

Current Status of Virus-free Strawberry Stocks In Eastern United States

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The discovery by J. B. Demaree in 1946 that most strawberry plants in eastern United States were infected by one or more viruses, and the subsequent location and distribution by the U. S. Department of Agriculture of virus-free stocks have resulted in a truly remarkable improvement in plants available to the fruit grower.

The first virus-free strawberry plants were released in 1951. Since that time some 65 stocks of 52 varieties have been distributed by the U. S. Department of Agriculture. The more important strawberry varieties found free of detectable viruses and distributed by the U. S. Department of Agriculture follow: Albritton, Arapahoe^a, Armore, Aroma^b, Beaver (from F. A. Gilbert, Wisconsin), Bellmar, Blake-more, Catskill, Dixieland, Dunlap, Earlidawn, Eden, Empire, Erie (from A. J. Braun, New York), Fairfax, Florida Ninety, Gem (Superfection), Headliner, Howard 17 (USDA strain), Jerseybelle (freed of virus by heat treatment), Konvoy^b, Klondike, Klom-more, Lassen^c, Marshall^a, Massey, Merrimack, Midland, Missionary, Orland^b, Pocahontas, Redglow, Redstar, Robinson, Siletz^a, Sioux^b, Sparkle, Stelemaster, Streamliner, Surecrop, Tahoe^c, Tennessean^b, Tennessee Beauty, Tennessee Shipper, Vermilion, William Belt^b.

The earlier virus-free plants were found by indexing vigorous plants

from field plantings and propagating those which proved to be virus-free. More recently, several virus-free stocks cured of virus by heat-treating the plants have been released. Unfortunately, heat treatment is effective on only certain viruses, and several older varieties carry viruses which cannot be so inactivated.

Making use of these virus-free stocks, 12 Eastern States (Arkansas, Delaware, Indiana, Kentucky, Maryland, Michigan, New Jersey, North Carolina, Ohio, Tennessee, Vermont, and Wisconsin) now have programs which certify plants as being substantially virus-free. Certification is made on the basis of special conditions under which plants are grown. The regulations vary in the different states. All states, however, specify the source of virus-free foundation stock to be used; the acceptable period for growing it in the field before turning to new planting stock; the protection necessary against the aphids which transmit the strawberry viruses, by isolation from possible virus sources or by insecticidal dusting programs; and such measures as are required to keep stock free of other strawberry diseases and pests.

The effectiveness of the regulations has been indicated in several states by the very low percentage of virus-infected plants found in nursery stocks after one to six years of prop-

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^aFrom P. W. Miller, Oregon.

^bPossibly no longer available from nurseries.

^cFrom California Department of Horticulture.

agation in the field. As most states require frequent and periodic replacement of all nursery stock from a known virus-free foundation or screenhouse stock, there should be little chance for extensive contamination of certified virus-free stocks by viruses.

Perhaps the primary reason for the success of virus-free strawberry plants so far has been the inherently greater vigor of virus-free stocks. A nurseryman can produce so many virus-free strawberry plants per acre that he can absorb the additional costs of fulfilling the certification requirements (soil fumigation, insect control, isolation, special planting stocks, etc.) and sell the better virus-free plants for approximately the same price as the older common stocks.

The benefits from virus-free strawberries are also realized by the grower. Recently it was shown that when Blakemore and Catskill were experimentally infected with either of the two virus complexes common in the eastern United States, runner production decreased by 3 to 46 per cent, fruit yield by 16 to 72 per cent, and fruit size by 22 to 48 per cent.

The additional vigor of such prolific runner makers as Dunlap, Robinson, and Blakemore makes it preferable to space virus-free plants farther apart in the rows and to limit or remove late runners.

In general, the plant improvement resulting from freedom from virus has been more than just increased vigor. Attention given also to eliminating or reducing other strawberry troubles has reduced leaf diseases, root nematodes, and insect pests carried in or on the nursery stocks. The attention to foundation stock sources has reduced variety mixtures and off-types. Strawberry fields of several varieties from

virus-free stock have retained their vigor for as long as 5 years.

The strawberry grower can look forward to continued high-quality stocks as new varieties from breeders are released free of virus, as these are maintained along with the better older varieties, and as more states and nurseries produce more certified virus-free stock. Under such a program, our good varieties will not run-out after a few years but should remain vigorous and productive.



The Monroe Apple*

Ten years ago, a new apple variety was introduced by the New York State Agricultural Experiment Station, Geneva, New York. It was named "Monroe" after Monroe County in Western New York.

The new variety resulted from a cross between Jonathan x Rome Beauty and is considered as a dual purpose variety—being a good dessert variety as well as a good processing type. The fruit runs medium to large in size, develops an excellent, nearly solid red color, is firm fleshed, of subacid flavor and good quality. The trees are apparently hardy, annually productive, and the fruit hangs well without the use of a stop-drop spray. It was introduced as a possible replacement for Baldwin, an old variety with many horticultural faults. Monroe is subject to Powdery Mildew, and the usual precautions for the control of this disease should be followed.

Thousands of Monroe trees have been planted in western New York and many fine reports from both growers and processors would seem to indicate that Monroe is destined to become an important commercial variety.—L. G. Klein, Geneva, N. Y.

*See front cover.