

Future Orchards “Business Development Group” (BDG) Update

Feb 2016

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Dear Grower or Industry Personnel

Welcome to the fourth BDG update of the 2015/16 year. You are receiving this newsletter as an active contributor to APAL Future Orchards™ program or the “APAL Crop Estimate Project”. Both projects are funded through your APAL levy and HIA.

This newsletter is a chance for us to highlight some of the key datasets that Orchardnet is able to provide the industry and to assist all users of Orchardnet, maximize its usefulness.

Fruit size and Growth rate update

This growing season there are more blocks than ever being monitored for fruit size and growth rate. The blocks numbers currently being monitored are shown in Table 1. Although each region has different Full Bloom(FB) dates and harvest dates, by comparing by Days After full Bloom (DAFB), the comparisons can make sense across the entire country and between region.

Table 1 Fruit size Monitoring Blocks Numbers Jan 2016

Variety	No of blocks being monitored
Gala	112
Pinks	120
Fuji	37
Grannies	37
Jazz	19
Reds	18
Kanzi	12
Pears	11
Others	18
TOTAL	384

Full Bloom Dates

Full Bloom dates across the country are on average 2-3 days ahead of last year and with a similar growing season, harvest is expected to be 2-3 days ahead of last year.

Table 2 National average Full Bloom Dates

Variety Group	2016	2015
Fuji	9/10/2015	11/10/2014
Granny Smith	5/10/2015	16/10/2014
Pink Lady	9/10/2015	6/10/2014
Gala	10/10/2015	11/10/2014
Sundowner	30/9/2015	30/9/2014

We now report on the national outcomes however really encourage the BDG members to use their own specific reporting as the variance from one block to another is often huge.

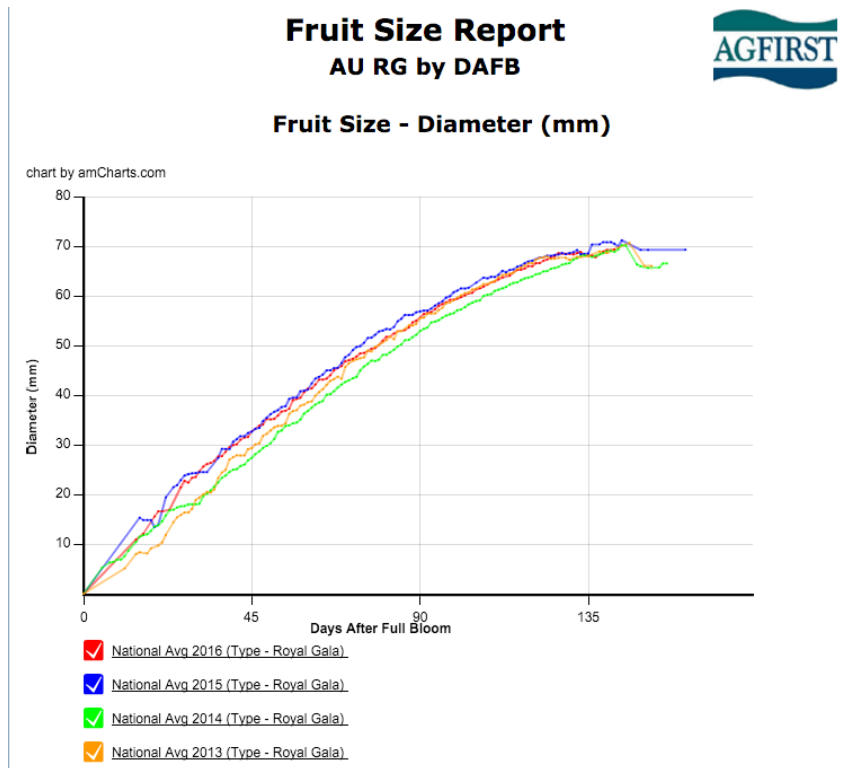
Fruit sizing

Gala

The Gala crop is at various stages of harvest around the country with the earlier regions finished and the late regions only part way through. The national average fruit size on Gala reached just under 70mm by harvest, a similar result to previous seasons (Fig 3).

When we look at the Gala data as DAFB, the 2016 curve is between 2014 and 2015. In 2014 the average fruit size was 159 gms, in 2015; 166 gms. We therefore predict the Gala average fruit size in 2016 to be 162 gms (Fig 1).

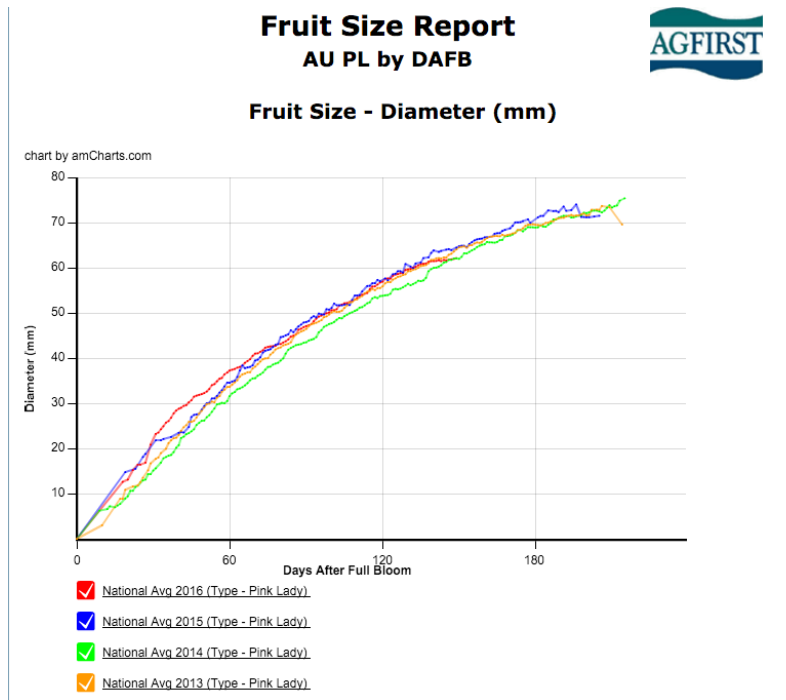
Figure 1 National Average R Gala fruit size by DAFB



Pink Lady

At as 29/2/2016 we are on average, 150 days after FB. The average fruit size at that date was 63 mm. As can be seen in Figure 5 below, the fruit growth rate, early in the spring, was very high but has since slowed to now be sitting between the 2014 and 2015 curves. In both these years the average Pink Lady fruit size was 176 gms. Therefore we would predict the average this year will be very similar. It is concerning to note that the growth rate has slowed significantly in the last month. Pink Lady growers need to monitor their own blocks and ensure that the trees are not unduly stressed.

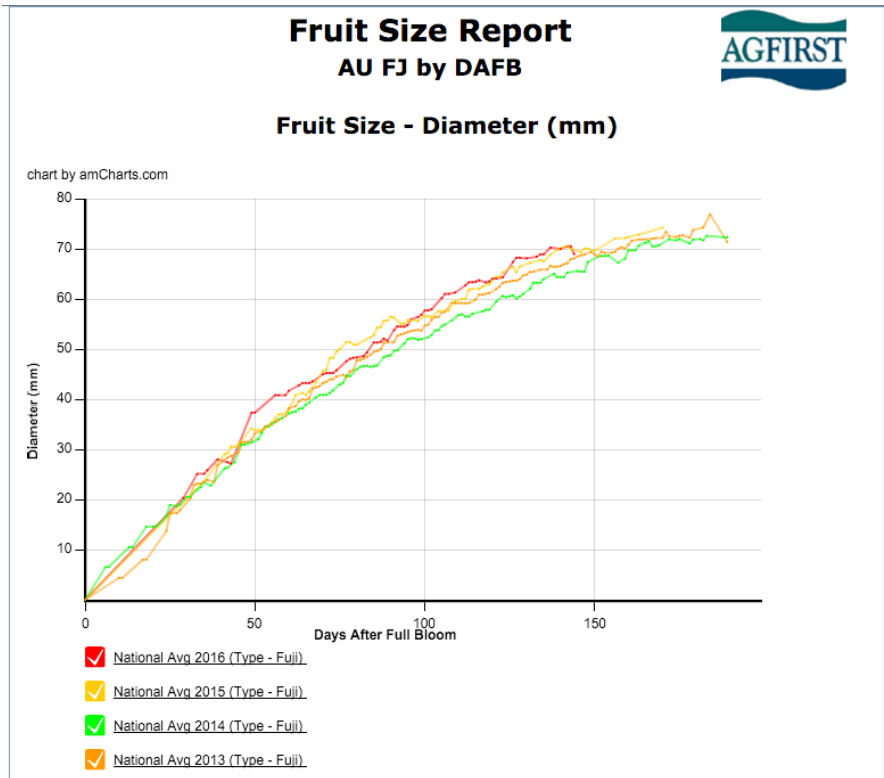
Figure 2 National Average Pink Lady Fruit Size DAFB



Fuji

As at the end of Feb (145 DAFB) the national average Fuji fruit size was 70mm. Fuji are tracking well at this stage, similar to the 2015 national curve but significantly larger than either 2013 or 2014. We are therefore predicting the national average fruit size for Fuji to be 197 gms.

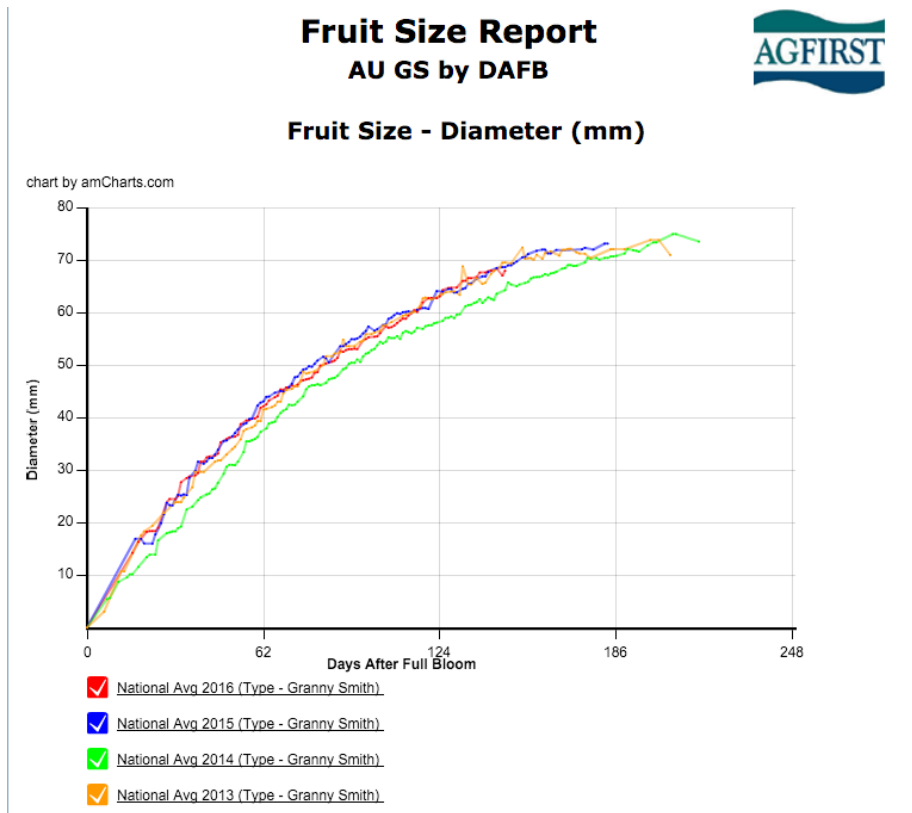
Figure 3 Fuji national average DAFB



Granny Smith

At the end of Feb, Granny Smith were averaging 68 mm. This corresponds to 146 DAFB. As Fig 4 shows, the Granny Smith growth curve in 2016 is very similar to both the 2013 and 2015 years. We therefore predict the average fruit size at harvest to be approx. 176 gms.

Figure 4 Granny Smith National average DAFB



Weather and Water

As some of you are aware , Agfirst have made an effort this season to capture the Evapotranspiration and Rainfall from a number of BOM weather stations around Australia and have loaded it into Orchardnet. You can see the data toward the bottom of each blocks data screen (see Tables 3&4 below). We have gone to the effort to load up the last 4 years data so that you can compare from one season to another. As you can see below, Lenswood in the Adelaide Hills has experienced a typically hot dry growing season.

If you cant see any weather data, go to the property Details and ensure the closet weather station is assigned to each property. Note not all weather stations are loaded at this stage, just the most significant ones for pomefruit throughout the country.

Table 3 Lenswood Weather data

Weather Station Lenswood Research Centre Rainfall(mm):

Year	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
2016	134.2	106.8	59.2	23.0	17.4	16.2	41.6	57.6				
2015	240.0	36.8	50.8	7.6	23.0	16.4	75.6	1.2	10.8	104.4	119.8	55.2
2014	245.8	202.8	107.4	64.6	19.2	23.0	21.0	125.4	35.2	55.2	95.0	214.8
2013	95.0	137.6	56.2	26.4	15.0	16.0	14.4	11.6	25.0	58.0	68.0	153.6

Weather Station Lenswood Research Centre Evapotranspiration(mm):

Year	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
2016	28.1	38.4	67.8	140.2	134.9	181.0	152.8	123.1				
2015	25.3	50.5	72.8	123.6	134.2	127.3	140.1	147.0	102.2	54.0	35.0	26.9
2014	28.7	43.8	88.0	120.9	140.5	179.4	173.2	132.4	105.0	63.3	49.4	19.3
2013	25.1	39.9	79.0	121.4	158.7	127.6	161.4	133.2	105.6	75.2	54.2	22.2

Up in the tropical state of Queensland, the weather is a complete contrast with regular summer rainfall almost balancing the ET losses this season.

Table 4 Applethorpe Weather data

Weather Station Applethorpe Rainfall(mm):

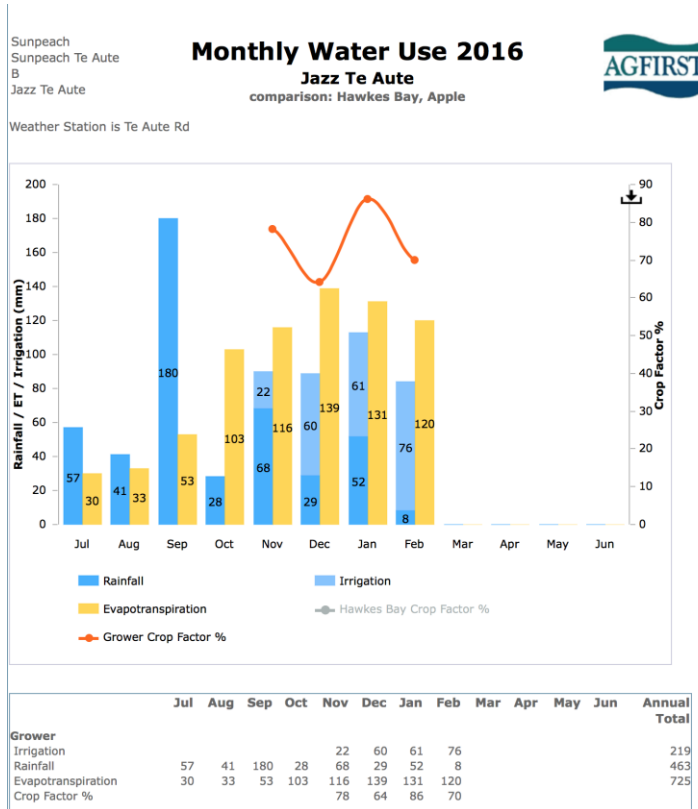
Year	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
2016	31.0	28.0	25.0	43.0	116.0	146.8	132.2	71.4				
2015	8.0	63.0	21.0	17.0	38.0	229.0	90.0	80.0	33.0	61.0	85.0	30.0
2014	46.0	3.0	47.0	29.0	84.0	25.0	42.0	7.0	160.0	10.0	38.0	34.0
2013	54.0	2.0	14.0	54.0	48.0	69.0	154.0	148.0	80.0	46.0	23.0	94.0

Weather Station Applethorpe Evapotranspiration(mm):

Year	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
2016	44.0	70.0	91.0	127.0	130.0	145.8	129.9	125.5				
2015	55.0	63.0	90.0	143.0	156.0	136.0	147.0	122.0	123.0	72.0	57.0	40.0
2014	49.0	87.0	127.0	165.0	136.0	188.0	166.0	132.0	107.0	78.0	54.0	46.0
2013	49.0	84.0	118.0	165.0	155.0	188.0	166.0	122.0	107.0	79.0	54.0	46.0

This data is extremely useful to review your irrigations decisions and finetune going forward. Clearly the Lenswood grower has had to irrigate a lot more than the Stanthorpe grower this season. The best way to review your irrigation is to look at a simple water budget (Water in vs Water out). All the research that has been done on water use in apples suggest that we should be irrigating at approx. 70% of ET if we are only irrigating the apples, not the grass sward in between. If you enter your irrigation inputs into OrchardNet it will calculate what Crop Factor you have applied.

I have done that for my own orchard and you can see the results below.



As you can see in the graph , my crop factor has moved from 64% in Dec to 86 % in Jan. The average over the 4 month irrigating season (Nov-Feb) is 74% YTD. This gives us good confidence that our irrigation has been about right, not too much and not too little.

Interestingly we also monitor soil moisture in this block. This monitoring shows soil moisture to have been maintained throughout the season between the Full Point and the Trigger Point. The ideal situation is that the two monitoring systems give you the same feedback.

We would encourage growers using OrchardNet to avail themselves of this additional functionality.

Maximizing the use of orchardnet over the next few months.

Fruit sizing

Keep up the regular fruit growth monitoring right up to harvest. This is a great tool to keep an eye on tree performance.

Block production

Try and keep good records of the bins numbers coming off each block. This is important when recording the yield achieved from each block of trees. Even if the packhouse amalgamates blocks when packing, at least you know exactly the gross volume achieved off each block.

Recording dates

The “Full Bloom” and the “first harvest date” are the most critical dates in the fruit growing calendar. Keep a good record of these and enter them into orchardnet.

Irrigation water use

Calculate the irrigation water you have applied to each block in “effective mm” (refer our Dec 2015 BDG newsletter) and enter so you can observe the crop factor you have used throughout the season and how you compare to other users and best practice of approx.

To be able to participate with any of the projects discussed or to get orchardnet working for you, please either contact our OrchardNet administrator (Adrian.stone@agfirst.co.nz) or contact your local Front Line Advisor (details below).

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