

Popular Article

Hydroponics technique to revitalize dairy sector

Dr. Sanjeev Kumar¹, Dr. Rohitash Kumar²

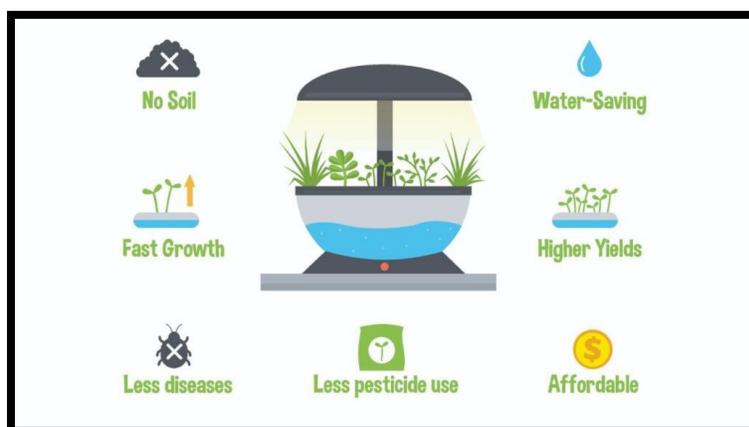
^{1&2} Teaching Associate, College of Veterinary and Animal Science, Udaipur

Introduction

“Hydroponics” means the techniques of growing plants without soil or solid growing medium but using water or nutrient rich solution only, for a short duration.

At present most of the Farmers in India either grow feed on their land for Cattle or buy it from the Market. However, dairy farmers are facing various constraints for production of green fodder like small landholdings, unavailability of land for fodder cultivation, scarcity of water or saline water, non-availability of excellent quality fodder seeds, labor requirement, the need for manure and fertilizer, longer growth period (45-60 days), fencing to stop fodder crop from wild animals, natural calamities, etc. Also, the non-availability of the quality of fodder around the year hinders the process of sustainable dairying. Also buying fodder from the Market is costly.

Benefits of Hydroponics



Method of Production of Hydroponics Fodder:

Hydroponics Fodder is produced in Greenhouses under a controlled environment, the greenhouse is a framed or inflated structure covered with a transparent or translucent material in which crops are grown and the environment can be controlled. In India, two types of Greenhouse Cultivation units are used.

- **Hi-Tech Greenhouse type Cultivation Unit:** This has a control unit to automatically regulate the input of water, air, and light through sensors. The daily production potential is 600 kg of fresh fodder. Hi-Tech greenhouse may be a multi-span structure. The cost varies depending on type of crop, the cladding material used and environmental systems incorporated. Average cost of a Hi-Tech Greenhouse per square meter is Rs. 2000.
- **Low-Cost Greenhouse type Cultivation Unit:** The low-cost greenhouses or shade net structures can be prepared from bamboo, wood, MS steel, or galvanized iron steel. The cost of the shade net structures depends upon the sort of fabricating material but is significantly less than the Hi-tech greenhouses. Average cost of a Low-Cost Greenhouse per square meter is Rs 175.

Steps involved in growing hydroponic fodder

- Select suitable quality grains for hydroponic green fodder. Remove the dead and broken seeds and other impurities by soaking them in 5- 7 litres of warm water.
- Seeds should be washed with the solution of sodium hypochlorite and leave the grains for 30 minutes in the solution to avoid fungal production. After draining the grains, soak them in fresh water for a 24 hours.
- Drain the soaked seed from fresh water. Transfer this washed seed to a gunny bag and allow them to germinate for next 24 hours.
- Wash and clean the plastic trays and remove the blockages of holes.
- Transfer germinated seeds from the gunny bags to trays and evenly spread them, and places them on the rack.
- Sprinkle or spray the water frequently to sprouted seeds up to 7 days. Maintain the suitable temperature and proper ventilation.
- Do not disturb the trays till the fodder comes to harvest. After 7 days one tray containing one kilo of maize seeds can produce 7- 8 kilos of fodder.

Advantages of hydroponic fodder production:

- Hydroponics requires 2-3 liters of water to produce 1kg of green fodder where as to conventional fodder production requires 60-75 liters
- Hydroponics greenhouse requires marginal land of 10 meters X 5 meters land for 640 kg green fodder / day/ unit when compared to 1 hectare land for conventional fodder growing.
- Hydroponic system requires less labour work say 2-3 hours / day. It doesn't include traditional management practices like weeding, sowing and irrigation.
- Hydroponic fodder requires just 1 week (7 days) to get nutritious fodder from seed germination to fully grown plant of 30 cm height.
- Hydroponic fodder can be grown throughout the year irrespective of climate situation to meet the fodder demand for animals
- Hydroponic fodder is free from the pesticides and insecticides and it is organic in nature.
- Hydroponic system provides highly nutritious fodder which is very much required for production and reproduction of livestock.

Disadvantages of Hydroponics Fodder:

The initial cost is a crucial factor if a farmer is installing a Hi-Tech greenhouse cultivation unit. These types of units require routine maintenance and that adds up to the fixed cost. Such types of units are susceptible to prolonged power outages and crops can get damaged if generator backup is not there. The risk of water-borne diseases is high and the entire crop is susceptible to the disease if proper care is not taken.

THE SCIENCE WORLD



Long Sem Ipsum

A Monthly e Magazine



Special Issue



Vol 2 Issue 6
June, 2022

Official Website: <https://www.thescienceworld.net>
Follow us on instagram and linkedin to get all updates