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## Trash and Green Mulch Effects on Soil N and P Availability

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### Abstract

Interest in the use of organic materials as mulch has been revived because of their beneficial effects on nutrient availability and role in improving soil productivity. Our objectives were to quantify the comparative effects of *Sesbania aculeata* as ‘*in situ*’ green mulch (IGM) and sugarcane trash mulch (SM) on soil N and P availability. The study was carried on a fine loamy soil at the research farm of C C S Haryana Agricultural University, Hisar, India (29°05’N, 75°38’E, 222 m elevation) for two years 1997–98 and 1998–99 at ratoon sugarcane (*Saccharum officinarum* L.) under shallow water table condition (0.75–1.65 m). The IGM (4 Mg ha<sup>-1</sup>), SM (6 Mg ha<sup>-1</sup>) and unmulched (no mulching material) as main treatments, and different doses of inorganic nitrogen (urea) and phosphorous (single super phosphate) fertilizers as sub-treatments were arranged in a split plot experimental design with three replications. The mulches increased the availability of N and P to 11.9 and 16.1 % as compared to those of unmulched over the two years. Application of ‘*in situ*’ green mulch and sugarcane trash mulch increased the availability of native phosphorous by 19.3 and 4.8 %, and of added phosphorous by 23.6 and 11.5 % as compared to those of unmulched plots. The higher availability of native and added phosphorous under ‘*in situ*’ green mulch was due to its lower pH value. These results suggested that *Sesbania aculeata* and sugarcane trash as mulching material may be used for enhancing the nutrient availability of N and P for sustainable soil productivity.

**Keywords:** Available N and P, mulch, *Sesbania aculeata*, sugarcane trash