

Stubble Burning: A Problem for the Environment, Agriculture and Humans

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Abstract

Stubble burning seriously effects on air quality, soil fertility because of demolition nutrients presents in the soil for enriching the crop growth, and climate every season. The plant debris or stubbles could provide vast economic profits to the farmers if managed properly and protect the environment from the unembellished air pollution.

Introduction

The crop residues burnings are the new immerging threat to the human kind and southern part of India. The northern parts with states like Haryana, Punjab and Delhi NCR and western Uttar Pradesh are having big agricultural produce market as well as the Agricultural lands. Mostly the crop ecosystem like Wheat, potato and mustard are grown in massive number of lands. The farmers are widely adopting new technology and method for cultivation for better yield or production. The practice of removing plant debris and crop residues from previous crops may affects the new cropping system like spreading of soil bourn or seed borne diseases from previous plant material in new ecosystem, for avoid future upcoming challenges the farmers would mostly done this burning the previous crops residues in quicker ways in less period of time. It almost covers the large area within wasting and additional hours. Due to this burning of previous plant debris and residues the carbon is deposition in much sufficient quantity on the soil surface which later helps on the seed for germination. Providing much quantity of carbon may leads to the complete death of nutrient present in the soil as well as.

Effects & Risk Factors- Health and Environment

A study shows that, the burning of crop residues could release nearly 149.24 million tons of CO₂ Carbon dioxide, CO Carbon monoxide 9 million tons and 0.07 million tons of black carbon. These are very promising characters in plays vital roles in environmental pollutions and also a big threat to human kind. This also impacts the Melting of Himalaya glacier every season. The burning of stubbles could penetrate near about 1-to-1.5-centimetre heat into the soil thus lead to the 30-40 per cent heat up the soil surface. This could be the leading factor for killing and destruction all the important fauna or living microorganism that are already present in the soil and losing the soil fertility.

Stubble burning also causes damage to micro-organism and associated nutrients, fungi present in upper layer of soil. Due to the decrease in the natural enemies, the new emergence of invasive pests makes these conditions worst in crop ecosystems. This also leads to the new disease prone zones to new strains of viruses, fungi and bacterial infections. The percolation and absorption of and



diffusion of oxygen from soil surface may reduce. A study of Vitull K Gupta, Professor of Medicine, Bathinda reveals that in 2016, 84.5 per cent people were suffered from health issues due to smog conditions invented by stubble burning. The report found that 76.8 per cent people were suffered from irritation in eyes, 44.8 per cent reported nose irritation and 45.5 per cent by throat irritation.

Alternatives to Stubble Burning- Happy Seeder

To prepare the land as tillage operations the stubble burning is the act of reimbursement agricultural lands by burning the crop residue that are left after harvesting, for paddy crops growers the period at first week to last week of October would be the stubble burning instances spike because harvesting during this time and the residue left on the land for next wheat cropping season, burning is the easiest and cheapest method, there are many

operation to less harmful ways of clearing agricultural fields. One such method is using a Turbo Happy Seeder (THS) machine, which can uproot the stubbles from the soil and also sow seeds in the same land accordingly. The stubble could be used for mulch the field.

Highlights for Proper Working Mechanisms of the Machine-

- ✚ The soil moisture must be optimum for the operation of the machine. For proper operation of THS, the soil moisture must be slightly lower than the field capacity.
- ✚ The ruts will be formed if the moisture content of the soil is more than optimum which will lead to the uneven placement of the seeds.
- ✚ To obtain the proper efficacy of the machine (uniform and good plant stand) it is advisable to uniformly distribute the crop residue in the field before operating THS either by straw spreader or manually.
- ✚ There are chances of the more moisture content in the residue in the morning time due to dew which may cause wrapping of the loose straw on the flails which hinders the rotary movement of the flails.



Adjust the depth of sowing through depth control wheels instead of using the hydraulic lift. Using the hydraulic lift to control the sowing depth may cause the touching of flails to the ground which may damage flails and also cause uprooting of the anchored residue. The ground clearance of the flails must be about 2.5 to 3 cm broken flail must be replaced before the further operation of the machine.

Other alternatives- Agricultural machines with their uses-

- ✚ Happy Seeder (used for seed sowing of crop & uprooting stubbles)
- ✚ Rotavator (used for land preparation as tiller for crop stubble in the soil)
- ✚ Zero till seed drill (used for land preparations directly sowing of seeds in the previous crop stubble)
- ✚ Baler (used for collection of straws and making bales of the paddy stubbles)

- ✚ Paddy Straw Chopper (cutting of paddy stubble for easily mixing with the soil)
- ✚ Reaper Binder (used for harvesting paddy stubble and making into bundles)

What Ordinance says –

On 8th November 2020, the central government introduced a new law concluded an ordinance to curb air pollution in the Delhi-NCR region. The ordinance dissolved the Environment Pollution (Prevention and Control) Authority (EPCA) and in its stead, a new commission was set up with over 20 members. According to the ordinance, released by the Ministry of Law and Justice, “any non-compliance or contravention of any provisions/rules or order/direction of the Commission will be an offence punishable with a jail term up to five years or with fine up to Rs one crore or with both.



Conclusion-

On the other hand, the farmers in Punjab and Haryana are not ceased stubble burning. According to them, they are forced to find alternative to this method because of the lack of options and funds provided by the government. No proper guidelines and implementation of rules. Unaware of hazards effects of wrong practices like Stubble burning. Other alternatives are not pocket friendly. No action was taken in this regard for over 10 days, after which they ultimately burnt it. The hiring stubble-removing machineries are not financially feasible, marginal farmers cannot afford. This is because high holding land farmers who set up the charge high at rents.