**CROP PRODUCTION II (PLANTING)**

1. two reasons for seed treatment of tree species before planting

* Break dormancy

Control pests and diseases

2. three factors that determine spacing of beans

* Type of soil
* Moisture in soil
* Species/ size of bean plant
* Machinery to be used
* Purpose of beans

Stand in the field

3. four reasons for using certified seeds for planting

* High yielding
* Quality produce
* High germination percentage
* Grow faster

4. a) A Banana sucker

 B Stem tubes

 C Bulb

 D Stem cutting

 b) Chitting

 c) four advantages of vegetative propagation on crop production

* Grow faster
* True copy of mother plant
* Have no dormancy period
* Easy to obtain 4x ½ = 2 mks

5. Differentiate between hybrid and composite

|  |  |
| --- | --- |
| Hybrid | composite |
| Seeds produced by crossing inbreedlines and controlled pollination√ | Seeds produced by growing different varieties together under uncontrolled pollination√ 2// |

6. a) Germinated seed x100√

 Total seeds planted

 =90 x100 (2)

 100 = 90%√

b) Given that maize is planted at a spacing of 75cm by 25cm, calculate the plant population in a plot measuring 4m by 3m

plant ppl = land area√

 Spacing

 4mx3m

 75x25cm

 400cmx300cm

 75cmx25cm = 64plants√ (2)

7. four qualities of a mother plant which should be considered when selecting vegetative

material for propagation.

* High quality.
* High yielding.
* Disease resistance / healthy/ disease tree.

Fast growth/ fast maturity.

8. - Select seeds of the same size, variety, age and free from pests and diseases.

 - Plant seeds at the same time.

 - Prepare the whole field to required uniform tilth.

 - Plant at the right moisture content of the soil / irrigation uniformly.

 - Treat seeds before planting i.e. break dormancy.

 - Plant at the correct depth. (5 x 1 = 5 mks)

9. two factors which determine the depth of planting

- Soil type

* Size of seed
* Soil moisture content

- The type of germination

10. - Reduces leaching

* Improves water holding capacity
* Improves soil structure
* Suffer soil pH
* Moderate soil temperature
* Increases microbial activities
* Increases cation exchange capacity

- Improve fertility of the soil after decomposition

11. Area

 Spacing

Tea population (10,000x2

 1.5mx 0.75) 1

 20,000m²

 1.125m² 1

 = 17,777 plants

Needed in carbohydrate metabolism

12. Four reasons why training is important in some crops

* Facilitate field practices of spraying and harvesting
* Improves crop quality by preventing solving
* Enable crop grow in the required direction
* Improve yield
* Control pest and diseases

13. Four factors that influence the depth of planting are:

* The size of the seed
* Soil moisture content
* Type of soil /soil texture
* Type of germination

14.

* Avoid mixing with foreign materials
* Harvesting during the dry weather
* During harvesting separate grade A and B

Don’t put in gunny/sisal bags

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18. - Moisture content of soil

* Use of which the crop is to be put
* Number of seeds per hole
* Prevalence of certain diseases/ pests
* Machinery to be used in subsequent operations
* Fertility status of the soil

19. Four advantages of rolling in seedbed preparation are:

* Press the seeds against the soil moisture
* Controls soil erosion
* Ensure uniform germination
* Controls removal of small seeds by wind
* Breaks large soil cods

20. two factors that effect rooting of cuttings in crop production

* Temperature
* Relative humidity
* Light intensity
* Oxygen supply
* Chemical treatment
* Leaf area

21.

* Breaking seed dormancy
* Seed dressing

Seed inoculation

22.

* Breaking seed dormancy
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Seed inoculation

23. Under sowing is the establishment of pasture under a cover crop usually maize while over sowing is the establishment of pasture legume in an existing grains pasture

24. a) Stem cutting

 b)

* High yielding
* High quality
* Good rooting ability
* Adaptable to the ecological zone

c)

* Make top cut near the auxiliary bud as close as possible and sloping away from it
* Lower cut must be sloping at an angle and be 2.5 – 4cm below the leaf
* Single leaf internodes cuttings must be kept shaded and wet floating in water from the time of cutting to planting

25 a) (30 X 15) cm2 / 30cm X 15cm

 b)

 4M – 0.6 M + 1

 0.3M

 3.4 + 1

 0.3= 12 raws

 c) Plant population

 3M – 0.6 +1

 0.15

 = 2.4 + 1

 0.15

 = 16 plants X 12 raws = 192 plants

26. – Temperature;

- Relative humidity;

- Light intensity;

- Oxygen supply;

- Leaf area;

- Chemical treatment;

27. Selection of mother plants (tea);

- Select healthy bushes/free of pests and diseases;

- Select high quality bushes;

- Select those which are high yielding;

- Select those with good rooting ability;

- select those which adapt to a wide range of ecological conditions; (4x1=4mks)

Preparation of planting materials

* Prune the selected tea bushes and leave unchecked for six months;
* Select and cut good branches for making cuttings
* Obtain the cuttings form the middle of the branches/discard the brown and the hard bottom part/ the green soft top part
* Make single leaf internodes cutting carefully 2.5-4cm long;
* Make slant cut with the use of scalpel/sharp knife taking away from the node;
* Make top cutting near the auxiliary bud as much as ossible;
* Keep the cuttings wet in the water to avoid dehydration until they are planted;
* Keep the cutting under the nursery;

Raising of tea seedlings in the nursery

* Plant cuttings on rooting medium in polythene sleeves/sleeves measure 25 x 7.5-10cm and sealed cut.
* Rooting medium consists of fertile sub-soil and phosphate fertilizer;
* Plant single leaf internodes per polythene sleeve,
* Place the sleeves in the vegetative propagation units,
* Erect wooden hoops over the sleeves cuttings, then place polythene sheet over it/erect shade over the nursery;
* Water sleeved seedlings every 3weeks/main high humidity;
* Uproot weeds when they appear;
* Hardening off done 4 months after raising (9x1=9mks)

28. Factors to consider in timely planting of annual crops

* Escape from serious weed competition;
* Utilization of early rainfall;
* Exploitation of Nitrogen flush in the soil that has accumulated during dry season;
* Escape from serious pest + disease attack e.g. stalk borer in maize;
* Fetch high market prices when harvested early;
* Reduce competition for labour during labour peak period;
* For harvesting season to coincide with dry period to reduce losses e.g. cotton

Early planting means early farming/calendar for the farmer to enable him /her to finish up other farm activities; (8x1=8mks)

29.

* It is wasteful because a higher seed rate is used.
* It is not possible to use machines.
* It is not possible to establish plant population.
* Lack of uniformity in seed establishment.

30. (i) Seed inoculation;

* It is the treatment of legume seeds with Nitro-culture/artificial bacteria to increase their Nitrogen fixation in the soil ,if grown in Nitrogen deficie soils.

 (ii)Chitting;- Breaking of dormancy in Irish potatoes before planting

 (iii) Tipping;- Removal of three leaves and a bud from each shoot above the required height of the

 table in tea during plucking table formation / formation of a uniform and flat plucking table in tea.

31. two advantages of producing crops by use of seeds over vegetative propaganda

* Seed treatment is easier
* Seeds can be stored for a long time
* Faster and uniform germination
* Mechanization of farm operation is easy/possible

Application of fertilizer/manure is easy and can also be mechanized

32. four ways of preparing planting materials before planting

* Breaking seed dormancy
* Seed dressing
* Chitting
* Seed cleaning
* Seed inoculation

Root trimming as in banana or tree seedlings