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# Impacts of crop residues on soil properties: A review

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**Abstract**
Every area of soil physical properties, chemical, biological, and biochemical and other areas in the country due to other different climate and soil biological activity of microorganisms, while the fire also has a significant impact on non-fire advice to improve soil structure and aggregation is necessary. Acute rapid fire action for environmental protection. It is based on natural ecosystems and human ecosystem-based management, and it has enormous destructive power and polluters.

**Keywords:** environment, crop residue and soil properties

## Introduction
Plant debris can be used for a variety of purposes, including creating a habitat for terrestrial organisms, acting as a rain barrier, animal feed, reducing fuel consumption, and improving soil. It is referred to as cereal straw. Straw contains the remains of leaves, stems, and small grain after harvest, such as wheat, barley, rye, and oats, which are typically packed in the field. After harvesting, the land is left standing stubble to stubble. Acute rapid fire action for environmental protection. It operates on natural ecosystems and human ecosystem-based management, and it can be a very destructive power and polluters or account management tool. Granary burnt remains of grain after harvest in many parts of the world. It has the following effects on the physical, chemical, biochemical, and biological properties of soil and leaves.

## The Physical Characteristics of the Soil
A new product is incinerating plant residues, which increases sensitivity to erosion and soil moisture loss during planting. According to some experiments, wheat straw burning, weight, and bulk soil electrical conductivity will all increase.
The burning of cereal straw reduces aggregate stability. The land of straw is 4.1 times greater than the residual land in conventional tillage, according to the test of pores larger than 1.5 mm in the soil.

## Chemical Characteristics of the Soil
Crop residue burning increased soil PH. This is an increase in soil soluble salts. Straw burning reduced soil organic matter. Furthermore, the amount of water and fat soluble compounds, as well as hemic acids, is decreasing.
Stubble burning under the influence of nutrients is possible by increasing fire power, soil type, and climatic change. Wheat straw burning experiments begin only two weeks after ignition, based on the amount of nutrients available to plants. Burning stubble also reduced the amount of phosphorus and potassium in the soil and seed atmosphere. Wheat and sorghum straw burning reduces soil potassium when compared to mixing with the soil. Some studies show that burning crop residue reduces soil action exchange capacity.

## Soil Microbial and Biochemical Characteristics
Crop residue burning on the soil surface reduces soil microorganisms. Wheat straw burns 50% of the bacteria population up to 2.5 cm cut. The amount of soil microorganisms in ground wheat straw burned was approximately 70% higher than in land where straw was mixed with soil. Following crop residue burning, bacteria hetero residues in the soil were greater than fungi. The amount of crop residue burned and the activity of enzymes involved in the mineral element cycle in the soil are reduced. In some parts of the world, such as the Pacific Northwest, burning plant residues is an effective and inexpensive way to eliminate pathogens of control. In this region, burning wheat straw in the field reduces the population of various species of pathogenic fungi embankment known as pythium by 40 to 50 percent of the province. In some cases, burning crop residue may cause some chemicals to break dormancy, inhibiting seed germination or causing seed loss, and so on. This reduced wild oat density of 13 plants per square metre will be. Small grain stubble burning weed density cylindrical ancestral wheat (*Aegilops cylindrical*) was greatly reduced in another experiment.

## Fire Effects on Soil Biological Activity
So far, little is known about the effects of fire on soil biological life. According to reports, the fire gradually reduced soil organic matter and biological activity. One method suggested for reducing microorganism activity is to burn them. Add organic matter to the soil of plant cultivation and microorganisms in the soil beneath again, as well as areas of soil that have not been burned. Soil organic matter levels are severely reduced when a food source for soil microbes is provided. According to studies, microbial oxidation processes 80% of plant residues, while the remaining 20% is converted into organic compounds. Microbial biomass production is caused by compounds that are easily degraded by microorganisms and increase soil biological activity.
When remains are cremated, approximately 60% of its immediately (carbon monoxide) becomes and the remaining 40%, 32% is added to the soil microbial processes and their breathing to become the 8% of the organic matter is

converted. Carbon in the ash cannot exist as a food source or as a support for microorganisms. As a result, microorganism activity and population declines occur, and soil biological processes are disrupted.

Plant debris and ashes from burned remains were added to pots containing loamy soil in the laboratory and field capacity for 10 days at 24°C and temperature were maintained at the end of the microorganisms were evaluated in pots. Microbial activity contributed significantly more to the addition of plant remains than to the addition of ash. It should be noted that the plant remains in the treatment of nitrogen were added to a large amount of nitrogen in the soil was immobile due to very high carbon to nitrogen ratio (C/N), but the ash was added in the mixture of soil available nitrogen was more mobile. Because of a lack of soil microbes, ash is used as a source of food. Framed population declined due to microorganisms and nitrogen rather than plant establishment by soil microbes.

Plant residues incineration also affect the composition of the population of microorganisms because plant debris rotting fungi activity is more influenced by bacteria, fungi, and a large proportion of the population in the soil means soil quality. Leftover food is dissipated by burning straw mushrooms, and the population is low. The bacteria's balances tend to find it. In addition to soil organic matter loss, soil porosity and permeability are reduced. As a result, the moisture content and soil conditioner have a negative impact on the fungal population.

**The Effect of Fire on Soil Properties**

Structure, aggregation, mechanical strength, and bulk density are all important considerations. Fire destroyed organic matter remnants, which has a direct impact on the structure and soil granulation side effects. Organic matter disappears due to the correlation between soils and low soil pore spaces. Favourable soil aggregation fires (due to reduced organic material) and vanishes over time as the soil travelling machine is pressed. Furthermore, decreases in organic matter, soil bulk density, and soil porosity increase and decrease the side effects on plant and microorganism growth, because in these terms of air conditioning and decreases the soil Gas Exchange. It also reduces soil particle adhesion, which leads to the formation of large lumps during ploughing tillage, implying that they should do more grinding, which is the subject of increased soil compaction and tillage.

**Fire Effects on Crops**

Almost every source has reported that the next crop will increase the amount of burning residue. Burning residue that remains of nutrients and must be released directly in the biological cycle of the plant and rotting food shop, as well as a significant increase in the next crop to be viewed. It should be noted that this term is due to the negative effects that this has on soil properties as described in the previous discussion, in time with the decrease of product due to the accumulation of minerals, due to the product a temporary increase Farmers used to operate without being aware of the devastating effects of fire, but there is little today to clarify the damaging effects of this action by arable better successor.

Several authors have reported on the effects of organic inputs on soil physical properties over time (soil aggregate stability, soil bulk density, water retention, and so on) (Zhang and Peng, 2006; Singh *et al.*, 2007; Fuentes *et al.*) [5]. The addition of organic products to the soil increases aggregate stability by a factor of 1.1-10.0, and this increase is related to the input decomposition dynamics (Abiven *et al*., 2009) [1]. Soil aggregate stability is critical for preventing soil erosion. During a four year experiment, Malhi *et al*. (2006) found that adding straw increased the proportion of larger aggregates by 3% for >38 mm and 1% for 12.7-38.0 mm size and decreased the proportion of wind erodible aggregates by 1% for 0.42-0.83 mm and 3% for 0.42 mm size. They also discovered that when straw retention (SR) was combined with no tillage (NT), the proportion of wind-erodible aggregates (34%) was reduced and the proportion of large aggregates (37% was increased).

**Discussion and Conclusion**

Due to the disadvantages of burning crop residue on straw in our country, particularly in the north, preparing the land for cultivation looks at reduction technologies and crop residue management as one of the ways important for maintaining farm ecological sustainability.

Successful technologies can be incorporated into conservation tillage systems. Tillage, which includes no-tillage and minimum-tillage methods, is the amount of crop residue on the soil surface or plant debris on the soil surface residue levels in the soil def. There will be few drawbacks, especially because straw reduces crop residue burning.

Crop residue burning is still a contentious issue. On the one hand, the rapid increase in production due to nutrient release, and on the other, the long-term negative effects on the soil of reduced product. Short-range fires were reported to increase soil fertility and nitrogen. The main plant for micro Argansm to 5 cm in depth hurt and little competition for nitrogen. Because of increased water and wind erosion of soil residues on the soil surface, the effects of the fire remain low. The main cause of the fire remains to farmers to control pests and weeds, clean and easy to rapid the land of the residue prior ploughing for the next product. Years of research have led scientists to the conclusion that proper crop rotation and pesticide use are beneficial. It can also be programmed to manage action residues without burning them.

Other benefits of cremation include the ability to control weeds and insects (and other ways to control it there). Disadvantages such as soil erosion, loss of organic matter to the soil permeability and structure of the population imbalance and soil microorganisms, and long-term decline in some areas of the granary have also been reported. Three-quarters of last summer's air pollution was caused by the burning of human remains, which has negative environmental consequences and leaves. When the long-term effects of this method are discussed in terms of disadvantages rather than advantages, it is observed that over time, the quality of the soil, and thus crop growth, will greatly reduce the irreparable damages. Zest the and biodiversity, it is preferable to hold workshops to promote and educate farmers about the devastating effects of the operation, supplying equipment for residue management, proper pest and weed management training techniques to farmers, and familiar with the rest of the management remains as mulch, straw, and ploughing remains, effective steps to reduce the burning residue removal. This method has been shown to have negative effects on soil quality over time, as well as damage to soil and plants. The cause and

effect relationship is devastating, and the destructive effects far outweigh the positive effects.

In addition, the heat production and loss of soil structure create favourable conditions for weed growth and activity. The burning of stubble fields is incorrect and has numerous drawbacks, as it adds fire to the quotation mark quotation mark. Because of the heat, residue farms make the soil harder, preventing germination, plant establishment, and root development. There is an old belief among farmers that burning straw improves soil fertility, but it should be justified and training farmers in the incorrect belief they erase from their minds, while straw-burning harmful effects of addition frequently caused by air pollution in towns and villages so long columns of smoke and ash high riding in border towns and villages. Farmer's burn fields to control pests and weeds, clean up quickly and easily before ploughing the land from previous crop residues for the next crop.

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