# Original Research Article

## Farmers' Attitude and Preference towards Crop Diversification with Maize in Haryana


**ABSTRACT:**

*The study concluded that the scheme 'Mera Pani Meri Virasat' is proved helpful in crop diversification of paddy with maize'. Farmers showed that armyworm in maize deteriorate the quality of maize' which demote the crop diversification from paddy with maize. 'The government's govt. assistance of Rs.7000/- per acre is less, as compared to economic loss resulting from the invasion of due to fall armywormson in maize'. The farmers preferred the replacement of paddy with maize due to because of 'Maizebeing is fully mechanized, as compared to paddy (partially mechanized)' followed by 'leaching of nitrate and pesticides in paddy field resulting ined groundwater pollution. Farmers also preferred maize because of its'Less water requirement characteristics, as compared to paddy'. 'Maize crop is more suitable for livestock as it is being used as green fodder for animals, easily decomposable, and can be used for mushroom production also'. The attitude of farmers towards diversification showed that 'MSP of maize crop should be increased and procurement may be ensured by the government'.*



***Key words:*** *Attitude, preferences, crop diversification, maize, rice.*


**Comment [K1]:** Do authors mean to say invasion or declension? Kindly check if the suggested word is appropriate in this context. Does the author wish to say invasion of armyworms on maize in this context?

**Comment [K2]:** **Abstract:**

**-Line 18**: Unstandardized abbreviations like 'MSP' should not be included in the abstract. MSP must be written in full.

-Again, why does the author use several 'quotation marks' in the abstract?

-The main aim or specific objectives, coupled with the study's methodology/approach for data analysis and data collection are missing. The abstract is the engine of the work, hence, must coax readers into reading further by summing up the paper. I humbly suggest authors to include these details in the in initial part of the abstract.

## INTRODUCTION

Rice is the major crop in Haryana, its area increased from 1.92 to 14.22 lakh ha, and production increased from 2.23 to 45.23 lakh tonnes during 1966-67 to 2020-21. Since the late sixties, the introduction of high yielding varieties of rice and expansion of irrigation and electricity facilities assured procurement as favourable government policies boosted rice cultivation. At present, rice based cropping systems in agriculture had predominated in Haryana. The traditional maize cultivated site was also occupied by rice cultivation. Again, shifting of the area site was accelerated due to the non-availability of high yielding cultivars in maize. However, rice has expanded in the region's with limited water availability and less rainfall that caused the water table to decline at an alarming rate.level as r Rice is recommended in the areas receiving rainfall amounts of more than 800 mm. The rice cultivation was timely in the need of the hour to ensuring e the sustenance of the nation's food security and improvement in living standards. and helped bring food self sufficiency and farmers prosperity. The burning of crop residue contributes to atmospheric pollution with severe environmental, soil, and human health and economic implications. It releases large amounts of air pollutants and heat generated soil

temperature, causing the death of beneficial soil microbial population. It also reduces the level of nitrogen and carbon in the top 0-15 cm soil profile, which is essential for crop root development. Burning the crop residue causes phenomenal pollution problems in the atmosphere and substantial nutritional loss and physical health deterioration to the soil. Burning of one ton of paddy straw release 3 kg particulate matter, 1460 kg CO , 199 kg ash, and 2 kg SO . These gases affect human health due to the 2 general degradation in air quality, resulting in aggravation of eye and skin diseases. Fine particles can also aggravate chronic lung diseases. One ton of paddy straw contains approximately 5.5 kg N, 2.3 kg P O , 25 kg K O, 1.2 kg S, 50-70% of micronutrients 2 5 2 absorbed by the rice, and 400 kg of carbon are lost due to the burning of paddy straw. Apart from the loss of nutrients, some soil properties like soil temperature, pH, moisture, available phosphorus, and soil organic matter are greatly affected due to burning. Nonetheless, the time available between rice harvesting and wheat sowing is very narrow (in the range of 20-30 days). However, rice cultivation in similar fields has created some serious problems and environmental threats. ~~, viz.~~ The declining water table, enhanced groundwater pollution by nutrient and pesticide leaching, affected soil physical properties and soil biodiversity, enhanced greenhouse gas emissions, rice residue burning to result in environmental pollution, among other factors ~~etc~~.

Depletion of groundwater level by 1 m/year since 2013 and underground water level plunged by 20-60 meters in 19 districts out of 22 districts of Haryana due to non-conventional rice; more 'Dark Zones' as ground water dries up rapidly; canal waters and groundwater salinity led to water-logging; groundwater pollution by leaching of nitrate and agrochemical; depletion of soil physical health, environmental pollution; underground water contamination; loss of biodiversity; favoured incidence of pest (weed, disease and so on~~etc.~~); human and animal health affected due to excessive use of agrochemicals are some of the major disadvantages in rice growing areas. It is reasoned that an ~~An~~ urgent need is required ~~is felt~~ to reduce the area's coverage under rice cultivation; diversification of rice crop with remunerative, less risky, and eco-friendly crops can provide substantial income and help to address many of these problems.

Maize has the potential to emerge as the most appropriate substitute, which can bring more prosperity to the farming community without adversely affecting natural resources. It has also added the advantage of saving precious resources like water and electricity. Due to increased adverse consequences of rice cultivation and promising innovations in maize research

and development, and availability of technical know-how, it is high time ~~to promote~~ maize cultivation is promoted in the state to prevent further deterioration in natural resources. This in essence, would~~and to~~ ensure the long-term sustainability of agricultural development in the state. Therefore, it is crucial to extend the benefit of maize diversification to Haryana farmers considering the progress made by the other states. The salient advantages of diversification through maize cultivation are (i) conservation of ~~the saving of~~ water to the tune of 90% by maize cultivation instead of paddy (Maize Summit, 2018)~~.~~; (ii) Preserves ~~The maize cultivation saves~~ 70% power, as compared to paddy (Maize Summit, 2018); (iii) Facilitate ~~The maize cultivation will help in~~ an overall improvement in environmental quality leading to improved quality of life. The biomass of maize is easily degradable, compared to rice due to less silicon content and, therefore, improves the soil's organic matter content; (iv) The maize crop optimizescropping systems, and results in higher system productivity and profitability by following maize-wheat-mungbean (MWMb), maize-mustard-mungbean (MMMb), maize-autumn/ winter/summer vegetable systems in the state.

Maize was a major crop in North Eastern Haryana until the 1970s in the Kharif season, having more than 1.7 lakh ha in Karnal, Ambala, Kurukshetra, Yamunanagar, and Panipat, among others~~etc~~. Due to raw material availability, the country's first starch industry was established at Yamunanagar in 1937. The establishment of the corn-based agro-industry trickled down employment and entrepreneurship opportunities in the ~~viz.~~ feed production, poultry business, specialty of corn, silage making, starch and so on. ~~etc. will generate more employment and entrepreneurship opportunities state.~~ Keeping the above facts in view, the study was conducted to know about "Farmers' Attitude and Preference towards Crop Diversification with Maize in Haryana".

## RESEARCH METHODOLOGY

The study was conducted in Haryana State. There are 22 districts in Haryana State out of which two districts namely; Karnal and Yamunanagar were selected randomly due to both areas ~~because of having major area under~~ known for rice cultivation. Four villages from each district~~(i.e.~~i.e.,Uchana, Kacchawa, Kunjpura and Subri from Karnal block of Karnal district and four villages, thus,~~i.e.~~Radauri, Kantroli, Silikalan and Kanjnu from Radaur block of Yamunanagar district) were selected randomly. Ten (10) farmers from each selected village were also selected randomly to make a total sample of 80 farmers using random sampling technique to

**Comment [K3]: Research Methodology:**

-How did the author arrive at this sample size? Is there any justification?

-How representative is this number in generalizing findings for farmers in the study area?

-What are the study's limitations or challenges?

-How was bias judgements or responses from the farmers dealt with, considering the subjectivity of the method used?

study the "Farmers' Attitude and Preference towards Crop Diversification with Maize in Haryana". The data collected, tabulated, analyzed and the results were drawn using appropriate statistical measures.

## RESULTS AND DISCUSSION

The results of the study are given under following heads and subheads as under:

**Personal profile of respondents**

The data in table 1 showed majority ~~that about two third~~ of respondents (60.00%) belonged to middle age (31 to 50 years) group followed by old (51 and above) to the extent of 30.00 per cent. The remaining 10.00 per cent belonged to young (up to 30 years) age group. The data further reported that 27.50 per cent of the respondents were higher secondary followed by 23.75 per cent, 22.50 per cent, 15.00 per cent, 06.25 per cent, 05.00 per cent and only 02.50 per cent having matriculation, graduate, middle, post graduate, primary and illiterate, respectively.About one-third (32.50%) of the respondents have land ownership rights ~~holding above~~ exceeding and ranging between 5~~- acres up to~~ 10.00 acres, followed by above 2.5~~- acres up to~~ 5.00 acres (27.50%), ~~above~~ 10~~- acres up to~~ 15 acres (17.50%), less than 2.5 acres (12.50%), and above 15 acres (10.00%), respectively.

**Irrigation facilities available:**

It was depicted from table 2 that majority of the respondents (90.00%), having both sources of irrigation (canal + tubewell/submersible pump) followed by submersible/tubewell alone (82.50%) and canal only (17.50%), respectively.

**Farming System followed:**

The data were analyzed and the results given in table 3 revealed that a vast majority (90.00%) were doing livestock with agriculture followed by integrated farming system (15.00%), poly house vegetable production (10.00%), mushroom cultivation (7.50%), beekeeping (5.00%), organic farming (3.75%), poultry as well as fisheries (1.25%), respectively.

**Cropping pattern followed**

It was observed in table 4 that 67.50 per cent of the respondents practicing sole cropping pattern followed by mixed cropping (13.75%), multiple cropping (10.00%), and intercropping (8.75%), respectively.

**Comment [K4]: Lines 98-99:** What software or statistical tools were used to analyse data collected?

-Here, the author must state specifically the version of the software used (E.g., SPSS IBM version 22 or Excel Statistical package v.16, Chicago, USA)

**Comment [K5]: Results and Discussion:**

**-Lines 105:** 60% does not constitute two-thirds. Authors could use close to… or majority of …

**Crop rotation followed**

The data showed in table 5 that majority of the respondents (82.50%) has cotton –wheat cropping system followed by rice-wheat (40.00%), cotton-other crops (15.00%), rice-other crops (10.00%), bajra/jowar/guar-wheat (8.75%), sugarcane based (6.25%), bajra/jowar/guar-fellow (6.25%), bajra/fellow-mustard (2.50%), fellow-wheat (2.50%) and bajra/fellow-pulses (2.50%), respectively.

**Mass Media Exposure**

It was depicted from table 6 that newspaper ranked first with weighted mean score of 1.50 followed by television and radio ranked second and third with weighted mean score of 1.48 and 0.43, respectively as mass media.

It was also reported in table 6 that farmers used online solution (32.50%) of respondents followed by farm magazine (27.50%) and Kisan Sewa Kendra (10.00%) to get the information but not in regular use (as and when required).

**Extension Contact**

The data depicted in table 7 revealed that among the extension contact of the farmers , the most popular were the progressive farmers with weighted mean score of 2.75 followed by ADOs/HDOs, Scientists, NGOs/Coop society, input dealer/sales representatives and SDAO/SMS ranked second, third, fourth, fifth and sixth, respectively.

**Social Media for getting information**

The data from table 8 reported that 72.50 per cent of respondents got information through WhatsApp followed by Face book (48.75%), YouTube (40.00%), ~~Apps like~~ e-Mausam (35.00%), Websites (17.50%), portal (10.00%), among other social media platforms ~~and anyother means~~ like Twitter and~~,~~ Telegram (05.00%)~~., respectively.~~

**Attitude of farmers towards crop diversification with maize in Haryana (n=80)**

The data presented in table 9 revealed that most of the farmers showed their interest towards crop diversification with maize, against the backdrop ~~with the fact~~ that 'MSP of maize crop should be increased and procurement of produce may be ensured by the Government~~t~~.' ~~which ranked first,~~ followed by 'crop diversification gives an idea of how one crop can replace the other crop in the system', 'The scheme 'Mera Pani Meri Virasat' is proven to be ~~d~~ helpful in crop diversification of paddy with maize'.~~,~~Government~~Govt.~~ should provide incentives or

subsidiaries ~~monitory benefit/support~~ to enhance ~~the~~ crop diversification, 'Knowledge regarding maize production practices promote crop diversification from paddy crop', 'Rice being more remunerative crop, it is difficult to diversify it with maize', 'Crop diversification teaches us to utilize available resources in efficient manner', 'Farmers awareness regarding sustainable use of resources help in promoting the crop diversification', 'Crop diversification with maize increase soil fertility', 'Proper drying and threshing of maize will be helpful in crop diversification' and 'Fall army worm in maize deteriorate the quality of maize which demote the crop diversification from paddy with maize' thereby which ranked second, third, fourth, fifth, sixth, seventh, eighth, ninth and tenth, respectively.

The table 9 further also reported that the 'Government should give insurance to recommended crop diversification', 'Diversification of paddy with maize is risk for small farmers', Only big farmers can adopt crop diversification with maize crop', 'Risk bearing ability of a farmer decide the crop diversification', 'There is big risk in adoption of maize crop in water lodged areas', ' Government's ~~Govt.~~ assistance of Rs. 7000/- is less, as compared to economic loss due to the fall of armyworm on ~~in~~ maize', 'Productivity of maize, as compared to rice decide the adoption or rejection in crop diversification' and 'Profit is the prime concern for farmer rather than food and fodder quality through crop diversification with maize', and which ranked XI, XII, XIII, XIV, XV, XVI and XVII, respectively were of the attitude of the farmers towards crop diversification of paddy with maize. The diversification with maize is a need of the time because of depleting water resource in paddy –wheat areas.

**Preferences of farmers towards crop diversification with maize in Haryana**

The data in table 10 related to preferences of farmers towards crop diversification of paddy with maize crop were collected which revealed that 'Maize is fully mechanized as compared to paddy (partially mechanized)', 'There is leaching of nitrate and pesticides in paddy field which results in groundwater pollution, but in maize there is no such pollution', 'The duration of maize crop is lesser than paddy hence, fit as maize-wheat cropping system', 'Water requirement of maize crop is less as compared to paddy', 'The soil physical health is degrading with paddy where as by maize crop, soil health is restoring/improving', 'Water productivity is higher in maize crop than paddy crop', 'Issue of crop residue burning in paddy results in environmental pollution and degrades biodiversity, but in maize there is no such issues', 'Cost of cultivation of maize is less than paddy', 'Maize is climate resilient crop where as in paddy

**Comment [K6]:** **-Lines 158-166:**Though factors in quotation marks are linked to farmers' perception, it is inappropriate and ambiguous to present them in a way it is currently presented. Authors need to remove the quotation marks and use the right punctuations like full top (.) and colons (: ) or semi-colons to present the same idea.

-The highlighted sections are lengthy, difficult to read and misleading or unclear.

-Again, authors could have rephrased sentences to connote the same idea without repasting same details in the table.

**Comment [K7]:** **Line 172:**Do authors mean to say invasion of armyworms on maize? Kindly check and use the appropriate word to suit the context if the suggested word misconstrues the sentence.

**Comment [K8]:** **-Lines 167-177:**Same here. Kindly remove all the quotation marks and use the appropriate punctuations to ensure brevity and clarity/conciseness.

increased temperature thereby increases green house gases(GHG)', 'The rice produce is surplus, hence, there is no state requirement whereas maize is highly deficit and government requires more', 'Maize crop is more suitable for livestock as its green fodder used for animal fodder, easily decomposable and can be used for mushroom production also', 'Maize crop is more suitable for intercropping due to wider crop spacing whereas, paddy is not suitable for intercropping', 'Less requirement of electricity and power/energy in maize as compared to paddy which require very high electricity/power', 'The handling and post harvest losses of maize is low' and 'High loss due to attack of fall armyworm in maize which deteriorate quality of maize' with weighted mean scores of 0.938, 0.925, 0.913, 0.900, 0.888, 0.875, 0.863, 0850, 0.838, 0.825, 0.813, 0.800, 0.788, 0.775 and 0.763, respectively which ranked I$^{st}$, II$^{nd}$, III$^{rd}$, IV$^{th}$, V$^{th}$, VI$^{th}$, VII$^{th}$, VIII$^{th}$, IX$^{th}$, X$^{th}$, XI$^{th}$, XII$^{th}$, XIII$^{th}$, XIV$^{th}$andXV$^{th}$, respectively.

## CONCLUSION

The study concluded and resulted that the scheme 'Mera Pani Meri Virasat' is/being proved helpful in crop diversification of paddy with maize'. Farmers showed that armyworm in maize deteriorate the quality of maize' which demote the crop diversification from paddy with maize. 'The government assistance of Rs. 7000/- is less as compared to economic loss due to fall armyworm in maize'. The farmers preferred replacement of paddy with maize because of 'Maize is fully mechanized as compared to paddy (partially mechanized)' followed by 'leaching of nitrate and pesticides in paddy field resulted groundwater pollution'.Farmers also preferred maize because of 'Less water requirement as compared to paddy'. 'Maize crop is more suitable for livestock as being used green fodder for animal, easily decomposable, and can be used for mushroom production also'. The attitude of farmers towards diversification showed that 'MSP of maize crop should be increased and procurement may be ensured by the government.'

## REFERENCES


1. D. Singh, M. K. Choudhary, M. L. Meena, Chandan Kumar. 2019. Rain Water Harvesting for Food and Livelihood Security: A case study from Pali, India. *Open Agriculture*. **2019 (4) Pp: 767-777**
2. **Singh, Sube**; Bhakar, Sandeep and Shehrawat, P.S. 2020. Farmers' Awareness and Performance about Agriculture Development Schemes in Haryana. *International Journal of Agriculture Innovations and Research (IJAIR)*, **8 (5) Pp: 495-502**. ISSN: 2319-1473.
3. **Singh, Sube**; Shehrawat, P. S. and Bhakar, Sandeep. 2020. Farmers' Awareness and Usage of Soil Health Cards in Crop Management Practices. *International Journal of Creative Research Thought (IJCRT)*. **8 (3): Pp: 275-281**. ISSN: 2320-2882.




**Comment [K9]: Discussion:**

-No proper discussion was done, in relation to explaining what the results mean. Details provided in the tables were rephrased in words.

-Authors need to compare the results of this study against existing literature in the region or elsewhere across the globe (i.e., studies with similar scope as the present study).
Which aspects tally/agree or refute existing literature?

-What policies or mechanisms/strategies somewhat drive or influence farmers' perception on diversification and preferences?

-Is there a correlation between their educational status, duration or length/duration on farming experience, against their level of knowledge on crop diversification and preferences? These parameters need to be clearly discussed.

**Comment [K10]: -Lines 179-199:** Same here.

**Comment [K11]: Conclusion:**

-The conclusion must entail the main aim of the study or highlight what the study sought to address, summary of the main findings in bulletin and not in quotation marks, importance to the study findings to industrial players and policy-makers/researchers, as well as limitation of the study or possible areas for further research.

-There are major grammatical defects and syntax errors that need to be corrected or revised. Authors need to rephrase sentences in their own words, explaining them without repeating details or results presented in tables by placing them in quotation marks.

4. Zuhud Rozaki, Masateru Senge, Kohei Yoshiyama and Komariah. 2017. Feasibility and Adoption of Rainwater harvesting by Farmers. *Reviews in Agricultural Science*, **5:56-64.** http://dx.doi.org/ 10.7831/ras.5.56.

**Table 1: Biodata ~~Personal profile~~ of respondents**

**~~(n=80)~~**

| S. No | Variable(s) | Category | Frequency (n=80) | Percentage |
|---|---|---|---|---|
| 1 | Age | Young (up to 30) | 08 | 10.00 |
| | | Middle (31 to 50) | 48 | 60.00 |
| | | Old (51 and above) | 24 | 30.00 |
| 2. | Education | Illiterate | 02 | 02.50 |
| | | Primary | 04 | 05.00 |
| | | Middle | 12 | 15.00 |
| | | Matriculation | 19 | 23.75 |
| | | Higher Secondary | 22 | 27.50 |
| | | Graduate | 18 | 22.50 |
| | | Post Graduate | 05 | 06.25 |
| 3. | Land holding | Less than 2.5 acre | 10 | 12.50 |
| | | Above 2.5 and up to 5 acres | 22 | 27.50 |
| | | Above 5 and up to 10 acres | 26 | 32.50 |
| | | Above 10 to 15 acres | 14 | 15.00 |
| | | Above 15 Acres | 08 | 10.00 |

**Table 2: Irrigation facilities available** **~~(n=80)~~**

| S. No | Source of irrigation | Frequency (n=80) | Percentage |
|---|---|---|---|
| 1. | Submersible pump/tube well | 66 | 82.50 |
| 2. | Canal | 14 | 17.50 |
| 3. | Both (Canal+ Tube well/submersible pump) | 72 | 90.00 |

***Multiple responses***

**Table 3: Farming System followed** **~~(n=80)~~**

| S. No | Farming System | Frequency(n=80) | Percentage |
|---|---|---|---|
| 1. | Livestock | 72 | 90.00 |
| 2. | Poultry | 01 | 01.25 |
| 3. | Fishery | 01 | 01.25 |

| | | | |
|---|---|---|---|
| 4. | Bee keeping | 04 | 05.00 |
| 5. | Organic farming | 03 | 03.75 |
| 6. | Mushroom cultivation | 06 | 07.50 |
| 7. | Integrated farming system | 12 | 15.00 |
| 8. | Polyhouse vegetable production | 08 | 10.00 |

***Multiple responses***

**Table 4: Cropping pattern followed** ~~**(n=80)**~~

| S. No | Cropping pattern | Frequency(n=80) | Percentage |
|---|---|---|---|
| 1. | Sole cropping | 54 | 67.50 |
| 2. | Mixed cropping | 11 | 13.75 |
| 3. | Inter cropping | 07 | 08.75 |
| 4. | Multiple cropping | 08 | 10.00 |

**Multiple responses*

**Table 5: Crop rotation followed** **(n=80)**

| S. No | Crop rotation | Frequency(n=80) | Percentage |
|---|---|---|---|
| 1. | Rice-Wheat | 32 | 40.00 |
| 2. | Cotton-Wheat | 66 | 82.50 |
| 3. | Sugarcane Based | 05 | 06.25 |
| 4. | Rice-Other crops | 08 | 10.00 |
| 5. | Cotton-Other crops | 12 | 15.00 |
| 6. | Bajra/Jawar/Guar-Wheat | 07 | 08.75 |
| 7. | Bajra/Jawar/Guar-Fallow | 05 | 06.25 |
| 8. | Fallow-Wheat | 02 | 02.50 |
| 9. | Bajra/Fallow-Mustard | 02 | 02.50 |
| 10. | Bajra/Fallow-Pulses | 02 | 02.50 |

**Multiple responses*

**Table 6: Mass Media Exposure** ~~**(n=80)**~~

| Sr. No | Mass Media | Used | Extent of utilization | | | Total Score | Weighted Mean Score | Rank |
|---|---|---|---|---|---|---|---|---|
| | | | Daily (3) | Often (2) | Sometime (1) | | | |
| 1. | Newspaper | 54 (67.50) | 23 (69) | 20 (40) | 11 (11) | 120 | 1.50 | I |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 2. | Television | 62 (77.50) | 15 (45) | 27 (54) | 20 (20) | 119 | 1.48 | II |
| 3. | Radio | 18 (22.50) | 05 (15) | 07 (14) | 06 (6) | 035 | 0.43 | III |
| 4. | Farm Magazine | 22 (27.50) | - | - | - | - | - | -- |
| 5. | KisanSewa Kendra | 08 (10.00) | - | - | - | - | - | -- |
| 6. | Online Solution | 26 (32.50) | - | - | - | - | - | -- |

*Figures given in parenthesis indicates percentage*

**Table 7: Extension Contact** ~~(n=80)~~

| S. No | Extension Officials | Frequency of contact | | | | | Total Score | Weighted Mean Score | Rank order |
|---|---|---|---|---|---|---|---|---|---|
| | | Weekly (4) | Fortnightly (3) | Monthly (2) | Whenever needed (1) | None (0) | | | |
| 1. | Progressive Farmers | 28 (112) | 21 (63) | 14 (28) | 12 (12) | 5 (00) | 220 | 2.75 | I |
| 2. | ADOs/HDOs | 26 (104) | 20 (60) | 12 (24) | 15 (15) | 7 (00) | 203 | 2.54 | II |
| 3. | Scientists | 15 (60) | 16 (48) | 23 (46) | 12 (12) | 14 (00) | 166 | 2.07 | III |
| 4. | NGO/Coop. Society | 12 (48) | 11 (33) | 16 (32) | 26 (26) | 15 (00) | 139 | 1.73 | IV |
| 5. | Others (Input dealers/Sales rep.) | 11 (44) | 15 (45) | 08 (16) | 22 (22) | 24 (00) | 127 | 1.58 | V |
| 6. | SDAO/SMS | 6 (24) | 8 (24) | 14 (28) | 25 (25) | 27 (00) | 101 | 1.26 | VI |

*Figures given in parenthesis indicates percentage*

**Table 8: Social Media for getting information** ~~(n=80)~~

| S. No | Social media/ICT tools | Frequency(n=80) | Percentage |
|---|---|---|---|
| 1. | WhatsApp | 58 | 72.50 |
| 2. | Face book | 39 | 48.75 |
| 3. | YouTube | 32 | 40.00 |
| 4. | Websites | 14 | 17.50 |
| 5. | Portal | 08 | 10.00 |
| 6. | Apps (e-Mausum) | 28 | 35.00 |

| | | | |
|---|---|---|---|
| 7. | Any others (twitters, telegram etc.) | 04 | 05.00 |

**Multiple responses*

**Table 9: Farmers' Attitude towards Crop Diversification with Maize in Haryana ~~(n=80)~~**

| S. No | Statements | Attitude level | | | Total Score | Weighted Mean Score | Rank Order |
|---|---|---|---|---|---|---|---|
| | | Strongly agree (2) | Agree (1) | Disagree (0) | | | |
| 1. | MSP of maize crop should be increased and procurement may be ensured by the Govt. | 72 | 8 | 0 | 152 | 1.90 | I |
| 2. | Crop diversification gives an idea how one crop can replace the other crop in the system. | 70 | 10 | 0 | 150 | 1.87 | II |
| 3. | The scheme MeraPaniMeriVirasat is proved helpful in diversifying paddy with maize. | 66 | 14 | 0 | 146 | 1.82 | III |
| 4. | Government should provide monitory support to enhance the crop diversification. | 65 | 15 | 0 | 145 | 1.81 | IV |
| 5. | Knowledge regarding maize crop production practices promotes crop diversification from paddy crop. | 65 | 14 | 11 | 144 | 1.80 | V |
| 6. | Rice being more remunerative crop, so it is difficult to diversify it with maize. | 62 | 18 | 0 | 142 | 1.77 | VI |
| 7. | Crop diversification teaches to utilize available resources in efficient manner. | 63 | 15 | 2 | 141 | 1.76 | VII |
| 8. | Farmer's awareness regarding sustainable use of resources help in promoting the crop diversification. | 63 | 14 | 2 | 140 | 1.75 | VIII |
| 9. | Crop diversification with maize increase soil fertility. | 63 | 14 | 03 | 140 | 1.75 | VIII |
| 10. | Proper drying and threshing of maize will be helpful in CD | 61 | 17 | 2 | 139 | 1.74 | IX |
| 11. | Fall armyworm in maize deteriorate the quality of maize which demote the crop diversification from paddy with maize | 61 | 16 | 3 | 138 | 1.72 | X |
| 12. | Government should give insurance to recommended crop diversification. | 57 | 23 | 0 | 137 | 1.71 | XI |
| 13. | Diversification of Paddy with maize is risk for small farmers. | 59 | 17 | 4 | 135 | 1.69 | XII |
| 14. | Only big farmers can adopt crop diversification with maize crop | 58 | 18 | 4 | 134 | 1.67 | XIII |
| 15. | Diversification with maize is a need of hour because of depleting water resource in paddy – wheat areas. | 57 | 17 | 6 | 131 | 1.64 | XIV |
| 16. | Risk bearing ability of a farmer decides the crop diversification. | 59 | 13 | 8 | 131 | 1.64 | XIV |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 17. | Govt. assistance of Rs. 7000/- is less as compared to economic loss due to fall armyworm in maize. | 57 | 17 | 4 | 131 | 1.64 | XIV |
| 18. | There is big risk in adoption of maize crop in water lodged areas. | 54 | 16 | 10 | 124 | 1.55 | XV |
| 19. | Productivity of maize as compared to rice decide the adoption or rejection in crop diversification | 46 | 26 | 8 | 118 | 1.48 | XVI |
| 20. | Profit is the prime concern for farmer rather than food and fodder quality through crop diversification with maize. | 47 | 23 | 10 | 117 | 1.46 | XVII |

252
253
254
255
256 **Table 10: Preferences of farmers towards crop diversification with maize in Haryana (n=80)**

| Sr. No | Statements | Preferred (1) | Not Preferred (0) | Total Score | Weighted Mean Score | Rank Order |
|---|---|---|---|---|---|---|
| 1. | Maize is fully mechanized as compared to paddy (partially mechanized) | 75 | 07 | 75 | 0.938 | I |
| 2. | There is leaching of nitrate and pesticides in paddy field which results in groundwater pollution, but in maize there is no such pollution | 74 | 06 | 74 | 0.925 | II |
| 3. | The duration of maize crop is lesser than paddy hence, fit as maize-wheat cropping system. | 73 | 07 | 73 | 0.913 | III |
| 4. | Water requirement of maize crop is less as compared to paddy | 72 | 08 | 72 | 0.900 | IV |
| 5. | The soil physical health is degrading with paddy where as by maize crop, soil health is restoring/improving | 71 | 09 | 71 | 0.888 | V |
| 6. | Water productivity is higher in maize crop than paddy crop. | 70 | 10 | 70 | 0.875 | VI |
| 7. | Issue of crop residue burning in paddy results in environmental pollution and degrades biodiversity, but in maize there is no such issues | 69 | 11 | 69 | 0.863 | VII |
| 8. | Cost of cultivation of maize is less than paddy. | 68 | 12 | 68 | 0.850 | VIII |
| 9. | Maize is climate resilient crop where as in paddy increased temperature increases green house gases (GHG). | 67 | 11 | 67 | 0.838 | IX |
| 10. | The rice produce is surplus, hence, there is no state requirement where as maize is highly deficit and Govt. requires more | 66 | 15 | 66 | 0.825 | X |
| 11. | Maize crop is more suitable for livestock as its green fodder used for animal fodder, easily decomposable and can be used for mushroom production also. | 65 | 18 | 65 | 0.813 | XI |
| 12. | Maize crop is more suitable for intercropping due to wider crop spacing whereas; paddy is not suitable for intercropping. | 64 | 11 | 64 | 0.800 | XII |
| 13. | Less requirement of electricity and power/energy in maize as compared to paddy which require very high electricity/power | 63 | 13 | 63 | 0.788 | XIII |
| 14. | The handling and post harvest losses of maize is low. | 62 | 15 | 62 | 0.775 | XIV |

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|---|---|---|---|---|---|---|
| 15. | High loss due to attack of fall armyworm in maize which deteriorate quality of maize | 61 | 16 | 61 | 0.763 | XV |

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