Main problems and first approach for solutions in organic nursery production

Die wichtigsten Probleme und erste Lösungsansätze in der Öko-Baumschule

Jutta Kienzle[1], Barbara Kopp[2], Dietmar Schlüter, Claus P.W. Zebitz[1]

Abstract

Planting trees produced in organic nurseries, more and more is a prerequisite in organic production. Thus, availability of young trees from organic production in good quality and at a manageable price is required. A project from the "Arbeitsgemeinschaft Oekologischer Baumschulen", funded by the Federal Ministery of Food, Agriculture and Forestry is focussed on the development of first approaches to improve the technique of production in organic apple nursery. The project is presented, main problems in production and first approaches for solutions are discussed.

Keywords

Nursery, organic production

Introduction

The apple nursery is one of the most intensive production lines in fruit growing. In the last years, the demands on the quality of trees were considerably increased. Two years old vigorous trees with good ramification are requested from the fruitgrowers.

Organic nurseries often have problems to achieve these requirements at a manageable price. If the organic fruitgrowers are to be motivated to buy organic trees, this can not only be realized by tightening the guidelines. Research has to be done to improve the technical aspects of nursery production and to pull down the costs.

Only very few research results on organic nursery production are availablein the literature yet. In 1999, the "Arbeitsgemeinschaft Oekologischer Baumschulen" started to work on different technical aspects of apple nursery production in the frame of a project funded by the the Federal Ministery of Food, Agriculture and Forestry. In the following, the main problems the project is dealing with are described. The different approaches for solutions tested are presented and a first orientative estimation (based on one year results) of their possible interest for practice is given.

Main problems and approaches for solution

In discussion with the producers the following questions were named as top important:

[1] University of Hohenheim, Institute for Phytomedicine, D-70593 Stuttgart

[2] Beratungsdienst Ökologischer Obstbau e.V., Traubenplatz 5, 74189 Weinsberg

- Ramification
- Aphid control (green apple aphid *Aphis pomi* De Geer)
- Fertilization and soil management

The project does not refer to weed control.
All questions are tested on the variety "Topaz" being most important for organic fruit growing.
The following parameters are tested:

Ramification

Standard is:

- a mechanic method to improve ramification (3 times "topping"). This method is effective but very expensive due to the enormous input of manual work.
- To be tested:
- several plant strenghtening products based on algae or plant extracts which contain substances that may have some physiological effects and therefore might improve ramification.
- the application of high concentrations of potassium soap (Neudosan) to substitute at least partially the mechanical act of "topping" by cauterisation of the apical leaf (cost reduction)

According to first results, the plant and algae extracts seem not so interesting for the improvement of ramification. More promising were the effects of cauterisation by application of potassium soap. These trials were started in 2000 based on results of HUBER (2000) at the Versuchsstation Laimburg. In the next year the trials will focus on the evaluation of the possible utilisation of the cauterisation with soap for the reduction of the number of "toppings" and with several applications all during the season for further improvement of the ramification.

Aphid control

The rosy apple aphid is sufficiently controlled by applications of NeemAzal-T/S. The green apple aphid caused substantial damage during the last years. Different products to control this pest were tested. The effect of Neudosan (product containing potassium soap) applications in most cases were not satisfying. More promising was a standardized *Quassia* extract in combination with low concentrations of rape seed oil (Telmion) and Neudosan. These findings correspond to the observations of Hoehn et al. (1996) concerning the effect of *Quassia* on the green apple aphid. In the next year these first orientative results must be verified.

Fertilization

Different combinations of soil management, organic soil fertilization and leaf fertilization are tested. Results will be available next year.

Conclusions

Different approaches to improve the technical aspect of organic nursery production were and will be tested. According to first results, there seems to be a considerable potential to improve the quality of the trees and to reduce the risk (aphid control) of production. Furthermore, there may be a certain potential to reduce the costs of production. However, this potential should not be overestimated.

Literature Cited

Huber, W. (2000): Alternative Verzweigungsmethoden zur Anzucht von Baummaterial für die biologische Apfelproduktion. Diploma thesis, BoKu, Vienna 2000

Höhn, H.; Höpli, H. U.; Graf, B. (1996): Quassia und Neem: exotische Insektizide im Obstbau. Schweiz. Z. Obst-Weinbau, 3, 62-63