CULTURAL PRACTICES FOR CONTAINERIZED ATLANTIC WHITE CEDAR

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http://www.fws.gov/nc-es/coastal/plnwrawc/awcindex.html

Efforts to restore Atlantic white cedar [*Chamaecyparis thyoides* (L.) B.S.P.] (AWC) to former sites in North Carolina in the last 20 years have had limited success owing, in part, to a lack of quality planting stock. Production of bare-root seedlings in outdoor nursery beds has been inconsistent, and vegetative propagation, although easy, is costly and has considerable risk. Our objective was to develop a protocol for producing containerized seedlings. Newly germinated seedlings were grown in factorial combinations of four container volumes (98 cm^3 to 530 cm^3), two substrates [North Carolina Forest Service (NCFS) container mix (3 peat: 2 vermiculite: 1.5 perlite, by volume) and 3 pine bark: 1 peat], two controlled-release fertilizers (Osmocote® 15N-9P_2O_5-12K_2O, 12-14 month southern formulation, with micros; and Polyon® 18N-6P_2O_5-12K_2O with micros, 9-month formulation), and three irrigation frequencies (2, 3, or 4 times daily). Growth increased with container volume up to 530 cm^3 (32 cubic inches), but the optimum was 164 to 262 cm^3 (10 to 16 cubic inches). The NCFS substrate was best, probably owing to higher peat content and water holding capacity. Osmocote® yielded larger and heavier plants than Polyon®, apparently owing to more available phosphorus. Irrigation frequency was flexible, but the optimum was 3X daily, especially later in the season when plants were large in relation to container volume. Manipulation of container volume, substrate, fertilizer, and irrigation should yield high quality containerized Atlantic white cedar seedlings.

AWC seedlings were grown in 3:1 composted pine bark and peat (v/v), and fertilized with five rates (0.0, 2.4, 4.8, 7.2, and 9.6 kg/m^3) of controlled-release fertilizers (CRF) [Osmocote® 15N-9P_2O_5-12K_2O, 12-14 month southern formulation, with micros; and Polyon® 18N-6P_2O_5-12K_2O, 9-month formulation, with micros]. In general, the response to increasing fertilization was quadratic, and Osmocote® yielded larger plants than Polyon®, probably owing to its higher P content. Osmocote® (4.8 to 7.2 kg/m^3) or Polyon® (7.2 kg/m^3) is suggested for container-grown seedlings the first year. Most of the potential height growth and plant dry weight were realized with 2.4 kg/m^3 and 4.8 kg/m^3, respectively, of CRF incorporated in the substrate.

LITERATURE CITED

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