

Crop response to soil enhancement by addition of sewage sludge & fly ash: an example from UAS, Dharwad, India.

B.R. HART¹, M.A. POWELL¹, W.S. FYFE¹, S. TRIPATHY² and PATIL, C.V.³ 1. Dept. Earth Sciences, UWO, London, Canada. 2. Dept. of Geology & Geophysics, IIT, Kharagpur, India. 3. University of Agricultural Sciences, Dharwad, India

In field trials sewage sludge mixed with fly ash was applied to a black and a red soil at ratios of (sludge:ash) 100:00, 75:25, 50:50, 25:75 and 0:100 to achieve application rate of 52 tons/ha. Sunflower seeds were sown immediately after application and harvested after 90 days.

In the red soil plant height at harvest increased on average 15% relative to the controls; the best (18%) response was seen in the trial with 75% sludge application. In black soil plant height increased 25% with the best response (30%) seen in the trial with 50% sludge and ash. The increase in flower diameter at harvest varied from 10 to more 40% in both the black and red soils. The greatest increase was seen in the plots where sludge was the largest proportion of the amendment. Similarly the seed and straw yield increased in direct response to the amendments, the highest yields in the trials with the greatest proportion of sludge. The seed oil yield in the red soil improved to a maximum of 10% in the 50:50 sludge ash mixture and to 15% in all mixtures in the black soil. Trials indicate luxuriant growth responds best to the applications with a greater proportion of sludge, whereas the improvement in seed oil production was similar for all amendments.