

Macadamia: Harvesting and Processing

Macadamia (*Macadamia integrifolia*) originated in Australia, but are now found in many countries. Some of the top producers (apart from Australia) are the US state of Hawaii, Brazil and Malawi. Currently, Malawi is Freeworld Trading's source of macadamia nuts. This is an important industry for the area as it has created many jobs. Here, harvesting takes place between January and March.

As the in-shell nuts (encased in a green husk) mature they start to fall from the trees. Many mature nuts fall naturally, however, during harvesting season this process is sped up by shaking the tree branches to knock the nuts to the orchard floor. It is important to maintain good orchard hygiene such as maintaining clean, clear grounds. Nuts should be collected promptly as the orchard floor is a dangerous place for the nuts. Here they are at risk of infestation and exposure to microbiological contaminants such as moulds. Reducing the amount of time the nuts lay on the orchard floor, the less risk for contamination or damage. Once the nuts have been collected, they are ready for processing.

After the nuts have been collected, the outer husks need to be removed promptly from the in-shell nut. The husks have a high moisture content, so it is important to remove it as soon as possible to avoid nut spoilage. At this point, the in-shell nut is exposed. Husking can be done mechanically or manually, however, many sites use machinery as it is more time efficient. Immediately after husking, the in-shell nuts go through a drying step, to reduce the moisture content of the nut to below 3%. This reduces the risk of spoilage and allows for the nut to shrink away from the shell, making it easier to remove. Once the nuts have been adequately dried to below 3% moisture, the shell will be cracked and removed. This is done mechanically by centrifugal force, which uses circular rotations to cracks the shell against the outer walls of the shelling machine. The nuts then go through multiple screenings, such as metal detectors, and sorting to remove any shell fragments or other foreign bodies. They are sorted into size/style. This is done both mechanically and manually via visual inspection. Visual checks as a final sorting step is an effective method for monitoring the performance of the mechanical sorting, as well as ensuring a clean product. The nuts are then subject to a re-drying step which is to reduce moisture to below 2% as well as reduce the risk of yeast or mould growth. The nuts Freeworld Trading source from Malawi also undergo UV sterilization as a kill step for microbiological contaminants such as Salmonella, E. coli and Listeria.

Finally, the edible nuts have completed processing and are ready to be packed into air tight bags. They will be stored in cool store until ready to be shipped to customers around the world.

Resources:

1. University of Hawaii -
http://www.extento.hawaii.edu/kbase/crop/crops/i_macada.htm
2. <http://www.crfg.org/pubs/ff/macadamia.html>
3. <http://chindikanikaseka.blogspot.co.uk/2012/01/macadamia-in-malawi-its-pest-and.html>