EFFECT OF SOME SEED SPROUTING ON SOME HAYS USING SALINE WATER ON THE NUTRITIONAL VALUE OF THE PRODUCT

By

ADEL SAID HASSAN ALI
B.Sc. Agric. Sci. (Agric. Production), Fac. Agric., Ain Shams Univ, 2001

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ABSTRACT

Adel Said Hassan Ali: Effect of some Seed Sprouting on Some Hays Using Saline Water on the Nutritional Value of the Product. Unpublished M. Sc. Thesis, Agric. Botany Department, Fac. of Agric., Ain Shams Univ., 2018.

This work was con, ducted to study the effect of Egyptian clover seed etiolated sprouts and barley grain etiolated sprouts mixture with wheat, Egyptian clover, faba bean and rice hays using tap and saline water to improve fodder value. Hays were used as media to etiolated sprouts of barley and clover with three seeding densities (10, 20 and 30 g seed / 100g hays). Growing conditions of the system produced between 12.79 to 38.38 kg of fresh fodder and 3.18 to 9.10 kg of dry fodder in 4 days from one kilogram of raw barley grains compared to 13.22 to 38.46 kg of fresh clover fodder and 3.17 to 9.46 kg of dry clover fodder in 4 days from one kilogram of raw clover seeds. The dry fodder per unit seed volume (kg / kg seed) decreased with increasing seed density, Since hays were decreased with increasing seed density but the nutrient content of the fodder especially protein was increased. Barley and clover etiolated sprouts improved quality of hays fodder from faba bean, clover, rice and wheat crop. Lipid, protein and total energy content were increased with increasing barley and clover seeding density while crude fiber was decreased. In vitro dry matter digestibility (IN-VDMD) was decreased with decreasing seed density especially with rice hays (39.92 and 40.57 for barley and clover respectively) and increased with increasing seeding density especially barley grain with faba bean hays (74.77) and clover seed with clover hays (76.28). Fiber fraction (Neutral detergent fiber NDF, Acid detergent fiber ADF, Acid detergent lignin ADL), cellulose and lignin percentage were decreased with increasing seeding density of barley and clover seed, Relative feed value (RFV) was increased with increasing seed density for barley and clover grown on faba bean, clover,

rice and wheat hays. Data was more pronounced for increased clover seed density.

The barley etiolated sprout production system obtained a good quality fresh forage in small area all year around and low cost estimated per ton DM; total digestible nutrients (TDN) and crude protein (CP) compared with hydroponic barely green sprouts while opposite results obtained with etiolated sprout clover compared with alfalfa fodder. Therefore, the system using barley etiolated sprouts especially with rice hays as growing media can recommended as cheap energy (TDN) and protein (CP). In addition, the system saving agricultural lands and partially water consumption for strategy crop production as wheat and corn since its fodder products can produced and grown in small dark area during absence of natural forage. Relative feed value (RFV) increased with increasing seed density for both barley and clover grown on rice, wheat, faba bean and Egyptian clover hays media. The feed cost increased when the Egyptian clover seeds were used for fodder production .Therefore economically speaking, we can recommended for do not use Egyptian clover sprouts where There was a rise in the cost of the product as a result of the high price of Egyptian clover seeds, which amounted to (25 pounds / kg seed), which caused the increase in costs compared to Corn Silage, Alfalfa, Hydroponic Barely its economical of DM and TDN than hydroponic barley and alfalfa .Barley grows less in production costs than green hydroponic barley with less than 50%.in addition to its advantage on saving agriculture Lands since. Also for its less water consumption and higher quality nutrient. It was concluded that, the fresh feed barley etiolated sprout technique grown on rice , Egyptian clover, wheat and faba bean hays respectively medium obtained a good quality fresh forage in small area all year around and can be recommend as cheap source of energy (TDN) compared with hydroponic barley and alfalfa. In addition, the technique saving agricultural lands for strategy crop production as wheat and corn and could be produced and grown on roofs in smaller area. In conclusion, the idea of producing barley sprouts is

accepted from the technical point of view. Due to absence of natural forage and these fodder high prices.

Key words: Barley grain, Egyptian clover seed, Faba bean hay, Rice hay, Egyptian clover hay, Wheat hay, Sprout, cost, Return, In vitro, Digestibility, Nutritional value, Fiber fraction.

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