

# A NEW TECHNIQUE FOR CONE COLLECTION

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Recently, there has been considerable interest in various techniques of cone collection. When collecting from standing trees, none of the new cone collection techniques have been practical for our work. We have found topping the trees at the Seed Production Areas, hauling the tops to a building, and then picking the cones in the building to be satisfactory.

In 1964 white spruce cones were collected from the Watersmeet Seed Production Area, Watersmeet, Mich. The costs of collection were high, \$44.70 per bushel, and included training a five-man climbing crew and pruning the trees to be climbed. The cones were picked out of the tops of the standing trees.

In 1967, 24 white spruce trees within the Seed Production Area were designated to be topped and one tree was designated to be cut. Between August 14-16 these trees were topped at a point 2 in.-4 in. in diameter. Topping may be done either by climbing the seed tree and sawing off the crown above a 4-in. diameter or by shooting out the top with a 30.06 or any large caliber rifle. For this collection, we climbed the trees and sawed off the tops. Prior to topping, a plastic tarpaulin was laid on the ground. Cones shaken loose from the impact of the falling top were easily collected by rolling up the plastic and hauling it to the stock processing building. The tops were brought to the Nursery stock processing building 3 miles distant in a dump truck and trailer. Selecting crop trees, topping, and hauling the tops to the Nursery required 75 hours at \$2.41 per hour for a total cost of \$182.42 including mileage.

Women spent a total of 138 hours stripping the cones from the tree tops. At \$2.34 per hour the cost was \$323.26. The average tree yield was 1.44

bushels. The total collection cost per bushel was \$14.05, a saving of \$30.65 per bushel over the cost during the 1964 collections.

We found that the women working in the stock processing building could average 2 bushels a day while the women picking from the tops on the ground in the Seed Production Area collected 1 bushel per day.

Other advantages noted when picking cones in the building were as follows:

1. A better yield is obtained as cones from the entire top are collected.
2. Cones are cleaner with lower extraction costs and higher seed yields per bushel.
3. Efficiency is improved because of less travel time and ease of picking cones without troublesome insects.
4. No loss of time due to inclement weather by the pickers.
5. For a large crop of cones, cold storage facilities could be used to retard cone opening and prevent rodent pilferage.

This method would also work well with other species, such as balsam, black spruce, larch, yellow birch, or any species where the majority of cones or fruit is borne above a stem diameter of 4 inches.

Topping not only is cheaper than picking from the standing trees, but the trees can be topped at the best stage of cone development because of the short time in which it can be accomplished.

We topped only 10 percent of the trees so that the area can be used for several more collections depending on the need for seed and the size of the seed crop. The topped trees appear to be developing a new cone-bearing crown. Only white spruce has been topped. Other species may not recover their cone-bearing crowns as rapidly as the spruces.