besseyi. Marianna plum (*Prunus cerasifera* × *P. miunsoniana?*) and myrobalan plum (*Prunus cerasifera*) root easily as hardwood cuttings directly in the field row so we don't use greenhouse space for these.

One might ask why go to all this trouble to root M×M in the summer. We do this because it is a root we like to use and we are unable to obtain it elsewhere. We have seen no crown gall on M×M and haven't inoculated with an antagonist when planting in the field. It is compatible with all the cherry cultivars we use. We are able to bench graft these newly-rooted cuttings by bringing the flats back in to the greenhouse in late January. We force root activity with bottom heat and graft using the chip bud and the whip graft.

When all danger of frost is past, we plant directly in the field with actively-growing scion and rootstock. All of this process has taken only seven months starting from scratch, as opposed to the conventional method of two or three years.

LITERATURE CITED

1. Westwood, M.N., A.N. Roberts, and H.O. Bjornstad. 1976. Comparison of mazzard, mahaleb and hybrid rootstocks. *J. Amer. Soc. Hort. Sci.* 101(3) 268-269.

A STUDY OF POTTING MIXES

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At the request of the California State Department of Food and Agriculture a study was made of commercial potting mixes available on nursery shelves for purchase by the general public. This request was made because of complaints from consumers based on the performance of some of the mixes.

Twenty-nine potting mixes were purchased off the shelves of all type nursery outlets. The following are the mixes that were tested and these include the U.C. mix which was used as a standard or check, since knowledge of its performance was well known.

APG Potting Soil
Angel City Potting Soil
B's Worm Castings, an Organic Planting Mix
Bandini Potting Soil
Best Potting Soil
Black Magic Complete House Plant Mix
Eager Beaver Potting Soil
Earth and Sea Brand Live Earth Potting Soil

Envee Extra Rich Potting Soil
49'er Gold Strike Potting Soil
Garden Potting Soil
Greenall Potting Mix
Jungle Growth Enriched Organic Potting Soil
Kellogg's Indoor and Outdoor Potting Soil
K-Mart Potting Soil
Nurseryman's Potting Soil
Original Supersoil Steam Sterilized Potting Mix
Payless Potting Soil
Potting Soil
Queen Turf Indoor Outdoor Potting Soil
Rescue Planter Mix
Roger's Potting Soil Mix
Sierra Potting Soil
Soil-Prep Potting Mix
Super Blue Tag Potting Mix
Super Earth Enriched Potting Soil
Superior Potting Soil
Sur-Gro
Vigoro Potting Mix
U.C. Mix (Check)

We did not attempt to determine the components in the mixes. Information on the bags ranged from simple "Potting Mix" to a very long list of ingredients. It was obvious from the wide range of colors and textures that the mixes contained a variety of ingredients.

All the mixes were tested for pH., salinity, boron, chloride and heavy metals prior to planting. Most of the mixes were in a satisfactory range with respect to these analyses but there were exceptions. All had adequate to excellent drainage.

In the plant growth tests all mixes were irrigated regularly with water containing 150 pm nitrogen and 150 pm potassium. They were also rotated daily on the bench to avoid microclimate effects in the greenhouse.

During the progress of the tests it became suspect that some of the plants were showing phosphorus deficiency symptoms so additional tests were made adding 2½# single super phosphate per cubic yard of mix. In some cases this application of phosphorus made a dramatic change in plant growth, in others no response was observed. This informed us that some of the formulators were not incorporating phosphorus in their mix.

Another observation was an extreme drop in pH. during the three months of plant growth in some of the mixes. This was positively correlated with the concentration of ammonium nitrate in the saturation extract of the initial mix. Some mix formulators add an ammonium form of nitrogen as a preplant fertilizer. This is a desirable practice; however, it can be over done.

Toxicity, due to a very high concentration of heavy metals was a problem in several of the mixes. The source of these toxic materials was suspected to be sludge which was incorporated as part of the mix ingredents.

Each formulator has been contacted by Dr. Branson, Dr. Rible, Dick Maire and Ralph Strohman to inform them of the tests — what was done — how it was done — how their mix performed in relation to other mixes — what the problem was if we could determine the cause, and what they could do to cor-

rect it. Reception by the formulators has been most gratifying, each welcomed our report and our suggestions for improvement in formulation where advisable.

Through these tests and our work with the formulators it is hoped that the industry will regulate itself so that all mixes produced are high quality and are consistent.

PEAT, PESTS, AND PROPAGATION

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Peat has been a standard component of propagation and growing media for many years. Bunt (3) describes peat as by far the most widely used material for making plant growing media. Its water-holding capacity is valued in propagation. In growing media, its nutrient holding capacity, "buffering" capacity against rapid pH changes and excessive soluble salts accumulation, and ability to improve aeration are additionally useful.

Peat is far from being a uniform product (3,11). Nursery and greenhouse growers experience variable performances with use of different peat sources.

Varying physical and chemical properties of peat depend primarily on the nature and origin of the plant remains of which it is composed and their degree of decomposition (14). Commonly used peats consist mostly of decayed sedges, mosses, reeds, and grasses. Different types of peat, in varying states of decomposition, occur at specific locations throughout the world, mostly in the boreal climates of the Northern Hemisphere — Canada, Scandinavia, and Russia.

Contaminants also contribute to the variable results in using peat and affect its value. Resulting disease and pest problems may occasionally occur to adversely influence plant performance.

Contamination of Peat. Increased concern with contamination of peat has been expressed in recent years (2,8,10,12). Although some products are labeled "sterilized," "no fungi," or "weed free," peat has been detected as a source of pathogenic fungi, weeds, and nematodes (1,2,4,8).

Peat, as a source of pathogens and pests, is a controversial subject. Peat has traditionally been regarded as being relatively sterile and some have questioned the need to be concerned

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