

Hydroponics Fodder cultivation unit: Parts & Specifications.

Vigyan ashram has standardized hydroponics technology and we are providing training for building your own hydroponics unit. Hydroponics fodder cultivation is very easy and simple science of growing fodder crops in less time, water and input cost.

This is guide book for building you own hydroponics fodder system . For any further details we request you to contact us on vapabaldst@gmail.com

Please note following points before stating building your own system –

System details –

Hydroponics fodder unit is nothing but a chamber with arrangement of temperature, humidity and light intensity for maximum sprouting & growth of fodder crop seeds (mainly maize, oat, barley , wheat etc). With 30 to 35 °C temperature, 60 to 75 % R humidity and 50 % shed 1 Kg of maize should yield 6 to 8 Kg green fodder in 7 to 9 days. It found that for 6-8 times mass increase around 2 lit water is sufficient per kg of seeds during summer season. So by this one can grow very good, healthy & economical viable fodder for dairy / goat farming. (We suggest to calculate economic output of system at your end based on input seed cost)

There are plenty of manufacturer suppliers of hydroponics systems in market but farmers can build their own system as its very easy to fabricate & all components available in market. Following are required components with their specifications -

System components – Growing cabinet, Racks for trays, trays , seeds , watering system (fogger / mister / drip pipes) , timer , motor. (Photo look like are given below)

Growing cabinet – Square shape cabinet is most suitable & easy to fabricate , cabinet size can vary based on number of trays , cabinet can be fabricated with mild steel pipes (MS) , UPVC or bamboo. Just make square box and trays arrangement. Slotted angle racks can also be serve purpose. Cabinet need to be covered with 50 % green shed net and/or polyhouse covering film for reducing light intensity & conserve humidity.

Racks for trays – Can be of MS, UPVC or bamboo. Height of the tray racks need to be arranged as per day cycle of fodder i.e lower level 2 racks with 6 inch , above 2-3 racks on 8 to 12 inch and upper level racks 12 to 15 inch height. A gentle slope is beneficial for avoiding water lodging and fungal growth.

Trays – Various kind of trays are available in market based on quality of plastic & durability , specialized hydroponics trays are costly (2 feet * 2 feet tray cost approx. Rs.350) . We can use simple office tray (1.5 feet *1 feet) with perforations at bottom (simply drill holes on equal distance). Make sure there are sufficient holes made to avoid any kind of water lodging and avoid fungal infection. After every use , tray need to be disinfected by diluted hydrogen peroxide and sun drying.

Seeds – Maize , wheat , oat , barely suits best for hydroponics. You can choose based on availability and rate per unit. Seed should be free from any fungal infection. To remove broken seed, give brine water treatment and remove floating seeds. Soak seed further hours in potassium permanganet. Once seeds spouted 2 treatments of powder trichoderma Sp will also help in lowering fungal infection. Seed rate of 0.5 Kg / Ft² is sufficient for hydroponics fodder cultivation.

Watering system – Motor pump of 0.25 or 0.5 Hp is sufficient for 100 tray system . For lesser capacity , minimum 0.25 Hp motor will be required for operating fogger / misters. We prefer jain irrigation misters than foggers as they required less pressure & easy for maintains.

Drip line – regular 16 mm HDEP drip line is best suited.

Timer – Various timers available in market. Timer best suited are generally 1 to 2 min operation every / hour. We prefer *Frontier TM-619-H-2* with 17 time intervals. If motor pump is above 3 Amp additional really is preferable.

During winter months when night temperature reaches below 15 °C , seed sprouting and growth affect , lowering net yield & higher harvesting time. During these months addition seed sprouted / incubator may require. This seed sprouted can be fabricated easily by making small chamber inside hydroponics chamber with additional temperature increasing facility as filament bulbs , heater etc. Proper seed sprouting is very important in hydroponics , for best results seed can be soaked in lukewarm water (40 to 45 °C) for 8 hrs and sprouted at 35 to 38 °C with 90 % humidity.

Squirrels and rats are some of the major pest / nuisance for hydroponics , both need to be managed by traps / bets. Fungal infection is one more major problem in hydroponics. Fungus affects non germinating / broken seeds first and spread very rapidly , in the later stage flies also lays egg on broken / rotten seeds spreading disease further with rotten smell. Fungal growth need to be controlled by having healthy seeds , providing slop to tray racks, maximum germination , removal of non-germinated seeds and application of organic bio-fungicides.



Regular office trays



Hydroponics trays



Jain irrigation misters



Frontier timer with 17 time intervals

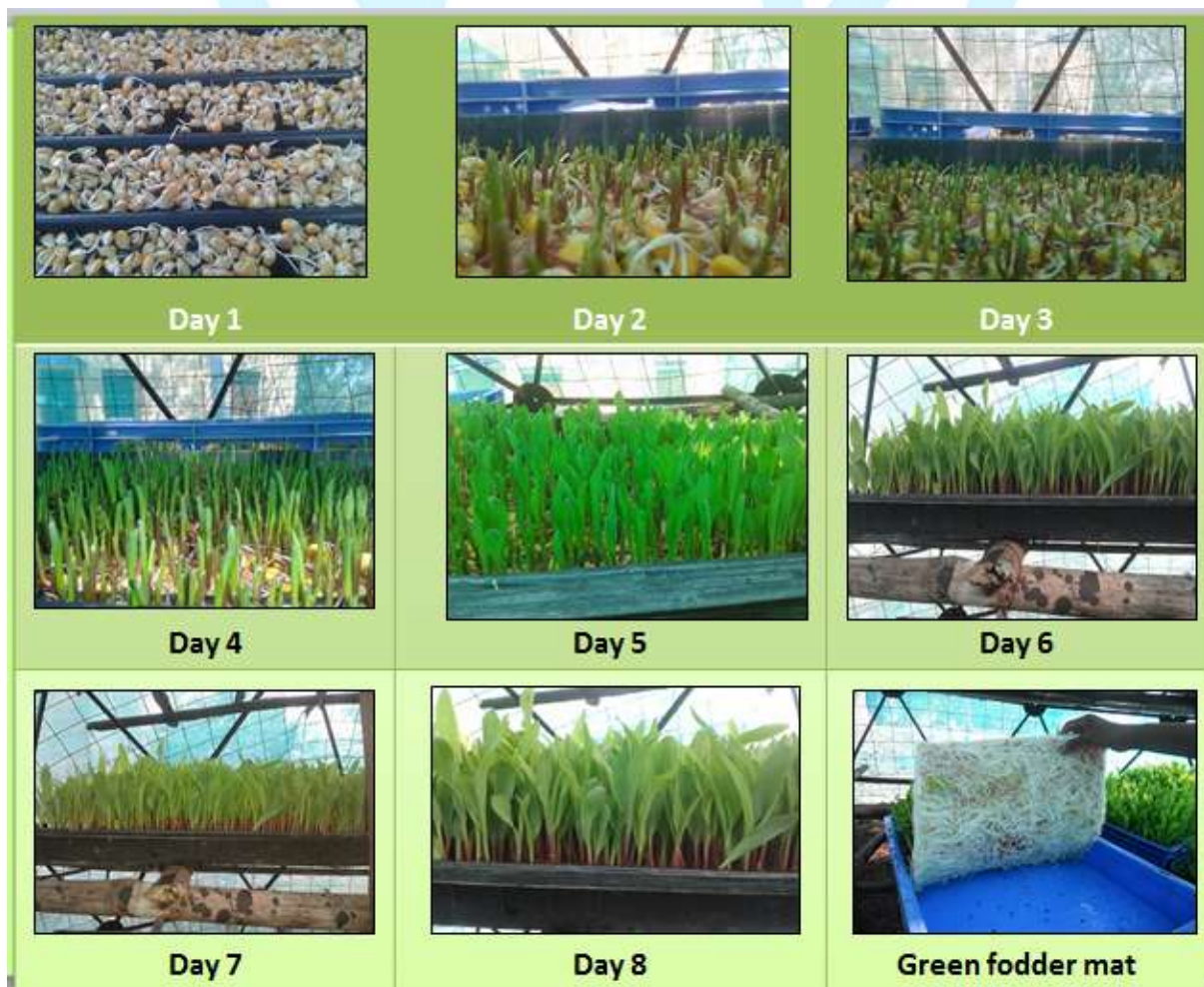


0.25 Hp water pump



Potassium Permanganate for seed treatment

Typical growing cycle of fodder in hydroponics –



Cost of system - It will depend on input material , but normally 30 to 50 tray system would cost around Rs.20000 to 30000.

Contact –For any further detailing , training dates etc please contact vapabaldst@gmail.com
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