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Knowledge of farmers regarding Biomix

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Abstract
The present study explored knowledge of farmers regarding Biomix. The present study was conducted in Vasmat and Aundha N. tahsils of Hingoli District. The findings of this study are based on the data collected by interviewing 120 respondents from 12 villages of two tahsil i.e. Vasmat and Aundha N. in Hingoli District. The Ex-post-facto research design was used for the study. A well structured questionnaire designed for study was used for collecting the data from respondents through personal interview method. The data collections from the respondents were edited tabulated and analyzed using suitable statistical tools like frequency, percentage, mean, standard deviation and Pearsons coefficient of correlation. There were dependent variables namely "knowledge". There were 11 independent variables *viz.*, Age, education, land holding, occupation, annual income, socio-economic status, source of information, extension contact, social participation, risk orientation, and market orientation. The study was noticed that, 62.50 per cent of farmers belong to medium level of knowledge, whereas 30.83 per cent and 6.67 per cent of farmers were in low and high level of knowledge respectively. The characteristics namely education, occupation, extension contact, social participation had positive and highly significant relationship with their knowledge level. However, other characteristics namely age is positively non significant and annual income is negatively non significant with the knowledge of farmers. While land socio-economic status, sources of information, risk orientation, market orientation had positive and significant relationship with knowledge.

Keywords: Biomix, knowledge of specific aspects of Biomix, relationship

Introduction
Bio-pesticides are living organisms which can intervene the life cycle of insect pests in such a way that the crop damage is minimized. The agents employed as bio-pesticides, include parasites, predators and disease-causing fungi, bacteria and viruses, which are the natural enemies of pests. Further, they complement and supplement other methods of pest control. Utilisation of naturally occurring parasites, predators and pathogens for pest control is a classical biological control. On the other hand, these bio agents can be conserved, preserved and multiplied under Laboratory condition for field release. Once these bio-agents are introduced in the field to build their population considerably, they are capable of bringing down the targeted pest population below economic threshold level (ETL). However, the crux lies in their mass production and application at the appropriate time (TNAU Agri Portal).

It is a known fact that the bioagents are playing important role in plant disease management, pest management and boosting the plant growth. Department of Plant Pathology introduced bio-control in the Marathwada region and developed an experimental product for management of citrus decline during 2005. Named it as "Biomix" (A mixture of *Trichoderma spp.* and *Pseudomonas fluoroscens*). This product has a great impact on farmers. In the year 2010, the farmers from Girgaon and Kurunda Village the turmeric growing part of Hingoli District reached Department of Plant Pathology, College of Agriculture, VNMKV, Parbhani for the problem of rhizome rot and white grub, their expenditure on management of this disease and pest was more than 50,000/per acre and they asked his help in solving the problem. Based on the performance, literature and problems in turmeric, an improved Biomix was formulated by adding some bio fungicides, bio-pesticides and growth promoting bioagents. This product solved the all major problems in turmeric.

They said that Biomix has not only solved the problems of soft rot and white grub in turmeric but also improved the quality and yield of turmeric. Some farmers told that due to use of Biomix, turmeric has fetched the highest market value. The Biomix is also used in different crops like Ginger, Tomato, Mango, Groundnut, Citrus, Pomegranate, Watermelon, Papaya, different vegetable and legume crops like Tur and Soybean. The results of the use of Biomix are very promising and it is found effective against different diseases, pests and promoted the growth of crops.

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This product has crossed the borders of Maharashtra and it is also used in Gujarat and Karnataka. (Department of Plant Pathology, College of Agriculture, VNMKV, Parbhani).

Keeping in view the factual position the present research study was undertaken with the following specific objective:
1. Knowledge of farmers regarding Biomix.
2. Knowledge of farmers about specific aspects of Biomix
3. Relationship between profile of the farmers with knowledge.

Materials and Method
The present study was carried out in Marathwada region of Maharashtra State during the year 2019-20. The present investigation was carried out in Marathwada region for the study one district is selected purposively, i.e. Hingoli. In Hingoli district of two talukas selected purposively i.e. Vasmat and Hingoli. In selected talukas six villages were purposively selected, thus total twelve (12) villages were selected for the present investigation. From each selected village, ten (10) farmers were selected purposively. Hence, a total of 120 respondents were selected for the study.

Results and Discussion
Knowledge of farmers regarding Biomix
The concept of knowledge in the present research way operationalized as functional understanding of farmers or the body of information possessed by the farmers about the Biomix. The knowledge score of each farmer's was calculated and converted into percentage. The farmers were classified into three categories *viz.*, low knowledge level, medium knowledge level and high knowledge level. The results are presented in Table-1.

The table - 1 concluded that a 62.50 per cent of farmers belong to medium level of knowledge, whereas 30.83 per cent and 6.67 per cent of farmers were in low and high level of knowledge respectively. The possible seasons for some of the farmers to be in low level of knowledge category is some aspects of Biomix technology involved difficult technical aspects which might have come in the way of acquiring needed information. This was also due to difference in personal attribute of the farmers. This finding is in conformity of Bendre (2009) [4].

The profile characteristics of farmers concluded from the present study revealed that farmers were from middle age group 58.34 per cent, farmers were educated up to higher secondary education level 28.35 per cent, also clearly observed that majority of farmers belong farming occupation 56.66 per cent, whereas, farmers had small size of land holding i.e. 1.01 to 2.00 ha 34.16 per cent. While, farmers categorized under medium level of annual income 61.67 per cent. The information indicated that, farmers belonged to medium level of socio-economic status 66.67 per cent, medium sources of information 62.50 per cent, medium extension contact 60.83 per cent, medium social participation 52.51 per cent Further it could observed that farmers have medium 65.16 per cent and medium level of market orientation 70.83 per cent.

Knowledge of farmers about specific aspects of Biomix
The knowledge was measured with the help of schedule developed for the study consisting of 11 statements and respondents were asked for their response on these statements and for correct and incorrect responses the scores were 1 and 0 respectively.

A perusal results in table - 2, indicates that majority of farmers had correct knowledge on Biomix developed by VNMKV, Parbhani use for crop is mixture of beneficial micro-organism 89.16 per cent followed Biomix is available to sell at VNMKV, Parbhani 87.50 per cent, Biomix of function such as disease and pest management with vegetative growth 79.16 per cent, Biomix is useful for crops 75.00 per cent, Biomix is use for disease management in crops 74.16 per cent, Biomix is useful for which pest management 70.83 per cent, In which form Biomix is available 62.50 per cent, period of Biomix storage after the purchase 60.83 per cent, At time of Biomix purchase, which information essential to read 58.33 per cent, At the time of Biomix storage care should taken 56.66 per cent and price of Biomix 52.50 per cent.

Relationship between profile of the farmers with knowledge.
There was non-significant relationship between age and knowledge of farmers. The probable reason for these findings was that, the young farmers were more receptive to new ideas and they make efforts to gain higher knowledge to pour them into practice. The older farmers' ability to grasp easy use of Biomix in view of their age. Hence age has non-significant relationship between age and knowledge of Biomix. The finding is in line Naik (2018).

It was observed that education had positive and highly significant relationship with knowledge level of farmers regarding Biomix. This show that as education increases, knowledge also increases. It indicates that education helps the individual in grasping and understanding die information about Biomix. The findings of study were similar to the finding of Bendre (2009) [4], Sawale (2011) [7].

Table revealed that, there was positive and highly significant relationship between occupation and knowledge of farmers about Biomix. This may due to most that the most of farmers in the study sample have farming as their primary occupation. Therefore occupation has a significant positive relation with perception of farmers about Biomix.

Land holding of farmers had positive and highly significant relationship with knowledge level of farmers regarding Biomix. This shows that as the land holding increased, the knowledge level of farmers was also increased. It may be due to the reason that as land holding was more farmers may be interested in use Biomix and thus they tried to gain more knowledge about Biomix. This finding is in line with Atar (2012) [3].

Annual income of the farmers had negative and non-significant relationship with knowledge level of farmers' regarding Biomix. This would mean that income has no relation with knowledge because price of Biomix affordable to from low income farmers also. Hence annual income does not affect knowledge. This finding is in line with Patel (2015) [6].

Table-3 revealed that, there was a positive and significant relationship between Socio-economic status and knowledge about Biomix. Probable reason for this result may be financial and other resources at their disposal of farmers are able to change their management practices in response to practices of Biomix and other factors and are able to make better use of all the available information they might have on Biomix and other socio-economic factors.

Source of information also had positive and significant relationship with knowledge level of farmers regarding Biomix. This means with more use of source of information

farmers' gain more knowledge about Biomix. This might be due the reason that information about Biomix was provided through various sources of information such as newspaper, university scientist, progressive farmer, friends etc. This finding is in line with the finding of Sawale (2011) [7], Atar (2012) [3,] and Shete (2014) [8].

Extension contact had positive and highly significant relationship with knowledge level of farmers regarding Biomix. It means if extension contacts of farmers increases knowledge about Biomix also increases. This might be due to the reason that extension workers and agents provide knowledge about Biomix to the farmers. This finding is in line with finding of Bendre (2009) [4].

Social participation was found to be having positive and highly significant relationship with knowledge level of farmers about. Social participated member are aware and knowledge about new beneficiary schemes, technology, this means there is relationship between social participation and knowledge about Biomix. This finding is in line with the finding of Bedre (2009) [4].

It was observed that risk orientation also had positive significant relationship with knowledge level of farmers regarding Biomix. This shows that as the risk orientation increases, level of knowledge also increases. Hence, efforts need to be made to increase the risk bearing ability of farmers. This means there is relationship between risk orientation and knowledge regarding Biomix. This finding is in line with finding of Bedre (2009) [4], Sawale (2011) [7], Ahire (2018) [1]. Results from data showed that market orientation had positive and significant relationship with level of knowledge of Biomix. The more the market orientation, more will be the level of knowledge. Because, Biomix users who pay attention to market information on prices in order to get high income, they also try to improve their knowledge on Biomix which helps in getting good yields and price. These results were in conformity with the findings of Bendre (2009) [4], Sawale (2011) [7], Atar (2012) [3].

Table 1: Knowledge of farmers regarding Biomix.

Sr. No.	Knowledge	Respondents (120)	
		Number	Per cent
1.	Low (up to 6)	37	30.83
2.	Medium (7 to 8)	75	62.50
3.	High (9 and above)	8	6.67
	Total	**120**	**100**

Table 2: Knowledge of farmers about specific aspects of Biomix.

Sr. No.	Specific knowledge about Biomix	Knowledge level		Rank
		Frequency	Percent	
1.	What is the Biomix used for crops developed by VNMKV, Parbhani?	107	89.16	I
2.	What is the function of Biomix?	95	79.16	III
3.	Biomix is useful for which crops?	90	75.00	IV
4.	Biomix is use for which disease management in crops?	89	74.16	V
5.	For which pest management Biomix is useful?	85	70.83	VI
6.	Do you know where Biomix is available to sell?	105	87.50	II
7.	What is price of Biomix?	63	52.50	XI
8.	In which form Biomix is available?	75	62.50	VII
9.	At time of Biomix purchase, which information essential to read?	70	58.33	X
10.	What is period of Biomix storage?	73	60.83	VIII
11.	At the time of Biomix storage which care should taken?	68	56.66	IX

Table 3: Relationship between profile of the farmers with knowledge.

Sr. No.	Characteristics	Correlation coefficient (r)
1.	Age	0.194*NS
2.	Education	0.333**
3.	Occupation	0.318**
4.	Land holding	0.281**
5.	Annual Income	- 0.179*NS
6.	Socio-economic Status	0.256*
7.	Sources of information	0.223*
8.	Extension contact	0.375**
9.	Social Participation	0.317**
10.	Risk orientation	0.261*
11.	Market orientation	0.248*

* Significant at 0.05 level of significance
NS Non significant
**Significant at 0.01 level of significance

Conclusion
Most of the farmers were from middle age group, had educated up to higher secondary education level and belongs to small size land holding. Revealed that majority of farmers were engaged in farming, farmers categorized under medium level of annual income. Majority of respondents belonged to medium level of socio-economic status, More than two third of the farmers uses medium sources of information. Most farmers have medium extension contact, majority of the farmers having medium social participation, that more than half farmers have medium level risk orientation and medium level of market orientation. The study was noticed that, 62.50 per cent of farmers belong to medium level of knowledge, whereas 30.83 per cent and 6.67 per cent of farmers were in low and high level of knowledge respectively. The characteristics namely education, occupation, extension contact, social participation had positive and highly significant relationship with their knowledge level. However, other characteristics namely age is positively non-significant and annual income is negatively non-significant with the knowledge of farmers. While land socio-economic status, sources of information, risk orientation, market orientation had positive and significant relationship with knowledge.

References
1. Ahire RD, Kapse PS, Deshmukh PR. Socio-Economic and Psychological Determinants of Knowledge and Adoption of IPM Technology for Management of White Grub among the Farmers. Int. J Curr. Microbiol. App. Sci. 2018;**7**(09):1201-1206.
2. Akkamahadevi Naik, Sreenivasulu M, Sreenivasa Rao I, Mahesh Lankati. A Study on Knowledge Level of Farmers on Organic Red Gram Cultivation Practices in Dry land Areas of Karnataka, India. Int. J Curr.

Microbiol. App. Sci. 2018;**7**(03):435-440.

3. Atar RS. Study on knowledge and adoption of recommended grape cultivation practices by the grape growers, M.Sc. (Agri.) Thesis, MAU, Parbhani (M.S.), 2012.

4. Bedre VS. Knowledge and adoption of recommended package of practices by okra growers, M.Sc. (Agri.) Thesis, MAU, Parbhani (M.S.), 2009.

5. Jakkawad SD, Patange NR, Kadam SB. Extent of adoption of practices by cotton growers, 2019. ISSN 0974-8431, 246-250.

6. Patel JK, Gordhan Singh Bhati. Farmers profile and their perception regarding environmental hazards caused through injudicious use of chemicals in paddy cultivation. Agriculture Update. 2015;10(3):231-236.

7. Sawale SV. Knowledge and adoption of post-harvest technology by the pomegranate growers M.Sc. (Agri.) Thesis submitted to MAU, Parbhani, 2011.

8. Shete DS. Knowledge and adoption of drip irrigation for sugarcane. M.Sc. (Agri.) Thesis, VNMKV, Parbhani, 2014.