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MULTI- BLOOM TECHNOLOGY IN BLACK GRAM

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Abstract

This article deals with the practicing multi blooming technology in black gram. Most of the pulses are sown as inter crop to fix the atmospheric nitrogen. They are mostly grown as intercrop due to low marketable value .Apart from using high yielding varieties ,a special technique called multi bloom technology of black gram was practised only in Pattukottai block of Tanjore district to increasing the high yield within short period .Even though we develop many high yielding varieties and new technologies ,there some constraints that reduce the yield of the crops .Due to these constraints, a particular crop is grown in particular region which gives the high yield compared to other regions. This article gives you a detail study about multi bloom technology in black gram

Keywords: Multi bloom technology, advantages, constraints and yield

Introduction

Black gram (*Vigna mungo)* is popularly known as 'Urd' is one of the most important pulses crop ,grown across India .The Urd crop is resistant to adverse climatic conditions and improves soil fertility by fixing atmospheric nitrogen in the soil. This crop is primarily grown for its protein rich seeds and used as daal and as the main ingredient in breakfast snacks like idly , dosa ,vada & papad. Black gram can be grown on wide range of soils ranging from sandy soil to heavy cotton soils. The higher grain yield of black gram is associated with significantly superior yield attributes. Slow rate of dry matter accumulation during pre-flowering phase, on-set of leaf senescence during the period of pod development and low partitioning efficiency of assimilates to grain are identified as the main physiological constraints for increasing yield. Adequate supply of N may minimize the yield reduction through reduced those constraints. Leaf area is made up of the total green lamina are of emerged leaves greater leaf area is necessary to have superior yield and yield components in grain legumes.

Multi bloom technology

A special technology called multi bloom technology was being practiced in Pattukottai block of Tanjore district for black gram and green gram. The soil is alluvial and rich in organic matter and nutrients. The crop is sown during early summer (January.-February.) as normal crop and fertilizer is applied as per the recommendation

for irrigated crop. In addition to that, top dressing of Nitrogen is done with an extra dose of 25 to 30 kg through urea. Since pulses are indeterminate growth habit and continue to produce new flashes the top dressing will be done on 40-45 days after sowing. The crop complete its first flesh of matured pods during 60-65th day, further their second new flesh within 20-25 days. Therefore two fleshes of pods can be harvested at a time within the duration of 100 days. There are many research was held on multi bloom technology. Ashwin C *et al.*,2020 reported the pod count of black gram with multi bloom technology was 18 pods per plant.

Objectives

- To improve the quantity of pods.
- To increase the crop growth and production is high in less duration.
- To produce chlorophyll.

Pulses are indeterminate growth habit and continue to produce new flashes the top dressing will be done on 40- 45 days after sowing. Apply fertilizer before sowing on irrigated land 25 kg N + 50 kg P_2O_5 + 20 kg K_2O + 20 kg S /ha + 25 kg N/ha in 3 equal splits on 30, 45, and 60 days after sowing + 2% DAP apply on 45 and 60 days after sowing.

Excess Foliage Growth

. Energy for flower growth is redirected to foliage proliferation, so plants may not even produce their necessary reproductive organs during the growing season.

Nitrogen in plants

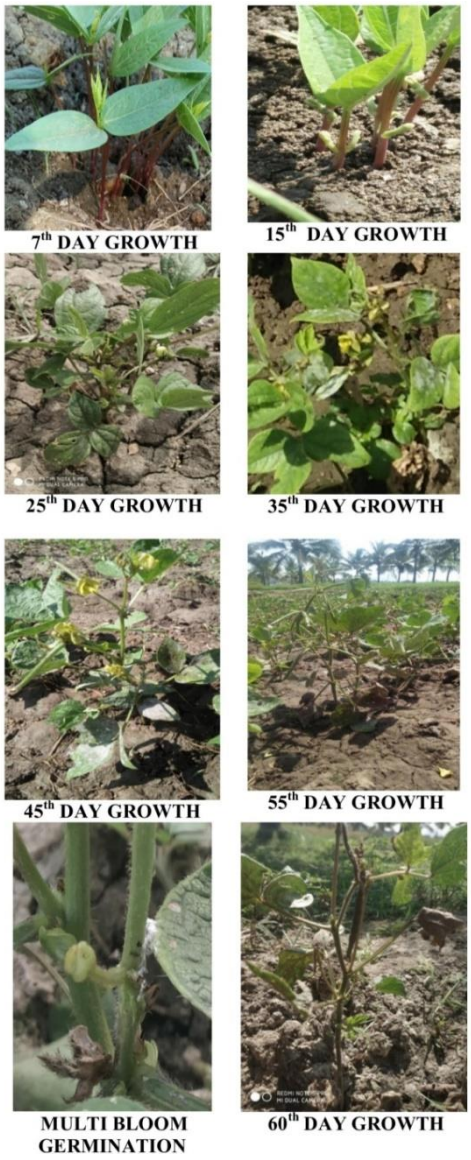
Healthy plants often contain 3 to 4 percent nitrogen in their above-ground tissues. This is a much higher concentration compared to other nutrients. Carbon, hydrogen and oxygen, nutrients that don't play a significant role in most soil fertility management programs, are the only other nutrients present in higher concentrations. Nitrogen is so vital because it is a major component of chlorophyll, the compound by which plants use sunlight energy to produce sugars from water and carbon dioxide (i.e., photosynthesis). It is also a major component of amino acids, the building blocks of proteins. Without proteins, plants wither and die. Some proteins act as structural units in plant cells while others act as enzymes, making possible many of the biochemical reactions on which life is based. Nitrogen is a component of energy-transfer compounds, such as ATP (adenosine triphosphate). ATP allows cells to conserve and use the energy released in metabolism. Finally, nitrogen is a significant component of nucleic acids such as DNA, the genetic material that allows cells (and eventually whole plants) to grow and reproduce. Nitrogen is essential for crops to achieve optimum yields. A critical component of amino acids in protein, it also increases protein content of plants directly.

Natural sources of soil nitrogen

The nitrogen in soil that might eventually be used by plants has two sources: nitrogen- containing minerals and the vast storehouse of nitrogen in the atmosphere. The nitrogen in soil minerals is released as the mineral decomposes. This process is generally quite slow, and contributes only slightly to nitrogen nutrition on most soils. On soils containing large quantities of NH_4^+-rich clays (either naturally occurring or developed by fixation of NH_4^+ added as fertilizer), however, nitrogen supplied by the mineral fraction may be significant in some years. Atmospheric nitrogen is a major source of nitrogen in soils. Atmospheric nitrogen is fixes either by pulses or green manures which has root nodules in their root as well as biological decays. In the atmosphere, it exists in the very inert N_2 form and must be converted before it becomes useful in the soil.

Advantages

- It is responsible for vigorous growth and the development of a dense.
- High yield in less duration.
- Increases the profits .
- Reduce the field operation like ploughing.
- Important key nutrient element for plants.



Constraints

Constraints limiting Productivity of Black gram and Green gram in the selected districts were obtained from the respondents of the study and the results are presented in the table given below. The Table 1 reveals that all the respondents (100.00 %) mentioned non-availability of high yielding varieties as well as Low Seed Replacement or Varietal Replacement as the top most constraint followed by limited availability of labour. Non-availability of quality seeds, susceptibility to pests and diseases and lack of assured procurement and price were expressed as constraints by 91.67 % of the respondents. The Seed Replacement Ratio in the State is around 20 % for many years and this has to be improved. Drought or Moisture stress was expressed as a

constraint by two-thirds of the respondents. Salinity/alkalinity was a problem for more than half the proportion of the respondents. Lack of life saving irrigation was the constraint for fifty per cent of the respondents. Vasanthakumar *et al*., (1987) reported non-availability of high yielding varieties and lack of quality seeds are the most important constraints. Narayan and Kumar *et al*., (2015) reported that technology inadequacy and non-availability of essential inputs like quality seed and life saving irrigation constrained the productivity of Pulses.

Table 1: constraints of black gram

S.No	Constraints	Number of respondents	Percentage
1	Non availability of high yielding varieties	240	100.00
2	Non availability of quality seeds	220	91.67
3	Low seed replacement /Varietal replacement	240	100.00
4	Susceptibility to pest and diseases	220	91.67
5	Drought /Moisture stress	160	66.67
6	Lack of life saving irrigation at critical stages of the crop	120	50.00
7	Salinity /Alkalinity	124	51.67
8	No assured procurement and prices	220	91.67
9	Limited availability of labour	240	100.00

Conclusion

In Pattukottai block of Tanjore district for black gram is cultivated in alluvial soil and it rich in organic matter and nutrients. The growth and yield of the black gram without the application of nutrients is less. So the growth and yield of black gram can be increased by the application of more amount of nitrogen. Adequate supply of N may minimize the yield reduction through reduced those constraints. The nitrogen increases the dry matter and protein percentage of the grain as well as methionine and triptophan contents in seed with increases of levels of applied nitrogen. The yield can be harvested twice within a short duration. The leaf are index of black gram with multi bloom technology (27.15) is higher than the black gram with out multi bloom technology (19.39). The leaf length, leaf breadth, plant height and pod length have better growth in multi bloom technology and leaf count, number of flowers and pod count have faster growth in multi bloom technology while compare with the black gram with out multi bloom technology.

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