

Utah State University

DigitalCommons@USU

Hydroponics/Soilless Media

Research

2002

Carrot Cultivar Evaluation: Soilless Media vs. Hydroponics

Derek R. Pinnock
drpin@cc.usu.edu

Bruce Bugbee
Utah State University, bruce.bugbee@usu.edu

Follow this and additional works at: https://digitalcommons.usu.edu/cpl_hydroponics



Part of the [Plant Sciences Commons](#)

Recommended Citation

Pinnock, Derek R. and Bugbee, Bruce, "Carrot Cultivar Evaluation: Soilless Media vs. Hydroponics" (2002).
Hydroponics/Soilless Media. Paper 7.

https://digitalcommons.usu.edu/cpl_hydroponics/7

This Factsheet is brought to you for free and open access by the Research at DigitalCommons@USU. It has been accepted for inclusion in Hydroponics/Soilless Media by an authorized administrator of DigitalCommons@USU. For more information, please contact digitalcommons@usu.edu.





Carrot Cultivar Evaluation: Soilless Media vs. Hydroponics
 Derek Pinnock and B. Bugbee - 2002

Nine cultivars of carrots were grown in a growth chamber. Each cultivar was grown both in hydroponic and soil-less media root-zone for sixty days. Three 30L tubs were used for each root-zone treatment. Three cultivars were planted in each tub, initially at 180 plants m⁻² then thinned to 90 plants m⁻² on day 45.

PPF: 850 μmol m⁻² s⁻¹
Photoperiod: 16 h
Temperature: 22/20 oC day/night
CO2: 1200 ppm
Root zone 1: Soilless media (peat/perlite)
Root zone 2: Recirculating hydroponics
Days to harvest: 60

CONCLUSIONS:

1. Carrots can be grown in flowing hydroponic culture, but the percentage of split and forked roots was higher than in soil-less media.
2. The percentage of split and forked roots can be minimized by cultivar selection.
3. Carrots can be grown under HPS lamps.
4. Root shape was more typical in soil-less media than in hydroponics. Many hydroponic roots had a large top diameters with long thin tails.
5. The orange color intensity was better in soil-less media than in hydroponics.
6. It is essential to minimize light leakage around the stem base to eliminate chlorophyll formation in the tops of the storage roots in hydroponics.
7. Growth of the tops was overly vigorous. Height was 40 to 55 cm, which is taller than field grown carrots. Reducing nitrogen in the root-zone may reduce top growth and increase harvest index.
8. The best cultivars were:
 1. Scarlett Nantes: Best yield and shape in both types of media.
 2. Sweetness & Red Core Chantenay: good yields but atypical root shape.

CULTIVARS USED:

- A+ Hybrid
- Minicor
- Health Master
- Red Core Chantenay
- Scarlett Nantes
- Nantes Coreless
- Oxheart
- Long Imperator
- Sweetness

