Extent of Adoption of “Novel Organic Liquid Nutrients” in Fruits and Vegetable Crops

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ABSTRACT

Background: Novel organic liquid Nutrients have been developed based on banana pseudostem comprising of 10 macro and micro nutrients and 2 hormones, which are naturally synthesized. It is developed by Navsari Agricultural University, Navsari in Year 2009-10 under management and value addition of banana pseudostem (NAIP-II) project. To know the extent of adoption of Novel organic liquid nutrients in fruit and vegetable crops, a study was formulated to know the correlation of different factors and characteristics for adoption of the product.

Methods: This study was conducted in the Vyara, Valod, Songadh and Dolvan blocks of Tapi district of Gujarat through Krishi Vigyan Kendra, NAU, Vyara, Tapi during 2018-19. In the study, the sample size was of 100 respondent were selected through stratified random sampling method and determine the correlation of dependent and independent variable on knowledge and adoption of Novel organic liquid nutrients in fruits and vegetable crops.

Result: In this study revealed that the adoption of Novel organic liquid nutrients up to 59 per cent in fruit crops and 76 per cent in vegetables crops among farmers. The data on correlation for extent of adoption of Novel organic liquid nutrients in fruits and vegetable crops were showed significantly results with education, training and knowledge at 5 per cent (0.1965) level of probability.

Key words: Adoption, Hormones, Micronutrients, Novel organic liquid nutrients.

INTRODUCTION

Promotion of organic farming through Navsari Agricultural University, Navsari had took the new initiative in 2009-10 on management and value addition of banana pseudostem under NAIP-II project. Banana pseudostem is an absolute waste. Novel organic liquid Nutrients have been developed from banana pseudostem comprising of 10 macro and micro nutrients and 2 hormones, which are naturally synthesized (Anon. 2010). Novel organic liquid nutrients internationally patented in year 2012 by Navsari Agricultural University, Navsari (Salunkhe et al., 2013). This product has been tested on number of crops and shown very good result in terms of growth, number of branches, initiation of flowering, number of fruit setting and reduce fruit drop in number of crops like mango (Patel et al., 2018), sapota, cucurbitis, brinjal, okra (Chotaliya et al., 2018), watermelon, chilli, Indian bean, papaya, guava, etc., which ultimately increase yield and quality as well as reduce cost of cultivation. For popularization of this technology from 2013-14 to 2018-19, various activities viz., trainings, demonstration, field days, delivering lectures as resource persons, group discussions, method demonstrations, agricultural technology dissemination week, group discussion, khedut shibir, on spot advocacy, farmers seminar, KVK at village and farmers visited to KVK, etc. were conducted at Krishi Vigyan Kendra, NAU, Vyara, Tapi. With this view to know the extent of adoption of Novel organic liquid nutrients in fruit and vegetable crops, a study was formulated to know the correlation of different factors and characteristics for adoption of the product.
correlation analysis, which is used to quantify the association between two continuous variables (e.g. between an independent and a dependent variable or between two independent variables). The outcome variable is also called the response or dependent variable and the risk factors and confounders are called the predictors, or explanatory or independent variables (Nzomoi et al., 2007).

RESULTS AND DISCUSSION
Profile of respondents

The data in Table 1 revealed that 59 per cent of the farmers belonged to middle age group, while 36 per cent and 5 per cent belonged to young age and old age group, respectively. It is evident from Table 1 that 8 per cent of the farmers were illiterate and 20 per cent of the farmers had education up to primary school, followed by secondary school 21 per cent, higher secondary school 30 per cent, diploma 4 per cent, graduate 13 per cent and post graduate 4 per cent. The data of Table 1 indicated that majority of 87 per cent farmers doing farming with animal husbandry. The data portrayed in Table 1 indicated that majority of 77 per cent farmers having land up to 2 ha. The information presented in Table 1 revealed that more than 66 per cent farmers had acquired trainings. However, remaining 33 per cent farmers had not received training.

Table 1: Distribution of tribal farmers according to their characteristic.

| Sr. No. | Characteristics       | Per cent |
|---------|-----------------------|----------|
| 1.1     | Age                   |          |
| a       | Young age (below 35 yrs) | 36.00    |
| b       | Middle age (35 to 50 yrs) | 59.00    |
| c       | Old age (above 50 yrs) | 05.00    |
| 1.2     | Education             |          |
| a       | Illiterate            | 08.00    |
| b       | Primary               | 20.00    |
| c       | Secondary             | 21.00    |
| d       | Higher Secondary      | 30.00    |
| e       | Diploma               | 04.00    |
| f       | Graduate              | 12.00    |
| G       | Post graduate         | 04.00    |
| 1.3     | Occupation            |          |
| A       | Agriculture           | 11.00    |
| B       | Agriculture with Animal husbandry | 87.00 |
| C       | Agriculture with service | 00.00  |
| D       | Agriculture with other enterprise | 2.00 |
| E       | Agriculture with service and other enterprise | 00.00 |
| 1.4     | Land Holding          |          |
| 1       | 0.10-1.00 ha          | 40.00    |
| 2       | 1.00-2.00 ha          | 37.00    |
| 3       | 2.00-4.00 ha          | 13.00    |
| 4       | >4.00 ha              | 10.00    |
| 1.5     | Training              |          |
| 1       | Acquired              | 67.00    |
| 2       | Not acquired          | 33.00    |

Level of knowledge

It is clear from the results of Table 2 that majority of 66 per cent farmers having medium level of knowledge about the use of Novel organic liquid fertilizer. Whereas, 13 per cent farmers had low and 21 per cent farmers had higher level knowledge.

Level of adoption

It is evident from the data inferred in Table 3 that majority of 76 per cent farmers had medium to higher level adoption. However, only 24 per cent of the farmers were in the low level of adoption.

Table 2: Distribution of farmers according to level of knowledge of Novel organic liquid nutrients.

| Level of Knowledge | No. of Respondents |
|--------------------|--------------------|
| Low (<13)          | 13                 |
| Medium (13 to 17)  | 66                 |
| High (>17)         | 21                 |
| Mean               | 15.39              |
| SD                 | 2.20               |

Table 3: Distribution of farmers according to level of adoption of Novel organic liquid nutrients.

| Level of adoption | No. of Respondents |
|-------------------|--------------------|
| Low (<11)         | 24                 |
| Medium (11 to 13) | 55                 |
| High (>13)        | 21                 |
| Mean              | 11.74              |
| SD                | 1.74               |

Table 4: Practice-wise extent of adoption.

| S. No. | Selected practices | Adoption (Per cent) |
|--------|--------------------|---------------------|
| 1      | Dose 1 per cent in vegetables | 76                   |
| 2      | Dose 2 per cent in fruit crops | 59                   |
| 3      | Application @ vegetative stage | 45                   |
| 4      | Application @ flowering stage | 62                   |
| 5      | Application @ fruiting stage | 81                   |
| 6      | Before flowering stage in mango | 5                    |
| 7      | Flowering stage mango | 17                   |
| 8      | Pea stage in mango | 10                   |
| 9      | Used for nutrient requirements (Macro and micro both (10 nutrients - N P K Ca Mg Ca S Cu Mn Zn and B)) | 100                  |
| 10     | Used for hormones requirement (GA3 and Cytokinin) | 100                  |
| 11     | Method of application (Spray) | 100                  |
| 12     | Used for reduce flower bud drop | 85                   |
| 13     | Used for quality improvement | 78                   |
| 14     | Used in okra | 100                  |
| 15     | Used in Watermelon | 67                   |
| 16     | Used in Clusterbean | 35                   |
| 17     | Used in Brinjal | 42                   |
| 18     | Used in creeper vegetables | 30                   |
| 19     | Used in mango | 32                   |
Table 5: Relationship between independent variables and dependent variables of Novel organic liquid nutrients users. n=100

| Sr. No. | Independent variables | Correlation co-efficient (r) | Adoption |
|---------|-----------------------|------------------------------|----------|
| X₁      | Age                   | -0.02607                     |          |
| X₂      | Education             | 0.32342*                    |          |
| X₃      | Land holding          | 0.01883                      |          |
| X₄      | Occupation            | 0.04628                      |          |
| X₅      | Training              | 0.65592**                   |          |
| X₆      | Knowledge             | 0.83701**                   |          |

*Significant at 5 per cent level of probability (0.1965).

Practice-wise adoption
An effort was also made to know the practice-wise extent of adoption about the Novel organic liquid fertilizer. The practices namely used for nutrients and hormones requirements as well as method of application were adopted by all the respondents. It is indicated from the data inferred in Table 4 that practices regarding doses and stages of application (fruiting stage) adopted by the farmers to the tune of 76 per cent and 81 per cent, respectively. It was interesting to note that the use of Novel organic liquid nutrients in okra crop, after that in watermelon.

Relationship
The data portrayed in Table 5 indicated that education, training and knowledge were significantly associated with the adoption of Novel organic liquid nutrients by the farmers. However, Age, Occupation and land holding were associated not-significantly.

CONCLUSION
It is clearly indicated from the results of study that majority of the farmers under young to middle age group, educated up to primary to higher secondary. Agriculture and animal husbandry were the main occupation, having land up to 2.0 ha. Majority of farmers comes under medium to high level of knowledge and adoption. Out of selected 6 independent variables, three variables namely education, training and knowledge were significantly associated with adoption. On the basis of findings, it is clear that there must be intensive efforts to provide proper training to accelerate the rate of adoption. Not only that different programmes i.e. khedut shibir, field day, etc. also be organized to create the awareness among the farmers about the importance of Novel organic liquid nutrients.

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