CONTAINER SEEDLING PRODUCTION IN BRITISH COLUMBIA

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The styroblock system was developed cooperatively by the Canadian Forestry Service, British Columbia Ministry of Forests, and the University of British Columbia, after experimentation and testing of other systems. Approximately 185 million container seedlings have been grown in British Columbia since 1970. Plans call for an increase in government container production to 50 million seedlings annually by 1985. Private production will increase from 20 million seedlings in 1981 to 45 million seedlings annually in 1985.

In most British Columbia nurseries the styroblock-2A and -4A are the standard containers. Both have four vertical ribs down the cavity walls to prevent root spiralling. The cavity design directs roots to the bottom drain hole and, with good air circulation, the emerging root tips dry and air prune. This not only discourages root spiralling, but promotes the lateral root growth necessary for developing a firm root plug.

Growing facilities in the coastal and continental regions of the province utilize different levels of environmental control. They range from steel-framed fibreglass greenhouses with automatic heating, ventilation and cooling, to shadeframes, which use woven plastic fabric to provide 20-46% shade.

Most facilities have an asphalt base for ease of cleaning and movement of stock.

A 3:1 (v:v) peat/vermiculite growing medium is used with dolomitic lime added to raise the pH and provide a source of calcium and magnesium. After filling the containers and sowing, the seed is covered with a thin layer of coarse sand with particle sizes ranging from 2-4 mm.

Nutrients are applied by incorporating slow-release fertilizers into the growing medium, by injecting soluble fertilizers into the irrigation water, or by both methods.

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Where a slow-release fertilizer is used, Osmocote 18-6-12 is added at the rate of 5.85 kg/m^3 of growing medium. Frit 503 trace elements are also added at the rate of 0.13 kg/$m.^3$.

Soluble fertilizers are injected directly into the irrigation water 3 or 4 times per week. Nutrient schedules are specific to species, growing facility and locality, but generally begin with a high phosphorous fertilizer (10-52-17 at 625 g/kL of irrigation water), followed by a balanced fertilizer containing trace elements (20-20-20 at 625 g/kL). After adequate height growth is achieved 10-52-17 is again used to maintain root growth. Problems with lime-induced chlorosis have been eliminated by bi-weekly applications of ferrous sulphate (heptahydrate at 150 g/kL).

A travelling irrigation boom is used in all greenhouses to achieve precise distribution of water, fertilizers and other chemicals, and to provide a transportation vehicle for the supplementary lights. All are controlled electronically and can be operated at different speeds to satisfy various cultural functions. In shadeframes, water and fertilizers are applied through fixed irrigation systems.

For dormancy prevention, interruption of the dark period is provided by low-intensity light from sodium-vapor lamps mounted on the irrigation booms (2 minutes every half-hour).

Seedlings are extracted manually from the styroblocks and are repackaged for storage or direct shipment to the planting site. A commercial wrapping machine is used to package 25-seedling bundles with plastic film. The bundles are then placed vertically in waxed cardboard shipping cartons.

Extraction and packaging may reach 12,000 seedlings/man/day. After extraction the styroblocks are washed for reuse in a machine with revolving brushes. The blocks are disinfected by dipping them into a potassium coconate soap solution.