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Stubble Burning Against the Environment

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Abstract:

The most common farming practice is burning of agriculture straw before or after harvest. India is an agricultural nation and produces a huge amount of agricultural wastes. The states of India like Punjab, Uttar Pradesh, Bihar, Haryana, Himachal Pradesh and Madhya Pradesh consist of chief areas under the cropping-system of rice-wheat. Every year farmers belongs to Punjab and Haryana set paddy stubble ablaze to formulate ground for the subsequent crop. Farmer adopted this phenomenon because it is very inexpensive and quickly clears the fields. But straw burning or stubble burning can cause serious environmental problems. Hence later these residues burns and release gases like sulphur dioxide, black carbon, oxides of nitrogen, carbon monoxide, carbon dioxide, , aerosols as well as black carbon etc. which directly disturb the universal climatic condition of atmosphere. This review paper covers the effects of stubble burning, also suggested some management options for crop residues and the relevant steps and role taken by the government to determine and solve the problem related with it.

Keywords*: Residues, Stubble Burning, Environment, Pollution*

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Introduction

The act of removing dry stubble or crop residue after harvest by setting fire is known as stubble burning and also considered as the exercise of utilizing the fire to decrease or arrangement of vegetative debris. As Burning is known to be an easy task and also considered as the monetary option for controlling of residues of crop. The burning of residues of crop are not degraded only the quality of atmosphere as well as affect the weather and temperature with including the eventual health of human. These residues are consider as the chief cause of pollution caused by gases like carbon monoxide, carbon dioxide, methane and other related Halogen compounds. It is also an important cause of aerosol in the present atmosphere and taking possible effect on chemistry and air quality of climate worldwide. As per as IPCC, the 25% of the residues of crop are scorched on farm. The current study the portion of residue of crop exposed to burning ranged from 8–80% for rice paddies transversely the states. 80% of rice straw was scorched in its original position in the states of Haryana, Punjab and Himachal Pradesh (Jain, 2014)

Impacts of stubble burning:

- Stubble burning is inexpensive and quickly clears the fields.
- Stubble burning kills slugs, other pests, weeds, including those resistant to herbicide.

Harmful effects:

- Stubble burning removes the large portion of organic material which cause loss to cultivation.
- Production of greenhouse gases (GHGs) like methane, nitrous oxide and carbon di oxide producing global warming
- It cause large amount of air contamination from the effect of smoke.
- It cause destruction to electronic and electrical apparatus from moving threads of the related leading waste.
- Fire spreading out of control is another main effect of stubble burning.

Cause of Stubble Burning:

The system named as rice and wheat system (RWS) considered as broadly proficient structures of cropping for the place of Northern India. The time among cultivation of wheat and harvesting of paddy at the end time of kharif season is known to be very small. On the other side the large amount of water are used to cultivate the paddy crop and the chief and numerous state governments limiting the paddy cultivation in the month of summer. During the time when monsoons naturally reach over North India the cultivation of paddy can legally begin. Later these delays the segment and selection to the root with the help of knife and hence the huge elements of harvesters leave around 6-10 cm of stalk of paddy on the field. The following obtainability of mechanical apparatuses and increase of income in Haryana and Punjab mainly helpful to amplified automation of the agriculture. Elimination of the stalk of paddy on the field is a process stated as labor-intensive. The time space for formulating the field for the purpose of cultivation of wheat being restricted and the labor is also absent. The choices that the farmer contain is either capitalizing in luxurious or scorching the residue exact on the field. And the burning of residue is considered as cheaper and simultaneously need very low energy.

Impact on Environment

The stubble burning in fields has an opposing influence on the soil fertility. Stubble burning removes the large portion of organic material which cause loss to cultivation. The nutrients like nitrogen, phosphorous, sulphur and potassium, etc. acceptance from soil and are engaged in the crop residues. The burning also destroys deleterious pest and pathogens which is borne on soil. The crop residues contain some percentage of organic pesticides, which adversely affect the environment. Pesticides can pollute involuntary water and land when they are scattered in the air or permissible to run off fields, or when they discharge from making sites and storing tanks or are unsuitably rejected. Epidemiological studies show that the pollution in quality of air growths contrary impacts of health. The air pollution pays to the diseases related with respiration such as irritation in eyes, emphysema, asthma, bronchitis and diseases related with skin. During the time of burning of subtle also reasons increases the incidences and disturb or poor visibility of road accidents which not only escalate diseases of individuals' moderation expenditure but at the same time disturb their efficiency at work. Though health significances from agricultural residues burning of not fully understood, comparative small disclosure may be more of an annoyance somewhat an actual health hazard. Several components of agricultural smoke grounds numerous problems to health for the reason that burning residues of crop. Some of the farmers have a preference the inexpensive method of setting the stubble ablaze, but frequent burning is not good for the soil, and the resulting smoke is a health hazard. Hence many studies have dignified the particles

unconfined into the air by burning of crop, rarer have remote the smoke's effect on the functioning of lung. Specific research also reveals that the smoke formed by the burning of crop could have a long-term effect on functioning of children's lung.

Role of Government for Ban on Stubble Burning

In Haryana, the department of environment had forbidden the agriculture waste burning in the open fields under the Act of (Prevention and Control of Pollution) Act in year 1981. To tackle the problem Haryana State Pollution Control Board prepared the strategy. The overall Deputy Commissioners have been directed to matter essential directions to all the proceeds field officials such as BDPOs, patwaris and tehsildars to teach the sarpanchs and panchs in the villages for educating and influencing the farmers on the ban and on the damaging factors of such acts.

At a distance from HARSAC being examined to observe burning of stubble in the 10 districts and hence Central Pollution Control Board also been entreated to portion the satellite imagery reports / data got from ISRO on the basis of daily routine.

The High Court of Haryana and Punjab in a civil written appeal, Captain Sarbjeet Singh v. State of Punjab and others, focused the State Government to put forward instant helpful processes to control the burning of paddy or wheat stubble in the field.

It is well-known that till now there is no definite law in Punjab to prohibit burning of grass or stubble, but in Punjab each Deputy Commissioner (DC) has the authority to prohibit this under the section 144 of CrPC. The practice, on the other hand, remains right under their point of consideration. The deputy commissioner also taking the control under the section188 of IPC to penalize violators but that seldom occurs. According to law, a violator may be penalized for approximately 6 months in jail and forced a fine of approximately Rs. 1,000.

Review of Literature

Lohan, *et al*. (2017) the economic value of residues are important as cattle feed, industrial raw material and fuel. The farmers are very much responsive towards the hostile effects of burning of paddy grass at the side of farm but these paddy straw are controlled because of the absence of financially feasible and suitable apparatuses as well as replacements for throwing away of remains of paddy. Extreme implication to be able to the residues of paddy in-situ is the appropriate accessibility of conservation agriculture (CA) machinery and the Ex-situ residue controlling is still not a carefully feasible possibility.

Vats, (2012) stubble burning influences to safety, public health, and the environment have managed to stronger directive, authorized phase-downs, and even prohibitions on some types burning of field. A huge extent of smoke can be formed in a very less time from burning of stubble. For the purpose of decreasing the impacts, authorizations are usually essential previously burns can be directed, which can confine the kind and quantity of materials of agricultural materials that can be burned.

Jain, *et al.* (2014) crop residues burning from the system of rice-wheat of Haryana, western Uttar Pradesh and Punjab is a substance of severe distress for the health hazards and pollution problems and moreover the harm of nutrients. The communities of farming, awareness must be produced about the damaging impacts of biomass burning of crop and significance of incorporation of residues of crop in soil for preserving supportable productivity of agricultural.

Satyendra, *et al.* (2013) Researchers agreed that crop residue burning is knowingly upsurges the particulate matter level and moreover the pollutants of gas in the atmosphere. But by accepting diverse thermo-chemically, biochemically and prompted techniques of crop residue burning can be evaded. This will not be utilized only for the purpose of dropping the pollution of atmosphere and other related climatic problem but also supportive to accomplish the demand of energy with advance the monetary situation of the country.

Urmila, (2017) in most states in India crop burning is illegal but it is continues in spite of the ban. The difficulty of pollution occurred by burning of stubble has not established enough consideration by the police officials and other numerous authorities handling the pollution. The stubble should be preserved with urea for the purpose of food for animals and use in the production of bio thermal energy production, manufacturing of paper, bedding for animals, cultivation of mushroom, etc.

Conclusion

India known as a country of large agriculture and as well as burning of agriculture as a mutual practice. The stubble burning from system of rice-wheat from western Uttar Pradesh, Punjab and Haryana and is a matter of severe concern not only for Greenhouse gas production, but it also sources of serious problems related with environment. These related problem of pollution instigated by burning of stubble and considered not established much consideration by the policy officials and numerous authorities related with pollution. This review of burning of stubble and county haze is desired to convey the problem to the consideration of governments and other researchers.

Control requirements to take some thoughtful steps to resolve his issue.

Suggestion to reduce stubble burning

Proper education and awareness must be needed nearby the contrary effects of burning of stubble for both the health of human and animal including its adverse effect on biodiversity, soil and so on. For the purpose of educating farmers there is need of additional undertakings such as Documentary on climatic change and environment might be finished. In the emphasis of documentation one should be put on the method of burning unfavorably influence the change in climate and instruct the farmers regarding the finances of not burning the remains of agriculture.

- The transportation and collection of remains of agriculture, gasification considered as fuel for the tanks, transforming into briquettes and scheming of appropriate farmer should be encouraged as a substitutes to the burning.
- The packaging inviting trades to gather stubble for the purpose of formation of packaging boxes which are more considered friendly towards environment rather than other non-disposable resources such as plastic and thermo Cole.
- The residues of crop would be together collected and then for the purpose of utilization by various different technologies present both at the level i.e. international and national level. The Setting of Bio-mass fuel plants to produce fuel by means of paddy husk.
- Mark the small farmers to recognize that creating banter out of the residues of agriculture to their benefit.
- The stubble decomposition in the field of farm field and revolving it into the useful dung.
- To challenge the problem of degradation of soil and depletion of water, a devoted program for endorsing reserve maintenance technologies, like deep ploughing, zero tillage, laser land leveling raised bed planting, etc., should be helped.

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