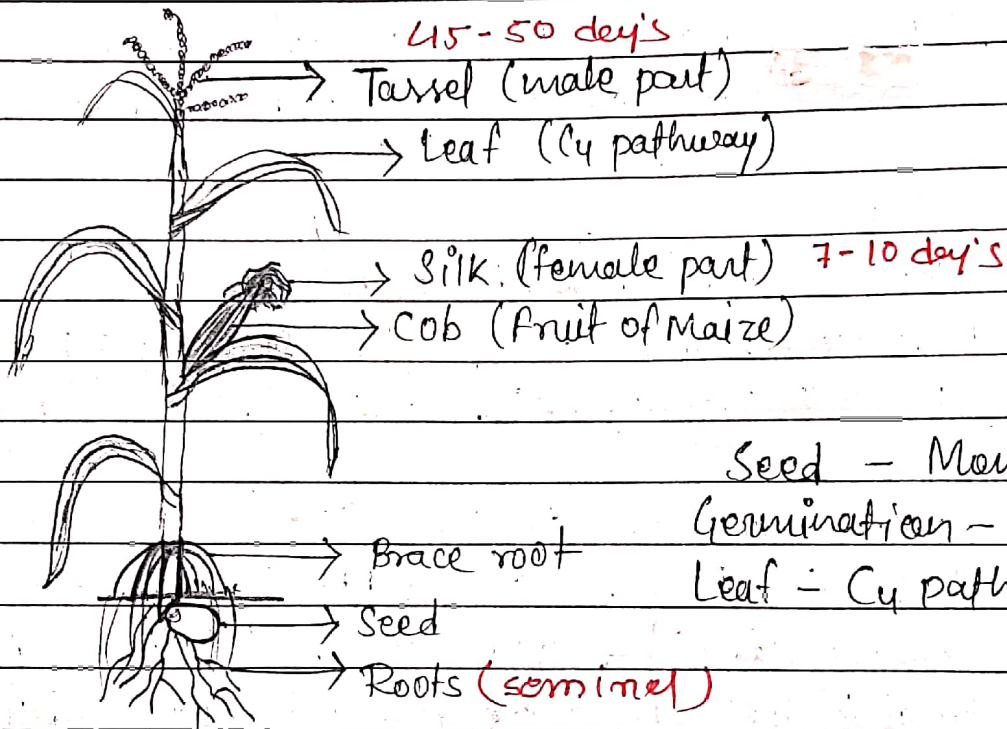


MAIZE (Kharif)

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- * B.N. - Zea mays
- * Family - Gramineae / Poaceae
- * Origin - Mexico

* Morphology



Seed - Monocot
Germination - Hypogeal
Leaf - C₄ pathway

* Area : USA > China } In world
production : USA > China

* Area : Karnataka } In India
production : Andhra Pradesh

* Classification of Maize

7 species of maize are found - ASIETIC

1. Z.M. Indurata - Flint Corn

→ Mostly cultivated in India

2. Z.M. Indentata - Dent Corn

→ Mostly cultivated in USA

* Highest cultivated in world

③ Z.M. Sachharata - Sweet corn

④ Z.M. evarfa - Pop corn

→ It is used to make pop corns.

⑤ Z.M. amylacea - soft corn

→ It is used to make flour.

⑥ Z.M. tunicata - Pod corn

⑦ Z.M. ceratina - waxy corn

→ It is cultivated for starch production.

Climate for Maize -

• Hot & Humid Climate

• Mainly maize is a Khareif crop but it grows in all season (Khareif, Rabi, Zaid).

Temperature : $25^{\circ}\text{C} - 35^{\circ}\text{C}$

Soil : Loamy soil PH : 6.5 - 7.5

Sowing time : June - July / March - April

Suitable method for maize cultivation : Dibbling

Seed rate : Avg. plant population in a 1 ha maize field is 65-75000.

Spacing : $70 \times 20 \text{ cm}$

$$\text{plant population} = \frac{\text{Area}}{\text{spacing}}$$

$$= \frac{10,000}{0.7 \times 0.2} = 71428$$

Seed Rate :

a) Local varieties : 15 - 18 Kg / ha

b) Composite - " - : 18 - 20 Kg / ha

c) Hybrid - " - : 20 - 25 Kg / ha

d) Fodder varieties : 40 - 50 Kg / ha

Manures and fertilizer : 5-10 Tonnes/ha. - FYM
Application of FYM is Given before sowing is 15-30 days

Fertilizer : N : P : K → 120 : 60 : 60

Split applicatⁿ of Nitrogen at the rate 2-3 doses
1st dose - Knee height stage
2nd dose - Tasseling stage
3rd dose - Silking stage

Irrigation for Maize

Main critical stage

(1) Tasseling (2) Silking

~~*~~ In Rabi season, MFG irrigation required in which water should be provided -

- (i) 4-5 leaf stage
- (ii) Before knee height stage
- (iii) After knee height stage
- (iv) Tasseling stage
- (v) Silking stage
- (vi) Grain filling stage

Weeds : (i) Sawa (ii) Dub grass (iii) Wild Amaranthus

Weed control : Simazine

Insects : (i) stem borer (ii) Aphid (iii) Armyworm

Disease : White bud - due to deficiency of Zn.

Yield :

- Hybrid : 40-50 q/ha
- Composite : 30-40 q/ha
- Local/Desi : 25-30 q/ha

Varieties :

Hybrid varieties	composite varieties
(i) Deccan - 103	(i) Ambar
(ii) Ganga safed - 2	(ii) Kisan (किसान)
(iii) Ganga - 5	(iii) Jawahar
(iv) Ganga - 101, 01	(iv) Novin
(v) Ranjit	(v) Panya
(vi) High starch	(vi)
(vii) Sangum Him - 123	

Imp. points

- Maize is a cross pollinated crop.
- It is known as Queen of cereals.
- Grain type - Cariopsis
- Maize contain 10% protein, 40% fats, 70% carbohydrates.
- Protein of Maize - zein
- Maize is a monoicous plant (male & female are in same plant).

Detasseling : Removal of male flower plant (tassel)

- Maize is suitable for silage making for animals.

* 1st Hybrid variety of maize developed from America in 1961 → Ganga - 01

SORGHUM (जव)

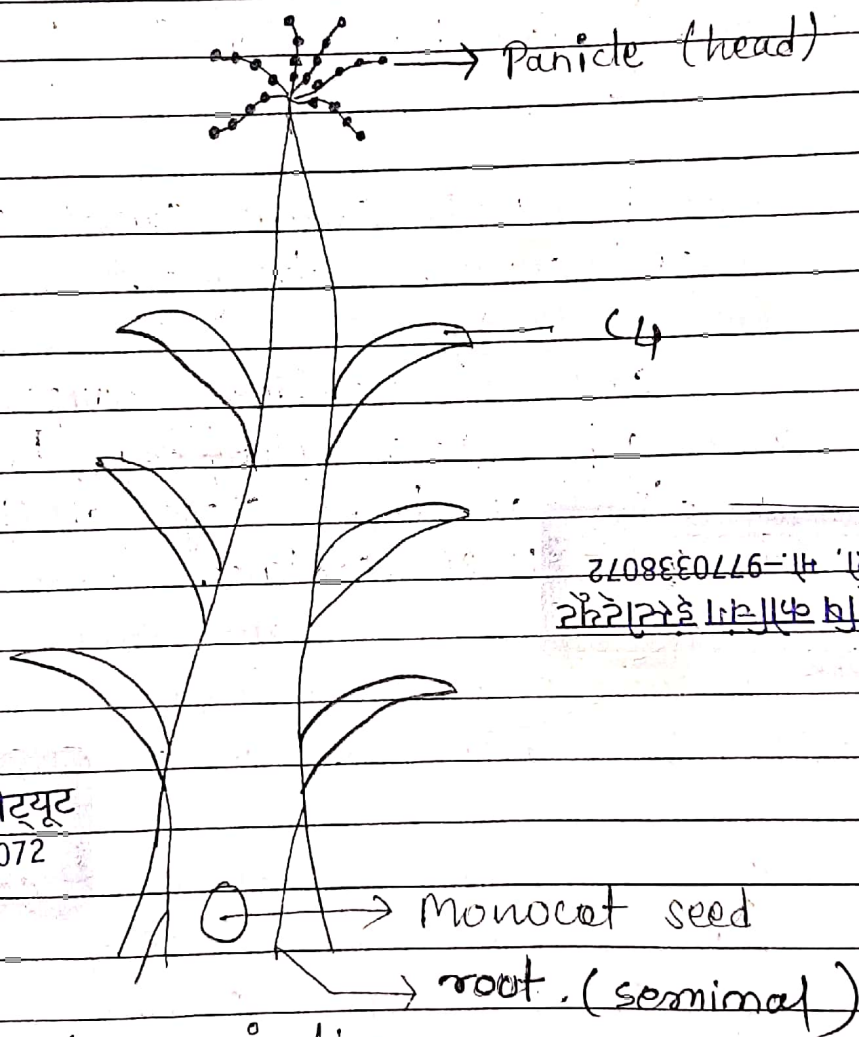
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Sorghum (Kharif)

Botanical name : Sorghum bicolor

Family : Gramineae / Poaceae

Origin : Africa



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- Hypogeal germination

* ~~All~~ All non-leguminous monocots are hypogeal except leguminous gram, pea, red gram, groundnut all leguminous dicots are epigeal.

- In India, sorghum is 3rd most imp cereal crop under area.
- Cultivation of sorghum crop are food grains and fodder.
- The sorghum grain is poor in lysin & protein content, but rich in leucin amino acid.
- Sorghum is also called kamal crop becoz it is resistant to drought.
- Sorghum crop for fodder purpose should be used after 50% flowering, becoz sorghum leaf at knee stage at high amount of HCN content. (Hydrocyanic acid)
- The best high yield variety of Rabi Jowar is - M35-1
- Multicut fodder variety of sorghum - SS6-588
- SS6-59-3
- King of coarse grain (मीठ खदान)
- sorghum is a often - cross pollinated crop
- best variety for fodder & grain - CSV-15
- * Sorghum sickness :- High C:N ratio of sorghum plant

* Sorghum is a exhaustive crop: because it absorbs higher amount of nutrient from the soil.

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Soil Required for Sorghum :-

* Loamy soil

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* PH: 6.5 - 8.5

Variety :-

- * 1st hybrid variety of sorghum = CSH - 1
(Coordinate sorghum hybrid)
- * other variety = CSH-1, CSH-5, CSH-6

Fertilizer :- 130 : 50 : 100
N P K

Irrigation :-

- Critical stage - (1) Knee high stage
- lowering (2) Perical initiation stage
- (3) Grain filling stage

Seed rate :- 8 - 12 Kg / ha for grain
40 - 45 Kg / ha. for fodder

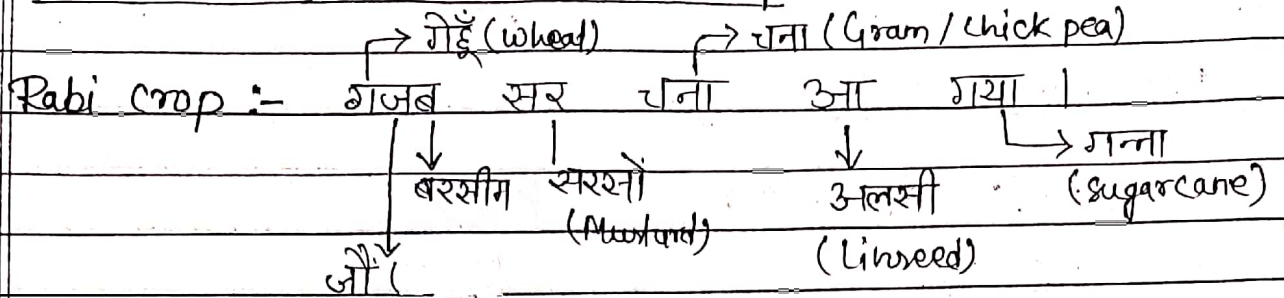
Yield :- 40 - 50 q / ha

→ Max. productⁿ state - Maharashtra

→ Main root parasite weed of sorghum -
(Sorghum striga species)

→ Drought & salinity tolerance variety of sorghum - CSH - 9

Trick to remember Rabi crop



Rabi crops - wheat, Bassim, Mustard, Gram, Linseed, sugarcane etc.

PULSE CROP

Kharif crop in pulse	Rabi Pulse crop
1) Arhar (Red gram)	1) Gram / chick pea
2) Moong (Green gram)	2) Pea
3) Urd (Black gram)	

Other uses of pulse crops -

- For fodder purpose
- For green manure
- For cover crop
- For Nitrogen fixation

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* 104 g Pulse is required per capita per day

* 355 g milk

11

★ 300 g vegetable

★ King of pulse : Gram / chick pea

★ Queen of pulse : Pea

★ 2400 germ plasm / varieties of rice is grown in IGKV.

★ For storage of preservation of pulse crops, Among of moisture - 8 to 10% (more humidity causes fungus & less humidity cause diseases)

★ For Cereal crops moisture - 10 - 12%

★ For oil seed crops moisture - 6 - 8%

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