GROW MAIZE FOR SILAGE

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Maize is a C4 plant which can be grown throughout the year in tropical and subtropical climates. It can be cultivated in temperate or cold climate due to intolerance to cold. Maize is cultivated for its grains as well as fodder. It has a high nutritional value as a fodder crop and is easy to digest. Maize is one of the most popular crops used in silage making.

Green fodder is used to feed the miltch animals with other products like hay or straw. But, the optimum supply of green fodder throughout the year is not possible. It is a big constraint in the dairy farming. As the result of lack in green fodder, milk production can decrease rapidly with a great extent. Other fodder sources like hay or straw are then used by the farmers. But, there is one more source that can be useful known as silage.

When there is a surplus supply of green fodder, farmers can store it in the form of silage. The surplus fodder can be used in the time ahead when there is a predicted shortage of green fodder. Silage can also be supplemented with green fodder for increased milk production. Silage is made by anaerobic fermentation of a green fodder crop in a pit, silo, or any bag. The cost for silage production is very minimal and its process is quite simple. There are some basic points to be kept in mind for best quality of silage. We will talk about them further.

AGRONOMIC PRACTICES FOR MAIZE PRODUCTION:

Land preparation: Fine tilth should be prepared by 3 or 4 ploughing followed with planking. Drainage of the field should be good. Field should be evenly levelled as maize cannot tolerate flooding conditions.

Sowing time: Optimum sowing time in wheat-rice cropping system is first fortnight of April. It can be sown from March to June in other conditions.

Seed rate: 8 to 12 kg seed/ acre is enough depending on the variety and sowing method for silage purpose. 14-16 kg per acre seed is enough for fodder purpose.

Varieties: Short time varieties should be preferred for silage preparation. Rasi 3591, Pioneer 1844, NMH 1247, Bayer DKC 9108 are good varieties which take 70 to 90 days to mature.

Method of sowing: Maize can be sown with the pneumatic maize planter at plant-to-plant distance of 6-8 cm and row to row spacing should be 60cm. Planting should be preferred on raised beds to resist lodging and water-logging problems. Pneumatic maize planter can be used to sow on the raised beds with accurate plant-to-plant distance. Zero-drill can also be used to sow the crop without any prior tillage operations.

Weed control: Weeds can be removing by giving two hoeing at the interval of 15 to 20 days at early growth stage. Several chemical methods can be used for the same. Pendimethalin 30EC @ 1000 to 1200 ml per acre can be used as pre-emergence herbicide. Atrazine 50WP @ 400-800 gm per acre can be used as post emergence for the control of itsit and other broadleaf weeds. Tembotrione 420SC @ 105 ml per acre can be used to control mixed weed flora in maize. Halosulfuron methyl 75WG @ 36 gm per acre can be used to control the sedges in maize crop.

Fertilizer requirement: Organic manures can be used in the field to decrease the need for chemical fertilizers. Seed can also be dressed in bio fertilizers like consortium.

Chemical fertilizer doses for maize:

Nutrients (kg/acre)			Fertilizers (kg/acre)			
N	P	K	Urea	DAP	SSP	MOP
50	24	12	110	55	150	20

Omit the use of phosphorus in the field if it was supplied in the previous rabi season crop. The dosage of potash should be according to the soil test.

Irrigation: 4-8 irrigations are required to raise the crop till maturity. Maize is susceptible to both drought and flood-like conditions. There should be adequate drainage measures to drain the excess water from the field. Maize can be sown on the raised beds to keep it safe from excess water.

Insect pests: Most common insect pests in maize are the maize borer, fall army worm, hairy caterpillar, and mite. All the chewing pests (borer and caterpillars) can be controlled with an application of Chlorantraniliprole 18.5SC @ 40 ml per acre, Emamectin Benzoate 5SG @ 80-100 gm per acre, Indoxacarb 14.5SC @ 200 ml per acre, and Indoxacarb 4.5 + Novaluron 5.25 SC @ 250 ml per acre. Carbofuran 3G @ 10 kg per acre and Cartap hydrochloride 4G @ 7.5 kg per acre can also be used to control borer in early stage.

Diseases: Various diseases like Sheath blight, Maydis leaf blight, Bacterial stalk rot, Brown stripe downy mildew attack the crop. Sheath blight can be controlled with an application of azoxystrobin + difenoconazole 325SC @ 100 ml per acre. Maydis leaf blight and Brown stripe downy mildew can be controlled with mancozeb 75WP @ 200 gm per acre.

Harvesting: Crop should be harvested when the cobs are matured. The grains should be in soft dough to hard dough stage. The crop should have 30-35% dry matter content for the best quality of the silage. The crop at flowering to milk stage can also be used for silage making. Chop the maize stalks with the single row or two row tractor-operated silage harvester. Self-propelled silage harvester can also be used. Stacks can also be manually harvested with sickle, and then it can be chopped.

SILO TRENCH

In one cubic meter area, 5-6 quintals of chopped fodder can be packed. So, dig a silo pit or trench on the requirement of your animals, and availability of the green fodder. A 10-meter long, 3-meter wide and 1.5-meter-deep trench is enough to pack 350-400 quintals of green fodder. Keep in mind to build the bunds across the silo trench to keep the rainwater away from the pit.

METHOD OF SILAGE MAKING

- Maize should be chopped to the length of 2-5 cm. Then, put the chopped crop into the silo trench.
- Press the chopped crop nicely with the help of a tractor to reduce the air content. The quality of the silage will depend on the compression of the material.
- Cover the chopped fodder with 5-10 cm layer of chopped wheat stubble (Turi) uniformly, and then plaster with mud. Alternatively, a plastic sheet can also be used to cover the silo. It is especially important to make it airtight for good anaerobic respiration.
- Silage will be ready after 45 days of covering the silo.
- Open one end of the silo, take out the silage required daily, and cover the pit again.
- The superior quality silage will have more amount of lactic acid and low butyric acid content.

FEEDING THE ANIMALS

Start with mixing 5 to 10 kg of silage in green fodder or hay for first few days. As the animals adapt to their new feed, then 20-30 kg of silage can be given per head in a day. The nutritional value of silage is same as that of the green fodder.

CONCLUSION

Silage is a great option for the dairy farmers to increase their production when the green fodder availability is low. It is time for the farmers to use silage as a feed for their animals to increase their profits and decrease the inputs. There is a lot of scope of silage for the Indian farmers because of less land availability. Soon, the role of silage in dairy production will increase drastically.