of respondents. the study advocated specialised training programmes to increase the knowledge level of farmers along with development of a well organize supply chain for organic products to make it more attractive for farmers.

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