

BURNING CROP RESIDUES HARMS ENVIRONMENT

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Harvesting of crops like paddy, pulses, sugarcane generates large volume of residues/ stubbles both on and off farm. A large portion of crop residue is burnt 'on-farm' primarily to clean the field for sowing the next crop. The problem of 'on-farm' burning of crop residues is intensifying in recent years due to shortage of human labour, high cost of removing the crop residue from the field and mechanized harvesting of crops.

Directorate of Agriculture has appealed to all farmers to recycle or make appropriate use of crop residues instead of burning.

Burning crop residue causes phenomenal pollution problems in the atmosphere and huge nutritional loss and physical health deterioration to the soil.

Generally crop residues of different crops contain 80% of Nitrogen (N), 25% of Phosphorus (P), 50% of Sulphur (S) and 20% of Potassium (K). The burning of one tonne of paddy straw releases 3 kg particulate matter, 60 kg CO, 1460 kg CO₂, 199 kg ash and 2 kg SO₂. These gases affect human health due to general degradation in air quality resulting in aggravation of eye and skin diseases. Fine particles can also aggravate chronic heart and lung diseases.

Burning of crop residues causes loss of nutrients. One ton of paddy straw contains approximately 5.5 kg N, 2.3 kg P₂O₅, 25 kg K₂O, 1.2 kg S, 50-70% of micro-nutrients absorbed by rice and 400 kg of carbon, which are lost due to burning of paddy straw. Apart from loss of nutrients, some of the soil properties like soil temperature, pH, moisture, available phosphorus and soil organic matter are greatly affected due to burning. Also the heat generated during burning of crop residue lead to death of beneficial soil organisms. Crop residues burning are a potential source of emission of Green House and other harmful Gases.

Crop residues are tremendous natural resources and not a waste. Crop residues are excellent source of organic matter. Instead of burning, crop residues are to be in situ / on farm recycled or properly managed to achieve sustainability in agriculture and reduce environmental pollution. Crop residues can be retained in the field either on surface or partially incorporated into the soil. This can be done by using no-till or

conservation tillage practices, mulching, or cover cropping. The crop residues can be composted using decomposing culture/waste decomposer and used as organic/bio manure.

In situ recycling or crop residue management has several benefits to farmers in improving the soil health and productivity.

Retention or incorporation of crop residues in the soil enriches Particularly with carbon and nitrogen.

Crop residue management increase the organic matter content of soil

It improves the microbial activity in the soil and subsequent nutrient transformation.

It improve physical, Chemical and biological health of soil.

Reduce cost of cultivation and lower; down the requirement of fertilizers.

It improves the soil fertility/health.

Besides in situ / on farm uses, crop residues like paddy straw can be used as bedding material for animals, livestock feed, thatching for rural homes, mushroom cultivation, etc. the other agro residues can be used for biomass energy production, fuel for domestic and industrial use, etc.

Many farmers are unaware of the benefits of crop residue management.

They may perceive it as a waste of time, labour, or money, or as a threat to their traditional practices.

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