



**Pistachio Growers' Association**

## **PGA Chill Newsletter Number 3 - 2020 - 21 Season**

**13<sup>th</sup> August 2020**

Most growing areas have already achieved, at the 13<sup>th</sup> August 2020, the recommended 59 Dynamic Chill units for this season.

The Riverland areas have not quite achieved that yet, but it is estimated that Renmark has a 95% chance of achieving it by 31<sup>st</sup> August.

Even when sufficient chill has been received, most growers still apply winter oil, but at a lower rate. Oil application generally achieves a more uniform bud burst and it ensures management of scale.

The application of the oil to every bud is essential to the success of oil treatment. Hence the oil concentration AND the application rate are critical to its success.

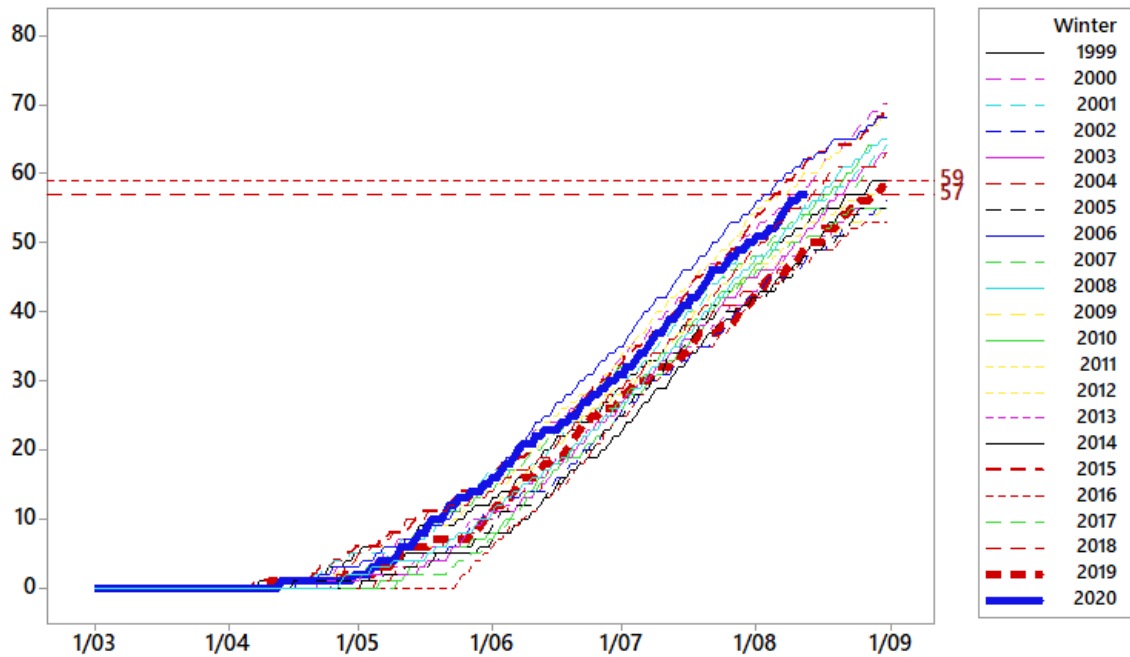
Oil application has been shown to result in earlier, more even bud burst in non-bearing trees. The experiences of two growers were attached to the July Chill report or copies can be obtained from the PGA.

At the end of the detailed charts for each of the growing area, there is further information on the chill requirements of pistachios and the mitigation strategies that can be taken in seasons of insufficient chill.

**Table. Possibility to reach 59 portions by 31<sup>st</sup> August**

Station	Portion Now	Further require	Portion gain from 16/08 to 31/08					Possibility to reach 59 (%)
			Min	Q1	Median	Q3	Max	
Renmark	57	2	4	6	8	9	12	99.6
Loxton	59	-						100
Lameroo	73	-						100
Mildura	62	-						100
Swan Hill	69	-						100
Nhill	79	-						100
Yarrowonga	78	-						100
Wagga Wagga	78	-						100
Griffith	67	-						100
Albury	81	-						100

## Renmark



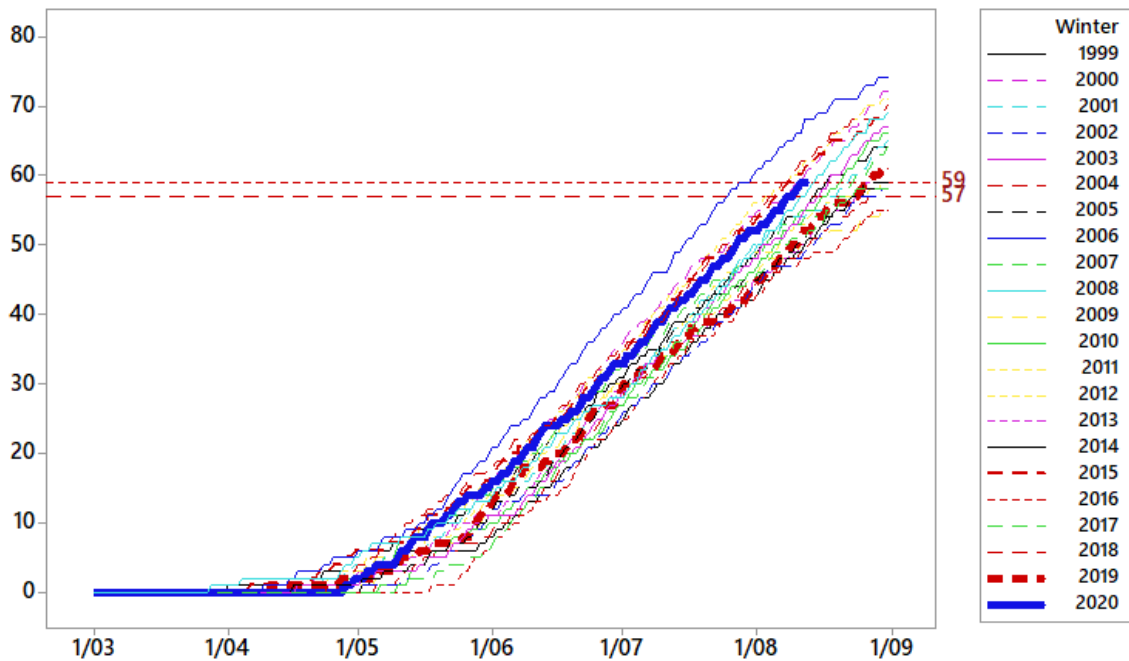
PGA research shows that 59 Dynamic Portions between 1st March and 31st August is sufficient chill. 57 Dynamic Portions to 15th August will in 95% of years produce 59 Portions by 31st August.

**RENMARK: Achieved 57 portions on 13<sup>th</sup> August,**

**This is above average at the 13<sup>th</sup> August by 4 portions.**

**Renmark has not quite achieved 59 portions, but it is estimated that Renmark has a 95% chance of achieving it by 31<sup>st</sup> August.**

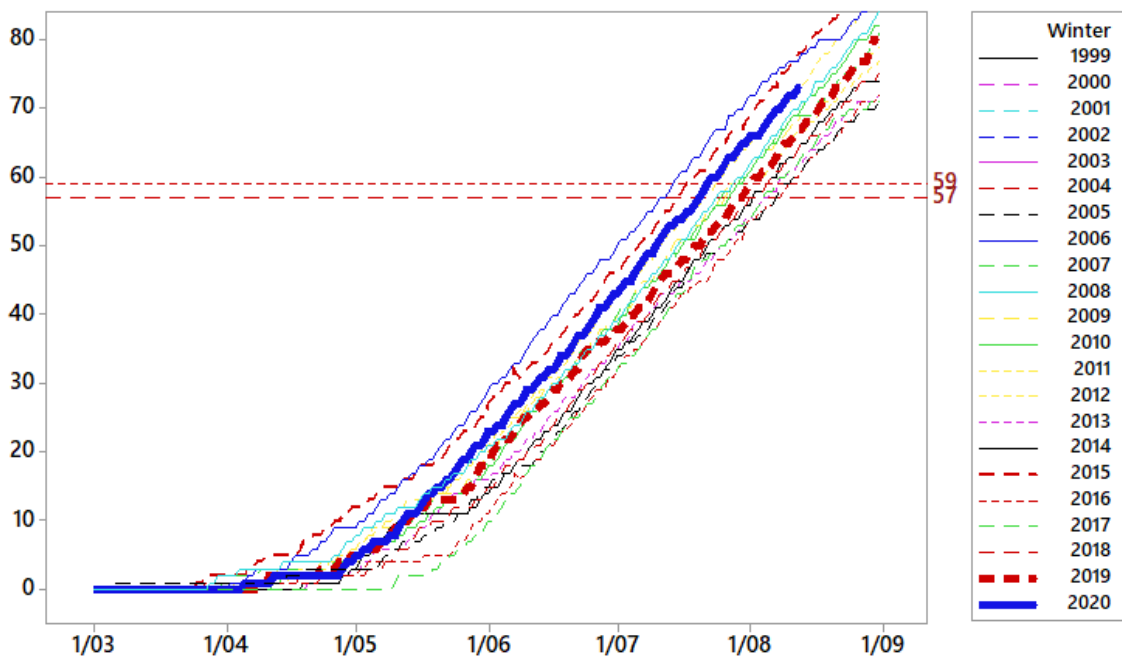
## Loxton



PGA research shows that 59 Dynamic Portions between 1st March and 31st August is sufficient chill. 57 Dynamic Portions to 15th August will in 95% of years produce 59 Portions by 31st August.

**LOXTON:      Achieved 59 portions on 13<sup>th</sup> August,  
                   This is above average at the 13<sup>th</sup> August by 4 portions.**

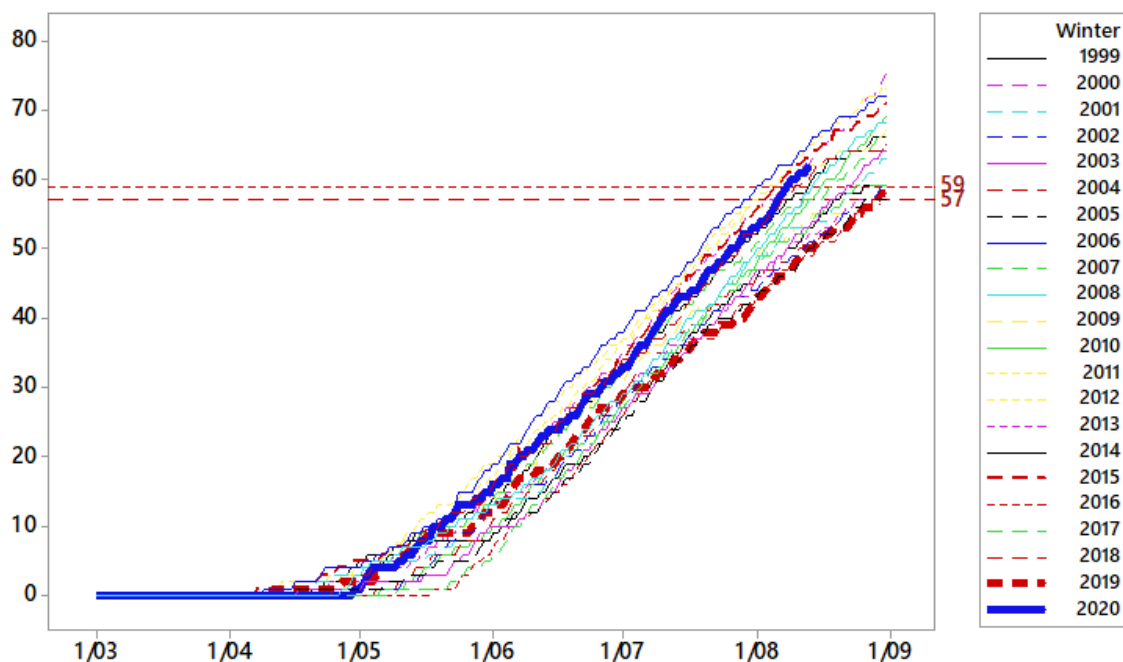
## Lameroo



PGA research shows that 59 Dynamic Portions between 1st March and 31st August is sufficient chill. 57 Dynamic Portions to 15th August will in 95% of years produce 59 Portions by 31st August.

**LAMEROO:    Achieved 73 portions on 13<sup>th</sup> August,  
                   This is above average at the 13<sup>th</sup> August by 5 portions.**

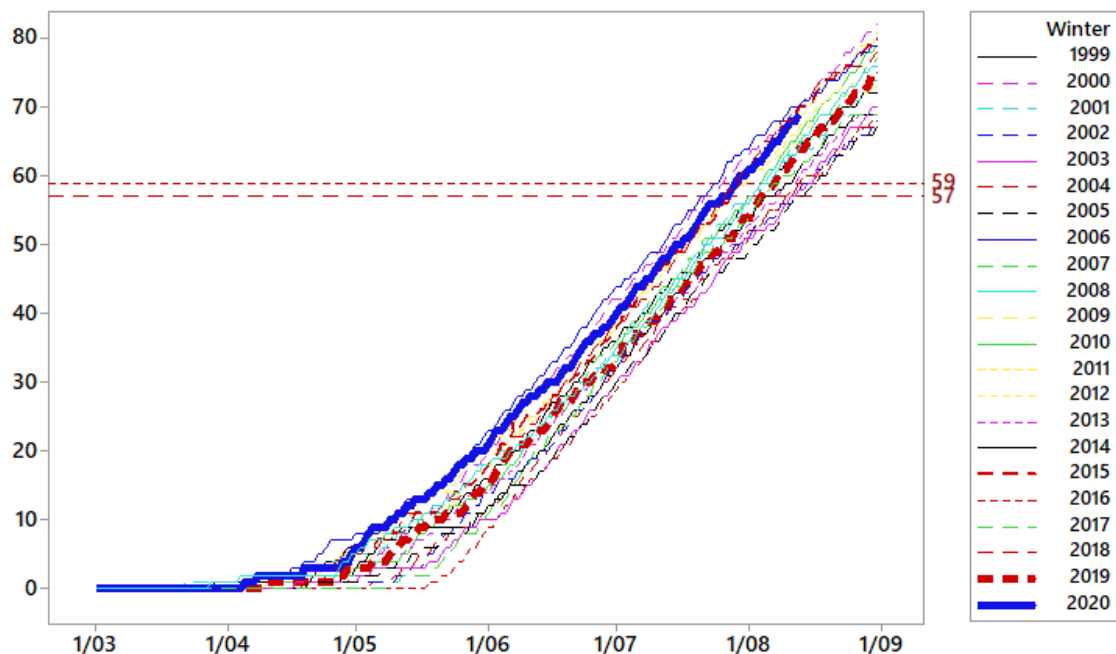
### Mildura



PGA research shows that 59 Dynamic Portions between 1st March and 31st August is sufficient chill. 57 Dynamic Portions to 15th August will in 95% of years produce 59 Portions by 31st August.

**MILDURA:**      **Achieved 62 portions on 13<sup>th</sup> August,**  
                          **This is above average at the 13<sup>th</sup> August by 6 portions.**

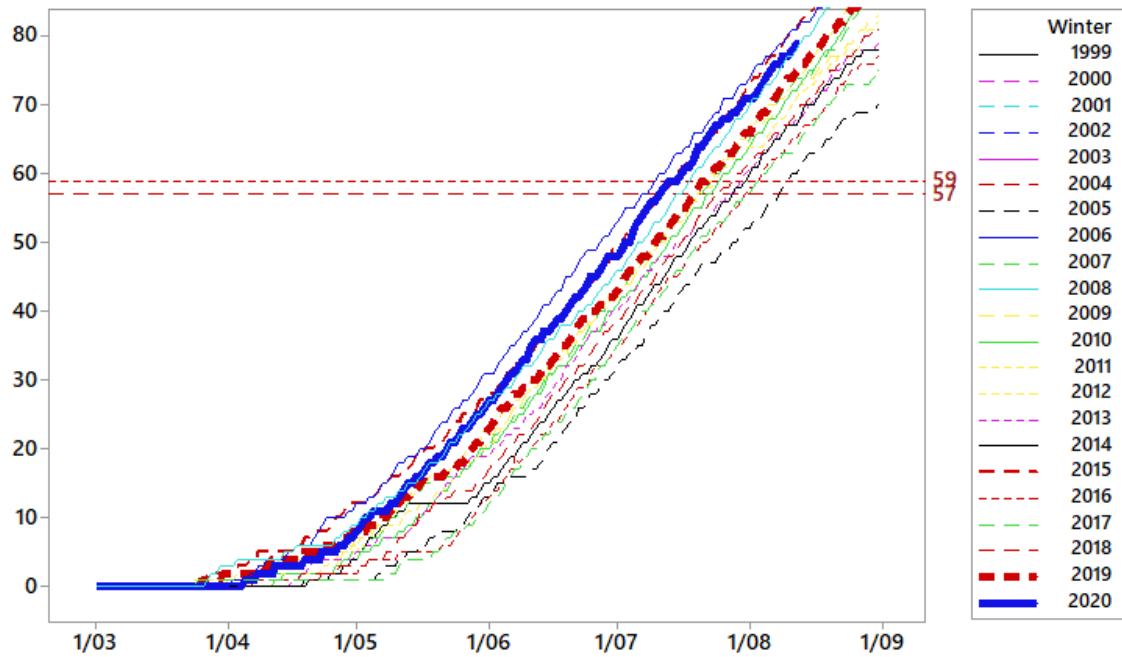
### Swan Hill



PGA research shows that 59 Dynamic Portions between 1st March and 31st August is sufficient chill. 57 Dynamic Portions to 15th August will in 95% of years produce 59 Portions by 31st August.

**SWAN HILL:**    **Achieved 69 portions on 13<sup>th</sup> August,**  
                          **This is above average at the 13<sup>th</sup> August by 5 portions.**

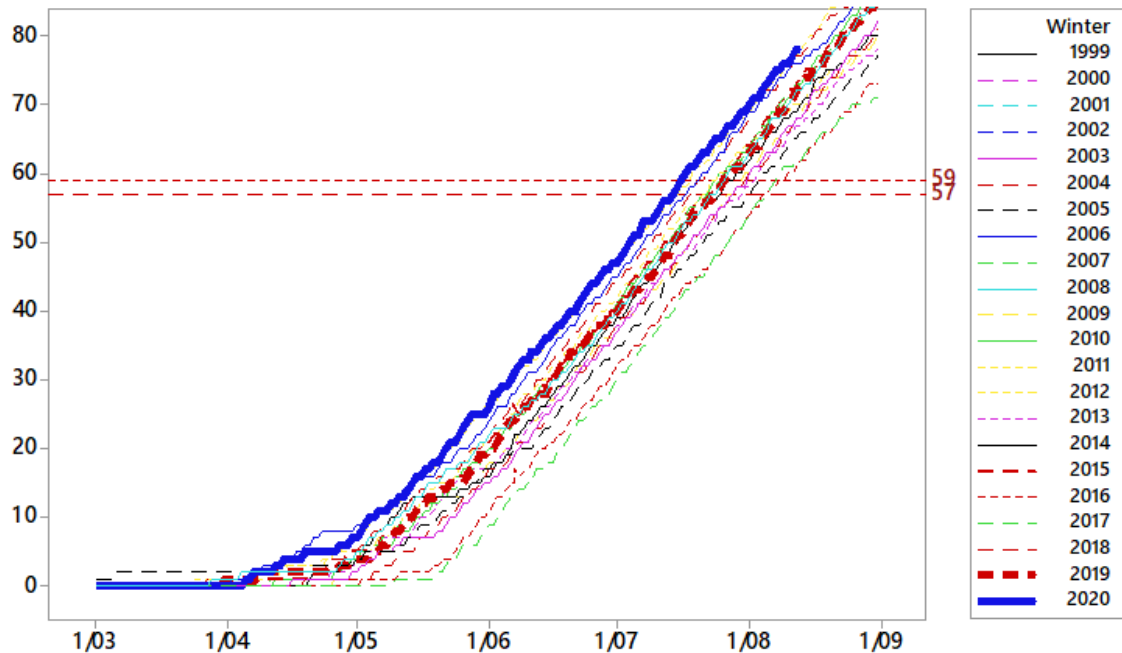
## Nhill



PGA research shows that 59 Dynamic Portions between 1st March and 31st August is sufficient chill. 57 Dynamic Portions to 15th August will in 95% of years produce 59 Portions by 31st August.

**NHILL:**           **Achieved 79 portions on 13<sup>th</sup> August,**  
**This is above average at the 13<sup>th</sup> August by 6 portions.**

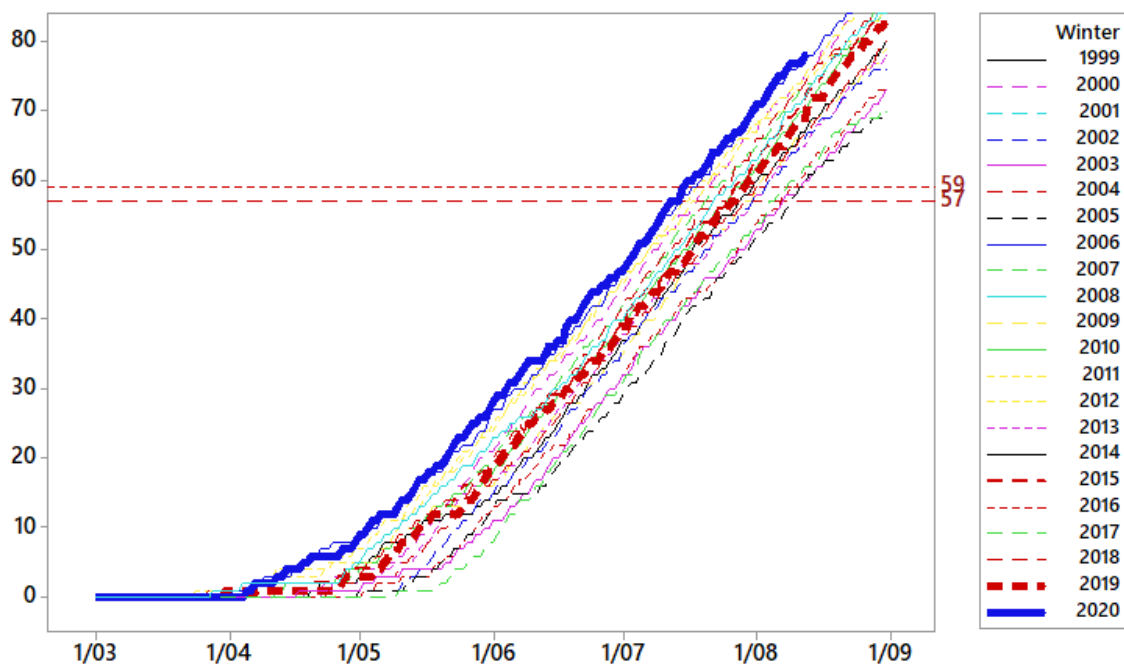
## Yarrowonga



PGA research shows that 59 Dynamic Portions between 1st March and 31st August is sufficient chill. 57 Dynamic Portions to 15th August will in 95% of years produce 59 Portions by 31st August.

**YARROWONGA:**   **Achieved 78 portions on 13<sup>th</sup> August,**  
**This is above average at the 13<sup>th</sup> August by 7 portions.**

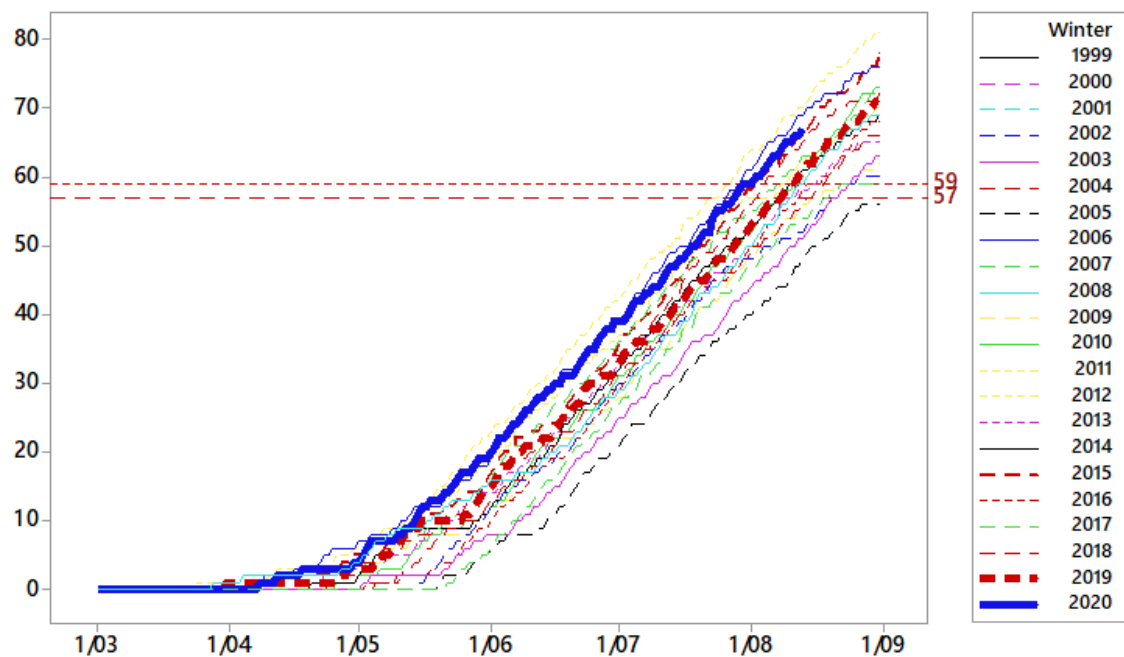
## Wagga Wagga



PGA research shows that 59 Dynamic Portions between 1st March and 31st August is sufficient chill. 57 Dynamic Portions to 15th August will in 95% of years produce 59 Portions by 31st August.

**WAGGA WAGGA:** Achieved 78 portions on 13<sup>th</sup> August,  
This is above average at the 13<sup>th</sup> August by 8 portions.

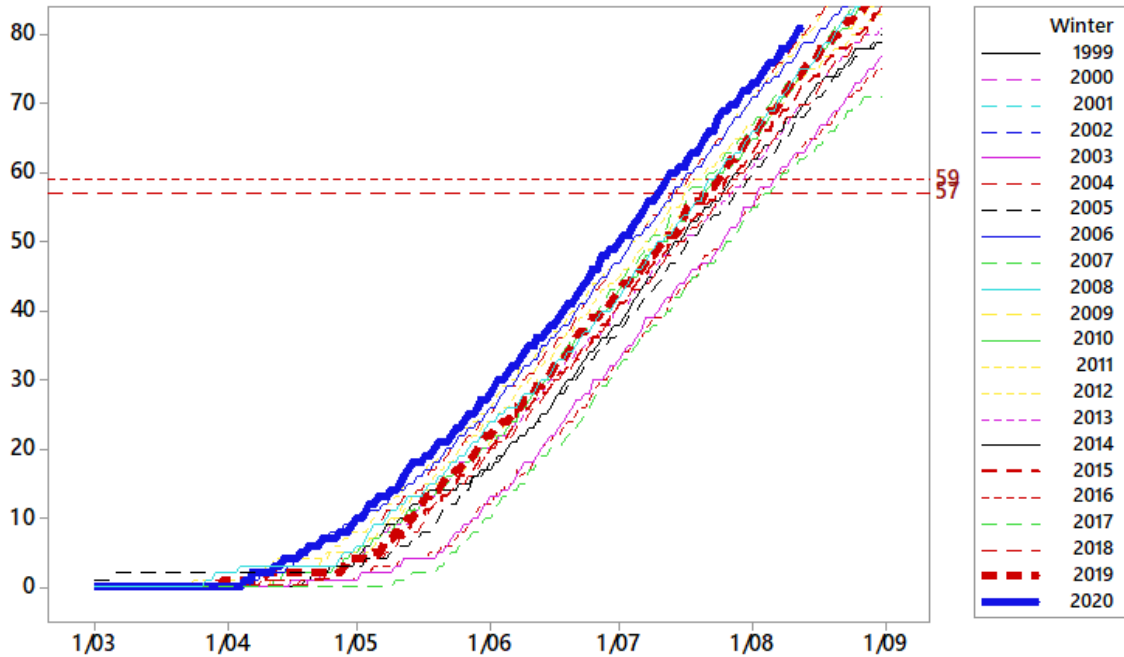
## Griffith



PGA research shows that 59 Dynamic Portions between 1st March and 31st August is sufficient chill. 57 Dynamic Portions to 15th August will in 95% of years produce 59 Portions by 31st August.

**GRIFFITH:** Achieved 67 portions on 13<sup>th</sup> August,  
This is above average at the 13<sup>th</sup> August by 7 portions.

## Albury



PGA research shows that 59 Dynamic Portions between 1st March and 31st August is sufficient chill. 57 Dynamic Portions to 15th August will in 95% of years produce 59 Portions by 31st August.

**ALBURY:            Achieved 81 portions on 13<sup>th</sup> August,  
                             This is above average at the 13<sup>th</sup> August by 8 portions.**

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### Chill Background Information

Pistachios are extremely sensitive to lack of winter chill.

Lack of chill will result in very uneven opening of flowering and vegetative buds; some will not open until November or December; many buds will not open at all. Harvest will be very uneven and late. The crop will be reduced.

PGA research has shown the Dynamic Chill model to be the most appropriate method to measure the chill requirement of pistachios. The research has shown that *Sirora* pistachios require 59 Dynamic Chill Portions between 1<sup>st</sup> March and 31<sup>st</sup> August. The research also shows that 57 Dynamic Chill Portions to the 15<sup>th</sup> August will, in 95% of years, accumulate to the required 59 Portions by 31<sup>st</sup> August. Unless the required Chill Portions are received, growers should take mitigating action. The experience of some growers show that oil sprays may be of assistance to yields in seasons when the Chill Units are below or even a little over the requirements found by the research.

## Mitigating the effect of low winter chill

Research in California and Australia has shown that winter oil application will significantly mitigate the effect of insufficient winter chill. Correctly applied oil can increase crops with insufficient chill by up to 50%. If there has been sufficient chill, little benefit seems to result from the oil application.

Oil application may bring the trees into flower up to a week earlier. The increased risk of frost damage should be considered by growers before applying winter oil in August.

Trials over seven years in California showed limited adverse effects from annual oil application. In the single season where lower yields were recorded from the oil treated trees, the week during the flowering of the treated trees was very wet, affecting pollination. A week of rain during pollination will affect crop load.

Winter oil is registered in NSW and SA only for the treatment of scale. Growers can only apply oil for the registered purpose.

**Application time:** Ideally the third week of August.

**Oil to use:** Refined, heavy, emulsifiable horticultural spray oil. Typically, about 860 g/litre petroleum oil. One brand that is used is: "Vicol Winter Oil" – Winter Dormant Miscible Oil – Insecticide

**Concentration:** 3% to 6 %, i.e. 3 to 6 litres per 100 litres of applied spray volume. PGA research has shown that in low-chill years, the higher concentration shows better yields. Care must be taken not to over spray – excessively high rates of oil will burn trees and perhaps kill them.

**Application rate:** Spray volume is dependent on tree size but must be applied to the point of runoff.

### **It is critical that all bud scales are thoroughly wetted.**

On average size trees, the application rate is up to 1,800 litres/ha. The very warm winters of 2013, 2014 and 2016 demonstrated the benefit of well applied oils. The orchards that ensured total coverage achieved the good off-crop results. Orchards that did not spray oil had 2/3<sup>rds</sup> of the fruit buds not opening, i.e., 2/3<sup>rds</sup> of the crop potential was lost. The vegetative shoots that sprouted late, in November and December did not have fruit buds, i.e., the following crop was also reduced.

### **To be effective, the oil application must be applied to EVERY bud.**

One key issue for the application is the tractor speed. Californian research shows that tractor speeds of 2mph, 3.2kph, produce significantly better results for any spray application than faster speeds.

The results of the PGA research in the low chill 2016/17 season clearly demonstrated that application rates of 4,000 l/ha had massive increases in yield over 2,000l/ha. There was no such benefit of the higher application rate in the high chill 2015/16 season.

Some growers always apply oil unless the chill is well above the required Chill Portions. They say they do this to ensure scale control and also to be conservative. In such cases, to reduce cost, they use a 3% oil spray rather than 6%. If the chill has been low, growers usually apply at 6%.



The raw data is collected from the Bureau of Meteorology sites. The data for each orchard may be different. This data and information is provided as a guide to growing pistachios in Australia. Each grower should ensure that actions taken on their orchard is appropriate for their orchard. The PGA Inc and its office bearers will not accept responsibility for the actions of individual growers on their orchard.

Chris Joyce, Chair, Research Committee  
Pistachio Growers' Association

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Innovation**  
Strategic levy investment

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