

PAPERPOT CONTAINERIZATION IN MANITOBA 1/

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Abstract.--In Manitoba, experimentation with container stock began in 1969, using Ontario tubes. In 1973, the Japanese paperpot was selected for further production, and production facilities were expanded and modified. A movable greenhouse is used with 4 foundations.

In Manitoba, experimentation with container stock began in 1969, when the first small 24x32 foot corrugated plastic greenhouse was erected. The Ontario plastic tube (9/16" x3") was used. Trial plantings were set out throughout the province even earlier and field performance was checked. Species used were white spruce (*Picea glauca* (Moench.) Voss.), Scotch pine (*Pinus sylvestris* L.), jack pine (*Pinus banksiana* Lamb.), and red pine (*Pinus resinosa* Ait.).

A second small greenhouse was built in 1971 and trials of Japanese paperpots started. Container trays were set out on treated decks. Supplementary lighting was used and the greenhouses were heated with propane furnaces.

In 1972 and early 1973, serious production failures occurred. Tests conducted in growth chambers by the Canadian Forestry Service established that wood preservative used on decking and plywood trays produced phytotoxic fumes. The fumes caused extensive mortality to coniferous seedlings shortly after germination.

In 1973 it was decided that Japanese paperpots would be used as the standard container, based on performance of outplanted stock, ease of handling, etc. Production facilities were expanded and modified to decrease handling of seeded trays. These now consist of:

Structure: a 96'x27' 4 oz. fiberglass-covered greenhouse lined with 4 mil poly, movable on rails over a total of 4 foundations.

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Ventilation: 30" circulating fan jet, and 42" ventilating fan with thermostat controlled shutter.

Heating: leadsheath 400 watt heating cables
90 - section #1, 60 - section #2.

Overhead auxiliary heaters - 4 - 2,500 watt, 2 - 5,000 watt.

Standby - Herman Nelson 250,000 BTU.

Temperature alarm connected to office and residences.

Lighting: 8' daylight, 18 hours/day, automatic shutoff. Can be lowered to 18" above seedlings.

Watering: 70 lb. high-pressure pump, preheated tank for watering and liquid fertilizer, insulated pumphouse, #7 Jumbo McPinney nozzle (3) on watering device.

Capacity: 400 trays/section, 700 BH 313 or 1,400 BH 213/tray = 280,000 - 560,000 x4(5) or combination.

Medium: sphagnum, bog peat, vermiculite and mixtures are under further test.

Fertilizer: 20-5-30 Plantprod and others are under test.

Seeding line: capacity - 100M BH 213 or 75M BH 313/6 staff 8 hour shift.

Seeded trays are placed on the ground in the greenhouse where germination and early growth takes place. The greenhouse is then moved over another section where the process is repeated. No further handling of trays is necessary until time of shipment (table 1).

Table 1.--Greenhouse operation--96' movable greenhouse on a 384' discontinuous foundation

← Move 4 (Sept. or Oct.) →			
← Move 1 (May) →	← Move 2 (June) →		← Move 3 (Aug.) →
Section 1 Current Year	Section 2 Current Year	Section 3 Following Year	Section 4 Current Year
March-Trays located	May/June-Trays located heat, water (germination)	June/July-Trays located water (germination)	June-Trays located heat, water
March/April-Heat, Water (germination)	June-move to Sec. 3 (Hardening)	July/Aug.-move to Sec. 4 (hardening & overwintering)	July/Aug.-hardening
May/June-Move to Sec. 2 (hardening)	Aug./Sept.-Plant (280M-560M)	May/June-Plant (280M-560M)	Aug./Sept.-Plant (280M-560M)
June/July-Plant all (280M-560M)		<u>This crop will be overwintered</u>	<u>Trays may have to be removed prior to storage of greenhouse if not sufficiently progressed for outplanting in Aug.</u>

July-Trays located, 300 heat, water (outside germ.)			
July/Aug.-Hardening			
Sept.-Plant (280M-560M)			
560M-1,120M	280M-560M	280M-560M	280M-560M

Grand total Annually: 1,400M-3,800M