

ACCEPTANCE OF AGRICULTURAL UNIVERSITY RELEASED VARIETY OF MAIZE BY THE FARMERS OF AGROCLIMATIC ZONE IV B OF RAJASTHAN

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ABSTRACT

Agricultural university with its vast network of research stations in different agro-climatic zones is involved in generating and providing location specific technologies to the farmers but looking to the higher competition of research and extension system with other non government agencies. It is necessary to review released technologies of research stations on farmer's acceptance or discontinuous. Mahi Dhawal (composite maize variety) was released from agriculture research station Banswara was studied on 100 previously adopted farmers. This study concluded that farmers who used Mahi Dhawal had accepted it on the basis of its highly resistance character towards diseases and insect pest. While long duration maturity was the major reason of its discontinuous in rain fed areas.

INTRODUCTION

Indian agriculture has made significant strides in the last 50 years, demonstrating unique resilience in becoming a significant contributor to the Indian economy because of scientific breakthrough in technology development, completed by transfer of technology (TOT). This necessitates adequate understanding of farming situation, resource availability, needs and aspirations of farmers having different socio-economic and cultural background. There is no doubt that the State Agricultural University with its vast network of Research Stations in different agro-climatic zones is involved in generation of location specific technologies for the farmers. The state of Rajasthan is divided into ten agro climatic zones. Out of these zones, the zone IV b, is known as Southern Humid Plain Zone. This zone has significant area, production and productivity of maize. The intensive efforts of research scientists have resulted into development of improved varieties of maize (Mahi Dhawal) which has much higher production potential as compared to the local one. Similarly, the extension scientists of KVK's and field functionaries working under Broad Based Agriculture Extension System are

actively engaged in dissemination of this variety through different extension approaches on farmer's field. Therefore the present investigation was considered with the specific objectives to study the suitable variety in terms of acceptance by the farmers and to find out the reasons of discontinuance of maize variety after adoption by the farmers.

RESEARCH METHODOLOGY

The present study was conducted in agroclimatic zone IV b of Rajasthan. Out of 20 panchayat samities of zone IV b, 3 panchayat samities namely, Ghatol, Banswara and Bagidora were selected on the basis of maximum area under selected crop variety. Further three villages from each identified panchayat samiti were selected on the basis of maximum TOT work done by the extension agencies. For the selection of respondents a list of beneficiaries from each village was prepared with the help of personnel of disseminating agencies. Thereafter, 100 beneficiaries were selected on the basis of proportionate random sampling technique. To see the rational diffusion impact over neighboring

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farmers 50 non-beneficiary farmers were also selected from sampled villages or adjoining villages. The data were gathered by tested structural schedule with the help of interview technique. Thereafter, collected data were analyzed, tabulated and interpreted in the light of objectives of the study.

RESULTS AND DISCUSSION

Year of adoption of Mahi Dhawal variety of maize by the respondents

Table 1 reveals that the first time adoption of Mahi Dhawal variety of maize after four years of its release was by 13 per cent respondents, whereas 24 per cent respondents adopted after six years of its

Table 1. Distribution of beneficiary farmers on the basis of year of adoption of Mahi Dhawal variety of maize (n=100)

| S. No. | Year of adoption | Ghatol (n ₁ =34) | | Bansawara (n ₂ =33) | | Bagidora (n ₃ =33) | | Overall | |
|--------|------------------|-----------------------------|-------|--------------------------------|-------|-------------------------------|-------|---------|-------|
| | | f ₁ | % | f ₂ | % | f ₃ | % | f | % |
| 1. | 1996 | 13 | 38.23 | 0 | 0.00 | 0 | 0.00 | 13 | 13.00 |
| 2. | 1998 | 7 | 20.58 | 9 | 27.27 | 8 | 24.27 | 24 | 24.00 |
| 3. | 1999 | 14 | 41.17 | 24 | 72.72 | 25 | 75.75 | 63 | 63.00 |

release. It is interesting to note that 63 farmers out of 100 adopted the Mahi Dhawal variety of maize in year 1999. The majority of the respondents adopted this variety in the year 1999. It may be due to the fact that maximum number of FLDs were conducted through ARS, KVK and State Agriculture Department in this year.

The reasons for selection of Mahi Dhawal variety of maize

Table 2 reveals that majority (97%) of the farmers had selected Mahi Dhawal variety of maize due to its composite nature of seed which can be used for 2-3 subsequent years. Likewise, more than eighty per cent of respondents had chosen this

Table 2. Reasons for selection of Mahi Dhawal variety of maize by the beneficiary farmers (n=100)

| S. No. | Reasons | Ghatol | Banswara | Bagidora | Overall |
|--------|--|--|--|--|------------------|
| | | (n ₁ =34) f ₁ (%) | (n ₂ =33) f ₂ (%) | (n ₃ =33) f ₃ (%) | (n=100) f (%) |
| 1. | High yielder | 13 (38.23) | 30 (90.90) | 25 (75.75) | 68 (68.00) |
| 2. | Highly resistant to insect pests | 27 (79.41) | 3 (9.09) | 33 (100.00) | 63 (63.00) |
| 3. | Good in taste | 27 (79.41) | 33 (100.00) | 24 (72.73) | 84 (84.00) |
| 4. | Could be used as a seed for 2-3 subsequent years | 34 (100.00) | 33 (100.00) | 30 (90.91) | 97 (97.00) |
| 5. | High market Value | 13 (38.23) | 33 (100.00) | 0 (0.00) | 46 (46.00) |
| 6. | Early maturity | 2 (5.88) | 0 (0.00) | 0 (0.00) | 2 (7.00) |
| 7. | Grain quality (bold) | 27 (79.41) | 33 (100.00) | 28 (84.84) | 88 (88.00) |

Note: Multiple responses & figures in parentheses indicate percentage.

variety on the basis of bold seeded and good in taste, whereas, high yielding of grains which was an important marketing aspect was considered by 68 per cent of the respondents. Similarly, 63 per cent respondents had preferred this variety due to its highly resistant to insect pest. High market value was chosen by 46 per cent respondents. Hence, in other words the important aspects associated with selection of Mahi Dhawal variety yielding and composite in nature so it is profitable to farmers as compared to other varieties.

The findings are in accordance with that of Columbary and Berth (1995-96) who reported that the factors affecting acceptability of improved technologies of cotton, maize and cowpea were profitability and access to market.

Characteristics of the Mahi Dhawal variety of maize as perceived by the respondents and their opinion associated with it:

It is clear from Table 3 that more than 60 per cent of the farmers of the study villages have

adopted Mahi Dhawal variety of maize. It was having the character like bold seed (80.00 per cent), good edible test (84 per cent) and could be used as seed for two the three subsequent years (82.00 per cent). These were the most important characters to popularize this variety among the farmers over other existing composite like Mahi Kanchan, Navjot and

hybrid like Ganga- 2 Ganga-5, Deccan 105 and other private hybrids like Cargill, pioneer and All Rounder. It was also favoured by adopters due to it's highly disease and insect pest resistant with 82.00 & 63.00 per cent, respectively. It yielded upto 40 q/ha under assured irrigated conditions as well as well distributed rainfall during the season.

Table 3. Characteristics of maize variety (Mahi Dhawal) as perceived by the beneficiary farmers of Zone IVb (n=100)

| S. No. | Characteristics | Ghatol (n1=34) f ₁ (%) | Banswara (n2=33) f ₂ (%) | Bagidora (n3=33) f ₃ (%) | Overall f (%) |
|-----------|--|--------------------------------------|--|--|---------------|
| 1. | Seed | | | | |
| | (i) Bold seed | 27 (79.41) | 33 (100.00) | 28 (84.84) | 88 (88.00) |
| | (ii) In taste | 27 (79.41) | 33 (100.00) | 24 (72.73) | 84 (84.00) |
| 2. | Maturity period | | | | |
| | (i) Short duration (90days) | 2 (5.88) | 00 (0.00) | 0 (0.00) | 2 (2.00) |
| | (ii) Long duration (100-110 days) | 32 (94.11) | 33 (100.00) | 33 (100.00) | 98 (98.00) |
| 3. | Insect pest resistance | | | | |
| | (i) Highly resistant | 27 (79.41) | 3 (9.09) | 33 (100.00) | 63 (63.00) |
| | (ii) Moderately resistant | 7 (17.64) | 30 (90.90) | 0 (0.00) | 37 (37.00) |
| 4. | Disease resistant | | | | |
| | (i) Highly resistant | 24 (70.58) | 25 (75.76) | 33 (100.00) | 82 (82.00) |
| | (ii) Moderately resistant | 10 (29.41) | 8 (24.24) | 0 (0.00) | 18 (18.00) |
| 5. | Yield capacity | | | | |
| | (i) Medium yielder (25-30 quintal/ha) | 21 (61.76) | 3 (9.09) | 8 (24.24) | 32 (32.00) |
| | (ii) Highly yielder (30-35 quintal/ha) | 13 (38.23) | 30 (90.90) | 25 (75.75) | 68 (68.00) |

Note : Figures in parentheses indicate percentage

There were some negative opinion associated with Mahi Dhawal because it was full season composite Variety which took 100 days for maturity so in case of low rainfall as during year 2000 to 2002, farmers shifted to short duration single cross hybrid varieties of maize.

The present findings are in accordance with the findings of Rathore (2002) who reported that characteristics of variety like high yielding, short duration maturity, highly resistant to insect pest and bold seeded were closely associated with acceptance of cumin (RZ-19), moth bean (RMO-40) and sesame

(RT-46) in Arid Western Plain Zone of Rajasthan.

Reasons for discontinuance of maize variety after adoption by beneficiary farmers

When the respondents were asked regarding future use of the variety, it was found that 68.00 per cent respondents expressed that they will continue to use the variety in future too However, some of the respondents (38.00%) reported that they would replace the variety with other hybrids like Cargil or Pioneer which had relatively less maturity period and better yield performance.

Table 4. Reasons for discontinuance of maize variety Mahi Dhawal after adoption by beneficiary farmers (n=38)

| S. No. | Reasons | Ghatol (n ₁ =14) | Banswara (n ₂ =11) | Bagidora (n ₃ =13) | Total (n=38) |
|--------|---|-----------------------------|-------------------------------|-------------------------------|--------------|
| 1. | Yield potential not achieved | 8 (57.14) | 5 (45.45) | 5 (38.46) | 18 (47.36) |
| 2. | Problems in Procurement of quality seed | 4 (28.57) | 4 (36.36) | 3 (23.08) | 11 (28.94) |
| 3. | Problems in crop management and post- harvest | 2 (14.29) | 2 (18.18) | 5 (38.46) | 9 (23.68) |

Figures in parentheses indicate percentage

The Table 4 depicts that ten respondents have discontinued the use of varieties due to the reason that the yield obtained in the local situation was much lower than the recommended yield. Another important reason for discontinuance as expressed by eleven maize farmers was problem in procurement of quality seed. The farmers reported that though they have followed this in practices however, there was no significant increase in the yield potential. It was more or less same as in case of their own farm produce. When they were asked regarding the source for purchased of seed, all of them reported that they would like to purchase seed either from ARS or KVK of the university, which are considered as the most reliable sources for procurement of seed. Further, problems in crop management and post-harvest was also considered by 23.68 per cent farmers in the study area.

CONCLUSION

From the above discussion it may be concluded that majority of the respondents had selected maize variety Mahi Dhawal after eight years of its release considering its bold seeded composite characters and seed could be used for 2-3

subsequent years. More than 75 per cent of the respondents after using the Mahi Dhawal variety of maize reported that it had a long duration maturity as compared to other recommended varieties and highly resistant towards diseases and insect pests. As regard to seed availability, majority of the respondents were getting the required quantity of seeds and that too well in time, either they were using self produced seeds or getting from local dealers. Further it was observed that due to low and erratic rainfall during 2001-2003, the yield potential was much less. Hence, it was the major reasons for its discontinuance.

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