Growers are striving to produce a greater proportion of their Sultana crop as light golden fruit which attract premium prices. Brown coloured fruit is perceived as being a lower quality fruit and is regarded as a price-driven commodity suitable for manufacturing and processing in other products. The study to investigate browning of Sultana types with down-regulated PPO (polyphenol oxidase) activity compared to Sultana H5 control was implemented by trellis drying fruit from almost 300 individual vines in seasons 2004 to 2006. The tasks included restricting bunch production by inflorescence removal, sampling of berries for PPO activity after fruit set and sampling all remaining bunches to determine fruit maturity (sugar, acid and pH) prior to the commencement of drying. Canes were cut in early to mid-February and emulsion applied for trellis drying with the dried fruit samples harvested in early March. Excess moisture was removed by placing samples in the sun on black plastic sheets laid on the ground or dehydration, depending on the season. All samples were hand cleaned prior to measurement of colour and commencement of long-term storage studies. Drying conditions were excellent in all years and as a result, most vines produced high quality, light coloured dried sultanas (5 crown light).

The long-term storage involved monitoring colour changes in fruit samples with high moisture (18-20%) stored at high temperature (25°C) for up to six months.

**Season 2005-06**

In season 2006, 298 vines were assessed. Long term storage trials at 25°C with high moisture fruit were completed in August. The colour information was collated, and together with similar data from previous seasons used to identify the best low browning types for evaluation under full crop load in season 2006-07.

**Season 2006-07**

A Merbein Bunch Count, where fruitfulness of individual shoots is recorded at all node positions on all canes, was undertaken for all vines in late September 2006, three weeks after budburst. A number of the low browning selections had similar levels of fruitfulness to the Sultana controls while others had reduced fruitfulness. Fruitfulness of the selections was used to further screen types for retention and evaluation in 2006-07. Sultana types which did not show potential for low browning, or had low fruitfulness, were removed on 18 October, 2006. Thirty-two vines (consisting of six controls and 26 low browning types) were retained for evaluation in 2006-07 under full crop load with most bunches retained on the vine. Trellis drying was implemented and the fruit sprayed with drying emulsion on 8 February, 2007. The fruit was harvested on the 26 February. Prior to cane cutting samples of fresh berries were taken from all vines at harvest to assess differences in maturity and berry weight. Yield, bunch weight and berry weights have been recorded at harvest for all dried fruit samples. Postharvest fruit colour and further storage trials are in progress to confirm low browning responses under full crop load.

**Conclusions**

A number of low browning Sultana types have been identified in the accelerated storage trials conducted over the three seasons. These low browning types maintain a lighter, more golden colour than standard Sultana which started to darken within three days of storage at high moisture content. The largest differences in fruit colour occurred after seven days of storage and were still obvious after six months in storage.