

Rabi Maize ***(Zea mays)***

Varieties:

| Varieties | Duration (days) | Yield (q/ha) under assured irrigation |
|---------------------|------------------------|--|
| Hybrids : | | |
| Ganga 101 | 145-150 | 50-55 |
| Ganga 5 | 150-155 | 55-60 |
| Composites : | | |
| Kishan | 150-155 | 50-55 |
| Vijay | 155-160 | 55-60 |
| Pratap | 155-160 | 40-45 |

* Specially recommended for flood affected areas in agro-climatic zones U, L, N and B for sowing in the middle of November

In case hybrids are grown, it is advised not to keep seeds from previous year's harvest for sowing in the following years. However, seeds from composite varieties can be kept for sowing in the following year, without appreciable decrease in yield.

Land selection:

Well drained sandy loam soil is to be selected. Field should never be water-logged.

Field preparation:

Field should be ploughed thoroughly to obtain a deep, fine and firm tilth. Laddering should be done properly for leveling as well as to conserve moisture in the soil.

Time of sowing:

The optimum time of sowing of *rabi* maize is middle of September to middle of October. Sowing may be delayed up to middle of November, under exceptional circumstances, but these results in delayed maturity. No sowing should be done after November 15.

Seed treatment:

Seeds are to be treated with carboxin @ 2 g/kg seeds. Seeds procured from NSC are usually pretreated.

Seed rate, spacing and method of sowing:

A seed rate of 22.5 kg/ha (3 kg/bigha) is required for line sowing. Seeds are to be dibbled in lines at a spacing of 60 cm × 25 cm to maintain a plant population of around 60,000 to 65,000/ha. A seeding depth of 3 cm is optimum for quicker germination.

Fertility management:

| Nutrient | Requirement (kg/ha) | Form | Fertilizer requirement | |
|-------------------------------|---------------------|------|------------------------|----------|
| | | | kg/ha | kg/bigha |
| N | 60*- 80** | Urea | 130-175 | 18-24 |
| P ₂ O ₅ | 40 | SSP | 250 | 33 |
| K ₂ O | 40 | MOP | 65 | 8 |

* For short duration varieties, ** For long duration varieties

FYM @ 4.5 t/ha (6 q/bigha) should be applied at the time of field preparation. Whole of P₂O₅ and K₂O and half of N are to be applied in the furrows before sowing. The remaining quantity of N is to be top dressed at 30 days after emergence of seedlings. Where irrigation facilities are available, N should be applied in 3 split doses, one fourth, half and one fourth at sowing, 30 days after seedling emergence (knee-high stage) and at the time of silking respectively. Placement of fertilizer is more effective than broadcasting.

Interculture:

Light hoeing is to be given as and when necessary for better control of weeds. Metribuzin 500 should be applied @ 0.5-1.0 kg a.i./ha in 1000 lit of water as pre-emergence spray.

Plant protection:

A). Insect pests:

- i). **Stem borer:** The dead hearts should be pulled out and destroyed to kill the lingering stage of the pest in the stubbles.
- ii). **Aphids, cob borers, jassids and mites:** Thiamethoxam 70 WS @ 1.75 gm/kg of seed can be used as seed dresser at the time of sowing against shoot fly and aphids.

B). Diseases:

- i. **Maydis leaf blight:** Use of protective fungicides of hexaconazole @ 2ml/ lit. at the time of appearance of the disease symptoms or at knee-high stages.
- ii. **Turcicum leaf blight (also known as southern corn blight):** The disease can be controlled by 2-3 foliar sprays with hexaconazole @ 2ml/ lit. at 10-15 days interval. Application of urea followed by a light irrigation also helps to minimize the disease as it sometimes becomes serious due to poor management.
- iii. **Seed rot and seedling blight:** The best recourse to these problems is to sow certified seeds from a reliable source, which is pretreated with desired fungicides. If one wants to use his own seed, seed treatment is a must.
- iv. **Pythium stalk rot:** Apply carboxin 2.5 kg/100 litres of water/ha at the lower internodes of plants 30-35 days after planting. Drain out excess rain water from the field.
- v. **Charcoal rot:** Sow resistant cultivars e.g. Diara, Hinius etc.

- vi. **Banded sclerotial disease:** In areas where this disease is noticed the plant should be sprayed with hexaconazole @ 2ml/ lit at an interval of 12-15 days.

C). Bird damage:

Maize cobs can be protected from granivorous birds by wrapping the cobs with adjacent leaves of the same plant at vulnerable grain maturity stage in outer 3 border rows. Also, erect Shining Reflective Ribbon Stripes 1 feet above the crop canopy in North-South direction with twisting to reflect the sunlight for better protection.

Irrigation:

Irrigation is needed at grand growth period, and tasseling and grain setting stages of the crop, which will vary according to duration of varieties as mentioned below:

| Irrigation No. | Stage of crop | Short duration variety | Medium duration variety | Long duration variety |
|-----------------------|----------------------|-------------------------------|--------------------------------|------------------------------|
| 1 st | Grand growth period | 35-40 DAS | - | 45-50 DAS |
| 2 nd | Tasseling | 55-60 DAS | - | 70-75 DAS |
| 3 rd | Grain setting stage | 85-95 DAS | 100-115 DAS | 110-115 DAS |

Excess irrigation should be avoided as maize cannot withstand waterlogging.

Intercropping:

Maize should be sown in paired rows of 50 cm between pair and 70 cm gap is to be given between two pairs. Two rows of blackgram should be sown in-between two pairs of maize along with residue retention as mulch.

Harvesting:

Cobs are harvested when the husk cover turns pale yellow. This does not necessarily coincide with complete drying of the plant, and therefore, one should not wait till the plant becomes bone dry. It should not be harvested immediately after a shower. The harvested ears should be sun-dried before shelling. Grains should again be dried after shelling and stored in gunny bags.

Use of Maize:

Maize or corn flour is used as *atta* by mixing with wheat flour. Mixed with soybean flour, it makes good *atta* for making *chapatti*. Corn flakes are delicious diet for men of all ages. Corn flour can also be made into a good *halwa*. Crushed grains are nutritious feed for cattle, poultry and fish. Stovers are also used as cattle-feed by making pieces with a chaff-cutter. Maize starch is used by modern industries for manufacture of various fabrics. Corn (maize) oil is an important cooking medium.