

Parting Ways With Plastic

Exploring collaborative solutions across value chains

By Anna Mouton

"Why is plastic packaging so ubiquitous?" asked Lorren de Kock from the World Wide Fund for Nature (WWF). WWF is the largest conservation organisation in the world and is active in more than a hundred countries.

According to De Kock, plastic is so popular because it's inexpensive and versatile. Plastic packaging also extends the shelf life of fruit. "But there's a dark side to this," said De Kock. "Plastic packaging has become the number one environmental issue. At a global scale we release nine million tonnes of plastic into the environment each year."

The production of plastic has skyrocketed over recent decades and is expected to increase a further forty percent in the next ten years. De Kock highlighted that three-quarters of all the plastic that has ever been produced is now waste. "The current waste management infrastructure cannot keep up with this increase in plastic."

Most plastic is used for packaging and most of that is single-use — it's used once and then discarded. Packaging is designed to be attractive and light-weight as opposed to reusable or recyclable. "Eighty percent of the environmental impact of plastic can be addressed in the design stage," stressed De Kock.

The European Commission recently approved the single-use plastics directive and are taking measures to reduce the consumption of plastic packaging.

The private sector is being equally proactive with several retailers — including Tesco and Waitrose — assessing plastic-free aisles in their stores.

South Africa has seen a significant increase in waste recycling mainly due to the informal waste sector. "Waste pickers have led to collection rates increasing over the last ten to fifteen years," said De Kock. Informal waste collection represents eighty to ninety percent of the recovery of post-consumer recyclables.

Legislation has also expanded over the past decade. Last year the plastics industry had to submit targets to government which included collection rates for recycling and increased levies on different plastic materials. This is likely to lead to price hikes for plastic packaging. Proposals are in the pipeline to phase out six common single-use items.

The private sector in South Africa is aware of the changing landscape and are following the example of their European counterparts. Woolworths has announced that they will transition to fully reusable or recyclable packaging by 2022. — continued on p42.

“Three-quarters of all the plastic that has ever been produced is now waste.”

A quick guide to better packaging choices

BOX LINERS
Use clear bags rather than red or green
Use bags made of a single material such as LDPE
Avoid multilayers or composites
Choose bags made of recycled content

STRAPPING
Avoid black strapping
Choose blue, green, white or transparent instead
Choose strapping made of recycled content

FLOW WRAP
Not recycled in South Africa
Not recycled in some export markets
Consider phasing out

FRUIT TRAYS
Consider paper pulp or cardboard trays
Recycle black polystyrene trays locally
Black polystyrene trays to be phased out by EU retailers at the end of 2019

STICKERS
PLU labels and similar are not recycled
Consider phasing out

FRUIT BAGS
Minimise printing
Consider using a wrap-around label or sleeve
Use bags made of a single material such as LDPE
Avoid multilayers or composites
Choose bags made of recycled content

MOVING TO A CIRCULAR ECONOMY

The current flow of plastics — and many other materials — is based on a linear economy. New plastics are manufactured to replace that which is lost. "The majority of plastic ends up either being landfilled or leaks into the environment. Very little goes back into a closed loop," said De Kock.

Shifting from a linear to a circular economy would keep plastic out of the environment and retain the value within the material stream. This requires a new emphasis on design for reuse and recyclability in addition to visual appeal. "WWF is committed to support the adoption of a circular plastics economy in South Africa," stated De Kock. "One of our interventions at industry level is the South African Plastics Pact."

Examples of the targets set by the Plastics Pact are that all plastic packaging should be reusable, recyclable or compostable by 2025, and that problematic plastics should be addressed by 2021. Organisations that want more information on sustainable packaging design can consult the Design for Recycling guidelines available online from PackagingSA.

"Organisations that are signatories to the various Plastic Pacts internationally are sending their fruit exporters and suppliers guidelines on the materials to be used for their packaging," said De Kock. Materials are classified as red, amber or green. Red materials — including polystyrene, oxo-degradable and black plastics — will be phased out this year. Amber materials are those where use is discouraged and include flow wrap. Green materials are preferred. Plastics in the green category include high- and low-density polyethylene.

De Kock presented some general principles to consider when making choices around packaging. "Look at your material combinations and separability. Multilayers are not recycled currently so try to move away from them if possible." Labels, printing inks and adhesives used on packaging can also affect recyclability. Packaging with food residues that are difficult to remove may be impossible to recycle.

De Kock believes that the challenges of plastic pollution can be met. "We need to keep in mind the trade-offs between extending shelf life, what the consumer wants, versatility and affordability, and the waste that is generated. Let's design smartly and not take the easy route — which will just generate more waste. The packaging landscape is changing and the sooner you get on board the better for your product." **FQ**



Lorren de Kock
World Wide Fund for Nature
ldekock@wwf.org.za

Minimising Moisture Loss in Pears During Storage

What is in the producer's toolbox?

By Anna Mouton

Frank van de Geijn is a senior consultant and post-harvest researcher at Wageningen University and Research. He is with the Agrotechnology and Food Sciences Group which focusses on all questions relating to post-harvest: processing, packing, energy, and fruit quality.

Consumers demand pears year-round but long-term storage leads to moisture loss and associated quality issues like shrivelled necks and sensitivity to damage. Humidity control during storage aims to limit moisture loss. "We set a goal of 1.5%–1.8% weight loss for Conference pears over the storage period which can be for nine months or more," said Van de Geijn.

The atmosphere of the storage room has a relative humidity of 90%–95% compared to almost 100% for the fruit. This leads to a vapour pressure deficit that drives moisture from the pear to the air. Moisture in the air of the storage room is removed as part of the cooling process.

Van de Geijn outlined the variables affecting moisture levels in storage room air. "The concrete floor can take up 0.1%–0.3% moisture. I hear that

some people in South Africa wet the floor — at least that will prevent this uptake."

Wooden bins also absorb water but Van de Geijn has found them to have no impact on the total moisture balance compared to plastic bins. Most of the moisture added to the storage room atmosphere is contributed by the fruit. This effect is greatest during the initial cooling of the product.

The moisture balance in the storage room is not the only driver of water loss. "There's a huge product factor," said Van de Geijn. "Moisture loss drops as pears increase in size. And the same size fruit from different orchards can have different levels of moisture loss."

Van de Geijn's studies suggest that shrivelled necks are correlated with moisture loss of above 0.5%. He pointed out that some pears are more resistant to shrivel than others. Recent research suggests that dry matter content may explain some of this variation.

TOOLS TO MANAGE MOISTURE LOSS

There are four ways in which producers can manage moisture loss: protective packaging, humidification, optimisation of cooling equipment and putting ice on the bins. Van de Geijn doesn't