

## THE STATUS OF CONTAINER PLANTING PROGRAMS IN CANADA

## 2. ALBERTA

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Abstract.--Reforestation programs in Alberta have relied heavily upon containerized seedlings in recent years. Current annual production is about 15 million Spencer-Lemaire seedlings. While this reliance on containerized seedlings will continue, the development of a large bare-root nursery capacity is expected to stabilize the demand for containerized seedlings at approximately 22 million per year by 1986. However, increases in harvesting and concomitant reforestation activities may dictate increases in the production of all types of planting stock.

Résumé.--Au cours des dernières années, la production de plants en mottes emballées a constitué une partie très importante des programmes de restauration forestière en Alberta. On produit annuellement environ 15 millions de plants en utilisant le système Spencer-Lemaire. La production de ce type de plants se poursuivra, mais on s'attend à ce qu'elle se stabilise à environ 22 millions d'unités par année d'ici 1986 à cause de la construction d'une grande pépinière pour les plants à racines nues. Cependant, il est possible qu'il faille augmenter la production de matériel de reproduction de toute sorte si une plus grande récolte de bois nécessite une restauration forestière accrue.

## INTRODUCTION

The forest region of Alberta encompasses 39 million ha or approximately 60% of the provincial land area. Timber harvesting in Alberta is modest in comparison with that of other parts of Canada. The current annual harvest covers approximately 25,000 ha. At present, only 60% of the annual allowable coniferous cut is allocated. Most of the timber is cut under the authority of Forest Management Agreements (FMAs) and Timber Quotas. The province is committed to sustained yield forest management and reforestation legislation requires that all cutover areas be satisfactorily reforested by the tenth year after harvest. Responsibility for reforestation is shared by government and industry. Long-term holders of FMAs must reforest at their own expense. Quota holders

may elect to undertake reforestation or transfer the responsibility to the Crown by paying a levy indexed to the cost of reforestation. Reforestation of all lands harvested prior to 1966, with the exception of FMAs, is the responsibility of the province.

## NURSERY FACILITIES

Three forest tree nurseries have been established in the province in an effort to satisfy reforestation policy objectives. One is owned and operated by the provincial government and two by private industry (Table 1).

## CONTAINER SELECTION

All three nurseries use the Spencer-Lemaire (Ferdinand) 41 cm<sup>3</sup> container. Selection of this container came about after years of experimentation with various other sys-

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Table 1. Containerized forest tree seedling nurseries in Alberta, 1981

Nursery	Source of funding	Year seedling production began	Heated greenhouse area (m <sup>2</sup> )	Production capacity one crop (000,000)	Annual production capacity (000,000)
Pine Ridge	Government	1977	13,780	10.0	10.0 <sup>c</sup>
Simpson Timber	Simpson	1977	613	0.5	1.1
St. Regis	Government <sup>a</sup>	1980 <sup>b</sup>	4,858	1.0	4.0

<sup>a</sup>Funded through reimbursement of production costs calculated on the basis of Alberta Forest Service cost experience.

<sup>b</sup>This is a replacement facility. The original facility started production in 1965.

<sup>c</sup>Will be doubled in the near future.

terms. Economics and a decision by the Alberta Forest Service to use container seedlings only on the better sites reinforced this decision. By utilizing containers only on the better sites, a survival rate of 80% after three years is anticipated. Furthermore, growth rates of container seedlings are expected to equal or surpass those of natural seedlings of the same age and species. Bare-root seedlings are still used on sites with difficult conditions for seedling establishment.

The following characteristics of the Spencer-Lemaire (Ferdinand) container system appealed to Alberta nurseries:

- 1) The container system comprises separate, reusable components.
- 2) The container protects the seedling from mechanical damage while permitting easy extraction at the planting site.
- 3) The containers used in the system allow constant monitoring of seedling root development without the possibility of damage.
- 4) The uniformity and strength of this container makes possible the mechanization of seedling production, transportation, and distribution in the field.
- 5) The sides of the containers are grooved to prevent the roots from spiralling; a slip-lap seal between cavities prevents root growth into adjacent cavities.

6) The container maximizes the utilization of greenhouse space while providing sufficient growing medium for the size of stock required for Alberta planting projects.

7) The system offers all the advantages of container rearing while allowing easy removal and planting as plugs without the container.

#### PRODUCTION

The use of containerized seedlings in Alberta has increased steadily during the last 6 years because of a lack of bare-root production over the same period (Table 2).

The decrease in bare-root production was due to the inability of Alberta tree nurseries to produce stock of adequate quality in the quantities required for forestry use. At present the new Pine Ridge Forest Nursery is able to produce 10 million bare-root seedlings per year. By 1984 the production capacity will be increased to 18 million--sufficient to meet demands for bare-root stock for the foreseeable future. The planned bare-root production capacity will therefore limit the demand for containerized stock to a probable maximum of 22 million seedlings per year (Table 3). Long-range predictions indicate that production levels for both containerized and bare-root stock are likely to remain relatively stable after 1986. Further increases would be needed only if additional FMA areas were established, thereby dictating the construction of new forest nurseries.

Table 2. Number of tree seedlings planted in Alberta, 1976-1980

Planting activity	Year				
	1976	1977	1978	1979	1980
Containers planted (000,000)	5.58	6.63	8.25	11.26	14.18
Bare-root stock planted (000,000)	0.93	0.22	0.14	—	0.80
Total planted (000,000)	6.51	6.85	8.39	11.26	14.98
Containers as % of total	86	97	98	100	95

Table 3. Projection of number of tree seedlings to be produced in Alberta, 1981-1986

Planting activity	Year					
	1981	1982	1983	1984	1985	1986
Container production (000,000)	15.40	18.00	20.50	21.00	21.00	22.00
Bare-root production (000,000)	7.33	8.17	12.63	13.00	15.00	18.00
Total production (000,000)	22.73	26.17	33.13	34.00	36.00	40.00
Containers as % of total (000,000)	68	69	62	62	58	55