

Green Manuring: Best Component of Organic Farming

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SUMMARY

Restoration of soil fertility of arable land is a great challenge in the developing and populous countries like India. The country witnessed the benefits Green Revolution in boosting of grain yield and the after effect of Green Revolution during past few decades in terms of deterioration of soil fertility and land degradation, loss of soil flora and fauna, genetic erosion, ecological unbalance, yield plateauing and associated insecurity in livelihood of the farmers. Now maintenance of soil fertility and sustainability of agriculture production are of important concerns. Green manuring can play an important role in this regard as it showed versatile impacts like improvement of soil physico-chemical and biological properties and fertility, nutrient supply to succeeding crops, checking erosion and plant protection. The previous research activities on various aspects of green manures were reviewed here in favour of evergreen agriculture for the future.

INTRODUCTION

India has changed from a region of food scarcity to food sufficiency by increased fertilizer use with subsidized prices, but use of organic manures including green manure, declined substantially. Inorganic fertilizers are becoming more expensive, therefore sustainability of soil productivity has become a question. Hence, alternate sources to supplement inorganic fertilizers are thought. Green manuring are low cost and effective technology in minimizing cost of fertilizers and safeguarding productivity.

Green Manure

Green undecomposed plant material used as manure is called green manure. It is obtained in two ways by growing green manure crops or by collecting green leaf (along with twigs) from plants grown in wastelands, field bunds and forest.

Green Manuring

Green manuring can be defined as practice of ploughing or turning into the soil undecomposed green plant tissues for the purpose of improving physical structure as well as fertility of soil.

Leguminous Green Manures

Sesbania (*Sesbania speciosa*), Dhaincha (*Sesbania aculeata*), Moong or green-gram (*Vigna unguiculata*), Cowpea (*Vigna radiata*), Sunhemp (*Crotalaria juncea*), Cluster bean (*Cyamopsis tetragonoloba*), Urid or black-gram (*Vigna mungo*), Berseem (*Trifolium alexandrinum*)

Characters of Good Green Manuring Crops

- 1.It should yield a large quantity of green material with a short period
- 2.It should be quick growing, especially in the beginning so as to suppress the weeds.
- 3.It should preferably be a legume.
- 4.It should succulent & have more leafy growth.
- 5.It is easy to incorporate.

6.It is quickly decomposable

Nutrient Content of Important Green Manure and Green Leaf Manure Crops

Sr.No	Crops	Nutrient content (%) on dry wt. b		
		N	P	K
A) Green manure:-				
1.	Sebania aculata – Dhaincha	3.3	0.7	1.3
2	Crotalaria Juncea Sannhemp	2.6	0.6	2.0
3	Sesbania speciosa	2.7	0.5	2.2
4	Tephrosia purpurea	2.4	0.3	0.8
5	Phasolus trilobus	2.1	0.5	-

B) Green leaf manure:-				
1	Pongamia glabra (Karaij)	3.2	0.3	1.3
2	Glyricidia Maculeata	2.9	0.5	2.8
3	Azadirachta indica (Neem)	2.8	0.3	0.4
4	Calatropis gigantea	2.1	0.7	3.6

Advantages of Green Manuring

- 1.It adds the organic matter to the soil & stimulate the activity of micro-organisms.
- 2.It improves the Structure of the soil, thereby improving the water holding capacity of soil decreasing runoff erosion.
- 3.It improves aeration in the rice soils by stimulating the activities of surface film of algae and bacteria.
- 4.It fixes the nitrogen from atmosphere.
- 5.It suppresses the growth of weeds
- 6.It takes nutrients from lower layers of the soil and adds to the upper layer in which it is incorporated.
- 7.Many green manure crops have additional use as sources of food, feed and fuel.
- 8.Certain green manure like Pongamia and Neem leaves are reported to have insect control effects.

Disadvantage of Green Manuring

- 1.Incidence of pest & diseases may increase
- 2.Loss of one crop
- 3.Depletion of moisture which affects the growth of the succeeding crop

Limitation in Raising Green Manure Crops

- 1.Non-availability of water resources may restrict raising of green manure crops.
- 2.Non-availability of good quality seeds.

Types of Green Manuring

There are two types of green manuring :

Green Manuring In-Situ

In this system, green manure crops are grown and buried in the same field, which is to be green manured, either as a pure crop or as an intercrop with the main crop. The most common green manure crops grown under this system are sunhemp (*Crotalaria juncea*), dhanicha (*Sesbania aculeata*), *Sesbania rostrata* and gaur (*Cyamopsis tetragonoloba*).

Green-Leaf Manuring

Green-leaf manuring refers to turning into the soil green leaves and tender green twigs collected from shrubs and trees grown on bunds, wastelands and nearby forest areas. The common shrubs and trees uses are: Glyricidia (*Glyricidia maculata*), Sesbania (*Sesbania speciosa*) and Karanj (*Pongamia pinnata*).

CONCLUSION

The human induced land degradation is actual woeful as adulterated agronomical practices created ample accident of soil fertility. Green manures can play a cardinal role as it has able impacts on physical, actinic and biological superior of the soil and appropriately apology of soil fertility. Green manuring not alone improves soil quality, but as well fixes atmospheric nitrogen in the soil if legumes are considered. By accouterment arena awning and replacing fallowness in beneath accelerated agricultural system, it checks soil erosion and nutrient loss. Amelioration of botheration soils is as well accessible by accumulation green foliage into the soil. Besides, green manuring is benign in managing weeds, diseases and insect pests. In conclusion, it may be declared that to attain beloved anarchy and agronomical sustainability, green manuring may be one of the lots of acceptable options for tropical and sub-tropical climates.

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