Agriculture Food Authority

Shows and Exhibitions Innovations

Innovation 1

Introduction

Hydroponic Fodder System

The hydroponic fodder system is a temperature and humidity controlled growing room that is specifically designed to sprout grains that are very nutritious. A selection of grains such as barley are placed onto a Polyvinyl Chloride (PVC) mat without soil and sprayed with nutrient rich water solution at predetermined intervals. There is no electricity usage whatsoever. After only 7 days, the fodder is removed from the tray and can be fed to the animal. The animal eats everything (i.e. roots, leaves and nuts) therefore, the hydroponic fodder system is waste-free, 100% sustainable and cost-effective.

Benefits of Sprouting Barley

Sprouting barley fodder produces a grain grass which is high in protein and high in energy. This is an ideal combination to create a healthy, strong and heavy animal. The grown produce has a digestibility rating of around 90%, meaning that it is easy to digest and is unlikely to cause any form if digestive issue in healthy livestock. This compares to some other feed types which contain indigestible portions. Grain grass is also high in Vitamin A, E, Folic Acid, Biotin and Beta-Carotene. It is recommended that animals are fed a mixture of foods which include a healthy portion of sprouting grain fodder. The mixture that should be used will depend on a range of factors and is unique to the livestock in question.

Planting Materials

S/N	ITEM	UNIT	UNIT PRICE (KES)	QUANTITY	TOTAL (KES)
1	Barley	KG	120	10	1,200
2	Vegimax	ML	1000/250ML	1	1,000
3	Afrikelp	ML	800/400ML	1	800
4	EM Booster	L	250/L	1	250
5	HB101	ML	760/100ML	1	760
6	Sea Salt	G	210/500G	1	210

7	Jik	L	500/3L	1	500
8	Hand Sprayer	Piece	500	1	500
9	Gunny Bags	Piece	30	5	150
10	Polyvinyl Chloride Mat	M	250	1	250

Value to the farmer

Water Usage

The hydroponic system requires a fraction of the water usage of conventional farming while still supplying high quality stock feed. It utilizes the minimal water sprayed using a hand sprayer.

Land Use

This type of fodder production provides huge ecological and economic advantages. For example In an area equivalent to 1.75m, a farmer can grow adequate 2kg barley. That will produce 20kg fodder to feed 1 dairy cow.

Food Supply

Farmers using this type of fodder production are guaranteed a consistent supply of quality fodder 365 days of the year irrespective of rain or sunshine. 1kg of barley seeds can produce 10kg of germinated fodder in 7 days. 1kg Barley range from kes 50 - 120 depending on the location of the agro vet.

Labour

This process of growing cattle fodder requires minimal man-hours per day. Depending on the size of the shed in use, its estimated that as little as 1 hour per day is needed to maintain and produce hydroponic fodder.

Conclusion

Much is needed in terms of awareness creation to smallholder dairy farmers on the hydroponics fodder technology. This technology if adopted would addresses the challenges faced by smallholder farmers which include; unavailability of land for fodder cultivation, scarcity of water, non-availability of good quality fodder seeds, high inputs and labour costs and longer growth period of fodder.

AFA Potential Areas of collaboration

1. Market linkages: Partner with the Head of Crop Science Department, Karatina University to train farmers on Hydroponic Fodder. Contact cropscience@karu.ac.ke, akihurani@karu.ac.ke, zmuthoni@karu.ac.ke

SEED TO FEED IN ONLY SEVEN DAYS