

**Productive task** :

1. Performing land preparation practices as per requirement of any 1 field crop of your region, on at least 1000 Ft2 (1 gunta) area on land.
2. Calculation of seed rate and performing seed treatment practice for *task 1* selected crop.
3. Performing cultivation practices of *task 1* selected crop with recording crop growth and yield performance data.

**Concept** :

* Select proper crop type suitable for his/her soil and climate
* Cultivate selected field crop by performing various cultivation practices with crop growth and yield records.

**Tools** :

**Class-Age Group** : 9th class

**Cultivation of 1 field crops & performing cultivation practices** Mahesh Lade

*Open Education Resource*

**Case story:**

 

Vitthal! You know that we own a big land. But only small part of it is under cultivation. That is because I don’t have much help.

 

Yes. I know that father.

 

Now that, you are grown up, why don’t you grow one crop all by yourself? You can try that on a small piece of uncultivated land.

Sure! That sounds interesting.

 

 

OK, then! Let’s do it in coming season.

Vitthal’s father tells his son that their soil is fertile, rich in organic matter. Surrounding climate of the land is warm and humid. While enjoying Diwali vacation, Vitthal studies these things and finalizes **Maize** as the crop for his cultivation experiment.

Vitthal’s friend visits him. Vitthal tells him about his ‘cultivation project’.

Vitthal, Why you selected Maize for your experiment?

 

Because I wanted to select crop which will give me same food grains and fodder for my milking cows. So maize comes under cereal and fodder crop as per field crops classification in India.





How do you classify these crops like cereal , fodder etc?



Its very easy. Let’s see classification criteria for firld crops ……

**Classification of field crops:**

Field crops may be classified in more than one way.

It may be on the basis of:

* The climate in which they are grown
* The season in which grown
* Life of the crop plant
* Source of water
* Root system of the crop plant
* Economic importance of the crop
* Botanical or morphological similarity in crops.

For cultivation following classifications are used commonly:

**Classification on the basis of climate**

Tropical crops – rice, sugarcane etc.

Temperate crops – wheat, gram etc.

**Classification on the basis of season**

Kharif Crops – Crops which are grown in monsoon months (from June to October)

e.g. Rice, Jowar, Bajra, Groundnut.

Rabi Crops – Crops which are grown in winter season (from October to March)

e.g. Wheat, gram, safflower etc.

Summer Crops – Crops which are grown in summer (from March to June)

e.g. summer groundnut, water melon, cucumber etc.

**Classification on the basis of Botanical** or morphological similarity in crops **–**

Plant kingdom spermatophyte

Angiosperms (ovules are enclosed in an ovary wall.)

 Monocotyledonous Dicotyledonous.

**Classification on the basis of Economic Importance**

Cereals: Jowar, Maize, Ragi, Paddy, Wheat etc.

Pulses: Greengram, redgram, blackgram etc.

Legumes: Cowpea, Fieldbean

Oilseeds: Sunflower, sesame, groundnut etc.

Fibre crops: Cotton, Jute, Sugarcan etc.

Fodder crops: Jawar, Bajara, Maize, Lucern etc

**HPNPDL Session:**

After every activity or work exercise, all class will assemble together and brainstorm various questions. They will generate list of questions - What , Why , How, When , Where ? Attempt should be made that every student will ask min 2 questions.

The questions will be recorded. Teacher’s may able to answer some of them. It is not necessary to answer every questions but such questions must be recorded as ‘HPNPDL’ { Hame pata nahi par dhudh lenge }

1. Which are the different field crops in India?
2. What is mean by cultivation practices of field crops?
3. Identify and list different field crops of your area and classify them as per above categories.

For more information on different field crops in India and their cultivation practices please refer following Document–

Download: Field crops in India.docx

After selection of Maize crop , Vitthal started working in the field. He followed following steps for performing cultivation practices of Maize as -

**Step 1 Selecting land:**

First, he measures the piece of land which is given to him. It is 10m X 10m in dimensions. These land measurements will be very useful for deciding the methods of sowing, seed rate calculation, manure/fertilizer dose and even for irrigation.

Lets also see , which are the different units of agriculture commonly used in India

<http://www.hsngroup.com/measurement-units.html>

**Step 2 Land preparation for seed sowing:**

Then, he follows all the ‘preparatory tillage’ practices. That means he prepares his land according to the type of crop he wants to cultivate and to the type of irrigation he is going to use. Vitthal has decided to cultivate Maize. So he ploughs the land and repeats the process 2 to 3 times for better results. He made **‘ridges and furrows’** system of seed sowing for maize crop as shown in Figure 2.

  

 Fig. 1 Land Ploughing Fig. 2 Ridges and furrows

Here, one should understand that, land preparation is different for different crops and different irrigation types.

Lets also see which are other method of field crop cultivation –

Download: Design and layout of irrigation methods for field crops.docx

**Step 3:**

Now, Vitthal does examination of soil (Please ‘Study Soil Testing’) and decides the dose of manures/fertilizers accordingly.

**Productive Task 1:**

Find out any one field crop of your area, select land for performing land preparation practices for your selected land ( at least 1 Guntha) , and collect soil sample of your plot for soil analysis.

**HPNPDL Session:**

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What is mean by physical properties of soil?

What is the common irrigation system layouts used in your local area?

List out different land preparation practices of your area and define its importance in short.

**Step 4:**

Since Vitthal has a small piece of land to cultivate, he decides to cultivate Maize as Fodder and not as grain. At this stage, he goes to the market and checks the varieties of Maize (fodder) available. This is very important to check the varieties available to you as new variety with different benefits keeps coming in the market.

Before purchasing seed from market, Vithal should know how much seeds he should purchase for his piece of land? This is very simple calculation , you can also do it as **given below-**

Suppose this is your land (10m X 10m). Then, there should be 30cm distance between two rows and 15cm distance between two plants. It will look somewhat like the following figure:

 30cm

 15cm

10m

10m



You need to keep sowing the seed on each intersection. So by this Vithal will have nearly 67 seed on each line and total 33 lines in his 10 M wide plot , by this he will required around 2211 seeds for his plot. Now suppose weight of 100 seeds of maize is 20 gm so weight of 2211 seeds will be around 442 gm.

By this Vithal can assume that he will required around 500 gm of maize for his 10 \* 10 M plot with planting distance of 30 \* 15 Cm2.

***Productive Task 2*:**

Calculate seed rate of your selected crop for specified area and planting distance.

**Note -** You cannot buy seeds by unit. It is always by weight. So, weigh 100gm of seeds and count how many seeds come in 100gm.

**Step 5 Seed treatment:**

After purchasing seeds , Vithal did ***Azotobactor*** culture seed treatment for his purchased seeds. For this seed treatment he first studied following OER and then choose Azotobactor culture for treatment. To know more about seed treatment following following link:-

<http://ppqs.gov.in/Seedtreatment.htm>

**Step 6 Seed Sowing:**

Method of sowing mainly depends on the area of your land and the type of your crop. In Vitthal’s case, since his plot is small, he goes for ‘Dibbing’.



Fig. 3 – Sowing seeds (Dibbing technique)

Vitthal’s calculation for ‘seed rate’ and his sowing were successful. Now he has to take ‘after care’ of his crop. One day, his father visited his plot…

Vitthal, you did a good job till now. But you cannot just forget about the crop until harvest. You have to pay attention to the after care.

 



What exactly I have to do now father?

See, you have to keep your plot clean by hoeing and weeding. Check for any disease or pest regularly. Give the dose of manures/fertilizers. Always follow your irrigation schedule properly.

 

For more information on please follow link given below –

<http://agropedia.iitk.ac.in/content/package-practices-maize-zea-mays>

As per cultivation practices Vithal followed all further steps as that of maintaining irrigation schedule , fertilizer dose application, timely inspection of plot for dieseas and pest recording and their management, weeding etc.

After 4 months, Vithal’s maize crop became ready for harvesting. He harvested it and recorded crop growth performce , various input used and yield output of crop as per following table –

Table No 1 – Summery of crop performace -

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Name of crop | Area  | Date of Sowing  | Seed rate  | Irrigation frequency  | Quantity of water used (Total quantity) | Ferilizers used (Total quantity) | Crop pest / dieseas management practices used  | Date of harvesting | Yeild of fodder + grains |
|  |  |  |  |  |  |  |  |  |  |

Table 2 – Crop Growth performce (for selected 10 plants) –

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Date  | Name of crop  | Plant height  | Number of leaves  | Number of corns  | Weight of plant at maturity stage |
|  |  |  |  |  |  |
|  |  |  |  |  |  |

Table 3 – Inpute record

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Date  | Irrigation water quantity (Approx) | Fertilizer used ( Quant & Cost)  | Plant protection cost  | Weeding cost  | Other labour cost  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |

**Productive Task 3:**

Perform all cultivation practices for any one field crop of your area on selected piece of land as given above and maintained its growth , input and yield performance data as shown in above table.

**HPNPDL Session:**

How you will calculate quantity of water supplied to your plot?

What are the different fertilizers / manures commonly used in your area?
What do we mean by crop pest?

Which are the common pest and disease of field crops of your area?