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Kamlesh Gurjar
M.Sc Research Scholar, Department of Extension Education, Agriculture University, Jodhpur, Rajasthan, India

Banwari Lal
Assistant Professor, Department of Extension Education, Agriculture University, Jodhpur, Rajasthan, India

Ravindra Singh Choudhary
M.Sc. Research Scholar, Department of Extension Education, Agriculture University, Jodhpur, Rajasthan, India

Pramod
Ph.D. Scholar, Department of Extension Education, SKNAU, Jobner, Rajasthan, India

Lokendra Singh Kishnawat
Ph.D Scholar, Department of Extension Education, Punjab Agricultural University, Ludhiana, Punjab, Rajasthan, India

Rakesh Natwadia
Ph.D. Scholar, Department of Extension Education, SKNAU, Jobner, Rajasthan, India

Corresponding Author:
Kamlesh Gurjar
M.Sc Research Scholar, Department of Extension Education, Agriculture University, Jodhpur, Rajasthan, India

Socio-economic status of onion growers regarding integrated pest management practices

Kamlesh Gurjar, Banwari Lal, Ravindra Singh Choudhary, Pramod, Lokendra Singh Kishnawat and Rakesh Natwadia

Abstract
India's diverse climate ensures availability of all varieties of fresh fruits and vegetables. India is the world's second-largest producer of fruits and vegetables, behind China. The onion production in Rajasthan in 2019-20 has been estimated about 4.50 to 5 lakh metric tonnes as against state's total output of 12.80 lakh metric tonnes. The state contributes about 6% of India's onion production (Directorate of Horticulture, Jaipur Raj. 2019-20). The study was conducted in purposely selected Jodhpur district of Rajasthan. The Jodhpur district had 16 panchayat samitis; out of 16 panchayat samitis namely Tinwari and Osian were selected based on highest area production of Onion cultivation. A complete list of villages with area and production of Onion cultivation were collected from Department of Agriculture Jodhpur, Rajasthan from the identified panchayat samitis. Out of ten villages i.e. six from Tiwari and four from Osian were selected. The sample size of 120 respondent's selected through proportionate random sampling. The results of the study revealed that majority of Onion growers belonged to middle age group, were from other back ward class caste category, agriculture as main occupation, belonged to high school education category, were having type of family single (nuclear), were having medium family income, and medium farmer category of land holding, were having member of one organization social participation and medium extension contact were having mass media exposure medium. Majority of Onion growers were having medium socio-economic status.

Keywords: Socio-economic status, onion growers, pest management

Introduction
India is the world's second-largest producer of fruits and vegetables, behind China. According to the National Horticulture Database released by the National Horticulture Board (NHB), India produced 191.77 (MMT) of vegetables and 99.07 (MMT) of fruits in 2019–20. The area under cultivation of fruits stood at 6.66 million hectares, while vegetables were cultivated at 10.35 million hectares. India is the largest producer of Ginger and Okra amongst vegetables and ranks second in production of Potato, Onion, Brinjal, Cabbage, etc and rank second place globally for onion production. In India, Onion has two crop cycles, first harvesting starts in November to January and the second harvesting from January to May. It is the main crop of Maharashtra, Madhya Pradesh, Karnataka, Rajasthan, Bihar, Gujarat, Andhra Pradesh, Haryana, West Bengal, Uttar Pradesh, and Rajasthan contribute about 90% of the total Onion production of country (APEDA, 2019-20). In comparison to the state's overall output of 12.80 lakh metric tonnes, Rajasthan's onion production is expected to be between 4.50 and 5 lakh metric tonnes in 2019–20. Approximately 6% of India's onion crop comes from the state (Directorate of Horticulture, Jaipur, Raj. 2019–20) [1]. The onion is the most significant vegetable and spice crop farmed in India. Similar to other vegetables, there are a variety of limitations that prevent full yield potential from being realised. Among these, illnesses and pests pose significant obstacles to the production of onions. Onion is susceptible to various pests, mites, thrips, armyworms, cutworms, leaf miner and disease like damping off, purple blotch, leaf blight and colletotrichum blight. Onion thrips (Thrips tabaci), is a key pest of Onion, causing 35- 45 percent (Indian Horticulture- 2020-21) yield loss yearly. IPM is a sustainable approach to pest management that has been used for a very long time. Although numerous definitions of IPM can be found in different places, earlier models of pest control mostly concentrated on the ecological and, to a lesser extent, the evolutionary aspects of pest management. A recent IPM pyramid by (Stenberg, 2017) [10] noted the absence of a comprehensive IPM strategy that makes use of both conventional and contemporary techniques. So it is essential to give a focus on IPM to maintain the nutritional level and

sustainability in production of vegetables. IPM is a set of strategies that includes biological control, habitat alteration, altered agronomic procedures, and the use of resistant varieties for long-lasting pest and insect management. The availability of IPM tools, extension education, consumer preferences, and retail marketing are just a few of the variables that influence IPM implementation, according to a number of reports. Other variables include education level, economic and social conditions, environmental awareness, rational thought, moral values, regulatory considerations, and government policies.

Materials and Methods

Study was conducted in purposely selected Jodhpur district of Rajasthan. The Jodhpur district had sixteen panchayat samities, out of 16 panchayat samiteis namely Tinwari and Osian were selected based on highest area production of Onion cultivation. A complete list of villages with area and production of Onion cultivation were collected from Department of Agriculture Jodhpur, Rajasthan from the identified panchayat samities. Out of ten villages i.e. six from Tiwari and four from Osian were selected. The sample size of 120 respondents was selected for the proposed study by proportionate random sampling method. The village wise number of selected respondents is given here under. The farmer interviewed personally by a well-structured interview schedule Variables under study like Age, Caste, Occupation, Education, Type of Family, Family Income, Land Holding, Social Participation, Extension Contacts and Mass Media Exposure. These significant socio-personal traits, often known as antecedent factors, provide background information about the respondents. The collected data are processed, organised, tabulated, and statistically treated in the context of the objectives. For precise conclusions to be reached, numerous statistical measures must first be applied. The mean score was calculated by dividing the sum of the scores for each statement by the total number of respondents.

Results and Discussion

In this section, an attempt has been made to record the data regarding the personal and socio-economic status of the Onion growers including their personal characteristics during the investigation. The findings recorded to the personal characteristics of the respondents such as age, caste, occupation, education, family type, family income, land holding, social participation, extension contact, and mass media exposure presented in subsequent tables.

The respondents were divided into three groups based on their ages using the standards recommended by the Government of India's 2011 Population Census Report. The data presented in Table 1 indicate of majority of the Onion growers were belong to middle age group (60.00%) followed by the old age group (21.67%). There were only 18.33 percent of the Onion growers in young age group.

Table 1: Distribution of respondents according to Age

(n=120)

S. No.	Age	Frequency	Percentage
1	Young (< 35 years)	22	18.33
2	Middle (36 to 53 years)	72	60.00
3	Old (> 53 Years)	26	21.67
Total		120	100

Table exhibits the distribution of onion growers according to their caste. The data presented in Table 2 indicate of majority that majority of the Onion growers were from Other Backward Class (69.17%), followed by Scheduled Caste (23.33%), General Caste (5.83%), and Scheduled Tribe (1.67%). None of the onion growers were found in Others Class Category.

Table 2: Distribution of respondents according to Caste

(n=120)

S. No.	Category of Caste	Frequency	Percentage
1	Scheduled caste	28	23.33
2	Scheduled tribe	2	1.67
3	Other back ward class	83	69.17
4	General caste	7	5.83
5	Others	0	0.00
Total		120	100

The data in Table 3 reveals that majority of the Onion growers engaged in agriculture as the main occupation (79.17%), followed by Business + Agriculture (7.50%), Agriculture + Service (11.67%), and Caste occupation +Agriculture (1.67%). It was found that there was not a single onion grower who was without work.

Table 3: Distribution of respondents according to Occupation

(n=120)

S. No.	Occupation	Frequency	Percentage
1	Caste occupation+ Agriculture	2	1.67
2	Agriculture	95	79.17
3	Business+ Agriculture	9	7.50
4	Agriculture+ service	13	11.67
Total		120	100

n=120

The data presented Table 4 indicates that maximum number of respondents fell under that majority of Onion growers (20.83%) High school, and Illiterate (19.17%) followed by Middle (15.00%), Can read only (12.50%), Graduate (10.83%), above graduate (9.17%) Can read and write (8.33%), and Primary education (4.17%).

Table 4: Distribution of respondents according to Education

(n=120)

S. No.	Education	Frequency	Percentage
1	Illiterate	23	19.17
2	Can read only	15	12.50
3	Can read and write	10	8.33
4	Primary	5	4.17
5	Middle	18	15.00
6	High school	25	20.83
7	Graduate	13	10.83
8	Above graduate	11	9.17
Total		120	100

The data given in table 5 that majority of the Onion growers were part of Nuclear family (54.17%), followed by Joint family (41.67%) and Extended (4.17%). Family of the Onion growers belong to size up to 5 family it was found that none.

Table 5: Distribution of respondents according to Type of family

(n=120)

S. No.	Family type	Frequency	Percentage
1	Single (Nuclear family)	65	54.17
2	Joint (More than 1 single family)	50	41.67
3	Extended (More than 2 joint family)	5	4.17
4	Size up to 5	0	0.00
5	Any other distinctive features	0	0.00
Total		120	100

The family income data given in table 6 reveals that majority of the Onion growers were from Medium income group (71.67%), followed by High income group (16.68%) and only (11.67%) of the Onion growers were comes under low income group.

Table 6: Distribution of respondents according to Family income

(n=120)

S. No.	Income (Rs.)	Frequency	Percentage
1	Low (<100000)	14	11.67
2	Medium (100000 to 250000)	86	71.67
3	High (>250000)	20	16.68
Total		120	100

The data of the table 7 indicate that 54.17 percent Onion growers had Medium land holding 4.0 to 10 hectare, followed by Semi Medium Farmers (28.33%), large farmers (13.33%) and Small farmers (4.17%). It was found that none of the onion growers belong to marginal land holding category.

Table 7: Distribution of respondents according to size of Land holding

(n=120)

S. No.	Categories (ha)	Frequency	Percentage
1	Marginal farmers (< 1.00 ha)	0	0.00
2	Small farmers (1.00 to 2.00 ha)	5	4.17
3	Semi medium farmer (2.01 to 4.00 ha)	34	28.33
4	Medium farmer (4.01 to 10.00 ha)	65	54.17
5	Large farmer (>10.00 ha)	16	13.33
Total		120	100

The data of the table 8 shows that majority of the onion growers (58.33%) were associated with member of one organization, and member of more than one organization (21.67%), and none of organization (10.83%), office holder in such an organization 7.50%) and only were wide public leaders 1.67 percent onion growers social participation.

Table 8: Distribution of respondents according to Social Participation

(n=120)

S. No.	Social participation	Frequency	Percentage
1	None	13	10.83
2	Member of one organization	70	58.33
3	Member of more than one organization	26	21.67
4	Office holder in such an organization	9	7.50
5	Wide public leader	2	1.67
Total		120	100

The data of the table 9 shows that majority of the Onion growers (74.17%) were associated with medium category of extension contact, followed by (14.17%) of onion growers were high category of extension contact and only (11.67%) onion growers belong to low level category of extension contact.

Table 9: Distribution of respondents according to Extension contact

(n=120)

S. No.	Categories	Frequency	Percentage
1	Low (< 7.15)	14	11.67
2	Medium (7.15 to 16.42)	89	74.17
3	High (> 16.42)	17	14.17
	Total	120	100

The data in the table 10 shows that majority of the Onion growers (63.33%) were associated with Medium category of mass media exposure, followed by (25.83%) of onion growers were Low category of mass media exposure and only (10.83%) onion growers belong to High level category of mass media exposure.

Table 10: Distribution of respondents according to Mass media exposure

(n=120)

S. No.	Categories	Frequency	Per cent
1	Low (< 3.99)	31	25.83
2	Medium (4.00 to 8.12)	76	63.33
3	High (> 8.12)	13	10.83
	Total	120	100

The data presented in Table 11 indicate that majority (65.83%) of the Onion growers were from medium socio-economic status, followed by low socio-economic status (15.00%) and Onion high socio-economic status (19.17%).

Table 11: Distribution of respondents according to socio-economic status

(n=120)

S. No.	Levels	Frequency	Percentage
1.	Low (< 32.59 score)	18	15.00
2.	Medium (From 32.59 to 38.56 score)	79	65.83
3.	High (> 38.56 score)	23	19.17
	Total	120	100.00

Conclusion

Majority of Onion growers belonged to middle age group, were from other back ward class caste category, agriculture as main occupation, belonged to high school education category, were having type of family single (nuclear), were having medium family income, and medium farmer category of land holding, were having member of one organization social participation and medium extension contact were having mass media exposure medium. Majority of Onion growers were having medium socio-economic status. It was found that majority of the respondents were belong to middle age group (60.00%), It was analyzed that majority of the respondents were from Other Backward Class (69.17%), It observed that majority of the respondents engaged in Agriculture as the main occupation (79.17%), It was revealed that majority of respondents were (20.83%) High school, The results of the study shows that majority of the respondents were part of nuclear family (54.17%), The Onion grower were from medium income group (71.67%), It was observed that most of respondents 54.17 percent Onion growers had medium land holding 4.0 to10 hectare, It was found that majority of the Onion growers (58.33%) were associated with member of one organization, It was found that majority of the respondents (74.17%) were medium category of extension contact, It was found that majority of the respondents (63.33%) were associated with medium category of mass media exposure. The data were gathered using the personal interview approach, classified, tabulated, and inferences were made after the data through the proper statistical analysis, which produced the primary conclusions listed below. The following list summarises the key conclusions that the study produced.

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