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Management of Distillery Spentwash to Enhance Productivity of Dryland Crops and Reduce Environmental Pollution: A Case Study in Southern Dry Zone of Karnataka, India

Authors : A. Sathish, N. N. Lingaraju, K. N. Geetha, C. A. Srinivasamurthy, S. Bhaskar

Abstract : Under dryland conditions, it is observed that the soil organic matter is low due to low organic carbon content due to poor management with less use of inputs. On the other hand, disposal of sugar industry waste, i.e., spentwash is a major concern with limited space for land based treatment and disposal which causes environmental pollution. Spentwash is also a resource that can be applied for productive uses since it contains nutrients that have the potential for use in agriculture. The disposal of spent wash may lead to environmental pollution. Hence as an alternative mechanism, it was applied once to dry lands, and the experiments were conducted from 2012-13 to 2016-17 in kharif season in Maddur Taluk, Mandya District, Karnataka State, India. The study conducted was in 93 different farmers field (maize-11, finger millet-80 & horsegram-14). Spentwash was applied at the rate of 100 m^3 ha^{-1} before sowing of the crops. The results showed that yield of dryland crops like finger millet, horse gram and maize was recorded 14.75 q ha^{-1}, 6 q ha^{-1} and 31.00 q ha^{-1}, respectively and the yield increase to an extent of 10-25 per cent with one time application of spentwash to dry lands compared to farmers practice, i.e., chemical fertilizer application. The higher yield may be attributed to slow and steady release of nutrients by spentwash throughout the crop growth period. In addition, the growth promoting and other beneficial substances present in spentwash might have also helped in better plant growth and yield. The soil sample analysis after harvest of the crops indicate acidic to neutral pH, EC of 0.11 dSm^{-1} and Na of 0.20 C mol (P^+) kg^{-1} in the normal range which are not harmful. Hence, it can be applied to drylands at least once in 3 years which enhances yield as well as reduces environmental pollution.

Keywords : dryland crops, pollution, sugar industry waste, spentwash
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