Maintaining Plant Residues on the Soil Grains Step toward Sustainable Agriculture

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Agricultural soils annually significant amounts of food products and much more as it comes out of the ground to plant residues. The withdrawal of large amounts of plant material, energy and food supplies, and particularly organic matter in the soil is gradually impairment most farmers ‘grain and straw due to its high price and sell harvested seed and even combine stubble after harvesting with The remaining stubble to prepare the ground for the next crop pests and diseases or excuses as annoying stubble burn And so the return considerable amounts of organic matter to the soil and reduce soil fertility will impede. Farmers often nutrient-deficient soil after harvest are compensated through the use of chemical fertilizers, But the reality is that continuous use of chemical fertilizers alone cannot resolve the fundamental problems in soils. Developed countries to improve the physical, chemical and biological soil properties, and all straw from harvesting combine the separate seed, will return to Earth2). Increase straw and other organic materials on the soil can improve soil organic matter. Plant residues, animal manure, green manure, rotten roots, dead bodies of animals and their byproduct, insects, worms, rodents, microorganisms, bacteria, fungi and other soil organic matter constitute. Plant remains the most important role in the production of organic matter, prevent water and wind erosion and soil fertility and productivity in sustainable agriculture are responsible [4].

Sustainable Agriculture:

Sustainable agricultural systems are a function of the sustainable economy Agricultural sustainability and thus subject to the successful management of resources to meet the changing needs of the production base and preserve these resources as agricultural sustainability and thus subject to the successful management of resources to meet the changing needs of the production base and preserve these resources as a trustee for the survival of future generations for the survival of future generations. Sustainable agriculture for the benefit of humans and the environment is in balance, in other words, sustainable agriculture must be ecologically suitable, economically feasible and socially is desirable Stimulate environmental and economic pressures as well as technical advances underlie the rapid expansion of sustainable agriculture as a system that produces optimal product makes it possible to minimizing damage to soil resources, on this regard, maintaining crop residue on the soil surface has been considered as one of the main goals of sustainable agriculture. Therefore, sustainable

ABSTRACT

Preserved plant residues due to the great impact on factors related to soil, crop and environment, such as water permeability, evaporation and erosion yield is considered to be and importance of One way may be cheap, and can be implemented to reduce the harms caused by wind erosion and soil water storage to increase soil productivity maintenance of vegetation remained the soil surface. It also increases the straw on the soil surface, can be reinforced soil organic matter. In Iran such a simple decision for crop residue management, dropping them into the fire In addition to the loss of plant residues, soil leads to large losses so these national resources must be used more suitably and better therefore, the most economical method of crop residue management, conservation and preservation of the remains in the land. Therefore, this study aimed to familiarize those involved in agriculture, replacing the harmful effects of burning and other methods of crop residue management, we hope to maintain effective steps to achieve sustainable agricultural plant residues to be removed.

INTRODUCTION

development of agriculture requires proper planning and providing facilities and scientific and practical methods to increase the level of technical knowledge to farmers [4].

**Plant residues (corn the stubble):**

Grain the stubble, straw remaining to say after harvesting the grain surface will last. The stubble, including straw stalks up and debris is removed from the machine is discarded [1].

**Effect of plant residues on the soil:**

1 - Increase on long-term soil productivity:

Maintaining crop residue on soil improves soil structure and increases its fertility. Agricultural research was conducted during 1990-1985 on South Australia Tarly indicate a gradual increase on crop land The plant remains that have been preserved. On last year testing the performance difference reached 15% [5].

2 - Reducing water erosion (leaching):

**The vegetation:**

The soil from the impact of raindrops protects
Safeguard soil aggregation and porosity, it is against leaching
Maintains soil structure against leaching.
Permeability of the soil and reduce waste water improves
Research with simulated rain (Simulated Rainfall) South Australia (Mantarou region) conducted have shown that for every centimeter of soil washing, even when fertilizer was used to offset the decline in soil fertility, Causing yield loss of wheat is 120 kg per hectare. Maintain 2 to 3 tons of plant debris (60 to 70% cover), even on steep terrain prevents soil is heavy wash [5].

Reduce wind erosion of soil (to prevent the soil particles and their accumulation):

**The vegetation:**

- reducing wind speed and trap dust particles from the soil surface to protect.
- Movement and loss of soil particles, especially ultrafine particles, which contain the most nutrients on soil prevents thus limiting the loss of soil to wind and maintains soil fertility
- Aggregation of soil particles and prevent young plants by choking volume of soil mass is virtually eliminated.
- on a test that simulated wind Lacoste in South Australia in 1990 was the result of a ten-minute wind speed of 75 kilometers per hour on two soils with different coatings have shown that The lighter the soil (sand) for greater protection coverage is required [5].

Increasing soil organic matter and soil fertility is critical to the stability of Soil organic matter:

Helps to bind soil particles together.
Helps to strengthen the earthworms.
A food source for soil microorganisms and plant.

With plant residues in soil organic matter is sufficient to provide the processes, thus ensuring the stability and soil fertility. No cultivation tillage combined with crop residue to maintain soil organic matter effectively increases. Removal of The vegetation soil and how to collect either burning it severely reduces soil organic matter [5].

Return (recovery) of valuable nutrients to the soil again (Recycling)

Amounts of food in vegetable crop plant remains from two tons of fertilizer per hectare and it is on table below [5, 7].

Water storage in the soil

**The vegetation:**

Infiltration of rainwater in the soil increases.
Reduces the evaporation rate.
So much water stored in the soil is available to plants [8].

Estimated percentage of the vegetation grain

Standard image (attached) that they can be used as a guide to the different amounts the vegetation and soil remaining estimated. These images cover 15, 35, 60, 75, and 85% respectively, which is equivalent to 0/ 5, 1, 2, 3 and 4 tons per hectare wheat crop residue is taken.

The amount of crop residue remaining after harvest can be estimated from the weight of the seed crop. . Grain weight, grain yields of on 2/1 and for low crop plants (whole plant due to low rainfall or smaller) feet tall and old varieties of seed weight in the 5/1 are multiplied. . After weighting the plant debris is estimated to cover percentage from the chart below [6].

The role of plant residues on supply of compost (organic fertilizer)

The easiest and cheapest way to increase soil organic matter and its preservation and rational use of plant residues are directly and indirectly. And decomposition of plant residues to strengthen faster, especially in arid
and low rainfall mixed with other materials and produced very strong and nutritious substance called compost the major share of the responsibility in animal manure, soil and plant debris. Compost is an organic fertilizer and the total reaction on a variety of plant and animal remaining on various groups of microorganisms activity occurs. The biological role of this process in the production of enriched microorganisms as Bio activator it is important. So that the output can be varied by altering the demographic composition and the properties of the product can be customized enrichment [3]. 25% of animal manure and 45% soil and chemical fertilizers, lime 5% and 25% crop residue

_Economic impact of the sale of plant residues (straw):_

The most economical method of soil and crop residue management, conservation and maintenance of the land remains. Chaff to sell at any price is worthy of soil productivity and sustainability

_Average per ton of wheat straw containing:_

- 7 kg of nitrogen
- P 2 kg
- sulfur 5/2 kg
- Potassium, 11 kg
- Calcium 5/3 kg
- Mg 2/2 kg

Other micronutrient 2/1 kg

A total of 20 kg. If every hectares 5/4 tons of Chaff is the amount that is equal to 90 kilograms, 220 kilograms of chemical fertilizer formulation and performance of larger properties [1].

_Burning plant residues:_

Following the grain harvest, when farmers are preparing their fields for planting the next crop of toxic smoke from burning crop residue (stubble) fills the sky. This environmental impact on soil, leaves and even economic disadvantage, especially if it looks weak

_Disadvantages of residual burning:_

Loss of soil organic matter - increases water and wind erosion - loss of soil fertility and sustainability - reducing microbial activity in soil - breaking the food chain and reduces the diversity and speeding up the time, decomposition of organic material - production loss

_Results:_

1 - After harvesting wheat stubble residues remain in the field.
2 Except where plant remains from pests and disease specialists recommended, should be returned to the soil and not be burned. Decrease the permeability of the soil, nitrogen and sulfate reducing soil erosion, air and soil, and ultimately will reduce performance
3 - Training and awareness operation of plant residues.
4 - Increased crop yields and increased competitiveness periodic them economically.
5 - Preparation of compost and organic fertilizer and subsidized compost instead of chemical fertilizers
6 - Provides guidelines and environmental regulations and better enforcement to prevent fires in plant debris and soil degradation

_Suggestions and management solutions:_

It seems logical that the variety of ecological features to be considered in the selection of soil management technologies rather, it is rarely used as a complete solution of the problem became. Second, the solutions that are being offered, Can serve as a guide to achieve a combination of adaptive techniques to provide adequate solution for the management of plant residues should be considered

To improve soil structure by maintaining crop residue on the soil surface and thus increase soil fertility in the long term, according to the following steps are necessary to achieve a sustainable agriculture

Estimate the amount of crop residue remaining after harvest and grain yield

The amount of cereal grain yields of 1/2 is multiplied

In low rainfall areas, or seasons more hay inappropriate or plants with high seed yield in 5/1 is multiplied. Determination of soil cover with plant residues calculated above (in this case there is a standard image). Crushing plant debris and spread evenly

Inspection of surface condition every two to four weeks if it will prevent overgrazing.

REFERENCES


