

FUTURE ORCHARDS' BUSINESS DEVELOPMENT PROGRAM

Fruit Size Progress Report, February – March 2012

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In our mid January report we indicated that when fruit sizing rates were expressed as days after full bloom (DAFB), fruit sizing rates this year were similar to last year. Subsequent data for Royal Gala types, which have now been or about to be harvested, shows that this year later season fruit sizing has lagged behind last year, with a longer period between full bloom and harvest.

Fig. 1 below shows a comparison of average Royal Gala fruit size curves expressed in DAFB of 2011 and 2012. Up to around 50 DAFB fruit sizing was marginally ahead in 2012, then crossed the 2011 curve to fall behind. At about 120 DAFB the growth curves flatten off due to harvest of the faster growing blocks, leaving only the slow growing fruit blocks in the data.

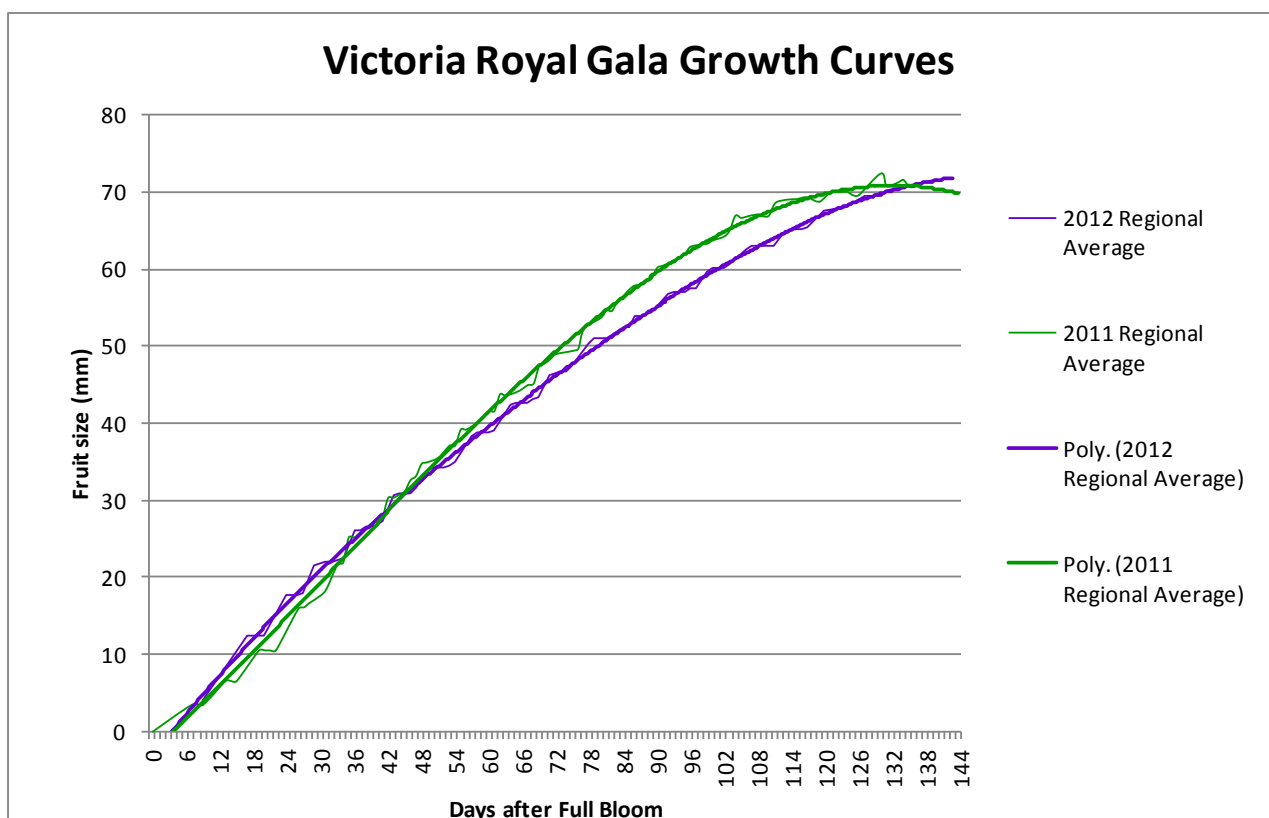


Figure 1. Comparison of 2010/11 and 2011/12 Royal Gala growth curves for Victoria

The two Royal Gala blocks reported on in the last report are good examples of this slowing down in late season growth rates.

Variety	Days Full Bloom to Harvest	
	2011	2012
Royal Gala VC40	124 days	128 days
Fisher Rd Royal Gala	126 days	138 days

VC40 has had an increase length of growing season by 4 days. In the case of the Fisher Rd there has been a massive 12 day increase in the growing season length (Days from FB to harvest). VC40 carried a similar crop load to 2011 and had no manipulation, so we can conclude that the growing season has added an additional 4 more days. Fisher Rd's extra 12 days is a probably a combination of growing season (4 days), higher crop load (3 days) and Retain (7 days?). The yield of Fisher Rd is forecast to almost double and yield is known to have a huge impact on rate of fruit maturity and colour development. Retain was applied when fruit growth monitoring showed that fruit size was below target. It has had a great effect by delaying harvest for approx 7-10 days adding an additional 2.5-3.0mm based on weekly growth records. A 3 mm increase in fruit diameter is equivalent to 24gms increase in average fruit weight. That investment in Retain should blitz anything you can find on the sharemarket. A good decision!

Also evident from the Royal Gala data is a huge location / microclimate effect on days to harvest and harvest date. This spread is of the order of 5 weeks, with warm districts with early flowering, being harvested 28 January 2012, 116 days DAFB and late districts not being harvested until into March, more than 135 DAFB. About half the delay due to later flowering, 18 October verses 30 September and the remainder due to longer growing season.

Fig. 2 below shows a comparison of Royal Gala growth curves among the States for which we have 2011/12 season data. As you would expect the curves are similar, with Victoria showing the faster rate of fruit sizing and New South Wales the slowest rate, with Queensland in between. The Victorian growing areas are generally low altitude, further south and therefore longer daylight hours, while New South Wales and Queensland are all high altitude locations and being further north, short day length. It is generally recognised for Royal Gala that heat accumulation in the first 42 DAFB determines length of time from full bloom to harvest. Being low altitude the Victorian Orchards are likely to accumulate more heat units over the higher altitude locations, even though they are further north.

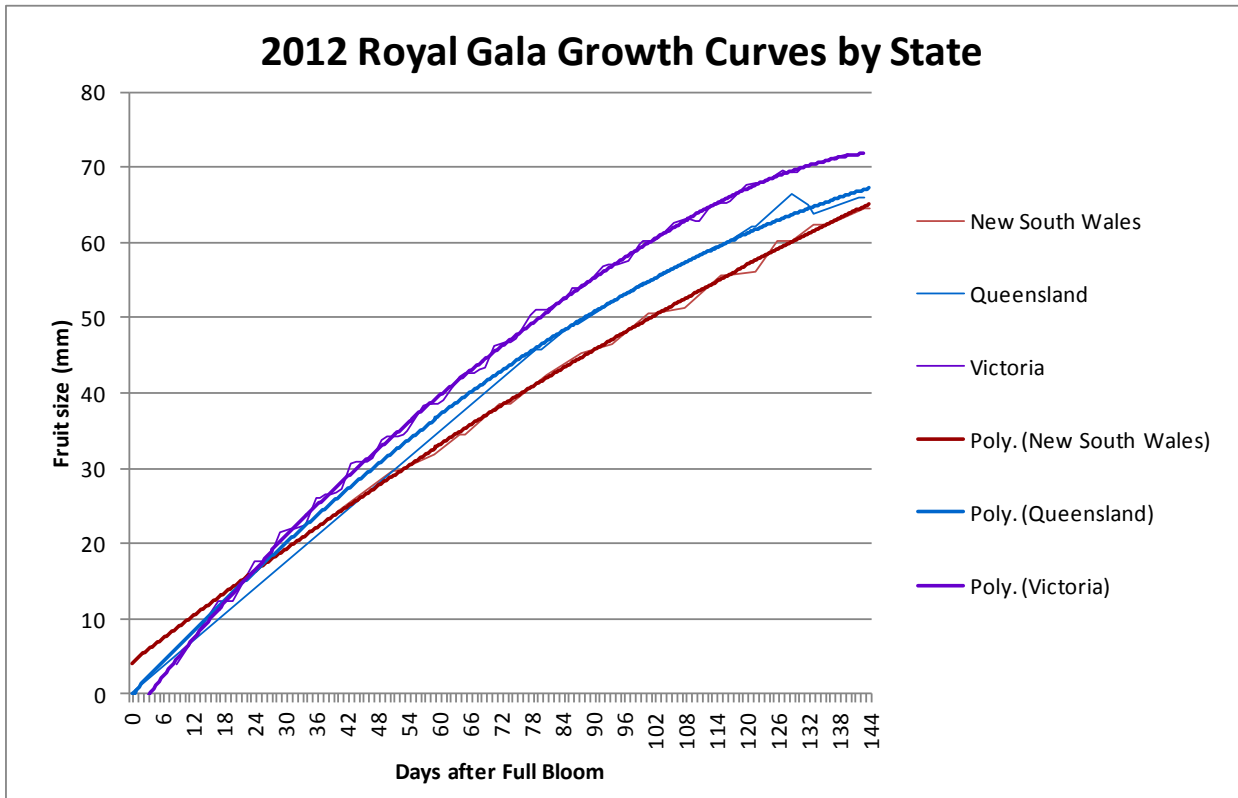


Figure 2. Comparison of growth curves for the Victoria, New South Wales and Queensland 2011-12 Season

Royal Gala weekly average sizing rates in Victoria peaked at just over 5mm/wk around 25 DAFB, then apart from the pause in sizing 51 to 55 DAFB, fell steadily away in almost a straight line down to below 2mm/wk 130 DAFB.

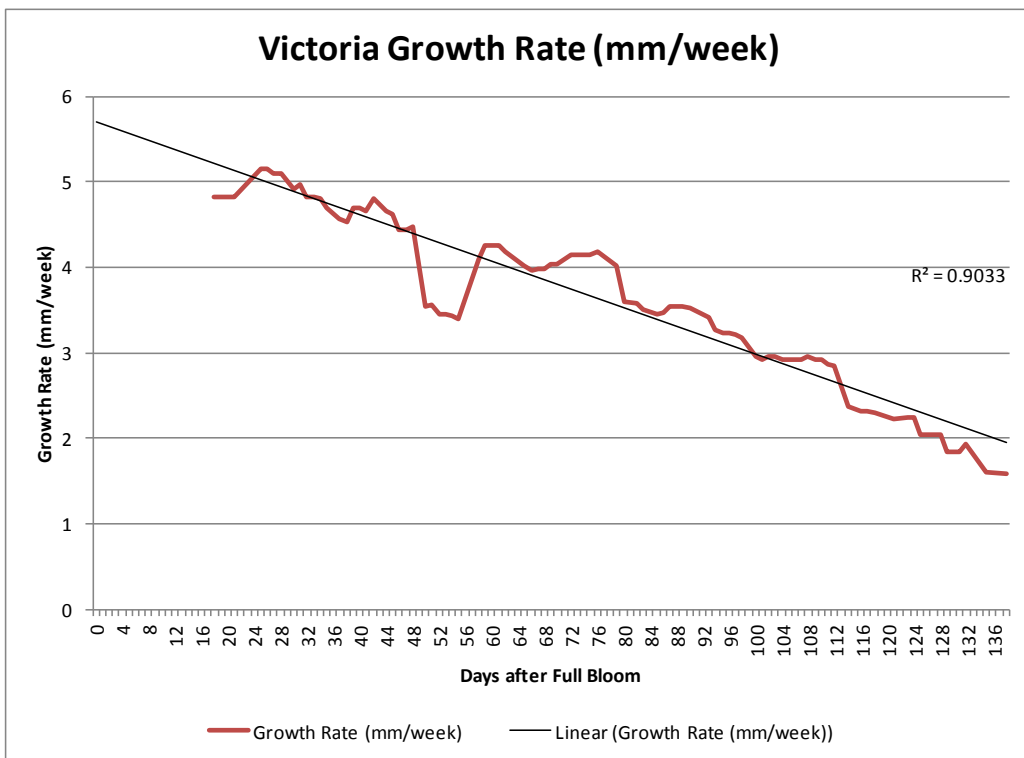


Figure 3. Victoria average growth rate 2011-12 Season

The trend line shows at 60 DAFB growth rate falls under 4mm/wk and around 100 DAFB the average growth rate drops below 3mm/wk, then under 2mm/wk at around 135 DAFB. The R² for this trend line is 0.9033 indicating there is a very strong relationship between DAFB and the fall off in fruit sizing rate as measured by fruit diameter.

Data for other Australian States is weaker due to the limited number of samples and tend to reflect individual orchards in those States rather than a true Regional average. Incidentally the growth curve patterns in the other Australian states are very similar to the Victorian example.

Cripps Pink

Cripps Pink sizing data is following similar trends to the Royal Gala. Rate of sizing is showing signs of slowing, compared to the 2010/11 season, but due to earlier flowering, this season is likely to be of similar fruit size if harvested at similar dates to last season.

The EB block shown in Fig. 4 and Fig. 5 is typical of what is happening with Cripps Pink. Fig. 4 shows fruit size by calendar date, while Fig. 5 shows the same data by DAFB.

Once Cripps Pink has been harvested we will show similar comparisons to those in this report for Royal Gala.

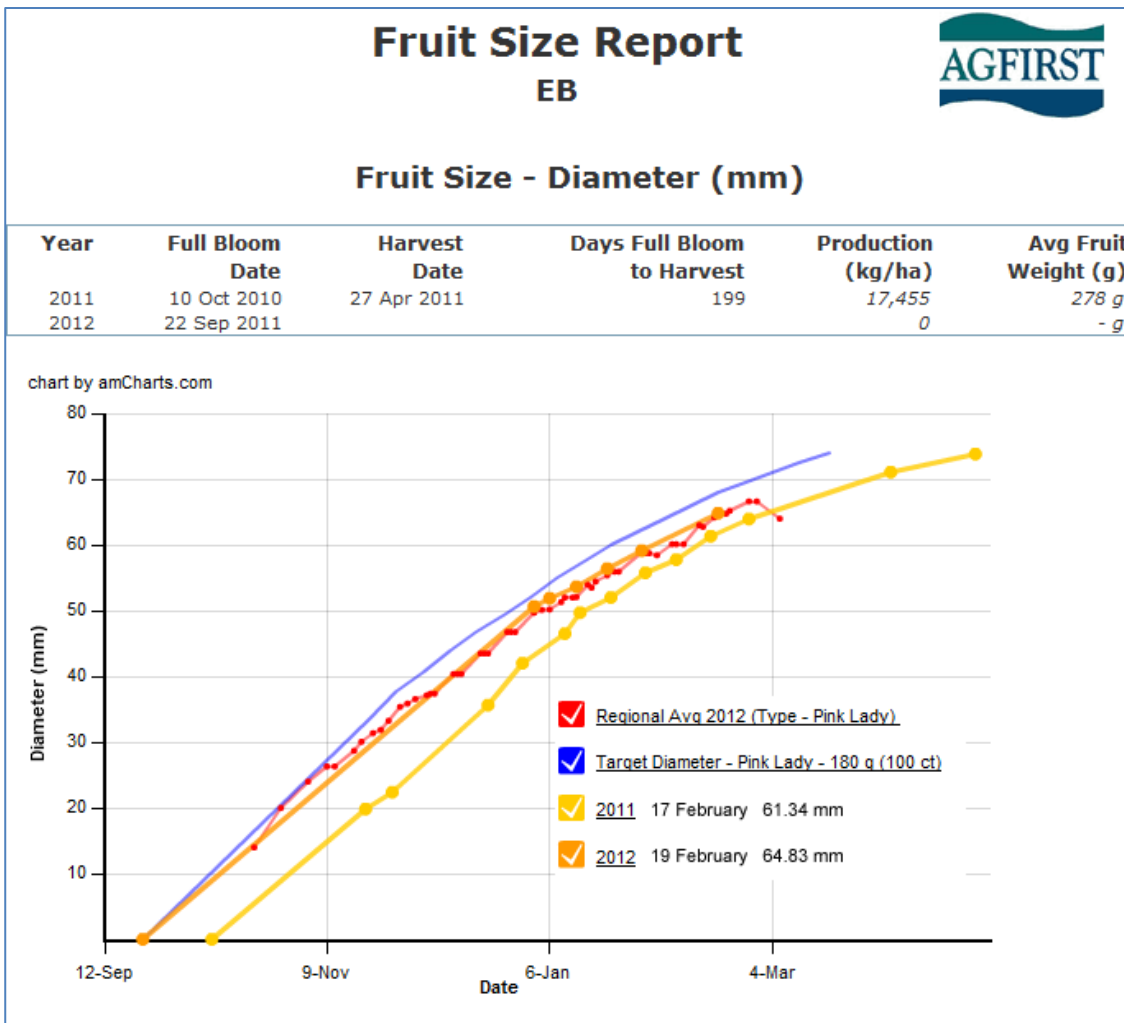


Figure 4. Cripps Pink, Fruit Size by Calendar Date

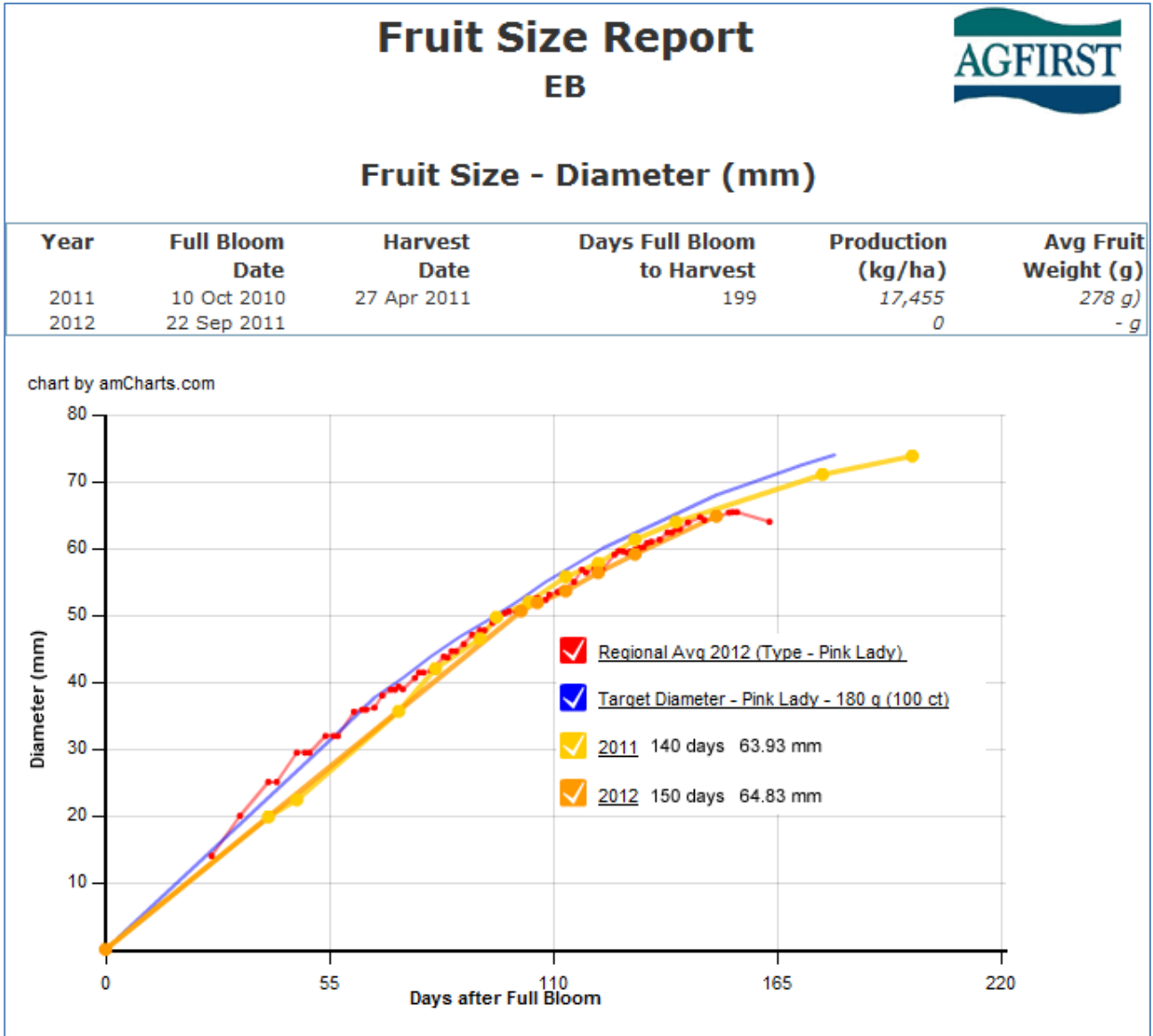


Figure 5. Cripps Pink, Fruit Size by DAFB

Other Varieties

Data is limited for other varieties.

Jazz™ is generally sizing slower than last season, undoubtedly due to increasing crop loads as trees become more mature. As flowering was generally earlier there will not be significantly later harvest for this variety.

Fuji data is insufficient to draw a conclusion about where it is going. This is possible due to the variety’s biennial bearing behaviour with differing crop loads overriding seasonal affects.

Granny Smith appears to be sizing more rapidly than last year and with its earlier flowering an early harvest could be expected for this variety.