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Cultivation and production of maize crop

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Abstract

The scientific name of the maize is *Zea mays* and its family is grass family which is also called Poaceae. It is an essential cereals crop and it is cultivated nearly 132 Mha with a production. It is also known as staple crop it's also known as fodder crop and stood first rank as a feed crop moreover for many industries different raw materials also used.

Its chromosome number is $2n=20$ and origin is Central America (Mexico) method for the pollination is cross pollination. All over the world India rank sixth in the production. Major growing states are Karnataka, Andhra Pradesh, Bihar, Punjab, and Himachal Pradesh.

The experiment was conducted under the Agriculture science under-graduate program of Lovely Professional University Phagwara, (Punjab). The experiment was conducted in pots on home terries Farm Yard Manure was added into the crop and Panchgavya was prepared to improve the moisture as well as the nutrient level. Various cultural practices were introduced to resist the disease and pests such as seeds per fruit or per plant, plant height, and leaf length.

Keywords: Farm yard manure, panchgavya, plant height, seeds per fruit

Introduction

Maize (*Zea mays*) It is widely cultivated all over the world and it's also known as 'Queen of Cereals' because it has highest yield potential. It is tolerant to the salt maize have various varieties such as sweet corn, dent corn, pop corn, and waxy corn. Both the male as well as female part located at the different part male part is known as tassel whereas female portion is called ear. It's pollen were spread through wind it is an annual plant the leaves of maize is broad and single leaf and the arrangement of leaves are vertical row on the opposite side of the axis. Maize crop is grown in the major parts of the world such as USA, China, Brazil, Mexico, India, Philippines and some other major parts.

The optimum temperature required for the maize is 18-32 degree Celsius during the time of tasselling 21-30 degree Celsius is ideal. Soil which have high water holding capacity in Haryana mostly alluvial soil is seen but, loamy or silt loam soil is perfect for the maize crop and the pH level should be 6.5- 7.5 is necessary. Major varieties are PMH1, Parbhat, Kesri, PMH2, Ganga safed 2, Sonalika, and Kisan.

For the better yield and production seed rate should be 20kg/ha grain maize and for baby corn 25kg/ha. Spacing should be 20cm between plants in the rows which are 60cm away.

Dent Corn

(*Zea mays indentata*) It's also called as field corn this type of maize is yellow and white color it also have a mixture of soft and hard starch.

Flint Corn

(*Zea mays indurata*) also known as Indian corn outer covering of this type of maize is hard it is of various colours such as red, yellow, white.

Sweet Corn

(*Zea mays saccharata*) it also contain soft starch like as dent corn moisture content should be 70% at the period of maturity it is a good source of vitamin A And C.

Pop corn

(*Zea mays everta*) kernals are small in size and contain soft as well as hard form of starch and to prepare pop corn it should be heated at 170 degree Celsius.

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Waxy corn

(*Zea mays ceretina*) it's called as waxy corn it has smooth and waxy appearance hybrid waxy crop also used for textile and industrial purpose.

Pod corn

Kernal is closed in lemma and palea both are fully developed.

Major Objectives

1. To discuss the seeds per plant.
2. Plant height
3. Leaf length
4. Various effects on crop by using FYM and Panchgavya

Material and Methodology

The experiment was conducted in a village of Pundri of dist. Panipat, Haryana, India, 132103. The area of this experiment is located at 29.39076 Latitude and Longitude. Alluvial soil is major in Haryana. The work was conducted in pots and organic materials were required such as Farm Yard Manure, Panchgavya. FYM which provide proper moisture and nutrient to the crop as well as to the soil moreover FYM should be added 15-20days before sowing and it required in high quantity whereas the another ingredient is Panchgavya it's an essential organic method which is highly applied by many farmers to mitigate the problem of insects and pests. Different details were recorded during the time of work such as Germination percentage, Germination date, Leaf length, no. of seeds per cob.

Germination Percentage: The proportion of no. of seeds sown and the no. of seeds grown.

Germination Date: It is the time when the crop is sown and germinated.

Leaf length: It was recorded by measuring the length of the leaf.

FYM: Essential organic manure which provide a proper amount nutrient to the crop and in the soil. The basic ingredients are cow dung, kitchen waste, scullery of cow dung, dry husk, cotton cloth or gunny bag. It required 30 days to prepare a farm yard manure and it was of reddish brown in color proper moisture should be maintained and put into the shady area because earthworms can't tolerate the excessive amount of heat. Holes should be made under the bucket for the better water retention and reduce the problem of water stagnation.

Panchgavya: It is also an organic method to overcome the problem of disease and pests it provide very foul smell which helps to repel the insects it is used as foliar spray.

Results and Discussion

The experiment and the observations clarify the concept of the various parameters such as higher the space for the sowing then the germination percentage will also increase because the plant get proper sunlight and nutrition. Furthermore, FYM is also an important factor to fulfill the requirement of N:P:K ratio. Panchgavya reduce the level of disease into the crop and the yield of the crop will increase.

Table 1: Shows in Nutrients in FYM and Content

Nutrients in FYM	Content
N%	0.53
P%	0.22
K%	0.59
Fe(mg kg-1)	2100.00
Zn	61.0
B	2.2
Mo	0.75

Leaf length

3 leaves were selected per plant and took the observations and then calculate the average observation of the leaf length.

Table 2: Leaf length

Leaf length of Maize (per plant)	Leaf length(cm)
P1	30, 18, 32, Avg. 26
P2	35, 24, 30, Avg. 29
P3	20, 37, 15, Avg. 24
P4	33, 19, 20, Avg. 24

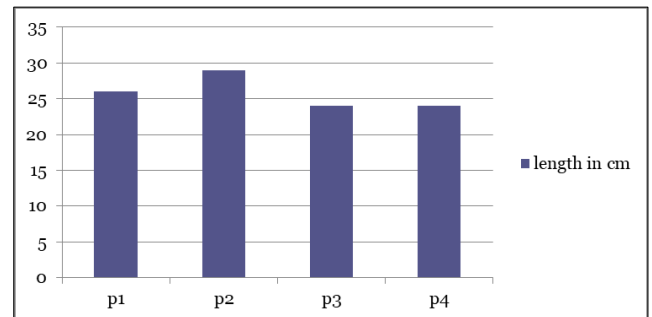


Fig 1: Length in cm

Table 3: No. of leaves

No. of leaves	Leaves count
P1	17.00
P2	27.00
P3	20.00
P4	25.00

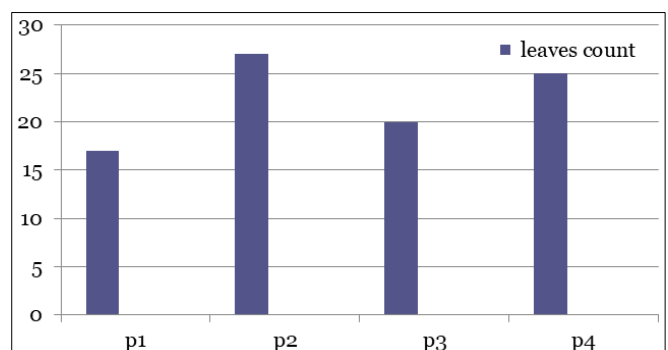


Fig 2: Leaves count

Farm yard manure

Process of Composting

How to compost

Step 1: Combine Green and Brown Materials

Take a bucket and make small holes under the bucket for the ventilation system and prevent the water stagnation condition. Combine your wet, green items with your dry, Brown

materials include dried plant materials; fallen leaves; shredded tree branches, cardboard, or newspaper, hay or straw, and wood shaving, which add carbon. Green materials include kitchen scraps and coffee grounds etc.

Step 2: Preparation of bed 6*6 feet

1. First layer of dry leaves
2. Second layer of green leaves or straw
3. Third layer spreading aged cow dung or slurry(thin layer)
4. Fourth layer spreading vegetable peel or fruits scarps
5. Fifth layer again cow dung or slurry
6. At last cover the bucket with dry husk like rice straw or with polythene



Fig 3: Preparation of bed 6*6 feet

Panchgavya

Panchgavya is also called as panchakavyam. This is also called as natural organic manure. The main ingredients are milk, curd, ghee, dung, and urine of cow

Procedure

1. Take two container
2. In first container add cow dung and cow ghee and mix them properly.
3. In second container take cow urine, milk, curd, banana, jaggery, water mix them properly and make a solution cover it with cotton cloth.
4. Put both the container separate for nearly 3 days along with stir and mix the solution.
5. After 3-4 days mix both the solution in a container
6. And stir them clock wise and anticlockwise 5 minutes and twice a day from (morning to evening)
7. It is ready to use after 15-20 days.

Table 4: Shows the diference cow unit (kg)

Cow milk	½ kg
Cow urine	½ litre
Cow ghee	1/2kg
Cow curd	1 cup
Banana	1
Jaggery	50gm
Water	5 litre

Benefits of panchagavya

1. Used as growth promoter.
2. Safeguard plants and soil micro-organisms
3. Plants produced more branches
4. Rooting is penetrating to deep layers and helps in better intake of nutrients and water.
5. Plants are able to stand protected in drought conditions.

Result

1. Colour: brown or black
2. Texture: Insoluble
3. Odour: foul smell
4. Fermented duration: 15 days nearly



Fig 4: Panchagavya

Conclusion

This experiment will help to determine the effects of FYM and panchgavya on crop the performance and yield is carried out in a village near to Panipat, Haryana, India. The outcomes were no. of leaves, Germination percentage, and leaf length. Maize is sensitive to the salt as well as irrigation should be maintained properly and remove extra water out of the pot.

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