

Introducing farmers to hydroponic And aqua-ponic farming



By :Kesete Ghebrehiwet |

The Ministry of Agriculture (MoA) is introducing hydroponic and aqua-ponic farming system to farmers to augment fodder production for animal feed and ensure nutrition security. Hydroponic and aqua-ponic farming improves the supply of nutritious food through alternative methods and is believed to be a timely solution to the deficit of green animal feed.

Ensuring fodder security for animals will help increase dairy production and will make a difference in livestock husbandry.

More food can be produced in aquaponics green houses in a sustainable way through judicious utilization of water. Aquaponics helps produce healthier food and also helps protect the environment. As it can be used in an urban environment it helps increase agricultural produce.

Countries like Eritrea that mainly depend on rain-fed subsistence farming consider the introduction of hydroponic and aquaponics farming as an alternative to the conventional system.

Hydroponics is a method of growing plants without soil while aquaculture is the cultivation of fish in re-circulating controlled conditions, and the MoA is working hard to introduce these systems to farmers to make a difference in ensuring nutrition security both for humans and livestock. Farmers are made to visit a demonstration area at the premises of the MoA, which is run by a group of young professionals.

Gezae Gebregziabihier, a member of MoA's Agricultural Innovation Unit who studied plant protection, has been working in fodder production at the demonstration area. In describing the fodder production process, he

said, "We soak the seeds for 24 hours and then we lay them on a plastic sheet. We water them three times a day, and they grow for 12 days until they become 25cms long. They can then be used as animal feed. This way the farmers can produce fodder easily."

Gezae added that fodder production is done under a shade without direct sun light. He said hydroponics is simple and enables farmers to easily produce animal feed using simple materials at their disposal. Farmers can use any material that can hold water.

Around 70 farmers from the Central and Southern regions have visited the demonstration site, and most of them are keen to adopt the method in their farm land to address the challenges they face in finding green animal feed during the dry seasons.

What are the major benefits of fodder production as opposed to producing other green animal feed? One major benefit is seen in milk production. Using fodder as animal feed increases milk production by 20%. Also, farmers can save labor, money and water because fodder production uses only 5% of the water needed in conventional farming. What is more, the water can be recycled to produce more fodder.

To familiarize farmers with fodder production across the country, the MoA is planning to provide training to agricultural extension agents in the six regions of the country. This way, the ministry will be able to reach more farmers and teach them how to produce animal feed through hydroponics.

The Ministry reported that the hydroponic fodder produced at the demonstration site was tested on chicken, rabbit, pigs and horses and showed a promising result. As a result, there are now more farmers who are interested in producing fodder through the new system to solve their problems of animal feed.

Hydroponics is so productive that 1kg of grain planted over a space of one square meter can yield 7 – 10 kgs of fodder. Some farmers in the pilot group said that they normally feed one cow around 7 kg of grain. After observing that 1 kg of grain can yield up to 10 kg of green fodder their interest has been aroused.

In terms of nutritional content, Gezae said that the fodder has high beta-carotene, which enables the livestock to get vitamin A, and compared to alfalfa, the fodder can increase an animal's energy by 3%. The fodder's palatability is high and more enzymes can be obtained from its roots. Barley and sorghum are often recommended for fodder production although other grains can also be used. According to a recently-published newsletter by the MoA's Public Relations Unit, the innovation group at the Ministry has so far managed to produce fodder from barley and maize.

Merhawi Andemariam, a member of MoA's Agricultural Innovation Unit who studied Agricultural Engineering, said, "We are now dealing with aquaponics, which incorporates aquaculture and hydroponics. The aquaculture needs clean water and the plants need nutrients. The clean water that goes into the aquaculture is released with all the nutrients to be used in growing the plants."

Merhawi added that most of the nutrients found in soil are also found in the aquaculture although some micro nutrients may have to be added. Duck weed and moringa seeds are used as fish feed, and after some time, the fish feed turns into ammonia and bacteria turn it into the needed nutrient.

Although aquaponics is mostly common in urban areas, it can also be practised by farmers in rural areas so long as they are fully committed to engage in such an activity. Merhawi said aquaponics today is at a pilot stage and most of the items they use are recycled and are not basically meant for the system. But the MoA, he added, is working hard to provide them with the necessary equipment.

Compared with conventional farming, aquaponics requires a small space. In an area reserved just for one plant in conventional farm, four plants can grow using aquaponics. The benefit of aquaponics is that you can vertically grow plants on shelves and increase production four times what can be grown in the conventional method.

Shabait.com