ASPEN WOOD CHIP AND STONE MULCHES FOR ORNAMENTAL PLANTINGS IN INTERIOR, ALASKA

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Five woody ornamentals Rosa rugosa, Cotoneaster acutifolia, Malus baccata, Picea glauca and Pinus contorta var. latifolia, were grown for 4 seasons mulched with one of five treatments: 2.5 cm or 5 cm of crushed basaltic quarry stone, 5 cm or 10 cm of quaking aspen wood chips, and an unmulched control. Maximum soil temperatures at the 10 cm depth on the wood chip plots were decreased by as much as 8°C over control plots, and soil moisture was increased. Stone mulch plots showed a slight increase in both temperature and moisture. Soil minimum temperatures were lower on the wood chip plots than the other treatments early in the season, but were slightly higher in September. Soil pH and available N, P and K did not differ among mulch treatments. Weed growth was suppressed by all mulch treatments but was best controlled on the wood chip plots followed by the 5 cm stone plots. Plant growth for all species except Rosa rugosa was greatest on the stone mulch plots. Roses growing on the stone mulch plots and the control were subject to significant dieback from winter injury and did not show any difference in total growth after 4 years when compared with the wood chip plots. Plants grown on the wood chip plots exhibited varying degrees of nitrogen deficiency which may be related to reduced nutrient uptake in cooler soils or to a significant amount of rooting in the mulch-soil interface.