Vegetatively Propagated Selections of *Prunus fruticosa* as Dwarfing Stocks for Cherry[1]

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The Siberian (Steppe) Cherry, *Prunus fruticosa* Pall., has shown much promise as a dwarfing rootstock for both sweet cherry and sour cherry cultivars in preliminary testing at Geneva, New York, and at Oppenheim/Rhein, Germany (7, 8). Six Geneva selections are being released to experiment stations for limited trial.

Evaluation of *P. fruticosa* from central Europe was initiated at Geneva in 1954 by the late Karl Brase. Seedlings were budded to either Schmidt's Bigarreau, Emperor Francis or Hedelfingen sweet cherries, or to Montmorency sour cherry. Eight maiden trees were set in the N. Y. State Agricultural Experiment Station orchard in 1956. Individual stocks were designated FR-1 to FR-8 (Table 1)

Orchard performance. — All trees bloomed and set fruit in the second season in the orchard (3) (Fig. 1). Very heavy cropping and very limited growth were characteristic of the trees in subsequent years (Fig. 2). One

Fig. 1. Trees of Schmidt's Bigarreau, Emperor Francis, and Windsor in blossom 2 years after planting.

Table 1. Tree sizes of cherries on *Prunus fruticosa* rootstocks after 15 years in the orchard.

Scion Cultivar	Rootstock Clone No.	Height (m)	Spread (m)	Trunk Cross-Sectional Area (cm^2)
Montmorency	FR-1	2.7	3.7	99.7
Windsor	FR-3	2.1	3.2	75.0
Windsor	FR-4	1.8	2.6	63.4
Emperor Francis	FR-5	2.4	3.0	92.5
Schmidt's Bigarreau	FR-6	2.1	2.9	124.1
Schmidt's Bigarreau	FR-8	3.0	4.0	230.2

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tree was destroyed by mechanical injury and one by high winds. In 1972, after 15 years in the orchard, the 6 surviving cherry trees were 1.8 to 3.0 meters high and had spreads of 2.6 to 4.0 meters (Table 1; Fig. 3).

The limited growth rate and very heavy fruit set contributed to a low leaf/fruit ratio and consequently small fruit. Invigorative pruning and heavier fertilizer regimens were used in 1970 and 1971, resulting in better vegetative growth and larger fruit size.

Anchorage of the sweet cherries was not as firm as that of standard trees. However, that 6 of the original 8 trees have survived 15 seasons without supplementary support implies an adequate self-support capability. Suckering has been moderate under 3 of the 5 sweet cherry trees. Sucker production has been heavy under FR-8, which is the largest, best-anchored, and most productive tree. Routine orchard floor management practices give effective control of the suckers, and they present no economic problem.

Field Resistance to Leaf Spot. — As a species, *P. fruticosa* was described as susceptible to the same strain of *Coccomyces hiemalis* as are *P. avium*, *P. mahaleb*, and *P. cerasus* (6). However, some individual seedlings of *P. fruticosa* are resistant to the disease. Susceptible plants were rogued from the seedling row before budding in 1955. No field infection of cherry leaf spot on liners of the new Geneva FR clones has been observed, although unsprayed *P. avium* seedlings have been severely infected.

Climatic adaptability. — As implied by its common names, *P. fruticosa* is fully hardy in the rigorous climates of the Siberian steppe (2) and of the Canadian prairies (1). At Geneva, *P. fruticosa* bushes bloom about 1 week later than Montmorency cherries. Terminal growth ceases by early July and buds appear fully dormant by mid-August. Plock reported his *P. fruticosa* selections to be drought tolerant (8).

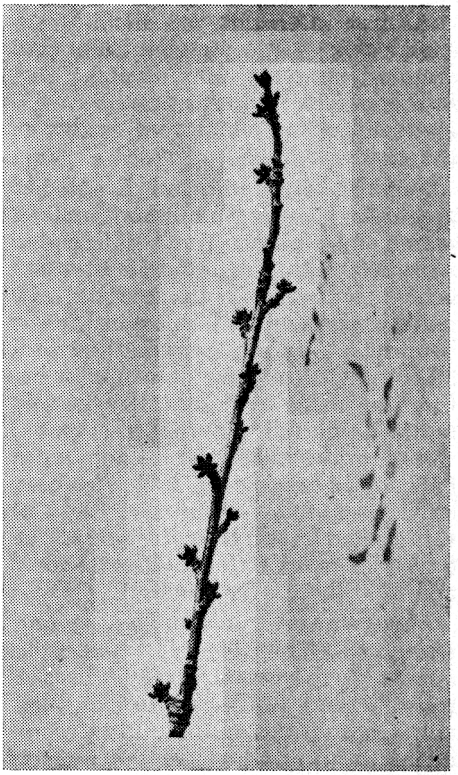

Fig. 2. Tip of typical scaffold of Schmidt's Bigarreau/*P. fruticosa* showing spurry growth and limited extension.

Propagation by Seedage. — If no late-blooming trees of other species are nearby, *P. fruticosa* can be propagated by seed. The species hydridizes readily with *P. cerasus* (1). Pits must be stratified for at least 90 days at about 30°C. Germination is usually 5 to 10%. Seedlings require 2 years to attain budding diameter at Geneva. Since the bark is tight by August 1 at Geneva, budding must be done very early. "Jones" budding of seedlings with tight bark has not been successful. In the nursery row, seedlings are quite variable in vigour and budded trees grow variably.

Asexual propagation. — In the orchard, few of the many suckers produce adventitious roots during 2 season's growth. Plock, however, has made selections which root readily in the stoolbed (7, 8).

Suckers with etiolated bases and greenwood cuttings will root readily under intermittent mist if treated with 2000 ppm IBA (indole-3-butyric acid). Softwood cuttings root very readily but survival has consistently been low. Soaking leafy cuttings in a 3000 ppm suspension of benomyl before the IBA treatment has greatly reduced mortality during the first 3 weeks under mist (5). Each week flats are drenched with 1000 ppm benomyl + a foliar fertilizer. Flats of well-rooted cuttings are removed the 6th or 7th week to a 5°C storage room and held there over winter.

Value of clonal selections of Prunus fruticosa. — The Geneva FR selections appear to be winter-hardy, disease-resistant and possibly drought tolerant. Cherry trees on these stocks commence bearing when very young and set very heavy crops. The mature trees are about ¼ as large as trees of comparable age on *P. avium* or *P. mahaleb* roots (4, 9).

Only the 6 original trees, now 15 years old, have been available for observations. The marginal anchorage and considerable suckering are minor disadvantages. Propagation of greenwood cuttings under intermittent mist is relatively expensive. Inprovements in stooling or hardwood cuttage techniques could significantly reduce cost of stock productions.

For limited trial, New York State Agricultural Experiment Station, Geneva, is releasing to experiment stations the 6 stocks FR-1, FR-3, FR-4, FR-5, FR-6 and FR-8. Virus-free scion wood may be purchased from the New York State Testing Cooperative Association, Geneva, in 1972-1973. Limited quantities of rooted shoots will be available in 1973-1974. Commercial planting is not recommended at this time.

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Fig. 3. Schmidt's Bigarreau/*P. fruticosa* FR-8 after 15 growing seasons in the orchard. This is the largest of the 5 surviving sweet cherry trees on Siberian cherry rootstock (see Table 1).

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Golden Anniversary of Fruit Trials in England

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The National Fruit Trials at Faversham, Kent, England is celebrating its 50th Anniversary in October of this year. In 1922, the Ministry of Agriculture and the Royal Horticultural Society took the first steps to establish the trials, believed to be the first in the world, at the Royal Horticultural Society's Gardens at Wisley. In 1952, the trials were moved to the Brogdale Farm just south of Faversham at a more favorable climate location. The first director was A. N. Ramer, who was succeeded in 1936 by J. M. S. Potter. Later this year P. H. Harding will become the director.

Throughout its 50 years, such names as Sir Daniel Hall, Sir Thomas Neame, Sir Ronald Hatton, Dr. F. R. Tubbs, M. B. Crane, Spencer Mount, Paget Norbury and many others have been closely associated with the National Fruit Trials.

Presently in the collection are 1900 apples, 250 cherries, 470 pears, 400 plums, 8 quince, 30 blackberries, 200 currants, 3 elderberries, 220 gooseberries, 40 hazelnuts, and 30 vines. Under trial are 177 apples 62 cherries, 20 pears, 30 plums, 22 black currants, 12 raspberries and 24 strawberries. Although hundreds of varieties have been avaluated, only about 3% have been established commercially.

The sources of plant material have included amateurs, nurserymen and plant-breeders from all over the globe. The National Fruit Trials is unique and have benefited the entire fruit industry.

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