

The Production and Supply of High Quality Vegetable Plants in Aichi

Shinji Sugawara

Institute of Horticultural Research, Aichi Agricultural Research Centre, Sangamine, Yasago, Nagakute-cho, Aichigun, Aichi 480-1100

The supply of virus-free plantlets produced by meristem culture has increased the productivity and promoted the production of clonally propagated vegetables. In Aichi Prefecture, plants produced in this manner include strawberries (*Fragaria*), Japanese butterbur (*Petasites japonicus*), and Japanese yam (*Dioscorea batatas*). Fifteen years ago, it was expected that the large-scale production of micropropagated plants and seeds would become a commercial reality. However, even today, these propagation methods have yet to overcome the problems of high cost and mutation. This report covers the supply method for virus-free plantlets.

MATERIALS AND METHODS

The Supply of Virus-free Plantlets. In Aichi prefecture, shoot meristems are excised and cultured to produce virus-free plants in accordance with the estimates of a committee set up to forecast demand. Acclimatized plantlets are cultured at first at the Horticultural Nursery Plant Center and then propagated at the Regional Propagation Farm and Local Propagation Farms, from where the plants are supplied to farmers.

The Effect of Supplying Virus-free Plantlets. By 1996, the area growing strawberries (*Fragaria*) propagated by this system was 405 ha and fruit production was 12,900 tonnes, the fifth largest production area in Japan. The supply of virus-free plants started in 1987, and has steadily increased fruit yield. In 1996, the area planted in butterbur (*Petasites japonicus*) was 150 ha, the largest production area in Japan. By the use of virus-free plants since 1995, production has increased 129%. With the supply of virus-free plants of Japanese yam (*Dioscorea batatas*), the area planted has increased from 14 ha in 1994 to 15 ha in 1996 and promoted production in the mountain area.

The Selection of Cultivars and Supply of Acclimatized, Uniform Plants. Cultivars for virus-free plant production are selected by the Aichi Agricultural Research Centre.

Promising cultivars of strawberry are 'Tochiotome', Aichi No.4 and Aichi No.5. The Aichi Agricultural Research Centre is supplying virus-free mother plants, 120 plants of strawberry, 400 plants of butterbur, and 250 plants of Japanese yam, to the Horticultural Nursery Plant Center every year.

The Propagation Program of the Horticultural Nursery Plant Center. The Horticultural Nursery Plant Center propagates nursery plants of strawberry, butterbur, and Japanese yam. In 1996, 7500 and 4100 plants, respectively, of

strawberry and butterbur and 86,000 aerial tubers of Japanese yam were propagated. This production was carried out by three full-time and six part-time staff, working in a 1294 m² greenhouse and a 360 m² isolation house. The budget in 1996 was 28 million yen.

Propagation at the Regional Propagation Farm. There are 23 regional propagation farms for strawberries, and some of them have introduced the rockwool culture system. There are six butterbur regional propagation farms and these supply one third of stock requirements. Twelve Japanese yam regional propagation farms supply 1-year tubers to growers.

The Future Supply of Virus Free Plants. There is no plan to introduce crops other than these three into the propagation program because of lower production levels in Aichi prefecture.

We will continue to improve the system and efficiency to ensure the production of disease-free plants, one example would be the greater utilization of the rockwool system for strawberry production.