EVALUATION OF FRONT LINE DEMONSTRATION OF AZOSPIRILUM + PSB BIOFERTILIZER +ATRAZIN + CARBOFURON TREATMENT PROGRAMME OF MAIZE HYBRID GAYMH-1 IN GUJARAT

B. N. Thakker[1], K. H. Patel[2] and S. M. Khanorkar[3]

1 Assistant Extension Educationist, MMRS, AAU, Godhra-389001
2 Assistant Research Scientist, MMRS, AAU, Godhra-389001
3 Rtd. Research Scientist, MMRS, AAU, Godhra - 389001
Email : bnthakkar@aai.in

ABSTRACT

Maize is an important cereal crop known as Queen of Cereals because of high yield potential and grown in vide environments. The Panchmahal, Mahisagar, Dahod, Vadodara, Chhota Udaipur, Sabarkantha, Aravali and Banaskantha are main districts of Gujarat where maize is cultivated. The newly and innovative technology having higher production potential under the specific cropping system can be popularized through FLD programme. The present study has been undertaken on to evaluate the difference between demonstrated technologies visa-verca practices followed by the farmer's method in maize crop. 65 respondents from 32 villages across, Panchmahal, Mahisagar and Dahod districts. The interview of farmers conducted for collection of, primary data and feedback presented in terms of percentage increase grain yield. To estimate the technology gap, extension gap and technology index following formula were used by Samul et al (2000) was used. The study revealed that the wide gap existed in GAYMH-1 between demonstration yield and farmer's practices in maize GAYMH-1. The per cent increment in yield of GAYMH-1 maize to the extent of 17.80 % in FLDs over the farmers practices created greater awareness and motivated the other farmers to adopt the improved package of practices of GAYMH-1

Keywords : *evaluation, front line demonstration, maize hybrid and gaymh-1*

INTRODUCTION

Maize is an important cereal crop known as Queen of Cereals because of high yield potential and grown in vide environments. In India, it ranked after rice and wheat in respect of area and production among the cereals. In Gujarat, maize was cultivated in 4.23 lakhs ha. Area. Maize production is 6.72 lakh ton and productivity 1589 kg/ha. (2014-15). The Panchmahal, Mahisagar, Dahod, Vadodara, Chhota Udaipur, Sabarkantha, Aravali and Banaskantha are main districts of Gujarat where maize is cultivated. It is used as staple food and feed of tribals and is cultivated in both kharif and rabi season. It is also used in maize based starch industries to manufecture value added products. Therefore, the demand of maize grain is becoming increased.

The concept of front line demonstration in India was put forth under a "Technology Mission on Pulses" in 1991-92. The main objective of front line demonstration is to demonstrate newly released crop production technologies and its management practices in the farmer's field under different farming situations and at different agro climatic regions. These demonstrations are carried out under the supervision of agricultural scientists. The newly and innovative technology having higher production potential under the specific cropping system can be popularized through FLD programme. The present study has been undertaken to evaluate the difference between demonstrated technologies *visa-verca* practices followed by the farmer's method in maize crop. The interview of farmers conducted for collection of, primary data and feedback presented in terms of percentage increase grain yield. To estimate the technology gap, extension gap and technology index following formula were used by Samul *et al* (2000) was used.

OBJECTIVES

(a) To know the difference between farmers practices and technological intervention for maize crop

(b) To study the The performance of FLD programme on production of maize Performance of FLD

METHODOLOGY

The study was carried out in Panchmahal, Mahisagar and Dahod districts where maize is grown under Front Line Demonstrations of GAYMH-1 in 32 villages. Total sample size comprised of 65 respondents from 32 villages across, Panchmahal, Mahisagar and Dahod districts. All the participating farmers were trained on principle of recommended maize production technologies. Recommended agronomic practices with pure hybrid seed of newly developed released single cross hybrid, GAYMH-1 ware practiced to conduct FLDs. The 0.4 ha area / demonstration planted with local cheek (farmer's practices). The data on output of high yield for single cross hybrid of maize and inputs used per unit have been collected from the Front Line Demonstration trial. In addition, the data on traditional practices followed by farmers have also been recorded. The interview of farmers conducted for collection of, primary data and feedback presented in terms of percentage increase grain yield. To estimate the technology gap, extension gap and technology index following formula were used by Samul *et al* (2000) was used.

Technology gap = Pi (Potential yield) – Di (Demonstration yield)

Extension gap = Di (Demonstration yield) – F1 (Farmers yield)

$$\text{Technology index} = \frac{\text{Technology gap} \times 100}{\text{Potential yield}}$$

Table 1 : Difference between farmers practices and technological intervention for maize crop

Sr. No.	Particular	farmers practice	Demonstration package
1	Variety	Local	GAYMH-1
2	Seed treatment	No seed treatment	Bio fertilizer treatment with 5 ml/ kg of seed
3	Fertilizer application	30 Kg Nitrogen at the 40 kg Phosphors time of sowing + 30 kg Nitrogen 30 days after Sowing	60 Kg Nitrogen application in 5 splits + 30 kg Phosphorus at the time of sowing
4	Weedicide	No weedice application	1 kg a.i Atrazin/ha (2 kg/ha)
5	insecticide	No insecticide	Carbofuran 8 kg / ha. for stem borer control

RESULTS AND DISCUSSION

Differentation in farmers' practices and demonstration package in maize crop

The major differences were observed between demonstration package and farmer's practices regarding varieties, seed treatment, weedicide application, method of fertilizer application (Number of split) and plant protection measure. Table-1 shows that under the demonstrated plot only recommended variety bio-fertilizer, seed treatment with 25 % less nitrogen than recommended dose, Atrazine weedicide and carbofuran insecticide application were given to farmers by the MMRS and all other package and practices were timely performed by the farmers himself under the supervision of MMRS scientist. Under farmers' practices they generally saw local variety of maize without seed treatment. Local variety is suscepible to leaf blight and stem borer and cob borer. As a result, the farmers selected under FLD programme of maize were provided with the seed of GAYMH-1.

It is observed that under farmers practices, normally fertilizer application method, 30 kg nitrogen application and full i.e 40 kg phosphorus at the time of sowing. Farmer's practice was 30 kg nitrogen application after one month of sowing. Regarding dose of fertilizer, under demonstration, 60 kg nitrogen applied through five split, 30 kg phosphorus at the time of sowing. Seed treatment with 5 ml/kg (of seed) bio fertilizer.

The performance of FLD programme on production of maize

A compassion of yield performance between demonstrated practices and local checks is shown in Table 2. It was observed that in front line demonstration,the single cross hybrid GAYMH-1 variety with biofertilizer treatment with 25% less nitrogen and phosphorus (75:37.5:00 NPK kg/ha) than recommended dose (100:50:00 NPK kg/ha) recorded the higher yield (2557kg/ha) as compared to farmers practices local variety (2182 kg/ha) with recommended dose of nitrogen and phosphorus (100 kg N + 50 kg P). The increase in the yield over local check was 17.18 % Similar yield enhancement in different crops in front line demonstration has been documented by patil et al (2015). It is evident from the results that the yield of GAYMH-1 variety was found better than the local check under same environment conditions. Farmers were motivated by results of demonstrated agricultural technologies applied in the FLD and it is anticipated that they would adapt these technologies in future. Yield of the front line demonstration and potential yield of the crop was compared to estimate the yield gaps

which were further categorized into technology index.

Technology gap: The technology gap is the difference or gap between the potential yield. (4600 kg/ha.) and demonstrated yield(2557 kg/ha) i.e. 4600kg/ha. -2557 kg/ha.= 2043 kg/ha. The gap exists due to variation in the soil fertility and climatic conditions. Hence, location specific recommendations are necessary to bridge the gap. These finding is similar to the findings of patil *et al.,* (2015) and Soni *et al.,* (2016).

Technology Index: Technology index shows the feasibility of the technology at the farmer's field. The lower the value of technology index more is the feasibility. Result of present study depicted in Table 2 revealed that the technology index values is less than fifty per cent (44.41) and the results of the present study are in recurrence with the finding of patil *et al.* (2015), Vinaya *et al*.(2015) and Samul *et al*.(2000)

Table 2 Yield performance of GAYMH-1 under Farmer's practice and Front line Demonstration

Variables	Yield (kg/ha)	% increase over local check	Technology gap (kg/ ha)	Technology Index
Farmers practices	2182	17.80 %	2043	44.41 %
Demonstration (GAYMH-1)	2557			

Exploitable yield reservoir in GAYMH-1

The data reflected in table-3 that the existing average productivity of maize in Gujarat is 1589 kg/ha. However, the total annual production is 6170 lakh kg/ha (2014-15). The estimates derived from the FLD's showed that there exists a commercially exploitable yield reservoir, which can be achieved through adoption of advocated improved crop production technology for maize. Thus, it is clear that with full adoption of the presantally available production technologies 1081 kg Lakh kg. of maize production could be achieved, which is almost adequate to meet the requirement at maize in the state.

Table 3 Exploitable yield reservoir in maize in Gujarat

Average Demonstration yield under FLD (Kg/ha)	Gujarat state Average Productivity (Kg/ha)	Gujarat state Average Production (Lakh)	Expected production (Lack MT) If yield gap is bridged through complete adoption of improved practices
2557	1589	672 lakh kg.	1081 lakh kg.

CONCLUSION

The study revealed that the wide gap existed in GAYMH-1 between demonstration yield and farmer's practices in maize GAYMH-1. This gap found due to technology and extension gap in Panchamahals, Mahisagar and Dahod districts of Gujarat. The per cent increment in yield of GAYMH-1 maize to the extent of 17.80 % in FLDs over the farmers practices created greater awareness and motivated the other farmers to adopt the improved package of practices of GAYMH-1 maize single cross hybrid.

These demonstration have also enhanced relationship and confidance between farmers and scientist of Main Maize Research Station, AAU, Godhra. The reciepent farmers of FLDs also play an impprtant role as a source of information and quality seeds for wider dissemination of GAYMH-1 variety of maize for other nearby farmers. It is concluded that the FLD programme is successful tool in enhancing the production and productivity of GAYMH-1 maize crop through updating the knowledge, attitude and skill of farmers.

REFERENCES

Patil, L. M, Modi D.J, Vasava H.M and Gomkale S.K. (2015). Evaluation of Frontline Demonstration Programme on Green Gram Variety Meha (IPM-99-125) on Bharuch district of Gujarat, IOSR *Journal of Agriculture and Veterinary Science*. Vol 8(9): 1-3

Samul S.K.,Maitra S.Roy DK,Modal A.K. and Saha D (2000). Evalution on front line demonstration on groundnut *(Arachis hypogeal L.)J.of Indian Soc.of Coastal agriculture Research* 18 ; 180-183

Soni, Arti N., Pandya, C.D. and Soni, D.N. (2016). Impact of Front Line Demonstration on Feeding of low cost high protein rich food (POSHAK AAHAR) to malnourished rural tribal children. *Guj. J. Ext. Edu*., 27(1): 79-81

Vinaya Kumar, H. M., Yashodhara. B., Preethi and Govinda Gowda, V. (2015). Impact of Community Based Tank Management Project on Socio-Economic Status and Crop Productivity of Beneficiary Farmers in Tumkur District of Karnataka State. Trends in Biosciences. 8(9): 2289-2295

Received : June 2017 : Accepted : September 2017