



PEI Soil & Crop Improvement Association - Taking Charge Team

P.O. Box 21012,

Charlottetown, PE

C1A 9H6

Tel/fax: (902) 887-2535

Evaluation of white pine and pine nuts

Collaborators: Garry Renkema and Stewart MacRae

Locations: Wheatley River and Ebenezer.

Introduction: A number of species of the genus Pinus produce large seeds that are edible and highly nutritious. Edible nut producing pines are found in Asia, Europe, the Near East and North America. Wherever they occur, they have become important staple foods, at least locally. Several species produce nuts, which today are considered to be a delicacy, that are ingredients in a wide variety of traditional dishes and are important in international trade. This project was initiated the spring of 2006. The project will evaluate on 2 sites native white pine and 2 varieties of pine nut - Swiss Stone pine and Korean pine- to determine the feasibility of producing pine nuts under PEI conditions. One site will be managed under an organic system. Each site will have 3 treatments replicated 6 times (randomized complete block design).

Soil analysis

| Organic Matter (%) | pH | Phosphate (ppm) | Potash (ppm) |
|--------------------|-----|-----------------|--------------|
| 3.7 | 6.0 | 545 | 106 |

Swiss Stone Pine



Points of Interest:

- Although this tree will grow in heavy clays, it will do equally well in sandy to loam soil types.
- Hardiness zones: 3 to 7; height: 35 ft; spread: 20 ft ; annual growth rate: less than 12 inches.
- Several nut pines species will grow in Ontario with the most suitable for the climate being Korean pine and the Siberian or Swiss stone pines. They will grow anywhere that red and white pines are native. The nuts are about the size of a native hazelnut. No cultivars of pines have been selected for nut production. All of the current nuts that are sold are collected from the wild.
- In Asia, two species are widely harvested, Korean Pine (Pinus koraiensis) in northeast Asia and Chilgoza Pine (Pinus gerardiana) in the western Himalaya.





Swiss Stone Pine Cones

- China is a major source of imported USA nuts, from Korean pines mainly. These pines are slow growing and even slower to begin bearing. They can take 10 years or more to begin setting filled cones. After about 5 years the trees begin to grow more rapidly, growing 30 cm or more each year.
- In Europe, pine nuts come from the Stone Pine (*Pinus pinea*), which has been cultivated for the nuts for over 6,000 years, and harvested from wild trees for far longer.
- In Siberia, tribes gathered nuts of *Pinus siberica*, *P. pumila* and *P. koraiensis*. Russian settlers in Siberia also pressed oil from the nuts, which was called "nut oil." Before the introduction of sunflower, cottonseed and corn oil (all three from North America), pine nut oil was important in Siberia where it was considered a delicacy. Before the revolution of 1917 it was used for cooking during Lent when eating of animal fats was forbidden.
- Also prior to the 1917 revolution, ten percent of all hard currency in Russia was based on the trade of pine oil. Most of the trade was with France, which traditionally uses nut oil in cooking. Pine nut oil is also reportedly an excellent bread preservative when a small amount is added to the dough.

- Nut production: Only after 18-20 years, a pine tree will start being productive. It is then productive for over 100 years. Some pine trees have been recorded that are over 400 years old.
- Harvest: The pine cones are knocked off the tree, dried in the sun and then the kernels are removed by hand.
- A desirable characteristic of pine nuts is that if stored in a dry, well-ventilated area, they can be kept for several years without spoiling.
- Data on world production of pine nuts are not available. In south-western United States, annual crops of *Pinus edulis* are estimated to average between 454 000 and 907 000 kg and can reach 3.6 million kg in an exceptionally productive year. In some years, however, commercial crops can be non-existent. During the years 1976-1980, the United States imported an average of US\$800 000 of pine nuts, annually.
- Pine nuts retail locally for \$48.00/kg (September 2006).



Korean Pine nuts