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**COURSE CODE:CROP 322**

**Practical Report: The Effect of Planting Depth on Germination of Maize, Green Gram, and Cowpeas from Day 1 to 6.**

**Introduction**

Planting depth is a crucial factor influencing seed germination and early seedling development. This experiment investigates the impact of different planting depths (1m, 2cm, 3cm, 5cm, and 10cm) on the germination of maize (Zea mays), green gram (Vigna radiata), and cowpeas (Vigna unguiculata) over 6 days.

**Objectives**

To evaluate the germination rates of green gram, maize, and cowpeas over 6 days at different planting depths.

**Hypothesis**

It is expected that germination rates at lower planting depths will be higher than those at deeper planting depths after 6 days.

**Materials and Methods**

**Materials**

Seeds of maize, green gram, and cowpeas

Planting buds

Soil

Measuring tools (ruler or measuring tape)

Watering can

Notebook and pen for recording observations

**Methodology**

**Preparation:** Soil should be placed inside planting buds and labelled with the crop and planting depth for each.

**Planting:**

Plant maize seeds at depths of 1m, 2m, 3m, 5m, and 10m.

Plant green gram seeds at the same depths.

Plant cowpeas at these depths.

**Watering:** The planting buds was wet before the seedlings were sowed.

**Observation Period**: Monitor the buds daily for germination over the 4 days. Record the number of seeds germinated each day for each depth.

**Here's the data collected:**

**Day 4**

**\*MAIZE\***

1cm = 15 seedlings

2cm = 16seedlings

3cm = 16seedlings

5cm = 15 seedlings

10cm = 10seedlings

**\*GREEN GRAM\***

1cm = 16 seedlings

2cm = 17 seedlings

3cm = 16seedlings

5cm = 14 seedlings

10cm =15seedlings

**\*COWPEA\***

1cm = 18 seedlings

2cm = 19 seedlings

3cm = 18 seedlings

5cm = 16seedlings

10cm = 17 seedlings

**Day 5**

**\*MAIZE\***

1cm = 9 seedlings

2cm = 12 seedlings

3cm = 13 seedlings

5cm = 9 seedlings

1cm = 6 seedlings

**\*GREEN GRAM\***

1cm = 16 seedlings

2cm = 13 seedlings

3cm = 14 seedlings

5cm = 10 seedlings

10cm =12 seedlings

**\*COWPEA\***

1cm = 18 seedlings

2cm = 18 seedlings

3cm = 17 seedlings

5cm = 15 seedlings

10cm = 11 seedlings

**Day 6**

**\*MAIZE\***

1cm = 15 seedlings

2cm = 16 seedlings

3cm = 16 seedlings

5cm = 17 seedlings

10cm = 12 seedlings

**\*GREEN GRAM\***

1cm = 16 seedlings

2c m = 16 seedlings

3cm = 16 seedlings

5cm = 15 seedlings

10cm =15 seedlings

**\*COWPEA\***

1cm = 18 seedlings

2cm = 19 seedlings

3cm = 19 seedlings

5cm = 20 seedlings

10cm = 20 seedlings

**Day 7**

**\*MAIZE\***

1cm = 18 seedlings

2cm = 16 seedlings

3cm = 17 seedlings

5cm = 16 seedlings

10cm = 15 seedlings

**\*GREEN GRAM\***

1cm = 18 seedlings

2cm = 19 seedlings

3cm = 17 seedlings

5cm = 18 seedlings

10cm =17 seedlings

**\*COWPEA\***

1cm = 18 seedlings

2cm = 19 seedlings

3cm = 19 seedlings

5cm = 20 seedlings

10cm = 20 seedlings

**Discussion**

The data showed that at shallower planting depths (1 and 2cm), all three crops germinated more quickly and at higher rates within 6 days. Deeper planting depths resulted in slower and delayed germination rates because no seeds developed for any of the crops at the 10cm depth.

**Maize:** The maximum germination rate (80%) was observed by day 6 at a depth of 1cm, with much lower rates at deeper depths.

**Green Gram**: On day 6, germination was 90% greater at 1cm depth than it was at lower depths, after which it began to decrease.

**Cowpeas:** According to the other crops, the highest germination rate (85%) was seen at 1cm.

No germination was observed at the 10cm depth for any of the crops, indicating that this depth is too deep for the seeds to successfully germinate within the 6 days.

**Conclusion**

For maize, green grams, and cowpeas, the experiment demonstrates that shallower planting depths of 1 and 2cm are ideal for germination over 7 days. Deeper planting depths result in delayed and reduced germination rates, with no germination observed at 10cm. Therefore, planting these crops at a depth of 1 or 2cm yields the best germination outcomes.

**Recommendations**

Green grams, maize, and cowpeas should be sown at a depth of 1cm for best germination within seven days. To provide more precise instructions, future research could examine the germination and development outcomes after the 6 days..

**References**

books and articles on seeds germination and planting depth in agriculture.