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Review Article

Risks Factors of Environment Pollutants, Forest and Soil Conservation through Advanced Agriculture Techniques and Future Perspective

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Abstract

Climate change affects the plant growth by inhibiting the genes involved for promoting the roots, shoots, leaves and reproduction. Toxic gases that accumulated in the air due to heavy chimneys can cause serious environmental and health hazards. Wastewater released from industries can increase the risk of environmental pollution that can be treated through highly effective treatments plants. Soil conservation helps to mitigate these threats of climate change and traditional farming practices by replacing the traditional farming methods employed for agriculture land. Soil conversation through green manure practices required less labor and lower costs that increase farmers profits. Microbial biomass also increases the soil fertility relative to conventional agricultural systems by marinating the nutritional balance between crops and microorganisms. CRISPR is the latest technology for controlling the different microorganisms that causes soil salinity and abnormal growth of seed developments. Nitrogenous fertilizers contribute substantially to the greenhouse gas emissions that promote climate change.

Keywords: Introductions conservation, environmental pollution, green matter, climate change.

INTRODUCTION

Soil conservation maintains the nutritional balance for plant growth through different advanced techniques. Plants clean soil in order to grow, passing through different fruiting processes, seeds development, root elongation, also shows responses to seasonal changes. Different microorganisms can grow on soils and attack that ultimately lead to stunt plant growth. Plants also undergo the different life cycles for reproduction [1-3]. While on the other hand, if soil becomes unhealthy, unstable, or polluted, the life cycle stops. Soils under the umbrella of soil conservation help ensure to increases fertile of soils and productive, and protect it from erosion and deterioration. Soil conservation is the best strategy for developing new plant varieties with plant traits [4, 5].

Environment exhibits the biotic and abiotic components that becomes polluted due to accumulation of toxic heavy in the drinking water. As a result, water becomes unfit for health. It lead to borne of health diseases. Toxic metals such as nickel, mercury, zinc and arsenic mostly accumulated in organic components of foods, vegetables and fruits through spraying of different chemicals and polluted water [6-8]. There is increase in the noise and air pollution in the agricultural land due to smog formation. Water treatments and control of air pollution in necessary for the living organisms in order to maintain the ecosystem. Toxic gases that accumulated in the air due to heavy chimneys

can cause serious environmental and health hazards. Wastewater released from industries can increase the risk of environmental pollution that can be treated through highly effective treatments plants [9-11].

Table 1: Shows the strategies for environmental conservation, role and applications in agricultural fields

Strategies/Aspects	Significance	Role	Application in field	Reference
Soil conservation	Maintains the nutritional balance for plant growth through different advanced techniques.	Agricultural role in crops improvements.	Soil conservation is the best strategy for developing new plant varieties with plant traits	[1-5]
Environmental Aspects	In removal of toxic metals such as nickel, mercury, zinc and arsenic mostly accumulated in organic components of foods, vegetables and fruits.	Agricultural role in laboratory as well as Felds crops improvements.	Water treatments and control of air pollution in necessary for the living organisms in order to maintain the ecosystem.	[9-11]
Microbial biomass	Increases the soil fertility relative to conventional agricultural systems by marinating the nutritional balance between crops and microorganisms	Agricultural role in crops improvements.	Optimum utilization of microbial biomass increases the residue retention and create the more favorable environment for the microbial populations due to improvements in soil aggregation, increased the fertility of soils.	[7, 9, 11]
Soil conservation through appropriate due of fertilizers	Soil conservation through appropriate due of fertilizers with supplementation of phosphorus, nitrogen and potassium.	Nitrogenous fertilizers contribute substantially to the greenhouse gas emissions that promote climate change.	Cost effective method of applying fertilizer through combination grain-fertilizer drill.	[17, 25-30]

Climate and environmental changes to soil conservation

Climate change affects the plant growth by inhibiting the genes involved for promoting the roots, shoots, leaves and reproduction. Soils under the harsh condition of climate change and traditional farming practices cannot properly suitable for seed development as it influences the transportation of water and minerals necessary for seed formation. Different traditional farming practices have been used that can contaminate soils through excessive growth of pathogens and land overuse. Contamination of soils can be reduced through natural agricultural practices. Soil conservation helps to mitigate these threats of climate change and traditional farming practices by replacing the traditional farming methods employed for agriculture land. Soils can be contaminated through the excessive use of chemicals which can cause the toxicities to plant tissues [7, 9, 11].

Soil conservation also maintained the use of pesticides can contaminate the soils. While on the other hand, different chemicals the directly applied to soils leached out and cause harmful effects to human health. Slash-and-burn farming is the most convenient practice through burning and clearing deadly forests to make way for farmland. It also allows the growth of plant species by establishing the association between plants from their natural habitats [12, 13]. Land fertility can be increased through the different patches of forest that can be identified for clearing. This process repeats endlessly in order to prevent the soil from recovering sufficiently to support healthy ecosystems. It also maintains the nutritional balance with transport of water and foods through xylem and phloem [14].

Fig 1: Shows the different ways to conserve the soil

Global climate is the major cause of environmental problems associated with soil fertility. High concentration of toxic metals in the soils leads to decrease the uptake of minerals and water. While on the other hand, low concentration of toxic metals through soil conversation mechanism in the soils leads to increase the uptake of minerals and water that ultimately promotes to fertility of soils [15, 16]. There is increase in the overcutting forests for timber and overgrazing pastures that causes the soil to increased exposure to erosion. Soil erosion also causes the displacement of the upper layer of soil in the form of soil degradation. Soil erosion in the fields of agriculture greatly impacts on markets worldwide. It can influence on lower crop yields through environmental change thus reducing the water usage for growing crops [17-19].

Problems of erosion of soil can be solved through the advances in soil-conservation farming that follow the green manure practices that establish the useful relationship between beneficial microorganisms include those that create symbiotic associations with plant roots. These novel agriculture based methods attempt to mimic the biology of barren lands. By replacing the excessive use of fertilizers that can cause toxicities to plants tissues. Soil conversation through green manure practices required less labor and lower costs that increase farmers profits. It also increase the market value of different crops by supplementation of nitrogen and other nutrients necessary for plant growth. This strategy in the agriculture land farming increases the amount of soil organic matter [20-22].

Soil conservation through Microbial biomass

Microbial biomass also increases the soil fertility relative to conventional agricultural systems by marinating the nutritional balance between crops and microorganisms. Optimum utilization of microbial biomass increases the residue retention and create the more favorable environment for the microbial populations due to improvements in soil aggregation, increased the fertility of soils, replacements of harmful sprays of chemicals that can damage the plants parts, this can also improve microbial abundance. For agriculture farming, use of fertilizers in the adequate amount for healthy nutrition of the plants lead to increase the developmental sages of plant at the time of need, with sufficient and correct methods [7, 9, 11].

Loss of plants nutrients through leaching process have become a major problem in the agriculture sector. Soil conservation through appropriate due of fertilizers with supplementation of phosphorus, nitrogen and potassium. This can be achieved by increasing the fertilizer usage efficiency by reducing the losses of plant nutrients from soil due to leaching, evaporation and surface flow. Different methods are employed for applications of fertilizers with combinations of different nutrients. One of the most effective methods of applying fertilizer through combination grain-fertilizer drill. One of the major problem in the soil leaching nitrogen loss from the gaseous state and the nutrients such as phosphorus and potassium are transformed into non-volatile forms. Therefore, there is need to design effective strategy for controlling the leaching of essential nutrients for plants growth. This can be achieved through novel methods that should be low cost and high production of the ultimate of agriculture land farming such as different grains [23-25].

While on the other hand, higher losses of potassium and phosphorous in soil due to the rapid activity by the gullies of particles that can be detached through splashing of incision. One of the most effective methods of erosion of soil through downstream method. This can be achieved by using the agricultural machinery with low cost and high production of the ultimate of agriculture land farming such as different grains. Measurement of linear erosion at the outlet of catchments, or in lakes or reservoirs is another strategy for controlling the destruction of agricultural land. Strip

cropping is another strategy for controlling the soil erosion by reducing the velocity of wind and water. The improper soil can be passed through different stages in order to clean the main area of agricultural land. The forage tends to trap sediment that may otherwise end up in watercourses. This approach has become the popular for growing the new varieties with different combinations of crop rotation [23, 24].

The soil conservation technique through conservation tillage aims to address the wind and water erosion for maximum growing conditions of crop under the different conditions of temperature and pressure. Clay ones are the better choice to till after harvesting while other types are better to plow before seeding [3, 4, 8].

Soil conservation and CRISPR Technology

CRISPR is the latest technology for controlling the different microorganisms that causes soil salinity and abnormal growth of seed developments. CRISPR as gene editing emerges as evolutionary for altering crops so that they are more resilient for controlling the pests and climate change. Cacao trees can be affected through the attack of cocoa swollen shoot virus that can be controlled through CRISPR in defeating this disease. CRISPR also allows the extensive genome editing through different analysis of attacking viruses or bacteria that ultimately damaged the crops in order protect ecosystems. Role of CRISPR-Cas9 system in plant breeding innovation is crucial for site-directed nucleases to target and modify DNA with great accuracy [26-28].

Role of CRISPR-Cas9 system in cropping systems reflects in two ways. One is the target pest or microbes that attack on pest can be passed through nucleases system and splicing occurs through central dogma of molecular biology. The attack of viruses is more probably crucial as higher the attacks to the roots development can cause poor yields while on the other hand, lower the attack to the roots development can increase the yields through CRISPR-Cas9 system. This innovation in the field of agriculture has controlled the variety pathogenic strains and differentiated the toxic strain from non-toxic one. One of the best example of the CRISPR/Cas9 system in plant brerding and genetic for soil conservation is flexible interaction between various microbes and plant species. These include not only model plants, such as Arabidopsis, but also crops, such as rice, tobacco, sorghum, wheat, maize, apple and banana [29-32].

Many other techniques have been applied for soil conservation for high-yield crop varieties and the widespread use of inorganic fertilizers that ultimately leads to improve the crop production. This can be observed by applications of nitrogen and phosphate in the different concentrations into the environment. Fertilizers that have much significance for nitrogen and phosphorus cycles well beyond their estimated safe operating. They are used in the form liquid and powder form while their high concentration can cause serious damages to plants tissues and health issues. Some of the harm chemical fertilizers may cause include waterway pollution, chemical burn to crops, increased air pollution, acidification of the soil and mineral depletion of the soil. Nitrogenous fertilizers contribute substantially to the greenhouse gas emissions that promote climate change. There are many other different methods for controlling the soil erosion by conserving the soil through recent innovations. These are double cropping that is suited to regions with long growing seasons. This is another method of conserving the soil and for controlling wind erosion. Availability of the proper irrigation makes this conservation method useful in a difficult environment [17-20].

CONCLUSION

Many of the environmental pollutants in the form of arsenic and mercury can cause adverse effects to the health problems also influencing the industrial sectors by decreasing the organic components in the natural products. There is need to design the strategies for soil conservation in order to improve the interaction between plants and microbes for effective growth of plants. This can be achieved through gene cloning of plant growth promoting bacteria.

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