

Pine Nuts: Harvesting and Processing

Pine nuts, probably best known as an essential ingredient for pesto, are found within the pine cones that grow on pine trees. These trees are partial to the northern hemisphere, and as such, pine nuts can be produced in a variety of countries such as Korea, Pakistan, the United States, Italy, Spain, Turkey and, largely, China (1). Pine trees (genus *Pinus*) are able to grow in a variety of conditions, including hot summers and cold winters, enabling it to survive in the variety of countries mentioned above (2). However, there is a large variability in crop cycles and this can change drastically from year to year, as well as between country of origin. This can make crop security uncertain, leading to more difficulties harvesting the crops and ultimately, higher prices.

The trees usually start producing cones at about age six. However, a particular set of trees may only produce a good harvest once in several years (2). There are many varieties of pine nuts, however, the two varieties that Freeworld trades are *Pinus koraiensis* and *Pinus siberica*.

Pine nuts are one of the more expensive commodities, and this is due the nature of the product and the intricacies of harvesting and processing these nuts.

Harvesting starts with pulling the cones from the trees. This can be done with a long pole with a hook at the end, which hooks around the cone and knocks it to the ground. Cones can also be removed by shaking the tree trunks with a machine. The cones are then sun dried. This is done in a number of ways. They can either be spread out on the ground (usually over plastic) or put into burlap sacks and left to sit in the sun. As the cones dry, the scales of the cone begin to spread apart, allowing access to the in shell pine nuts.

The pine nuts have two layers of protection. The first being the outer pine cone which needs to be removed as a first step during processing. This is broken or crushed in order to remove the in-shell pine nuts which grow between the layers/scales of the cone. However, the in shell pine nuts should not be too difficult to remove from the cone once it has dried and opened. The next processing step is shelling. The shell of the pine nut can be very hard to break and this can make it more difficult to reach the final product without the help of machinery. The in-shell pine nuts enter a long rotating cylinder where the shells are crushed between two cylinders (2). The product is then sieved/sorted to spate the shells from the nuts, leaving the nuts ready for further processing.

Once the shelling process is complete, the pine nuts are then dried. Moisture levels for pine nuts does vary by species. *Pinus Pinea* should typically not exceed 6% (3).

The next step in processing is foreign body checks. The pine nuts will typically pass through metal detectors. They can also be air blown to blow away any extra skin or small pieces of foreign matter. This process should minimize the risk of

foreign bodies, however, it cannot completely eliminate it. Therefore, we recommend that all goods are inspected on delivery.

Before packing the pine nuts are classified into one of three classes: 'extra' class, class I or class II. From here the pine nuts are ready to be sealed in vacuum packs and sent to customers.

References:

1. http://www.agmrc.org/commodities___products/nuts/pine-nuts/
2. <http://www.treecrops.org.nz/crops/nut/pine-nut/pine-nut/>
3. UNECE standards