BROAD BED FURROW MACHINE

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As a result of climate change during the last decade, the rainfall pattern and distribution has exhibited frequent aberrations with extreme situations of sudden downpour or long dry spells entailing in to severe stress on crops. Currently, rainfall-use efficiency for crop production ranges between 30-45 percent as sizable part of the incipient rain water is lost as surface runoff. Besides reducing fertility of soil it also causes erosion to the tune of 2.2 to 6.4 t/ha annually. By containing these losses and improving the rainwater use efficiency through different land configuration and altered plant geometry the crop productivity can be substantially enhanced. Keeping the above facts in view, the need for *in-situ* rainwater management strategies for minimizing risk of crop failure and stabilizing soybean-based production systems was felt. Through, i*n-situ* rainwater management, conservation of rainwater at farm level is being done and excess water is being drained out into community drainage channels or used for recharging ground water for supplemental irrigation for post-rainy season crops.

In-situ rainwater management can be carried out either through land configuration techniques or adoption of suitable tillage practices with major emphasis on soil water and nutrient management (SWNM) through selective mechanization and improved cropping systems to sustain productivity and soil quality. This can be achieved by machine utilizing broad bed furrow (BBF) technology. Looking to its urgent need, Directorate of Soybean Research, Indore has designed, developed and commercialized an effective BBF machine.

The broad bed furrow (BBF) machine for soybean

The BBF machine was developed basically to cope up with the problem of moisture stress in the soybean fields. The soil moisture is managed by maximizing the use of rainfall through increasing infiltration and moisture retention and reducing runoff and soil erosion. Thus, by this machine, the performance of high yielding improved varieties is optimized as the deep furrows created under BBF provides effective drainage during excess rains, while serves as in situ moisture conservation during dry spells, thus mitigating the detrimental effects of both extreme situations.

Tips for successful operation and best results

1. Subsequent to harvesting of *rabi* crop, the field should be deep ploughed and left open as it will help in preparation of quality broad bed. If, it is not possible to practice this every year then it should be done at least once in two or three years. Other normal field preparation operations should also be followed.
2. Deep cultivator should be used in case reversible MB plough is not available.
3. Field leveling should be done after every three years.
4. In vertisols the tractor should be of 40 PTO HP for operating MB plough and the BBF machine with ease.
5. The first and the foremost need is to test the pre-sowing calibration of the BBF Machine with seeds to be used for sowing.
6. Safety measures should be adopted to prevent untoward incidence.

Features and specifications

1. The BBF machine has a facility to adjust desired depth of sowing.
2. This is multipurpose machine which can be used for both *kharif* and *rabi* crops simply by adding or removing the furrow openers.
3. BBF machine can form channels in alluvial soils with 30 to 35 PTO HP tractors.
4. This machine has a provision to adjust desired row to row distance.
5. BBF machine facilitates irrigation through channels easily as and when desired.
6. The BBF machine can be used to weed the beds with the help of tractor with thin tyres by using the sweeps which are provided as an additional option.
7. Additional 5 tines are provided with the machine for use in *rabi* crops.

8. The machine is quite sturdy and has been designed to have minimum breakdown.
9. The BBF machine has a facility to cover the sown seeds simultaneously.
10. BBF machine has provision of 4 furrow openers with 5 additional furrow openers.

BBF machine at work

Cost of machine

The machine presently costs Rs. ~~58, 035~~ which is likely to be revised as and when needed. This excludes the cost of transport which is to be borne by buyer.

Procurement

Order and payment for BBF machine is to be made to Director, DSR, Khandwa Road, Indore 452001, M.P.

To know further details of the machine, please contact Er. Dev Vrat Singh, Senior Scientist (Farm, Machinery and Power) on E-mail : singhdv123@gmail.com.

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