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IN THIS ISSUE

The cold winter days are a great time to sit down in front of your computer, enter your historical data into OrchardNet, and start planning for the 2021 season.

This newsletter outlines the importance of setting cropload with the help of OrchardNet, the new features of OrchardNet and an update on irrigation monitoring.

Harvest has come and gone which means for many, winter pruning is well and truly underway.

Whilst eyeballing trees can be very effective for pruning, there is nothing better than having quantitative yield targets pre-pruning to ensure the planned pruning job matches up with the block goals. A beautifully-pruned block is not always the most profitable; sometimes 'ugly' to hit a target is better. For young trees, early pruning/training is critical and done

poorly can result in significant losses to potential tree growth and yields.

Set a target, have a plan and adjust as necessary; nothing will change (except potentially going backwards) if you aren't seeking to adapt and improve your block performance.

OrchardNet has a variety of in-built tools to allow for production planning. A combination of accurate tree counts, areas, block production targets and other factors can be combined to give target bud and fruit numbers per tree.

<http://www.orchardnet.co.nz>

**Don't have an OrchardNet account?**

As part of the Future Orchards project OrchardNet is provided to Australian growers for free (up to 1200 blocks total). Please contact your local FLA or a member of AgFirst (see details on the last page of this newsletter) if you would like to give it a go.



Setting an appropriate crop load with the help of OrchardNet



New Features in OrchardNet

# Setting appropriate crop loads with OrchardNet

## Getting your block history right

In order to make a well-informed decision for your 2021 crop load it is vital that you have a full dataset.

At a minimum, it is generally best to work with at least three years of historical data (yield, average fruit size, packout). If you do not have this data, your best estimate will have to suffice.

If you fall in the latter category of having minimal historical data, it is not too late to change your data collection methods to improve your crop load target accuracy by:

- Collecting bin numbers harvested per management area
- Ask if your packhouse can identify packouts, size etc. by block in the future
- Calculate what the average packout and fruit size was; this often means combining each packout report into a single sheet summary

## Setting your block target in OrchardNet

After establishing good historical data it's time to establish:

- A. What we want to target
- B. If it is feasible

The OrchardNet "thinning report" is a good place to start which would output something similar to the below for each block where data is available:

A good example from the Turnbull Bros orchard shows how their block of 'Buckeye Gala' has performed in the last 3 years. 2017 through to 2019 stayed consistent in terms of yield and fruit size.

What was notable in the 2020 season was the higher yield and smaller fruit size. However, through good data collection and use of OrchardNet, they have been able to identify the reason for this. Inaccurate fruit counting. Fruit post thin counted 130 fruit/tree however, they harvested 166 fruit/tree. This extra fruit has obviously influenced fruit size, ultimately reducing average fruit size.

From there, they can set goals knowing what has happened historically. This may also lead to more auditing of bud and fruit counts to improve accuracy.

Once the targets are set, update information in the 'Metric' tab to gain a 'pruning report'. This will output a bud target (number of fruit buds for each tree) to prune towards as a target. If you find you're well under target, prune with less detail. If you find an excess of fruit buds on your trees, prune a bit harder with greater detail.

Pick out %. Proportion of the post hand thin fruit count that made it into the bin (based on average fruit size and harvested yield).

Being >100% this suggests the post-thin count underestimated fruit number per tree

| Blockname                             | Ssn  | Type | Gross Kg/ha | Class1 Kg/ha | Class1 P/O % | Fruit Weight (g) | Harvested Fruit /Tree | TCA Harvested /TCA | Tree Fruit Pickout % | Target Fruit/Tree post-thin | Fruit Pre-thin | Fruit Monitor thin | Fruit Post-thin |
|---------------------------------------|------|------|-------------|--------------|--------------|------------------|-----------------------|--------------------|----------------------|-----------------------------|----------------|--------------------|-----------------|
| <b>Turnbull Brothers Focus Blocks</b> |      |      |             |              |              |                  |                       |                    |                      |                             |                |                    |                 |
| <b>A</b>                              |      |      |             |              |              |                  |                       |                    |                      |                             |                |                    |                 |
| <u>Buckeye Gala</u>                   |      |      |             |              |              |                  |                       |                    |                      |                             |                |                    |                 |
| Findon Block 3 - Buckeye              | 2020 | Est  | 70,000      | 56,000       | 80           | 170              | 123                   | -                  | 90                   | 137                         | -              | -                  | -               |
|                                       |      | Act  | 79,641      | 70,880       | 89           | 144              | 166                   | -                  | 128                  | -                           | -              | -                  | 130             |
|                                       | 2019 | Act  | 72,000      | 59,760       | 83           | 160              | 135                   | 33.2               | 108                  | 150                         | 152            | -                  | 125             |
|                                       | 2018 | Act  | 68,825      | 60,738       | 88           | 167              | 124                   | -                  | -                    | 137                         | -              | -                  | -               |
|                                       | 2017 | Act  | 72,025      | 62,806       | 87           | 168              | 129                   | -                  | -                    | 143                         | -              | -                  | -               |

# New features in OrchardNet

## Pruning/ thinning audit report

Within OrchardNet there are several tools created to help plan your season. One of them being the 'pruning/thinning audit report'. We have updated the reporting so that when you have completed bud or fruit counts it is very easy to see whether your block is heavy, light or at the right amount of buds/fruit through a customisable colour coding system (shown in the figure on the right).

From there, you can make confident decisions based off robust numbers. Say you are left with less bud on the tree than aimed for, you may decide to pull back on your chemical thinning strategy with full confidence.

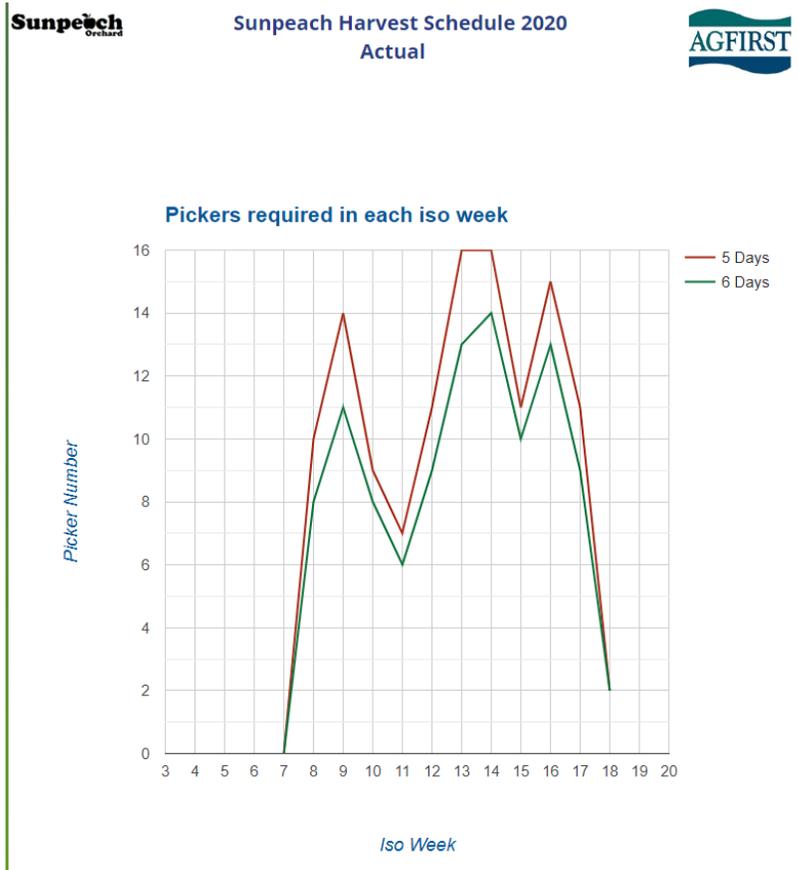
| Block                         | Bud Target | Buds Pre Prune | Buds Monitor Prune | Buds Post Prune | Fruit Target | Fruit Pre Thin | Fruit Monitor Thin | Fruit Post Thin |
|-------------------------------|------------|----------------|--------------------|-----------------|--------------|----------------|--------------------|-----------------|
| Brookfield 560                | 1266       |                |                    |                 | 781          |                |                    |                 |
| Dazzle Grafts 560 2.5m        | 0          |                |                    |                 | 0            |                |                    |                 |
| Dazzle Grafts 560 3.0m        | 0          |                |                    |                 | 0            |                |                    |                 |
| Queen 560                     | 1278       |                | 1287               | 1287            | 568          |                |                    | 496             |
| Rose 560                      | 1068       |                |                    |                 | 503          |                |                    |                 |
| Royal Gala 560                | 1125       |                | 1297               | 1297            | 694          |                |                    | 687             |
| Breeze 560                    | 89         |                |                    | 95              | 66           | 126            |                    |                 |
| Dazzle Trees 560 ex Fuji land |            |                |                    |                 | 3            | 6              |                    | 3               |
| Dazzle Trees 560 virgin       | 23         |                |                    |                 | 17           |                |                    |                 |
| Envy 560                      | 84         |                |                    | 72              | 59           | 59             |                    | 59              |
| Pacific Rose Lease            | 1321       |                |                    |                 | 622          |                |                    | 774             |
| Royal Gala Lease              | 1485       |                | 1577               | 1577            | 825          | 689            |                    | 731             |
| Braeburn Lease                | 1956       |                |                    |                 | 959          |                |                    |                 |

## Harvest schedule planner

Another recently added feature to OrchardNet is the ability to plan for your labour requirements over the harvest period.

Through your production details, OrchardNet will estimate your labour requirements for each ISO week throughout the growing season. It will tell you how many pickers you will need on a 5 or 6 day working week. The figure on the right is an example of Sunpeach Orchard outlining the labour demand over the entire harvest period in terms of picker number.

For this to be used to its full potential, you must have estimate production details for every block inputted into OrchardNet.



# How efficient was your irrigation last season?

As some of you are aware, AgFirst 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. We have gone to the effort to load up the last 5 years data so that you can compare from one season to another.

If you cannot see any weather data, go to the property details and ensure the closest 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.

To understand how a water budget works and for guidelines on how to use this functionality read <http://apal.org.au/understanding-irrigation-requirements/>

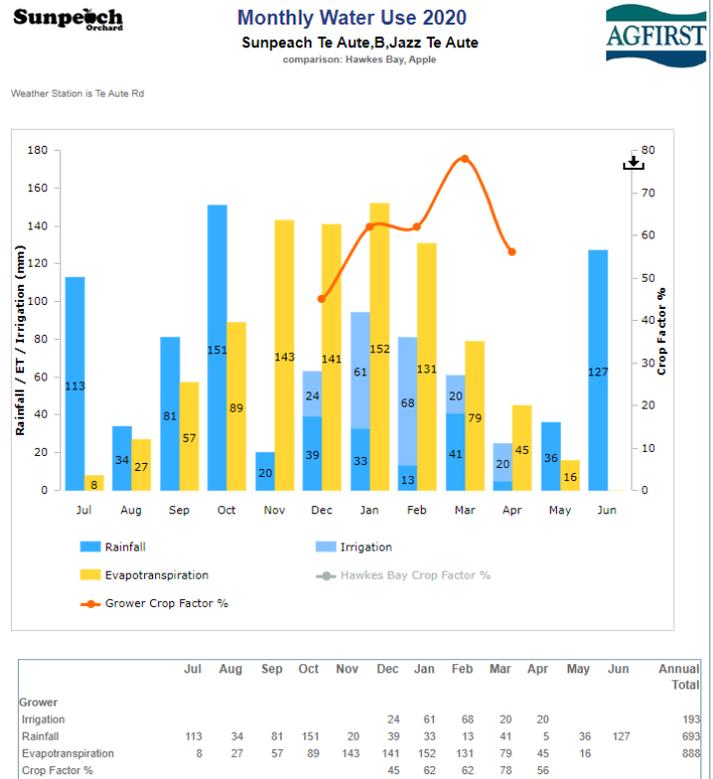
I have shown the result for Sunpeach Orchard in New Zealand during the 2020 season and you can see the results on the graph to the right.

In the graph, the crop factor has moved from 45% in Dec to 62 % in Jan. The average over the 4-month irrigation season (Nov-Feb) is 56%. This indicates to us that our irrigation has been a bit on the light side. The crop factor should sit between 65-70%. Interestingly, fruit size in 2020 was small, quite possibly due to low water levels seen in this graph.

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.



Interested in trying OrchardNet within your business?

OrchardNet takes some perseverance and may require a different way of thinking to what you are used to.

If you're not too sure how-to login to OrchardNet, enter data, add blocks or you just need a few extra pointers don't be afraid to get in contact with your local Front-Line Advisor (FLA), the OrchardNet Administrator ([adrian.stone@agfirst.co.nz](mailto:adrian.stone@agfirst.co.nz)) or a member of the AgFirst team.

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