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Strawberry Production Under Protected Cultivation: Feasibility and Challenges

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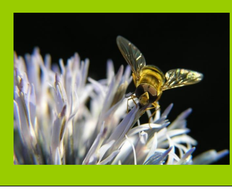

Introduction

New protected cultivation techniques have been developed, allowing year-round strawberry production, and are commonly used in northern latitude countries (i.e., Belgium, the Netherlands, UK, Japan). From February 2011 to January 2012, a trial was carried out to study the feasibility and challenges of strawberry production under protected cultivation at the ISH Research Greenhouse.

Objectives

- To study strawberry crop production and management under controlled greenhouse conditions.
- To evaluate everbearing strawberry varieties which are more suitable for protected cultivation.
- To produce strawberries using a more environmentally sustainable production system.
- To optimize environmental conditions for producing highly marketable fruit.

Materials and Methods

Three strawberry cultivars were used: Albion, Seascape, and Evie II.

Six different types of soil media were tested: cocopeat coarse, cocopeat fine, peatmoss, rice hulls, compost and worm cast.

Strawberry bare root plants were transplanted in 7 Litre pots on February 16, 2011 and grown until January 15, 2012.

Plants were irrigated regularly using a hydroponic system with 4.0 L/hour emitters with a blend of organic fertilizers, blood meal, humic acids, rock phosphate and potassium sulphate

Plants were harvested twice per week and data was recorded. (weight, number of fruits).

Predatory mites, wasps and other biological controls were used to suppress pests.

Biofungicides were used to prevent and control diseases such as powdery mildew.

Results

Variety Evie II had the highest number of crowns per plant (3.2) followed by Seascape and Albion (2.9)

Seascape had the highest number of flower clusters per plant (7.8) followed by Evie II and Albion (4.2).

Albion had the lowest number of flowers per plant (7.7).

Compost media had the highest water holding capacity.

Conclusions

Under the environmental conditions used for this study, Seascape was very prone to diseases such as powdery mildew.

The cultivar Albion had the lowest productivity. Albion had the highest sugar content and fruit quality, followed by Seascape and Evie II.

A well-balanced nutrient solution is required in order to achieve higher plant production.

Additional cultivars more suited to protected cultivation should be tested.

Strawberries have low water and nutritional requirements.

Overwatering causes fruit softness, shorter shelf life, and increased plant disease.

This strawberry production technique is feasible in the northern latitudes.

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