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### Varietal evaluation of maize crop for better production in District Auraiya, Uttar Pradesh

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#### Abstract

Maize the “Queen of Cereals”, is one of the most important cereal crops in the world agriculture economy. It is mainly used as feed for animals followed by food for human and in industrial use as raw material. Maize is a third important cereal next to Paddy and Wheat in India. The total acreage under maize during 2017-18 is about 9.47 Mha Vis-a-Viz the acreage under Paddy and wheat is 43.79 Mha & 29.58 Mha respectively (Agriculture statistics at a Glance, 2019). India is the 7th largest producer of maize, while ranked 4th position in area. With increasing focus on water conservation, Maize has a huge potential to replace water consuming crops such as Paddy, Wheat and Sugarcane, as maize is a less water demanding crop and also have multiple utility as Food, Feed, Fuel and in Industries. Though this crop is emerging as potential candidate for increasing the farmers’ income and employment generation, the major issue of concern is that the average productivity in India is 2.6 MT/ha which is 130 percent less as compared to the world average. Majority of the farmers in India grow traditional maize varieties as it is suitable for consumption though, in the recent years, farmers continue to replace traditional cultivars with the newer higher-yielding hybrid varieties.

**Technology Assessed:** An On Farm Trial was conducted in Kharif 2012 by KVK, Parwaha, Auraiya to optimize the maize yield through high yielding variety developed by private sector. The varieties decal dissel, 003 Tata and 30V92 was tested against the local variety. The varieties i.e. Decal Desel (5.54 t/ha) and 003 Tata (4.84 t/ha) showed the higher grain yield as compared to 30V92 (4.77 t/ha). In terms of return Decal Dissel showed the highest net return of Rs. 33000/- as compared to 003 Tata which showed the net return of Rs. 26000/- and least is in case of 30V92 (Rs. 25400/-). This showed that Decal Dissel performance was best in Auraiya.

**Keywords:** Assessment & performance of hybrid maize, 30V92 (Pioner), 003 (Tata), Decal Dissel (Monsanto)

#### Introduction

Maize, also known as corn and Indian corn, is any of the diverse cultured forms of the annual cereal grass (family Poaceae) of the species *Zea mays* L, or the seed of this plant, which grows as large grains set in rows on an “ear” or “cob.” Generally, the term corn, which is the term popular in the United States, Canada, New Zealand, and Australia for this plant and seed, is a generic British English term in Europe for cereal grains in general, or the principal crop in a region, such as the term for wheat in England or oats in Scotland and Ireland. In the United States, this essential crop of the settlers preempted the designation corn. Hybrid maize is preferred by farmers over conventional varieties for its high grain yield, due to heterosis (“hybrid vigor”). Maize is one of the first crops for which genetically modified varieties make up a significant proportion of the total harvest. Human creativity has developed many varieties of maize, including those with resistance to disease and

insects. On the other hand, efforts to maintained prices in the United States have lead to federal price support programs, beginning in 1933, whereby farmers were actually paid not to plant corn and to set aside areas of land where they were not allowed to raise any types of crops. This was despite the reality of vast numbers of people starving in other nations.

In India, maize is principally grown in two seasons, rainy (*kharif*) and winter (*rabi*). Kharif maize represents around 83% of maize area in India, while *rabi* maize correspond to 17% maize area. Over 70% of kharif maize area is grown under the rainfed condition with a prevalence of many biotic and abiotic stresses. The stress prone ecology contributes towards lower productivity of kharif maize (2706 kg/ha) as compared to *rabi* maize (4436 kg/ha), which is predominantly grown under assured ecosystem. In recent past spring maize area is also growing quite fast in north western parts of the country, in the states of Punjab,

Haryana and Western Uttar Pradesh. Unfortunately, the area and production data of spring maize is not well documented. However, informal estimates suggest the area to be around 150 thousand ha. Among cereals maize has highest growth rate in terms of area and productivity. Since 2010 maize productivity in India is increasing @ over 50 kg/ha/year, which is the highest among food crops. Among Indian states

Madhya Pradesh and Karnataka has highest area under maize (15% each) followed by Maharashtra (10%), Rajasthan (9%), Uttar Pradesh (8%) and others. After Karnataka and Madhya Pradesh Bihar is the highest maize producer. Andhra Pradesh is having the highest state productivity. Some districts like Krishna, West Godavari etc. records as high as 12 t/ha productivity.

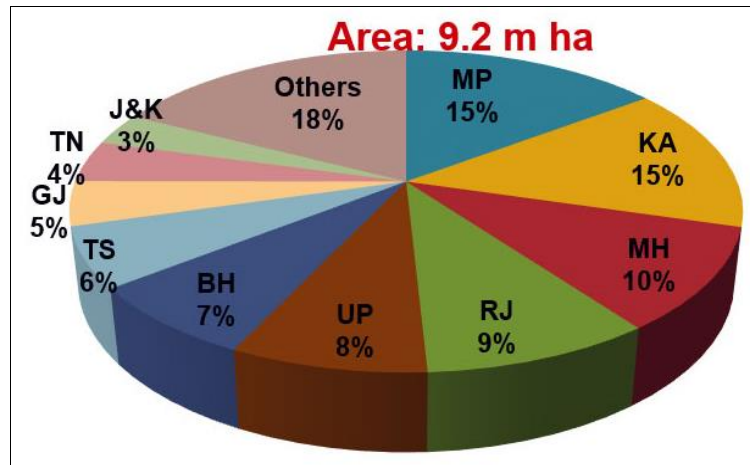


Fig 1: Area

Bulk of the maize production in India, approximately 47%, is used as poultry feed. Of the rest of the produce, 13% is used as livestock feed and food purpose each, 12% for industrial purposes, 14% in starch industry, 7% as processed food, and 6% for export and other purposes.

Maize is an economically important plant, particularly widely cultivated in the United States, where it is the leading grain crop, ahead of wheat, oats, rice, and so forth. As maize advances its own survival and reproduction, it also serves a value for humans. All parts of this generally tall plant are utilized, with the stalks for fodder for livestock feed, as well as paper and wallboard, the cobs and kernels for food and to make fuel, the husks for tamales, and the silk for medicinal tea. Corn serves as the foundation for such products as bourbon, corn flour, corn oil, cornmeal, cornstarch, corn syrup, and laundry starch, and the multicolored Indian corn serves decorative use

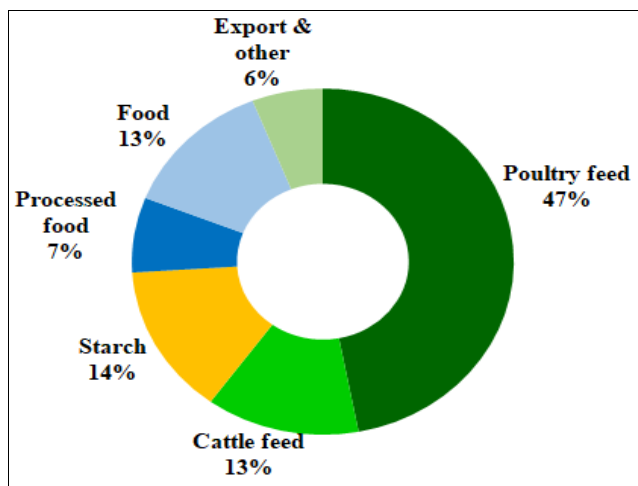


Fig 2: Export and other

**Materials and Methods**

Assessment through the Problem identification: Low yield due to sodicity.

The study shows that Assessment & performance of hybrid maize Location of the study: one village were studied namely-Malikipur block Achhalda In through Krishi Vigyan Kendra Auraiya, in village 05 farmers were selected for the study purpose from district Auraiya UP India

**Result and Discussion**

Table 1: Assessment & performance of hybrid maize

Technology Option	No. of trials	Grain Yield (t/ha)	Straw Yield (t/ha)	Net Returns (Rs. in lakh/ha)
30V92 (Pioneer)	5	4.74	-	0.254
003 (Tata)		4.84	-	0.26
Decal Dissel (Monsanto)		5.54	-	0.33

The study reveals that An on Farm Trial was conducted in Kharif 2012 by KVK, Auraiya to optimize the maize yield through high yielding variety developed by private sector. The varieties decal dissel, 003 Tata and 30V92 was tested against the local variety. The varieties i.e. Decal Desel (5.54 t/ha) and 003 Tata (4.84 t/ha) showed the higher grain yield

as compared to 30V92 (4.77 t/ha). In terms of return Decal Dissel showed the highest net return of Rs. 33000/- as compared to 003 Tata which showed the net return of Rs. 26000/- and least is in case of 30V92 (Rs. 25400/-). This showed that Decal Dissel performance was best in Auraiya.

## Conclusion

To increase the maize production in India in order to meet the growing maize demand in domestic and international markets, only way is the replacement of the low yielding traditional varieties with the High yielding hybrid maize varieties. The objective of this trial is to introduce the hybrid maize among the farmers and motivate them to replace their low yielding traditional varieties with high yielding hybrid maize varieties. As far as the sample beneficiaries were concerned, though the statistical analysis does not imply that there is significant impact in area under hybrid maize in comparison with the Non-beneficiaries, the discussions revealed that most of the farmers are now shifting towards hybrid maize as majority of them were aware of advantage of Hybrid maize over traditional varieties. Hence, we can conclude that trial has made a positive impact and has been successful in encouraging the farmers to replace their traditional maize varieties with Hybrid maize. Still a considerable section of small and marginal farmers in the rural areas, who has very little access to irrigation facilities and lack affordability to purchase costly fertilizers and pesticides, continue to grow Indigenous maize. Moreover, they grow maize for their personal consumption and generally have very little marketable surplus. They sell their produce in the local Haats where in people prefer Indigenous maize and pay more in comparison to Hybrid maize. Medium and large farmers whose do commercial farming are replacing local varieties with Hybrid maize as they sell their produce for poultry and other industry use. In the study, almost all the farmers were satisfied with the trial implementation. Hence, we can conclude that the trial has achieved its intended objectives, and the implementation complies with the program guidelines.

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