

**Biodynamic preparations:
Short-term effects on crops, soils, and weed populations**

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Abstract

Biodynamic agriculture is an organic farming system that utilizes fermented herbal and mineral preparations as compost additives and field sprays. This study was conducted to determine whether biodynamic preparations affect lentil and wheat growth and yield, and soil fertility, or weed populations in the short run. Each of four nutrient treatments, biodynamical prepared compost, non-biodynamic compost, mineral NPK fertilizer, and no fertilizer, were tested with and without biodynamic field sprays. Crop yield, crop quality, and soil fertility were similar in plots treated with mineral NPK fertilizers, biodynamic compost, or non-biodynamic compost. Use of compost raised soil pH from 6.0 without compost to 6.5 with compost. Compost application reduced the broadleaf weed population by 29% and reduced the grass weed population by 78%. Biodynamic sprays altered soil and grain N chemistry, but the effects are of unknown biological significance. Use of the biodynamic field sprays correlated with higher yield of lentil per unit plant biomass, lower grain C and crude protein contents, greater NO_3^- content in soft white spring wheat, and greater NH_4^+ contents in soil. In general, soils and crops treated with biodynamic preparations showed few differences from those not treated. Application of composts with or without the preparations produced similar crop yields with lower weed pressure, compared with equal nutrients spoiled by mineral fertilizer, but any additional short-term benefits from biodynamic preparations remain questionable.