



Ridge and Furrow Method in Millet Production



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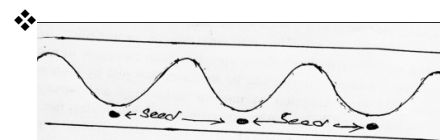
Introduction:

Ridge and furrow planting system is an effective and simple method for increasing the soil water content (SWC) and improving the water use efficiency in millet farming. In this system, the ridges provide a runoff surface that directs water to the furrows so it can penetrate deeper into the soil as well as reducing the loss of soil water by evaporation from the ridges and extending the period of moisture availability for crops. Therefore, ridge and furrow system has been applied as an innovative approach for increasing the crop water availability, improving soil productivity, and enhancing food security.

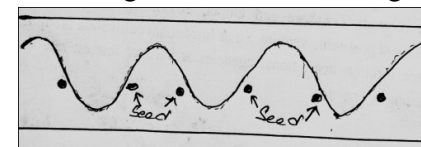
Seed Sowing Pattern:

When millet seeds are sown using ridge and furrow system, the seeds are either sown at the bottom of the furrow or in the side or top of the ridge. Planting in the side or top of the ridge is practiced in heavy rainfall areas and under irrigated conditions.

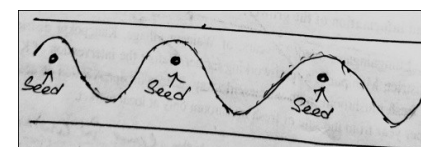
❖ planting in the furrow



❖ Planting in the side of the ridge



❖ Planting in the top of the ridge



Seed rate:

The seed rate varies from 2 to 6 kg per hectare depending upon soil types, expected soil moisture during crop period. The amount of seed required per hectare also depend on plant type i.e. tall or short plant, weight of the seed and quality of seed in term of germination.

Spacing:

45 cm X 45 cm plant to plant for rainfed crop and 15cm X 15 cm plant to

plant for irrigated crop with 2.5 cm to 3 cm depth.

Weed control:

Weed can be controlled either by cultural practices or by manual or by chemical control. Efficient and effective weed control can be achieved by wisely combining all the control practices. Crops cover either by crop rotation or intercropped with cowpea or blackgram or green gram and mulching the soil surface reduces the weed. Timely weeding is important than the frequency of weeding. It is necessary to keep the crop free during the first month of its growth through manual weeding. Pre-emergence weedicide like Atrazine or propazine or prometryne or metalochlor at 1.0 kg ai per ha is recommended to control emerging weeds after the sowing of millet. Optimum soil moisture required for atrazine application. Low rates of 2,4-D at 0.5 to 1.0 kg per ha may be applied when the plants are about 10 to 30 cm tall. Spraying early or later affects root system and yield by reducing seed set.

Nutrient Management:

A. For rainfed crop:

FYM=6-7 tonnes per ha

Azospirillum= 2 kg per ha mixing with 25 kg FYM

NPK=40:30:30 (for low rainfall)

60-80:40:40(for moderate to high)

B. For irrigated crop:

FYM=12-15 tonnes per ha

Azospirillum= 2 kg per ha mixing with 25 kg FYM

NPK=80:40:40 (for hybrid)

75:35:35(for improved)

Water management: Millet responds less to irrigation than other grain crops. Pre-planting irrigation can supply adequate soil moisture when early rains do not reach the root zone prior to planting. Allowing the seed to remain in dry soil for several days may result in poor germination and seedling vigor. Whether irrigating before or after planting, apply no more water than required to reach the effective root zone.

Greatest water use occurs during the flowering and soft dough stages. Irrigation intervals and the amount of water to be

applied is determined by rainfall, soil water-holding characteristics, plant rooting depth and other climatic conditions like air temperature, etc.

Disease Management: Downy mildew, rust, Ergot and smut are common diseases of millet. Use of disease free seed, burning of infected plant or plant parts, use of disease resistant seed and early sowing reduces the diseases infection. Removal of fungal host perennial grass weeds, *Cenchrus ciliaris* and *Panicum antidotale* during May-june found to harbor ergot. Seed treatment with metalyxyl @ 2 kg per kg seed can control from downy mildew for the 35 days after sowing. Foliar application of metalyxyl @125 mg/litre water arrest further development of mildew in millet. Dusting sulfur do control rust but this may not be economical to the farmers growing millet for grain.

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