

THE NEW GENERATION OF CONTAINERS:

MICRO CONTAINERS

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Black spruce (*Picea mariana* [Mill.] B.S.P.) seedlings are raised in micro containers (5 mm x 5 mm x 40 mm - WELLAIR MAGAZINE) filled with special peat. The seedlings survive at densities of up to 25,000/m² without significant pest or disease problems, under a specific watering and fertilizing regime. A first tier of roots is evident following airpruning in the magazine when the seedlings are 30 days old.

The seedlings are then transplanted horizontally into larger containers (25 mm x 25 mm x 75 mm - WELLAIR BACKBONE GRID) at age 60-90 days when they are 50 mm tall. The roots are airpruned again in the Grid, and this results in a second root tier. Both Magazine and Backbone enable mechanical side ejection--without dismantling the plug--during transplanting and outplanting, thereby enhancing seedling regeneration potential.

The economic, biological and mechanical advantages of the magazine and backbone grid system are:

1. Space and energy savings: A greenhouse with dimensions of 7.3 x 3.7 m (Wiesinger design) accommodates up to 500,000 magazine seedlings.
2. More crops at less cost: Crop rotation between magazine house and nursery. Plug + 1 can be outplanted into bare-root field or shadehouse shortly after transplanting from magazine to backbone grid.
3. Precision seeding and mechanical transplanting with minimization of transplant shock.
4. Mycorrhizal inoculation during transplanting is unique to this system.
5. Interplanting using magazine seedlings increases production by 30%. Expensive greenhouse space may be fully stocked.

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6. Elimination of thinning out--no root spiralling--side ejection of plug.

7. Increased field survival: Transplanting a short airpruned seedling to a deeper container increases the number of upper roots and plug firmness. Root growth after early airpruning produces a well branched root system that forms a knitting network throughout the soil as well as a distinct second root tier. This could result in better field performance.



Figure 1. A green carpet of black spruce seedlings. Each tray contains 11,000 potential seedlings. Easy handling, complete control in compact space. Micro containers meet demands for increased production.