

Innovation in: Nursery Wagons, Overwintering Techniques, and a Potting Machine

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There are three items I would like to show you this morning.

1) Wagon for the Container Field. We have about 20 wagons, 7 ft wide and 16 ft long, single axle for easy backing up. Each is fitted with a quick hitch for fast hook up and disconnecting. The underside of the wagons have a steel frame with a wooden deck. Each costs about \$400 in materials and 1 day's labor.

2) Minimum Heat for Polyhouses. For minimum-heat polyhouses we use regular coldframes, with 2 layers of poly and inflate it. For heat we purchase used natural gas furnaces from a local heating contractor. A 120,000 BTU furnace will give sufficient heat for a 20 ft × 200 ft house. The idea is to keep the worst cold off and we don't have the hassle of thermoblankets. Heating cost on average per year are +/- \$400 for approximately 8000, 2-gal containers. We put an 18-inch polytube through the center of the house. It is installed the first week of December and removed the beginning of March.

3) Portable Potting Machine. All our container beds are 48 ft wide with a 3-inch irrigation pipe through the center. Beds are accessible from both ends. We put a JAVO super on a portable platform that's about 8 inches from the ground. The

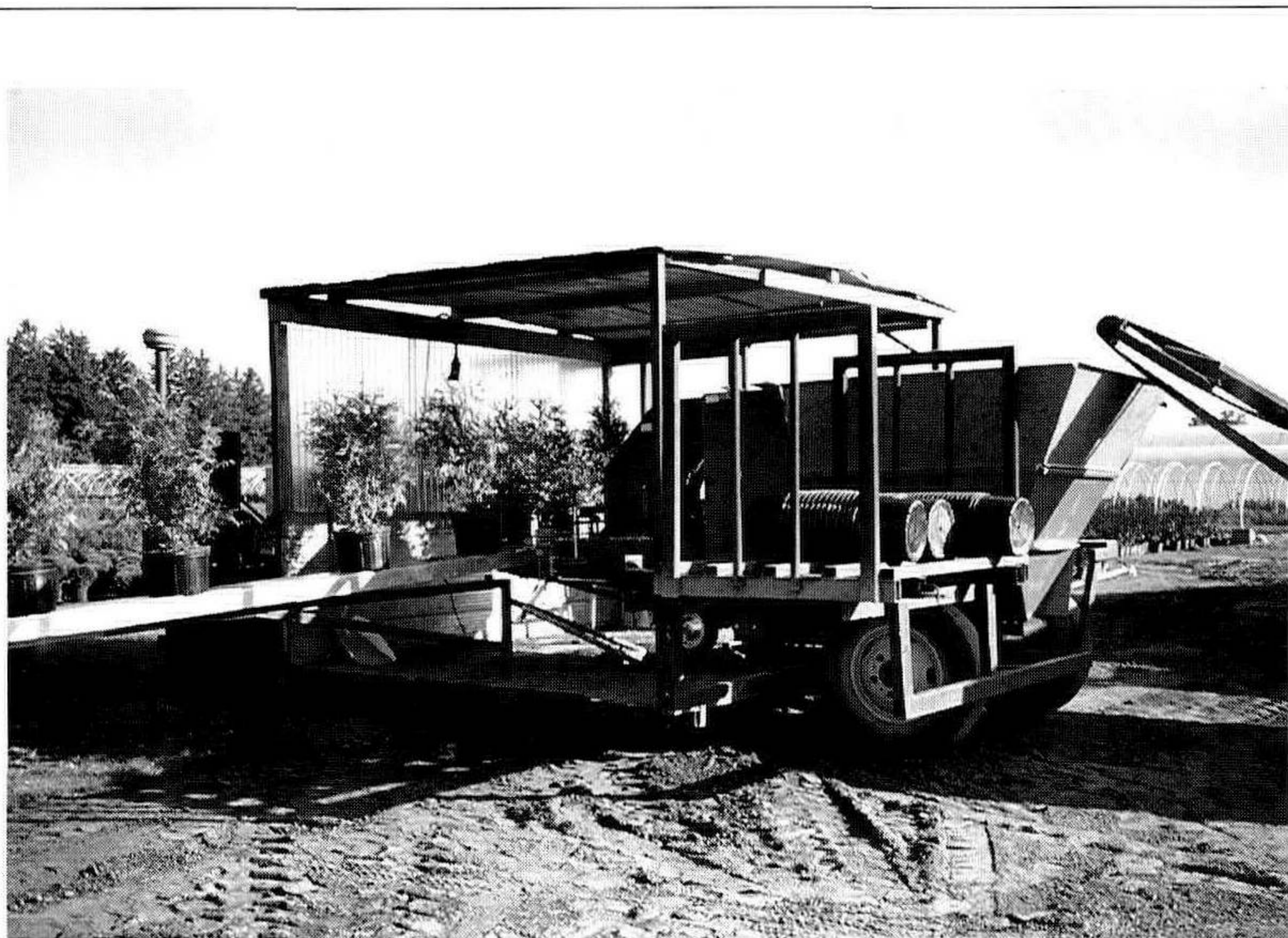


Figure 1. Portable potting machine.

machine consists of a power unit (engine) with a hydrostatic drive, the platform for the potting machine itself with a roof overtop, and a bin carrier for the containers (Fig. 1).

We drive the potting machine along side of the beds where ever we want to pot. A 20-ft aluminum belt brings the potted plants $\frac{3}{4}$ the distance into the beds. There are only four people running this machine, one putting pots onto the machine, two people potting, and one person taking the plants off the belt. These four people can do about 1200 to 1500 2-gal containers per day.

Controls consists of steering wheel, throttle, and the groundspeed control (hydrostatic drive). Power is supplied by a 90 hp International diesel engine that runs on idle. It drives the hydrostatic drives and a 15 KV generator. The noise level is very minimal as long as you choose the right generator. The potting mix is supplied with a portable custom-built soil mixer. It brings about 3 yards of soil at a time.

Simultaneous Top Grafting of *Salix* Standards and Hardwood Rooting of the Understock

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INTRODUCTION

The nursery production of top-grafted standards is one of the most expensive production processes that a nursery incurs. Producing a quality understock may take up to 3 years and it could be another 2 years before a top-grafted standard is saleable after chip budding or grafting.

In a constant effort to reduce production time we have been able to produce top-grafted *Salix* taxa in only 1 to 2 years with excellent results.

MATERIAL AND METHODS

Plant Material Preparation. *Salix* \times *smithiana* understock is collected from field, trying to pick straight 5- to 6-ft stems, and placed in a cooler at 2F until needed, during above freezing weather in early February.

Propagation Medium. One-gal pots with soil mix containing peat moss, pine bark, and perlite (1 : 1 : 1, by volume) and Osmocote 19N-6P-12K fertilizer (slow start) at 7 lb yd⁻³ are prepared. Pots are place in a greenhouse with bottom heat, watered, and covered with clear 2-mil plastic. The soil temperature must be between 60 and 65F and the air temperature held around 45 to 50F.

Grafting.

- Bees' wax is melted and maintained at the desired temperature.
- Scionwood is collected from mature stockplants making sure that it is in good condition and placed in a cooler at 2F until needed; keep the scionwood moist at all times. Store scionwood is kept in wet burlap or in thin plastic bags with holes to provide drainage. This prevents scionwood from becoming waterlogged.