Australian pear exports have been declining in recent years due to a lack of high quality cultivars that meet consumer expectations for quality including visual appearance, texture and flavour. Maturity stage at harvest influences fruit postharvest behaviour, storability and final quality. This project aimed to develop harvest maturity guidelines and postharvest storage protocols for new blush pear cultivars ‘ANP-0118’ (marketed as Lanya®) and ‘ANP-0131’ (marketed as Deliza®). Consumers prefer ‘ANP-0118’ to be eaten as a crisp pear rather than ripened to a melting flesh. ‘ANP-0131’ can be eaten crisp after cool storage or ripened to a melting flesh.

METHOD
The effect of maturity at harvest on storage life and eating quality were investigated. Fruit were harvested at 7 days intervals to obtain three maturity levels (Early, Commercial and Late harvests) determined by flesh firmness (kg/cm²) and skin chlorophyll-a concentration measured non-destructively using a DA-meter (IAD). Pear storage performance was assessed over 28 weeks in air at −0.5°C and >90% RH. 30 fruit for each cultivar and maturity were assessed. Fruit quality was assessed at 4 week intervals before and after ripening at 18°C for 7 days. Flesh firmness, background colour, soluble solids concentration, acidity, expressible juice and physiological disorders (scald, flesh browning) were measured at each removal.

RESULTS

‘ANP-0118’ remained firm during cool storage when harvested at 4.3 to 5.0 kg/cm² and 1.3 to 1.5 IAD, with a 10% decline in firmness over 28 weeks in air at −0.5°C. IAD was shown to be a good indicator of fruit behaviour postharvest with greater separation between the harvests than ‘ANP-0131’. No differences were found during storage in soluble solids concentration between the three harvests.

‘ANP-0131’ stored well for up to 28 weeks in air at −0.5°C. Fruit remained firm during storage when harvested at 4.7 to 5.7 kg/cm² and 1.5 to 1.6 IAD, with a 9% decline in firmness over 28 weeks in air at −0.5°C. IAD was shown to be a good indicator of fruit behaviour postharvest. No differences were found during storage in soluble solids concentration between the three harvests.

CONCLUSION

‘ANP-0118’ (Lanya®)
- Maintains crisp texture up to 10 days after harvest.
- Requires >12 weeks storage to improve sweetness and induce optimum melting similar to Corella and Packham.
- Can be consumed either crisp or melting.
- Susceptible to scald beyond 16 weeks storage.
- Preliminary results (not shown) suggest that scald is reduced under CA (1.5% O₂ and 1.5% CO₂) or 1-MCP treatment (300ppm).

‘ANP-0131’ (Deliza®)
- Stores well up to 28 weeks in when picked at 5 kg/cm².
- The rate of ripening in cold storage indicated by IAD increased when fruit were picked at later harvests.
- Green background colour with wide range of skin blush and can be consumed either crisp or melting
- Rapidly softens during shelf life but good eating quality.