



A REVIEW :

Strategies to improve soil fertility to sustain agriculture

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ARTICLE CHRONICLE :

Received :
14.07.2017;

Accepted :
29.07.2017

How to cite this article : Katharine, S. Praveena, Mariappan, G., Radhika, K. and Hemalatha, S. (2017). Strategies to improve soil fertility to sustain agriculture. *Agric. Update*, 12 (TECHSEAR-4): 1159-1167; DOI: 10.15740/HAS/AU/12.TECHSEAR (4)2017/1159-1167.

KEY WORDS:

Soil fertility, Sustain agriculture

BACKGROUND AND OBJECTIVES

Healthy soil is the foundation of the food system. The natural resource base of agriculture, which provides for sustainable production is shrinking, degrading and is adversely affecting the production capacity of the ecosystem. Soil health, is the most valuable resource for humans, as human life depends on the soil's generosity. Soil degradation, therefore, poses a threat to food security, as it reduces yield, forces farmers to use more inputs, and may eventually lead to soil abandonment (Tiziano Gomiero, 2016). The sustainable production (availability) of food is increasingly threatened through impacts deriving from human activities, especially changing forms of land use at local and global scales. These changes are frequently human induced or human influenced (Foley *et al.*, 2005). Most critical are soil losses through sealing by urbanisation, industrialisation and transport, probably the most important threat to food security of all, but also erosion by water and wind and further

severe forms of soil degradation, such as loss of organic matter, contamination, loss of soil biodiversity, compaction, salinisation, flooding, nutrient mining and desertification (Winfried, 2013). Agricultural activities have a clear impact on global environmental change (Tilman *et al.*, 2011). Moreover, climate change is threatening food security directly through increasing losses and degradation of soil, mainly through extreme events and in many regions a decrease of water resources is threatening rain-fed and irrigation agriculture. Without new approaches in land and water conservation at local and worldwide levels, it has to be expected that within one or two decades food shortage will severely further threaten millions of people and increase hunger, especially in developing countries (Winfried, 2013).

Soil is an essential non-renewable resource with potentially rapid degradation rates and extremely slow formation and regeneration processes (Van-Camp *et al.*, 2004). Soil degradation is as old as agriculture

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