

Impact of Distillery Spent Wash Irrigation on Yield of Dryland Crops

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The disposal of wastes from industrial sources is becoming a serious problem throughout the world. In India, approximately 40 million m³ of distillery spent wash is generated annually from 295 distilleries. The distillery spent wash is acidic (pH < 4.0) and is generally characterized by high levels of biological oxygen demand (BOD) and chemical oxygen demand (COD) and nutrient elements such as nitrogen (N) and potassium (K). It is used as a source of plant nutrients and organic matter for various agricultural crops, particularly, under dry land conditions. It is usually applied to arable land near the distilleries as irrigation water or as a soil amendment. However, indiscriminate disposal of this wastewater has resulted in adverse impact on soil and environmental health.

This paper aims to identify the environmental impact of application of distillery wastewater for agricultural irrigation. The impacts are identified on soil and groundwater environments. The distillery effluent can be a good source of nutrients necessary for plant growth. At higher doses spent wash application is found harmful to crop growth and soil fertility and its use at lower doses remarkably improves germination, growth and yield of dryland crops. Further, it has been revealed that combined application of spent wash and organic soil conditioners (farm yard manure, green leaf manure and bio-compost) is found suitable under dryland conditions. Large amounts of soluble salts have been found to be leached from calcareous and high pH sodic soils irrigated with spent wash.

Key Words: Distillery effluent, Wastewater disposal, Crop irrigation, Dryland crop yield.