



SHIVRAJ

➤INTRODUCTION

Green fodder plays major role in feed of milch animals, thereby providing required nutrients for milk production and health of the dairy animals. Feed cost per litre of milk is 75 % of total milk cost; where in green fodder contributes 30 % of value. Rapid urbanization and mining areas has caused shrinkage of grazing and fodder producing lands. Due to non availability of quality green fodder throughout the year, milk producers are forced to utilize extra concentrates for optimum milk production.

On account of this cost of milk production is higher in the state as compared to neighboring states. Non availability of irrigated lands for fodder production, higher labour cost, and small land holdings has left dairy farmer with many challenges for milk production. It is quite evident that with decreasing cultivable land and depleting natural resources, Sustainable technology would be the key driver of the dairy industry in the years to come.

➤NEED OF HYDROPONICS TECHNOLOGY

Hydroponics technology is required to overcome following constraints during conventional green fodder production in the state.

- 1) Small land holdings amongst dairy farmers
- 2) Non availability of fertile land for fodder production
- 3) Irrigation, fencing, land preparations resources are limited.
- 4) Mining and coastal belt has limited area for fodder production.
- 5) Destruction of fodder by stray cattle's and wild animals.
- 6) Higher cost of labour for cultivation practices.
- 7) Poor participation of educated unemployed youths for fodder farming.

➤HYDROPONICS TECHNOLOGY

It is a science of growing plants in nutrients rich solutions instead of soil and can be efficiently used to take pressure off the land to grow green feed for the livestock.

Plants require three things to flourish, water, nutrients, and sunlight.

Hydroponics is a straight forward way of providing all these nutrients without the need of soil under controlled environment conditions to optimise the growth of plants.

Technology has been tested on various crops as Maize, Sorghum, Barley, and Oats for producing high quality of nutritious green fodder for dairy animals.

Beside this hydroponics can be used for growing wheat grass, paddy saplings etc in seven days of time for optimum growth. Fodder obtained from hydroponics consists of grass with-Grains, roots, stem and leaf as compared to only stem and leave part in conventionally grown fodder.

➤HYDROPONIC INNOVATIVE TECHNOLOGY FOR DAIRY BUSINESS

⇒To grow green fodder at wider temperature (15° - 32 °C) and humidity (70 -80 %) range without fungal growth.

⇒Environmental friendly.

⇒Contamination free fodder.

⇒Saves water and labour

⇒Fodder grown is highly palatable and nutritious

⇒Fodder improves animal health and reproductive efficiency.

➤ADVANTAGES OF HYRDOPONIC

1. Conservation of water:

It requires just 2- 3 litres of water to produce one kg of green fodder, as compared to 60-80 litres to conventional system of fodder production. Water left over in hydroponics is recycled to grow the fodder.

2. Land:

Hydroponics green house requires marginal land to erect the system i.e., 10mts x 4.5 mts land for 600 kg green fodder / day/ unit, in comparison to one hectare land for conventional green grass field. Reduction in the amt of land required for maximum fodder production is an asset for both regions where agriculture is difficult and densely populated areas that lacks sufficient growing space.

3. Reduced labour requirement:

In conventional fodder production requires continuous intense labour for cultivation to harvesting of the grass, but in hydroponics labour required is 2- 3 hours / day only.

4. Reduction in growth time of green fodder:

To obtain nutritious fodder requires just over 9 days from seed germination to fully grown plant of 25 – 30 cm height. Biomass conversion ratio is as high as 7-8 times to traditional fodder grown for 60-80 days.

5. Green fodder round the year:

Technology is capable to make provision for the green fodder round the year, as per demand. Constant supply can be organized irrespective of rain, storm, sunshine or drought.

6. Increasing of nutritive value of fodder:

Through hydroponics it is possible to enhance the nutritive value by adding additional growth promoters, nutrients, etc to have quality milk from the dairy animals.

7. Natural feed for animals:

Growing of green fodder through Hydroponics is completely by natural source. No pesticides are used in green fodder production that could contaminate milk and milk products.

8. Enhancement of milk production: by providing green fodder to milch animals it can compensate the concentrate feed so as to have economically viable milk producing industry.



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9. Minimizing loss of fodder:

Green fodder produced from hydroponics will be fully utilised as there won't be loss of the fodder during feeding as compared to wastages of chopped traditional grasses during consumption by the animal.

➤PRODUCTION

End user beneficiaries and other milk producers opted for green fodder production through hydroponics technology offered their experiences. Hydroponics unit technology saves time and money on production of green grass by way of traditional method there by utilising same land for cultivation of other crops.

➤ACHIEVEMENTS

Successful transfer of Hydroponics technology for green fodder production amongst milk producers. Generation of 600 kg maize green fodder per day per unit through hydroponics technology. Approximately, seven kg hydroponics green fodder can replace one kg concentrate feed there by reducing cost of milk production. Seven day hydroponically grown maize fodder has proved to be more nutritious as compared to conventional fodder of 60- 80 days. Standardization of hydroponics technology in terms of seed usage, green house maintenance cost. Successful usage of nutritional benefits of hydroponics green fodder for enhancement of productivity, reproductive efficiency and health in milch animals. As an income generating source to the hydroponics fodder growers. Hydroponics Technology a handy tool to unemployed youths who are unwilling to take up agriculture in fields.

Hydroponics technology could work as beneficial tool to have paddy sapling nursery, flowers and other vital plant propagation beside fodder production for animals. Conservation of environment and land saving.

➤CONCLUSION

Natural green fodder is the key to decreasing feeding cost during milk production. However due to climatic conditions, non availability of land. Succulent grass is available for shorter period in year and not available at all in many State. Due to non availability and higher land costs, minimum utilization of fodder producing areas to feed livestock, could intern provide more acreage for other crop production, there by improving the economy and sustain ability of land. This system also eliminates additional pressure on already over worked irrigation system. The process of growing green fodder hydroponically allows the control of climatic conditions for optimum growth with guaranteed output per day. In current scenario it is the demand of the dairy owners in the states where there are low land holdings, scarcity of water, saline water, higher labour and land cost. It has proved that Green fodder production through hydroponics technology can be a real alternative source to overcome the fodder deficiency in the state.

➤Greentech Organic Hydroponics System fulfills following objectives :

To ensure sustainable green fodder round the year for dairy animals

Quality green fodder production with minimum land and water.

Economically viable green fodder production with controlled environment.

To evaluate various fodder seeds for production of hydroponics green fodder in Gujarat State.

To implement advanced technology in the field of Hydroponics.

To support the land less milk producer.

To minimize feed cost for milk production

➤Consuming fresh fodder will provide several advantages to animals including:

Faster weight gain and better quality meat

High-grade fiber

Improved milk production and quality

Improved hoof health

Improved fertility

➤Benefits to Livestock

Fodder is a more natural feed and is comparable to the forages the digestive systems of livestock and horses were designed to process. Due to its increased digestibility and the availability of nutrients, there is a wide range of benefits to feeding fodder over grains and concentrates. Not only will your animals be healthier and have a better quality of life, they will also be more productive and profitable.

Benefits to all animals include:

Faster weaning and less stress on mothers and young stock

Less manure due to increased digestibility of fodder

Boosted immune system

Increased longevity and lifespan

Earlier heat cycles

Improved fertility

Stimulated appetite during heat stress

Better behavior and temperament

➤Benefits for You

Adding fodder to the feed regimen of your livestock will result in direct benefits to your farm. Growing fodder hydroponically is more efficient than any other means of producing feed for livestock. By feeding fodder, you will greatly reduce the amount of resources needed to maintain your animals and your farm.

Hydroponically grown fodder is an extremely cost-effective feed supplement for cattle. With hay, grain, corn and soybean prices reaching record highs, cattlemen need a better feed option. Fodder Pro Feed Systems allow cattle operations to produce healthy, fresh livestock feed with complete control over protein and essential nutrients levels. This lends to total control over meat or milk production and operational costs.

➤Fodder Benefits

Fodder grown in a Fodder Pro Feed System mimics the benefits of fresh pasture and is a more appropriate feed option for grazing animals. Ruminants are able to digest fodder sprouts easier and more resourcefully than grain, improving feed efficiency, milk and meat production.

Feeding fodder will also provide these advantages to cattle:

Reduced somatic cell count.

Reduced occurrence of acidosis and mastitis.

Lowered pH in rumen.

Increased digestibility.

Earlier breeding and higher conception rates.

Faster weight gain and easier weaning.

Increased longevity in dairy cows.

Higher milk production and butterfat content.

Improved hoof health.