

Broad Bed Furrows Technique: A climate smart Technology:

Seed bed preparation is one of the most important village operations in any crop production system. The BBF farming become the centre piece of technology that contain preparation of land, seed bed preparation, sowing & intercrop operations to improve the effectiveness and efficiency of drainage, practices & resource conservation.

BBF Technique is a new idea developed for conservation of water for trial & farming. The placement of seed at correct date is very important for proper germination and for obtaining optimum plant population in per unit area of the crop especially under dry land farming. Where Soil moisture is at greater depth.

Broad Bed Furrow (BBF) System is an improved in – situ soil & water conservation & drainage technology for the vertisols. BBF system helps for safe disposal of excess water through furrow when there is high intensity rain fall with minimum soil erosion, while at the same time it serves as land surface treatment for in – situ moisture conservation. Soybean is an important crop in Nanded District. The soybean production per unit area is comparatively low. The low yield may be attributed to non adoption of latest rain water harvesting technologies by the farmers. Therefore it is necessary to find out the levels of difficulties in adoption of BBF Technology.

There are number of benefits of BBF technologies such as supplement irrigation for post rainy season crop, rain water management can be carried out either through land configuration techniques or adoption of suitable tillage practices with major emphasis on soil water & nutrient management through selective mechanization & improved cropping system to sustain productivity and soil quality. This can be achieve by machine utilizing BBF technology.

The Soybean grower in Nanded District in Marathwada region facing the major challenge i.e. scarcity of water or in some of the area received heavy rain fall during the growth stage of the crop in the district. BBF technology plays an important role on the dry land area or less irrigation facilities in India as it helps the soil to preserve the water level for longer period, holding moisture availability, bed stimulate crop growth. In view of the important of the study was conducted in Nanded District with the specific objectives.

Advantages of the BBF planting method

- Increase in water use efficiency.
- Increase in Crop productivity (5-10%)
- Less moisture stress during dry spell
- Time saving (25-30%) in irrigation
- Require 20-25 % lower seed rate.
- Water saving upto 25-30%
- Better weed management
- Reduce crop lodging
- Remove the excess water through furrow.

Demonstration on BBF technology in Soybean:

The field experiments were conducted at farmer field in the adopted village of Krishi Vigyan Kendra, Pokharni in Nanded District with two treatments asses the effect of BBF planting on growth, yield and economics of soybean crop. The soybean variety MAUS – 158 was use for sowing. The

soybean crop was sown on 25th June 2020 & harvested 12th Oct. 2020. Analysis of weather data revealed that the rain fall during season to (June – Oct.) was 970.2 mm. in 2022. Tractor operated BBF seed drill was used for sowing.

The observation like plant population, plant height, branches, number of root nodules, No. of pod plants, seed yield kg / ha. & B:C ratio were recorded on 5 randomly selected plants from treatments.

Effect of Broad bed Furrow on growth and yield attributing characters:-

Parameters	BBF sowing	Normal Sowing
Plant Population (No./M ²)	49.4	41.2
Plant Height (Cm)	82.5	79.2
No. of branches /plant	7.82	7.10
No. of root nodules/plant	36.7	29.10
No. of pods/plants	75.10	66.3
Seed Yield kg/ha	20.5	18.25
Net return Rs/ha	70,400	57,730
B:C ratio	3.19	2.72

Results:-

The results on BBF seed cum fertilizer drill brought out that the plant population of soybean was higher in the crop was planted using the machine as compared to normal sowing. This indicated that the use of BBF sowing promotes better germination and emergence of the crop as compared to normal sowing. Plant growth parameters were found significantly better in BBF planting as compared to normal sowing and pooled data of growth characters of Soybean (Table-1). The increase in plant growth might be due to proper drainage excess rain fall through furrow in BBF planting of soybean. BBF sowing was significantly superior during dry spell situation to conserve in-situ moisture in furrow by available of store water in furrow.

Root is the major part of the soybean crop which provides anchoring and active participation in nutrient, moisture uptake and play a effective role in fixation of Atmospheric nitrogen for root studies observation on as of root nodules/plant were recorded root characters of soybean crop was significantly higher in BBF sowing as compared to normal sowing. These root nodules are responsible for the fixation of Atmospheric nitrogen in the soil BBF produced significantly higher growth parameters, yield and yield attributes and root nodules as well the economics of treatments show that the gross as well as net return were also recorded under BBF sowing.

Conclusion

Soybean is sensitive to water stress and sudden rainfall as the time of germination affects the crop growth the BBF system of Soybean may be useful in rainfed areas.

Effect of BBF sowing system on the growth parameters of soybean was found better compared to normal sowing. The results of experiments indicate that for achieving maximum productivity from soybean.

This might be due to favorable seed bed aeration more conservation of water in BBF and initial vigorous growth resulted in more height of the crop.



