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Cow Urine: A Gift to Agriculture

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Today's the rapid increase in population and demand of food materials has initiated the large use of insecticide and pesticides. These toxic chemicals are resulting the harmful effects on our environment and fertile land (Gill and George 2014). During the last two decades, there has been a significant sensitization of the global community to looking into environmental conservation and safe food. Organic Agriculture is now becoming the new boom all over the world.

In these contexts, integrated use of chemicals and organic source of nutrients in crop production is becoming very curial for assurance of food security on sustainable basis, which is not only improve soil health but it reduces the cost of fertilizers. There are different kinds of organic fertilizers like FYM, animal manures, crop residues, composts and cow urine. It is unique product of dairy. It represents *Vedic* value of selfness service, strength, dignity and non-violence.

It rich in micro, macro nutrients and has disinfectant and prophylactic properties thus it purify the atmospheric and soil fertility (Pathak 2013). It contains 95% water, 2.5% urea, and remaining 2.5% contains mineral salts, hormones and enzymes. In organic farming, cow urine is used for preparation of number of growth promoter and bio-pesticides, which are effective in improving soil fertility, and management of large number of pests and diseases in varied group.

Effects of cow urine on different aspects –

1. **Growth parameters –** Application of cow urine accelerates the different aspects of growth in several crops. Cow urine at 5 and 10 % concentration significantly improve all vegetative growth like increasing emergence of plant, height, number of leaf, length and width of leaves (Tamaraker 2016). In traditional farming, cow urine had been in the form of FYM after mixing in cow dung. Application to soil at 20 ml/plant cow dung slurry solution it helps to increasing the growth of plants.
2. **Nutrient content and uptake –** The nutritional effect of cow urine showed increased chlorophyll and protein content with increased concentration of urine as compared to control (Jandaik *et al.*, 2015). The Urine increased the N, P and K uptake concentration of grass.
3. **Physical and Chemical properties of soil –** Cow urine application has also reported to improve the soil texture and structure. High dose of Liquid Cow Manure application resulted in increased pH and EC values, nutrients and Dissolved Organic Carbon content of amended soils (Aguilera *et al*., 2010). Significantly increase soil organic carbon (0.58%), available nitrogen (272.4 kg ha-1), phosphorus (23.5 kg ha-1) and potassium (199.9 kg ha-1) with application of FYM 12.5 t ha-1+cattle urine at 34300 l ha-1 (Veeresha *et al*., 2014).
4. **Soil microbiology –** Compost tea (cow dung + cow urine + water) contains high amounts of microbes which have complementary effect on the native microbes and also favors decomposition of organic matter at a faster rate which, result in better transformation of nutrients and their availability to crops (Pathak and Ram,2002). showed that after regular use of cow urine in the crops farmers found that soil microorganism population increased along with the crop yield.
5. **Biopesticides –** Due to high content of urea in it which is toxic to most of the organisms, the pests and insects etc. will not attack the leaves and buds of the crop plants. Due to pungent and

bad smell of the extract most of the pests and insects which are attracted due to nectar and fragrance get repelled, preventing the plant.

Conclusion

From the above enumeration, it can be concluded that Cow urine is eco- friendly, economically viable, and easily available at abundance. It could be a potent source to improve soil fertility, crop productivity and quality. This can also be a potential biopesticides. In concern increasing prices of chemical fertilizer and non-efferent role in long term to sustainable production, there is a need of application of organic source of nutrients including cow dung for enhancing maximum soil health. Physico-chemical and biological properties of soil.