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Where Berry Plants Come From

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As you plant your strawberry and raspberry plants this spring, you might want to consider what steps are taken to ensure that you receive healthy plants that are true-to-type. In Ontario, we have been continuing to take steps in our propagation program to improve the quality and plant health of the strawberry plants that you receive from our propagators.

Over the last ten years the Ontario Strawberry and Raspberry Plant Propagation Program has moved from a fully government funded program to a privatized one. This has required everyone to adjust to a new reality. The Ontario program is now run by the Achene Committee of the Ontario Berry Growers Association (OBGA). The committee has representatives from all sectors of the Ontario berry industry, growers, propagators and directors of the OBGA, and the research and extension community. In 2002, we completely revised the program as the last step in the privatization process.

Stock plants are now maintained and the virus testing done at the SPUD Unit of the New Liskeard Agricultural Research Station (NLARS), University of Guelph in northern Ontario. In 2002, OBGA received funding from the Northern Ontario Heritage Fund, and from Agriculture and Agri-Food Canada through the Agricultural Adaptation Council's CanAdapt program, to develop a centre of expertise for berry plant propagation in New Liskeard.

A new screenhouse has been constructed at NLARS to house the stock plants for the plant propagation program. Stock plants of every variety in the program are maintained in the aphid-proof screenhouse protected from insect vectors and disease. These plants are used as a source

of plants for micropropagation. In micropropagation, a very small piece of a plant's growing point is grown in sterile conditions to produce a plant that can be multiplied very rapidly.



Screenhouse construction was completed in the winter of 2003/04.
The SPUD Lab and greenhouses are in the background.

Now that the program has been consolidated at New Liskeard, we have been able to introduce more quality checks. Before we use any cultivar, its stock plants must test virus negative. Once it has tested negative for viruses, it is DNA tested to ensure it is the correct variety. The OBGA began DNA testing the stock plants in the propagation program in 2000 and this process already has been able to identify some mixes before the plants were sold.

Most strawberry and raspberry propagation programs throughout the world micropropagate at least some of their plants. At the SPUD Unit we have been micropropagating strawberries for the Ontario program for nine years. We micropropagate at the most for ten generations to ensure that no off-types occur. As part of this process the very small plants are grown on media to test for the presence of fungi and bacteria. Once they have been shown not to be infected they go through the final stages of micropropagation, are acclimatized in an isolated screened greenhouse and sent to the propagators. The propagators then grow the plants for three years. The first year they are grown in an insect proof screenhouse, followed by two years in the field. Throughout the time the plants are in the program, strict guidelines to reduce pests and disease and the potential for infection are enforced. This includes specified isolation distances, soil and root samples for nematodes, and tolerance levels for viruses, fungi and insect pests.



Strawberry plantlets in test tubes for micropropagation



Strawberries are grown a maximum of 10 generations on multiplication medium



Micropropagated seed potatoes, strawberries and raspberries are grown in the Growth Room or growth chambers

To ensure that the guidelines are followed, the screenhouses and field are inspected twice a year by a government-approved inspector. The inspector inspects the fields for disease problems and varietal mixtures. Screenhouse plants or varietal blocks in the field are destroyed if the disease tolerance levels are not met.

Our philosophy in the program is to build in as many checks as possible. Consequently, observation plots of micropropagated plug plants of all varieties are planted at the Simcoe Research Station, of the University of Guelph. These plots are checked for disease symptoms, plant abnormalities and variety mixtures and are inspected at least once a year by a group made up of growers, propagators and scientists. They are fruited for two years and the results of the inspections communicated to the propagators and the SPUD Unit. If a problem is found it can be traced throughout the whole propagation program, as we have developed a tracking system to follow each lot through the program.

Our propagation program may seem fairly simple, but at any one time there are plants at five different stages of propagation: nuclear stock, micro-propagated plants, screenhouse, and two generations of field plants. So, to provide healthy plants which are true-to-type, requires the care and dedication of many people from a number of organizations. Our propagators are Strawberry Tyme Farms Inc, RR2, Simcoe, ON N3Y 4K1, phone 519-426-3099, and Ghesquiere Plant Farms Ltd, 36 Evergreen Hill Road, Simcoe, ON N3Y 1B8, phone 519-428-1087. Their plants are the only ones grown in the Province under the Ontario Strawberry and Raspberry Plant Propagation Program and are carefully monitored and checked for their health status and trueness-to-type. In addition, they support the program with a check-off from their sales of plants. Now that our newly revised program is in place we hope that you will receive healthy, true-to-type strawberry and raspberry plants for many years to come.

New and updated information in publication #360 *Fruit Production Recommendations* includes:

- New products for insect and disease control
- Saskatoon pest control calendar
- More notes on insects and diseases, including life cycle, monitoring, and management tips
- Chemical family groups for fungicides and insecticides
- Days to harvest and re-entry periods for all recommended products
- List of all products with schedule, PCP#, active ingredient
- Bee toxicity
- Cover crop management
- Food safety