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Popular Article

Hydroponics: Green Fodder Production without Soil

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Green fodder plays a significant role in the diet of dairy animals since it offers the nutrients required for both maintaining health and productivity. Generally, it is observed that the feed cost constitutes about 70 to 75% of the total cost of milk where in green fodder comprises 13 to 35% of the total feed input. But it is become difficult to produce required quantity green fodder throughout the year due to shrinkage of land available for grazing, lack of water, more labour requirement a climatic impediment. The unavailability of quality green fodder adversely affects the productive and reproductive efficiency of the dairy animals. The lack of green fodder compels the farmer to look for alternative options and explore sustainable methods of obtaining quality green fodder. In such situation, the novel approach called Hydroponic fodder would be the best solution.

Hydroponic Fodder Production is a technology of growing plants without soil, but in water or nutrient solution for a short duration in a controlled environment. Hydroponic fodder production systems require less space, and it is perfect for present situation with limited land for fodder cultivation specially in urban area. This system can be easily established indoors which can help in land preservation. It is boon for the farmers whose soil is infertile and naturally devastated.



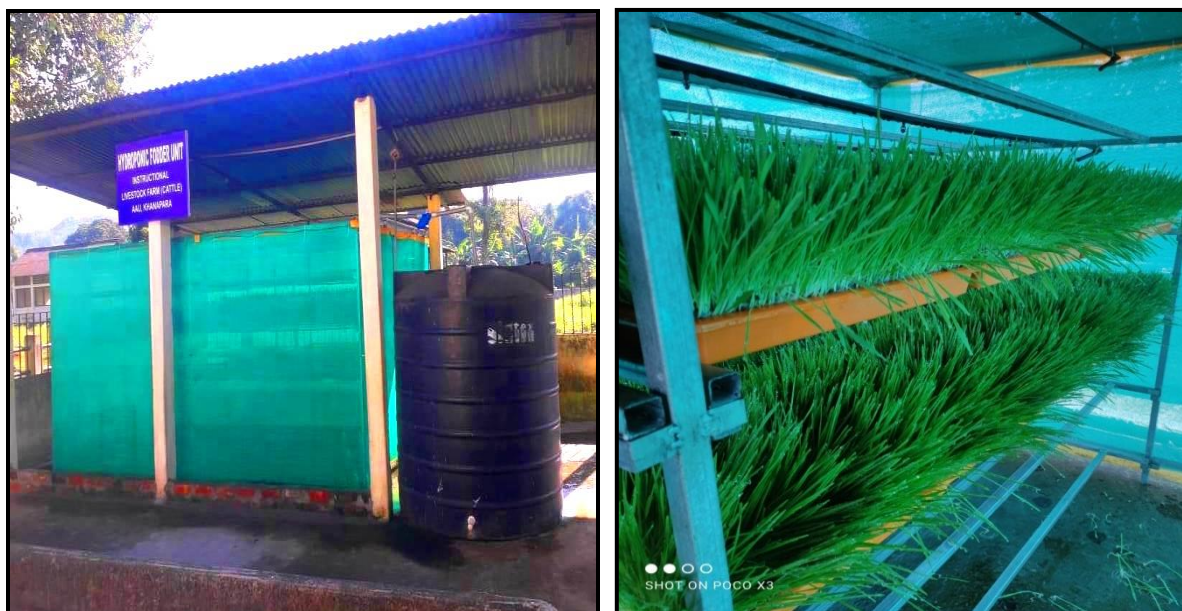
Advantages of hydroponic green fodder production

- 1. Nutritional Quality:** The fodder produced hydroponic technology is highly nutritious and better quality than the conventional fodder. Hydroponics are highly succulent and relished by dairy animals.
- 2. Growth Rate:** It grows faster than conventional fodders, requires only 7-8 days against 60 days for conventional fodder. The hydroponic fodder is fed to animal when the plants are at just 7-8 days from seed germination when they are about 20 to 30 centimeter in height.
- 3. Land requirement:** Hydroponic green fodders production requires lesser space as compared to the conventional methods of fodder cultivation. Land is required to establish the hydroponic unit only.
- 4. Man power requirement:** Labour requirement for hydroponic fodder production is less than conventional fodder cultivation where labour is required for sowing, earthing, weeding, harvesting, etc.
- 5. Fertilizer Use:** There is no need to use fertilizer, herbicides and pesticides etc. for hydroponic green fodders which is essential for conventional fodder cultivation. Hydroponic fodders are completely organic as except water, no other inputs like pesticides that could contaminate the fodder.
- 6. Water Requirement:** High water efficiency as water can be reused in Hydroponic fodder production.
- 7. Need of Protection:** No requirement of fencing and any other protection in hydroponic fodder production unlike conventional fodder production.
- 8. Round the year production:** Fresh and green fodder production is possible round the year as hydroponic fodder yield does not depend on climate but on controlled environment.

Production of Hydroponic fodders:

The hydroponic green fodder can be produced in a controlled environment which can be either hi-tech, fully automatic which is very costly or can be low cost, effectual structure developed locally by using principle of the seed germinating and growing for short interval (about 7 to 8 days) till they are about 20 to 30 cm in height using only water.





Low-cost Hydroponic fodder Production

In low-cost hydroponic fodder production unit, a specially constructed frame made of GI pipes or angle bars is erected to hold plastic trays measuring 1.5x2 feet in which 1.5 kg of seed can be placed for production of hydroponic fodder. The entire arrangement is covered with shade net cloth. An arrangement is designed to pump water from a reservoir to pipes in which holes have been punched and foggers are fitted. The water sprinkles over the tray at a fixed time interval as set in the timer and drains out in to the reservoir for the process to be repeated. To make hydroponic fodder production more farmers affordable, the GI rack can be erected using bamboo and instead of plastic trays, bamboo baskets can be used.

Procedure for production of green fodder

For production of hydroponic fodder production, good quality seeds should be selected with 80-85% germination rate. Then desired quantity of seeds should be soaked in water for 6-8 hour after removal of impurities and damaged seeds. After that the excess water should be drained out. To minimize chance on fungal growth on sprouted seed, seed is often soaked or washed with salt water (80-100gm of salt in 7-8 lits water). Then this washed seed should be transferred into a gunny bag and allow them to sprout. After that the sprouted seeds should be transferred from gunny bags to



trays and spread in trays for sprouting usually for 6-8 days. Water should be sprinkled every day over the sprouted seeds to keep them moist during this period.

For sustainable dairy animal production, the supply of good quality green fodder round the year is very much essential. But during winter there is shortage of green fodder. There must therefore be an alternative like that of the production of hydroponic fodder. Hydroponic fodder production is more suitable for the dairy farmers of urban area with less land for conventional fodder production. Dairy farmers need to be encouraged to adopt the hydroponics systems of green fodder cultivation to make sure a steady supply of green fodder though out the year for the animals.

