



Expansion of pistachio processing facility supports growing industry

Jennifer Wilkinson visits the APPC processing plant at Robinvale in northern Victoria.

The 2007 pistachio crop was a bumper and could have stretched processing capacity were it not for the new equipment installed at the Australian Pioneer Pistachio Company (APPC) Robinvale facility. When I visited the APPC processing plant in April, Malcolm Otto, General Manager Operations, took me on a tour of the new equipment that has increased capacity and improved efficiency.

The hulling operation was over at the time of my visit but Malcolm explained that only a few weeks earlier the harvested crop was arriving non-stop and all systems were operating at full speed to get the fresh product hulled and dried as soon as possible. This requires high capacity hulling and drying equipment. Once dried, the nuts can be safely stored and proceed for further processing through the year.

Before the 2007 harvest, a new Magnessun huller was added to the line and this has increased APPC hulling capacity by 30%, to 35 bins an hour. Of course high volume hulling produces a substantial volume of waste hull. The ideal is to convert this waste into useful fertiliser, so APPC has installed a composting system that converts all hull and other waste material into rich compost. But because the hulling process is done in water, the hull material exits the huller too wet to be composted. This problem has now been solved by elevating the waste into a huge screw press which removes the water so that the dried material can be trucked away for composting. At the composting bay the material is aerated to ensure aerobic decomposition, before it is spread in the orchard.

Back at the hulling plant, the fresh

nut product proceeds from the hullers, to float tanks where the blank nuts are separated off and is then conveyed to the pre-drier. Here the nuts pass through a heating chamber at high temperature for two minutes and this heat opens the nuts by snap drying the shell. As Malcolm explained, "when freshly hulled nuts are spread out in the hot sun, the shell opens and the pre-drier replicates this natural process." He

said that after the pre-drier, less than 10% of the nuts are closed when they proceed to the dryers. Shell widening continues in the dryers. The pre-drier was in operation for the 2006 crop but improvements were made to perfect the system this year. While Malcolm believes the system is now near perfect, he expects fine-tuning will continue as the need arises. The aim is for all the nuts to be 'shell dry' when they enter the dryer.

After the nuts are dried they are conveyed from the dryers to needle pickers. APPC installed an additional line of needle pickers for the 2007 crop so that there are now three needle pickers for wide splits and three for narrow splits. Nuts go

through the large needle picker to remove wide splits then the remaining product goes through smaller needle pickers to remove narrow splits.

The split product is conveyed over a hand inspection table for removal of discoloured shell. Wide splits are size graded and the various sizes are further processed for the salted roast snack market. The new roasting plant at APPC was installed in



2006 and is finely adjusted to ensure quality roasting.

The first stage of roasting is salting. Nuts pass through a brine vat which is designed to produce a lightly salted nut. Two minutes in the brine coats the kernel as well as the shell and the product then proceeds to the roaster. Here the product passes through the roasting oven at 105°C for 55 minutes and is then conveyed to the cooling chamber which brings the nut temperature back to 35°C.

From the cooling chamber the roasted product is elevated to the auto-pack form fill machine where the nuts are delivered into the packaging sleeve. The packing machine is pre-set and when the set weight is delivered, the packaging tube is sealed and the pack passes over electronic scales for a weight check before transfer into cartons for dispatch. The sorting, salting, roasting and packaging systems process around 300 tons of pistachio product each month. Thus processing will continue all year to complete the 2007 crop.

Perfecting pistachio processing is on-going as each step along the line is perfected.

Future plans at APPC include improvements to the hulling equipment to reduce the number of nuts that are incompletely hulled by the present system. Lack of complete hull removal of a small percentage of product results in unnecessary shell stain and reject product. However Malcolm tells me APPC has located a machine to do the job. No doubt the new hulling equipment won't be the last new machine at APPC. 🍪



Packaging the product. Auto pack form fill machine is capable of bagging 35 x 900gram bags / min.



Malcolm shows the Pre drier that was designed at the plant.



Hand inspection removes product defects



The pistachio oven is an Incus dry roaster capable of roasting 1200kg/ hour.