

3rd International Conference on
Plant Science and Agriculture

May 05-06, 2021 | Webinar

Ecological Engineering for Pest Management: A Review

Sunidhi Pilia, Abaker M Malik, Sova Yadav, Amit Kumar, Krishna Rolania and Surender Singh Yadav
CCS Haryana Agricultural University, Hisar

Ecological engineering for pest management has recently emerged as a paradigm for considering pest management approaches that rely on the use of cultural techniques to manipulate farm habitat and to enhance biological control. In contrast to the past, intensive use of ecosystems these days to enhance productivity can affect agro-ecosystems through soil and water depletion, biodiversity loss, challenging pest problems and disruption in flow of ecosystem services. Ecological engineering for pest management mainly focuses on increasing the abundance, diversity and function of natural enemies in agricultural habitats by providing refuges and alternate or supplementary food resources and also attracts different kinds of pollinators like honey bees. The aim of ecological engineering in agricultural ecosystem is to integrate soil and pest management strategies with regular practices of farmers for the benefit of environment and farming community. It involves knowledge of agriculture, ecology and farm economics, for restoration and construction of healthy and sustainable agriculture ecosystems. In this article we review that by redesigning the agro ecosystem (above and below ground) farmers can enhance biodiversity on their farms through adopting polyculture, cover crops, corridors, crop rotations and various habitats and this is a key strategy in sustainable agriculture to enhance

biodiversity at the landscape and field level. For example, the planting of buckwheat, *Fagopyrum esculentum* as a cover crop in vineyards and alyssum, *Lobularia maritima* between rows of vegetables provide resources for predators and parasitoids resulting in reduced herbivore damage. The main approach in ecologically-based pest management is to increase agro ecosystem diversity and complexity as a foundation for establishing beneficial interactions that keep pest populations in check.

Keywords: Ecological engineering, pest management, sustainable agriculture, habitat manipulation.

Biography

Sunidhi Pilia is currently a PhD candidate at Department of Entomology, CCS Haryana Agricultural University, Hisar, India. In this pesticide-intensive agriculture, her research interests centre on the implementation of biological approaches, including biological control, bio-pesticides, bio-stimulants, botanicals and pheromones to control the insect pests which are generally safe for the environment and non-target species. In this regard, she dealt with the biometrics, avoidable losses and bio-ecological management of cucumber moth i.e. *Diaphania indica* on bitter gourd in her Master degree. Moreover, she is looking for new opportunities like ecological engineering to restore the biological harmony, to diminish the dependability to pesticides and to mitigate the residue problems.

e: sunidhi037@gmail.com

 *Notes:*