



Determination of four seed germination for use them in Hydroponic Green Fodder



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Introduction. One of the major challenges facing agriculture in Mexico is to obtaining in quantity and quality livestock feed forage. This condition is limited for the climatic and edaphic restrictions⁽¹⁾. The hydroponic green fodder (HGF) consist in the seeds germination (seeds of cereals or legumes) and their later growth under controlled environmental conditions (light, temperature and humidity) in the absence of soil, where the same grains and roots do the role of the substrate, where irrigation is done by spraying or nebulization, never by flood⁽²⁾. The objective of this study is to evaluate the power of four seed germination (two cereals and two legumes).

Methods. Were used Alfalfa Spanish Certified seeds (*Medicago sativa*), Native Corn (*Zea mays*) from the region of Santa Maria Xalitzintla, Tepeaca, Pue; Barley (*Hordeum vulgare*) from the State of Puebla and Chia (*Salvia hispanica*) Lot Number.: CSNT0910 of brand AGROBECK INTERNATIONAL. Two lots were made, and both of them were underwent to viability test, disinfection, imbibition or pre-germination and germination as FAO (2001) required, only one lot was irrigated with nutrient solution (NS) as FAO (2001) proposed. Growth seed was evaluated for a time of 15 days.

Results and Discussion. The germination data obtained were plotted to prove the efficiency of NS irrigation versus the irrigation without nutrients as shown in Fig. 1 and Fig. 2 respectively.

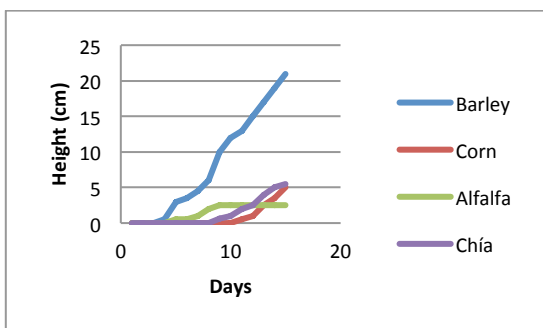


Fig.1 Growth of HGF with NS irrigation proposed by FAO

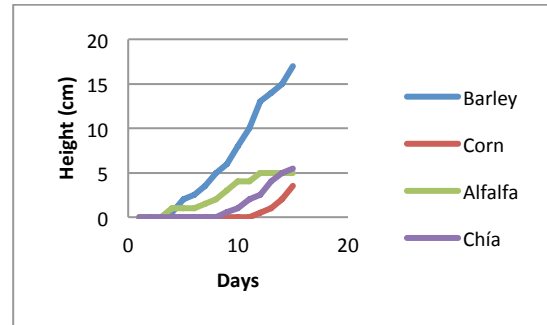


Fig. 2 Growth of HGF with pure water irrigation

As shown in fig. 1 and fig. 2, the seed which has a higher germination power is the barley's seed and the same sample different HGF height, when dealing pure water irrigation, the maximum height obtained was of 17 cm at 15 days, and when dealing NS irrigation, reaches a height of 21 cm in the same 15 days with the same seed. The Corn and chia's seeds had a slow germination and the alfalfa's seed in the two lots, showed a quickly germination, the downside was that the alfalfa's root did not intertwined between itself as performed with the other seeds roots and the lot of pure water irrigation began to dry and began to decompose in the lot of NS irrigation.

Conclusions. The crop of barley HGF is an alternative in the production of livestock feed, because the germination is accelerated and can hold big amounts of HGE in less time. Irrigation with NS accelerates seed germination.

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