

Pistachio Growers' Association Incorporated

PGA Chill Newsletter Number 3 - 2012-13 Season FINAL REPORT FOR THIS SEASON

17th August 2012

Winter Chill 2012

Whilst there are prospects for the accumulation of additional chill over the next weeks, the PGAI concludes its reporting of the Dynamic Model chill portions on 15th August each season. This cut off date is to allow growers to take remedial action in the event of insufficient chill.

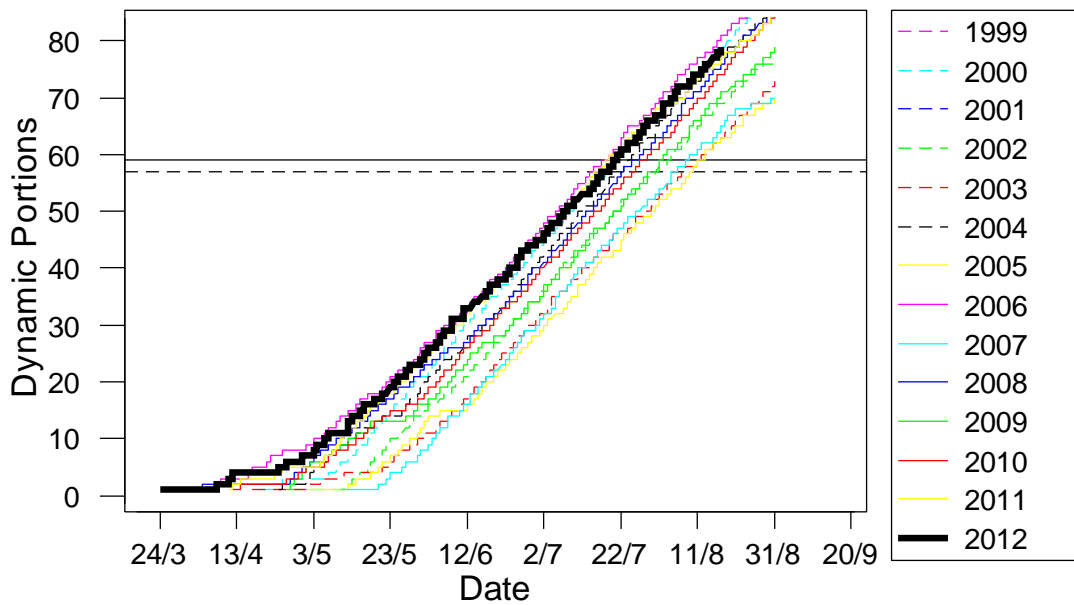
The PGAI research, lead by Dr Jianlu Zhang, shows that 59 Dynamic Portions to 31st August provides *Sirora* pistachios with sufficient chill. In 95% of season, 57 Dynamic Portions by the 15th August will reach the required Portions by the 31st August.

All growing areas covered by this Report have shown in excess of 60 Dynamic Units by the 15th August. The PGAI research would indicate that all growing areas have, in winter 2012, achieved sufficient chill for *Sirora* pistachios.

The research and annual data collection is funded by the financial contribution of most pistachio growers with additional support from the Australian government through Horticulture Australia Ltd.

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.

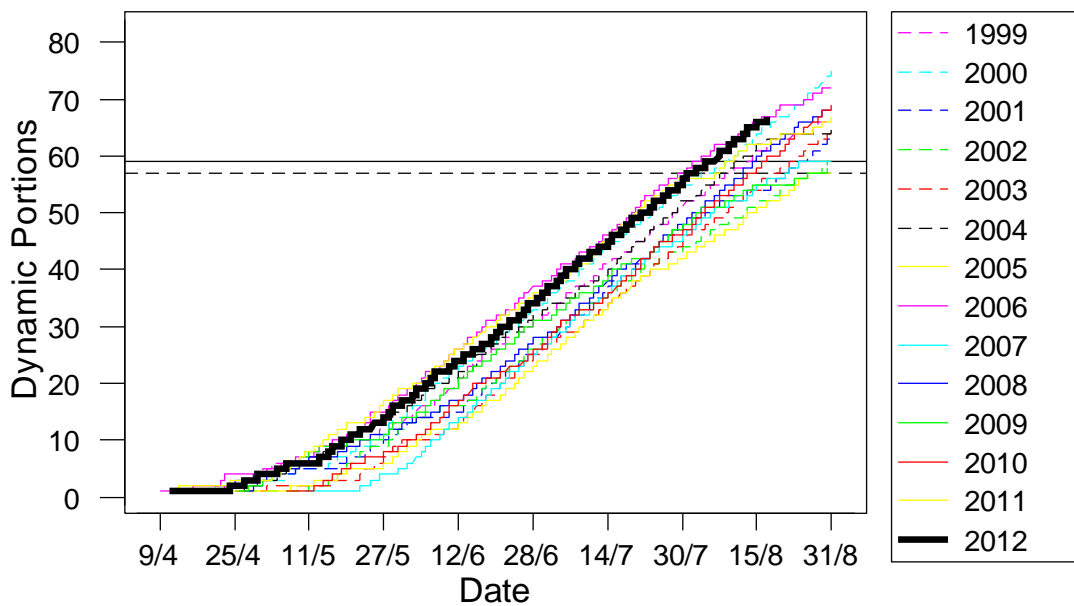
Wagga Wagga



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 has achieved 77 portions on 15th August, above average to the 15th August by 6 portions. This is above the 59 Portions required for the whole winter season.

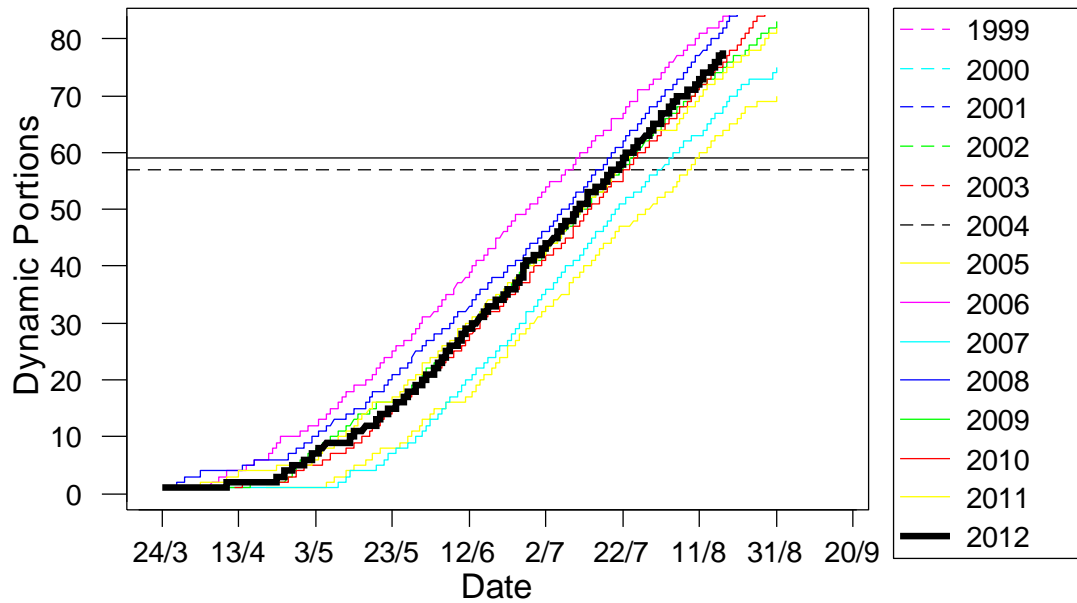
Mildura



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.

Swan Hill/Mildura has achieved 66 Portions on 15th August, above average to the 15th August by 8 portions. This is above the 59 Portions required for the whole winter season.

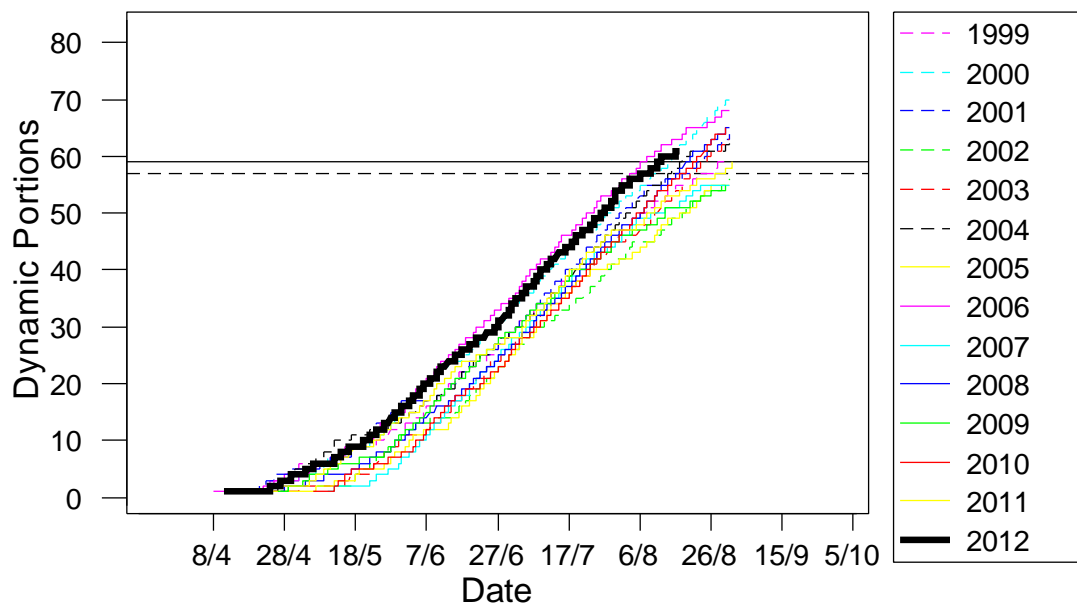
Nhill



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 has achieved 76 portions on 15th August, above average to the 15th August by 3 portions. This is above the 59 Portions required for the whole winter season.

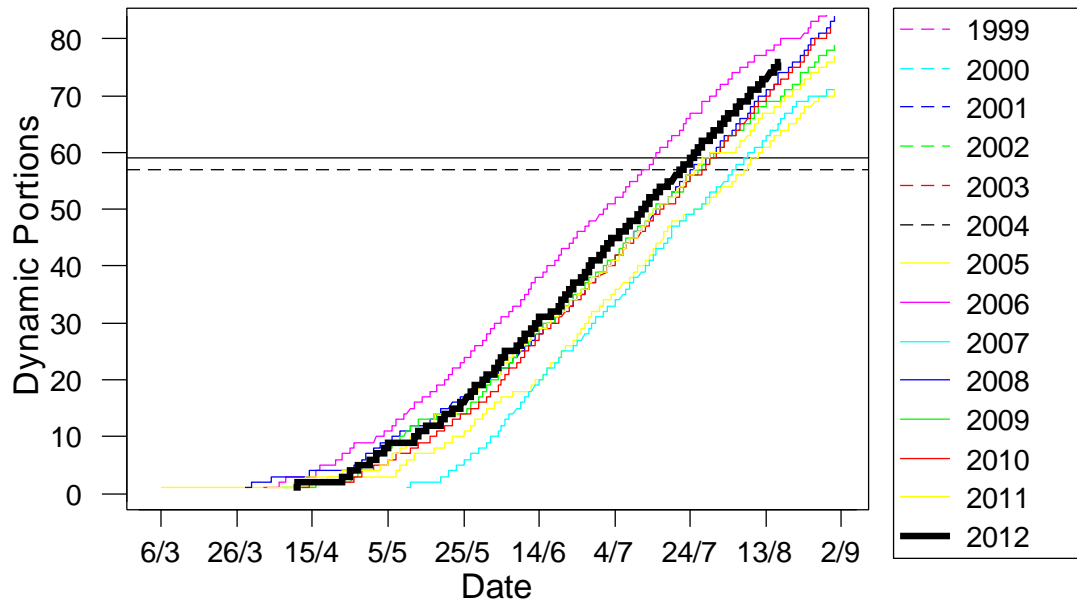
Renmark



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 has achieved 60 portions on 15th August, above average to the 15th August by 6 portions. This is above the 59 Portions required for the whole winter season.

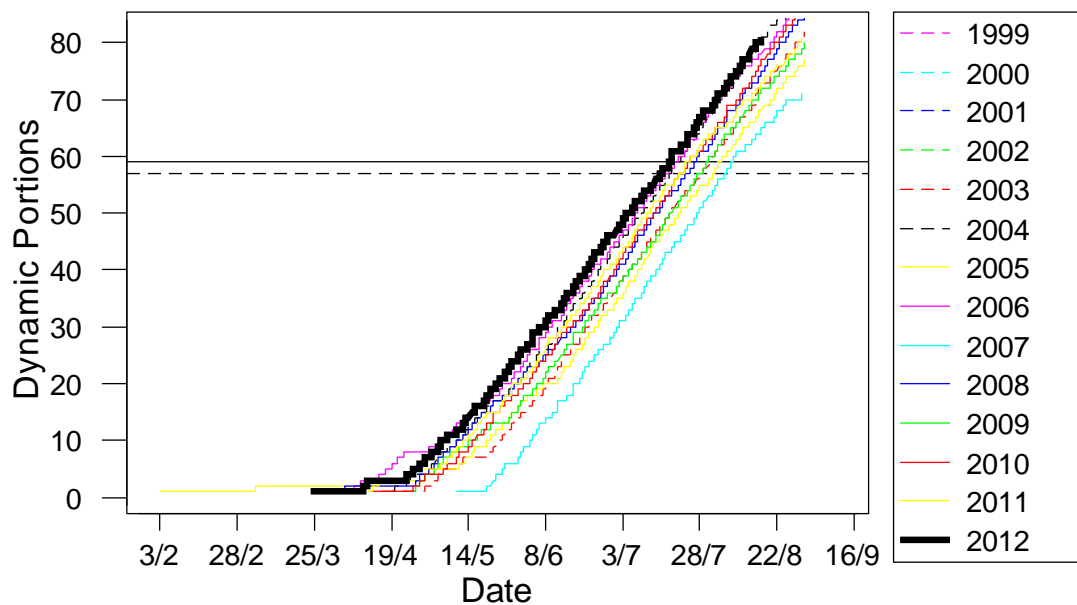
Lameroo



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 has achieved 75 Portions on 15th August, this above average to the 15th August by 5 portions. This is above the 59 Portions required for the whole winter season.

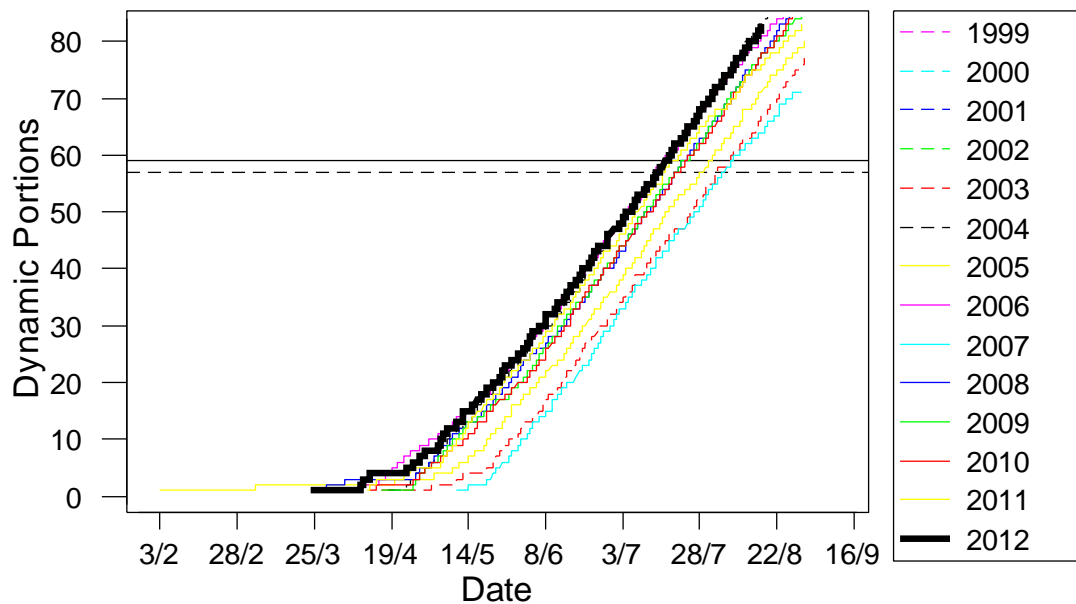
Yarrowonga



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 has achieved 79 Portions on 15th August, this above average to the 15th August by 7 portions. This is above the 59 Portions required for the whole winter season.

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 has achieved 81 Portions on 15th August, this above average to the 15th August by 8 portions. This is above the 59 Portions required for the whole winter season.

Chill Background Information

Pistachios are extremely sensitive to lack of winter chill.

Lack of chill will result in very uneven opening of flowering buds; some flowers will not open until November or December; many buds will not open at all.

PGA research, supported by the Australian government through Horticulture Australia has shown the Dynamic Chill model to be the most appropriate method to measure the chill requirements of pistachios. The research has shown that *Sirora* pistachios require 59 Dynamic Chill Portions between 1st March and 31st August. The research also shows that 57 Dynamic Chill Portions to the 15th August will in 95% of years accumulate to 59 Portions by 31st August.

Mitigating the effect of low winter chill

Insufficient winter chill causes uneven bud break and perhaps some buds not to open at all. Sometimes buds will delay opening until November or December resulting in poor or non-

pollination. Late opening buds will have late maturing nuts; some buds will mature so late that they cannot be commercially harvested.

PGAI research by Dr Jianlu Zhang has shown that the Dynamic Model provides the best guide to measuring the amount of chill received each season. His work shows that less than 59 Dynamic Portions of chill between 1st March and 31st August are insufficient 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 15%. 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 have shown limited adverse affects from oil application. In the one 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

Application rate: Spray volume is dependent on tree size, but must be applied to the point of runoff. It is critical that bud scales are thoroughly wetted. On average size trees, the application rate is up to 1,800 litres/ha.

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%.

Chris Joyce

Chair, Research Committee