

Sweet Pepper Yield and Water Use Efficiency as affected by Locally and Imported Soilless Substrates

Background

The effect of locally available/low-cost soilless substrates such as volcanic rock and date palm waste on sweet pepper yield is expected to be varied when compared with the commercial substrates such as rockwool and perlite.

Objectives

Investigating the effect of locally available soilless substrates on sweet pepper yield and water use efficiency in comparison with commercial



Volcanic Rock

Perlite

Rockwool

Date Palm Waste

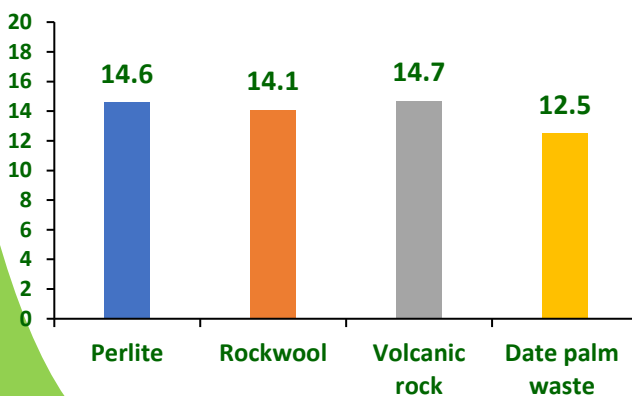
Treatments

Sweet pepper yield and water use efficiency were evaluated using two locally available substrates (Volcanic Rock and Date Palm Waste (25 mm)) and two imported substrates (Rockwool and Perlite).

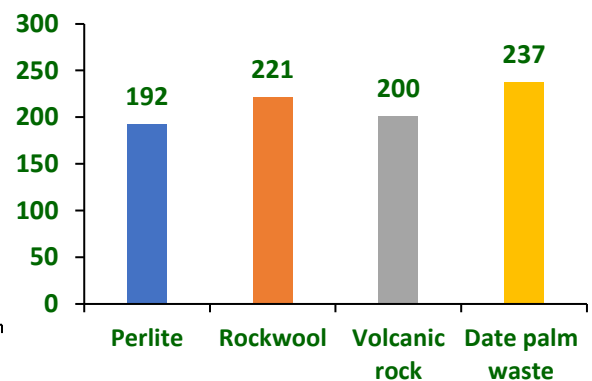
Result

- Sweet Pepper yield was improved by 12% when using Volcanic Rock growing media as compared with Rockwool (control).
- Yield of sweet pepper plants grown in Date Palm Waste formed between 88.2 % of Rockwool yield (control).
- Using Volcanic Rock improve WUE by 10.4% as compared with Rockwool (control).
- Water use efficiency was not improved by Date Palm Waste and it was 6.7% less than Rockwool.

Yield (kg/m²)



Water use efficiency (l/kg)



Conclusion

Volcanic Rock and Date Palm Waste could be used as Growing Media in Soilless culture in KSA instead of imported Rockwool because these materials are locally available and cheaper in price. However, Volcanic rock is a heavy material, but it can be used for several years. Date palm waste can be used only for one growing season, but it has no negative impact on the environment.