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Consequence of divergent crop residue and green manuring practices on soil nutrient balance: A review

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Abstract
Immensely and unremitting rise in cost of fertilizers bound us to review the different management practices including utilizing crop residues and green manuring with some new findings, which can enhance soil fertility and lower the burden of high cost of cultivation. Approximately 500–550 million tonnes (Mt) crop residues are generated through different crops every year in the country. Traditionally crop residues have various uses such as animal feed, fodder, fuel, roof thatching, packaging and composting. It is estimated that one tone rice residues contains 6.1 kg nitrogen (N), 0.8 kg phosphorus (P), and 11.4 kg potassium (K). Nevertheless, a large part of the residual harvest being handle inappropriately, which fragile the world's food–production and contribute to undesirable bio–spheric changes. Such malpractices are common in developing countries, where only a small amount of residue are being recycled, while unacceptably large amounts are burned. Green manure crops are another important source for recycling of plant nutrients. Incorporation of one tonne *Sesbania aculeata* green matter approximately accumulated 30.3 kg N, 7.0 kg P and 13.0 kg K ha^{-1}. Generally farmers are unaware about systematic utilization of crop residues and green manure crops and their usefulness in maintaining soil nutrient balance and overall health, because of which either they keep out themselves from these practices or unable to perform appositely. In this article, efforts were made to quantify residue production by different crops as well as green manure crops, their nutrient compositions, decomposition mechanism of residues in soil and finally we explained the ways and means for crop residue management and green manuring practices for efficient nutrient recycling, supported with findings from our research.

Keywords: Crop residue, Decomposition mechanism, Green manuring, Nutrient recycling, Soil fertility