



Pistachio Growers' Association



ABN 88 173 348 039

SEASONAL REMINDERS - LATE WINTER / EARLY SPRING 2020

Welcome to the 2020/2021 pistachio season! For non-pistachio growing reasons, 2020 has certainly been challenging and I trust you are all staying safe and well.

In this edition of Seasonal Reminders, we reflect on the 2019/2020 harvest and look at chilling and preparation for the 2020/2021 season.

2019/2020 HARVEST

Many Australian pistachio growers achieved excellent yields in 2019/2020. As I have discussed in the past, such yields are usually a culmination of good flower bud numbers and quality; good winter chill; excellent flowering, pollination and fruit set; and very good growing conditions during the season.

Nigel Carey from APPC/Nut Producers Australia provided the following comments regarding the 2020 harvest from a processing point of view.

- *Quality overall has been similar to 2019.*
- *Trash levels were lower across the total crop, and has been reflected in lower costs being incurred, which is pleasing.*
- *Light stain, along with blanks (empty shells) and foreign material, are higher on average across the crop, compared to last season.*
- *Orchard and equipment hygiene are incredibly important in terms of managing allergen risks and growers are requested to ensure equipment, bins, and surrounding areas are free of other nut contaminants. Almonds, along with other crop contaminants, have been found throughout hulling and grading.*
- *Customer and market/industry QA demands and compliance requirements continue to increase and it is increasingly important that growers remain vigilant with their on-orchard QA systems, documentation and record keeping. Europe and India have announced that approvals for a number of chemicals are going to be withdrawn, along with changes to MRL's. Whilst these changes will have limited impact on pistachios (at least in the immediate term), we need to be aware that the world is becoming increasingly driven by regulation and food safety.*
- *APPC/Nut Producers Australia are happy to provide QA support to any growers that may require assistance or have queries. Nigel can be contacted via email (nigel.carey@nutproducers.com.au) for more details.*

CHILLING

Pistachios have a high winter chill requirement to produce good, even and timely bud break, normal flowers, viable pollen, good fruit set and normal vegetative growth. Insufficient chill can result in uneven opening of vegetative and flower buds, poor pollination and fruit set, uneven harvest and reduced yields.

The PGA monitors accumulated winter chill using the Dynamic Model and each season produces a series of newsletters for growers which provides updates on the amount of winter chill in various locations. If you have not been receiving these newsletters, please contact Trevor Ranford on 0417 809 172 or sahort@bigpond.com

As highlighted in PGA Chill Newsletter Number 1 - 2020/2021, the amount of chill received across all regions up to 25th June 2020 has been above average which is a good sign for the 2020/2021 season. Further chill reports will be issued by the PGA on 30th July 2020 and 15th August 2020 to allow growers to plan for dormant winter oil sprays to mitigate against the effects of insufficient winter chill should this be necessary. Consult the PGA Chill Newsletters for details on spray rates and timing.

As I have discussed in past Seasonal Reminders, dormant winter oil sprays are still worth considering even if sufficient chill has been received as they may lead to more even bud break. In any case, dormant winter oil sprays are required for control of scale insects.

FERTILISER PROGRAMS – MATURE TREES

Many growers have reported good flower bud numbers for the upcoming 2020/2021 season which is very promising. 2020/2021 was meant to be an 'on-crop' season based on historical records but as I have discussed recently, these cropping trends do not seem to be holding (and even seem to have switched) with many growers achieving higher yields in 2017/2018 and 2019/2020 which were meant to be 'off-crop' seasons and lower yields in 2016/2017 and 2018/2019 which were meant to be 'on-crop' seasons. This highlights the need for growers to assess bud numbers each season to predict target yields from which the fertiliser program is developed.

Growers have a number of tools available to help them decide on a fertiliser program for the upcoming season including nutrient budgets (based on target yields), leaf and soil analyses and visual observations. In my experience, nutrient budgets are a very effective method of estimating pistachio fertiliser requirements. These budgets estimate the amount of nutrient required for a given target crop as well as vegetative growth based on nutrient analysis of fruit and fertiliser efficiencies. The program is then adjusted according to actual crop load and vigour.

When developing a fertiliser program, it is also important to consider when the pistachio trees are actively taking up and using nutrients. Based on research conducted in California in the 1990's, I recommend the following breakdown of the nitrogen, phosphorus and potassium fertiliser program for mature pistachio trees:

- *Spring flush up to shell hardening*
 - Nitrogen – 45% of program
 - Phosphorus – 50% of program
 - Potassium – 20% of program
- *Nut fill*
 - Nitrogen – 55% of program
 - Phosphorus – 50% of program
 - Potassium – 80% of program

As I have discussed in the past, I believe there is also an opportunity to apply some fertiliser following harvest to replenish tree reserves in preparation for the following season. The key is to maximise uptake of any fertiliser applied whilst not stimulating a vigour response.

For specific advice on fertiliser programs, contact Ben Thomas on 0417 143 797.

FERTILISER PROGRAMS – YOUNG TREES

Young non-cropping pistachio trees require small and regular amounts of nitrogen fertiliser to promote good establishment and strong growth. In the first growing season, the aim is to achieve sufficient growth of the rootstock so it can be budded in January.

Many growers also apply a small amount of phosphorus fertiliser to provide the young trees with sufficient phosphorus until they can access phosphorus fertiliser applied prior to planting. Young trees also require regular foliar nutrient sprays.

FOLIAR NUTRIENT SPRAYS

Foliar nutrient sprays are an important tool available to pistachio growers. They enable micronutrients to be applied at specific growth stages. For pistachios, the key foliar nutrient sprays are boron, zinc, copper and calcium.

Best uptake of nutrients from foliar nutrient sprays occurs when the spray droplets remain on the leaves for a long period without evaporating. Therefore, avoid applying foliar nutrient sprays on hot/windy days. It is also best to apply foliar nutrient sprays whilst the leaves are young as there is less uptake of micronutrients applied as foliar sprays once the leaves mature.

The following information is intended as a guide only. Always apply products at label rates and directions and check compatibility if mixing products. For specific advice, contact Ben Thomas on 0417 143 797.

Boron

Boron is important in pistachio flowering, pollen viability and fruit set. Research in California has shown that applying a late dormant boron foliar nutrient spray just before bud break (i.e. bud swell) has a positive effect on pollination and fruit set. Boron foliar nutrient sprays should not be applied later than 20% bud break as there could be damage to flowers.

Zinc

Pistachios are prone to zinc deficiency and benefit from dilute zinc foliar nutrient sprays applied after flowering to young leaves before they harden up. Once the leaves mature, zinc applied in foliar nutrient sprays is bound in the cuticular waxes of the leaves and adsorption of the zinc into the leaf decreases markedly.

Young pistachio trees are particularly susceptible to zinc deficiency as zinc is immobile in plants. In young trees, growers should apply regular zinc foliar nutrient sprays so that new growth receives a zinc foliar nutrient spray.

Copper

In recent seasons, I have observed copper deficiency in young pistachio trees with symptoms including leaf scorching and S-shaped shoots. With severe copper deficiency there can be dieback of rapidly growing shoot tips.

To treat copper deficiency, apply a copper chelate foliar nutrient spray targeted when new growth is still expanding. Apply at label rates and directions.

Calcium

Trees on *Pistacia terebinthus* rootstock are susceptible to stylar end lesion (sometimes called 'chocolate nuts' or 'shadow disease'). Research by Jianlu Zhang and colleagues indicated that stylar end lesion was most likely caused by calcium deficiency in the developing fruit and once the fruit reach shell hardening, there is less risk of stylar end lesion occurring.

Whilst stylar end lesion is more prevalent in 'off-crop' seasons, I recommend that growers with trees on *P. terebinthus* rootstock apply regular calcium foliar nutrient sprays during spring up to shell hardening.

IRRIGATION

Good irrigation management is critical to the success of a pistachio crop. Insufficient water during the fruit development (flowering to shell hardening) and nut fill phases can have a significant impact on fruit size and splitting and hence yield. On the other hand, pistachio trees are susceptible to waterlogging so it is just as important to avoid over irrigating. Irrigation also plays a key role in nutrition as water is required to enable uptake of nutrients from the soil.

Growers should have a clear plan regarding irrigation requirements and there are a number of tools available to estimate irrigation requirements. The actual amount of irrigation applied is then adjusted according to weather patterns and assessments of tree and soil moisture status. For specific advice, contact Ben Thomas on 0417 143 797.

DISEASE MANAGEMENT

Over recent years, research has been conducted into several diseases affecting pistachio trees in Australia including Panicle and Shoot Blight (caused by *Botryosphaeria* sp.), anthracnose (caused by *Colletotrichum acutatum*) and Bacterial Dieback (caused by *Xanthomonas translucens* pv. *Pistaciae*). Detailed information on these diseases and management options are available in the members section of the PGA website (www.pgai.com.au).

For more details or to discuss any of the issues raised in this seasonal reminder, contact Ben Thomas on 0417 143 797 or benthomasconsulting@bigpond.com

PRUNING VIDEOS

Thanks to Andrew Bowring there are a number of young tree-pruning videos available.

These videos have been added to the website. The link is below

<http://www.pgai.com.au/latest-news>

CHEMICALS:

The following permits have been issued by the Australian Pesticides and Veterinary Medicines Authority (APVMA):

Permit Number	Description	Date Issued	Expiry Date	Comments	Permit holder
PER11731 Ver 3	Spray.Seed (paraquat + diquat) / Pistachios / annual broadleaf and grass weeds	1- Oct- 09	30- Jun- 23	Permit renewal. Issued for all states (excl Vic). No outstanding APVMA data requirements.	PGAI / AgAware

Permit Number	Description	Date Issued	Expiry Date	Comments	Permit holder
PER80806 Ver 2	Corvette (iprodione) / Pistachios / Botrytis rot & Alternaria leaf spot	11- Oct- 15	31- Aug- 25	Permit renewal. Issued for all states (excl Vic). No outstanding APVMA data requirements.	PGAI / AgAware

The permits are available on the Pistachio Growers' Association Inc website.

For more details contact Trevor Ranford or Craig Feutrill.