



### Queensland strawberry berry season

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#### Runner supply

This season has seen difficult conditions for runner production in the Stanthorpe region. Stanthorpe received no rain during January and February and experienced a 9-week period where day time temperatures remained above 30°C. This has presented a real challenge for runner growers and production has suffered as a result.

Rain finally arrived in mid-March, right as runner growers had started digging for early plantings. Though they were able to get some runners out to growers before the rain came, planting, particularly of early varieties, has been delayed. With strong demand for early varieties again this season the expectation would have been for very strong early production but this is now likely to be significantly reduced. On the positive side, later planting may result in more consistent production and generally improved quality for the remainder of the season.



Early planted Aussie Gem

#### Plug plants

Over the last few years the Queensland strawberry industry has seen an increase in the number of plug plants being planted. Plug plants certainly have advantages over bare root runners in terms of establishment. With a mostly undisturbed root zone and an actively growing root system they do not suffer the same levels of stress as bare root runners during the transplanting process. As a result, they do not require as much overhead irrigation and tend to establish more quickly. However, from what has been seen in the field they can be very vigorous and remain vegetative for a long time after planting. Planting date is likely to be an important factor in this regard. They may need to be planted later than a bare root runner of the same variety to encourage early fruit development. As the industry learns more about how to get the most out of these plants it is likely that numbers going in the ground will continue to increase.

#### Queensland runner farms – again releasing predatory mites

Predatory mites were again released on some runner blocks in Stanthorpe this season. There have also been reports of good naturalised predator populations on runner farms. As was the experience last year, it can be expected that some of these predators will make it through digging and planting, and be found in fruiting fields early in the season. Growers that are able to implement a 'soft' chemistry regime early have the best chance of preserving these predators. Though these predators will not replace the need for predator releases on fruiting farms, they will assist with early establishment and two-spotted mite control.



**Predatory mites have been easy to find in runner blocks**

### **Plant establishment on fruiting farms**

Good plant establishment is key to having a healthy, productive crop. For leaf-on runners this means keeping leaves well hydrated and functional during establishment through the use of overhead irrigation. Overhead irrigation requirements will vary depending on weather conditions but general guidelines are as follows:

- Overhead irrigation should be maintained for the first 1-2 weeks after planting.
- Maintain constant overhead irrigation for the first 3-4 days.
- For the next 3-4 days reduce overhead applications to 10-15 minutes in every 30 minutes. Following this irrigation can be reduced further to 10-15 minutes every hour.
- Check plants for root and leaf development after the first week.
- Once consistent new root development is observed, overhead applications can be reduced or switch to trickle irrigation. Over the next 2-3 days reduce overhead application times to 6-7 hours during the hottest part of the day then reduce further to 3-4 hours etc.
- As overheads are reduced check that plants are not showing signs of water stress and root development is increasing.
- It is important not to let soil become overly saturated while overhead irrigation is being used, as this will also stress plants and slow root development.

- When overheads are able to be stopped entirely start irrigating with trickle tape. Initially irrigation cycles should be short and often. As a guide 30-40 minutes every 2-3 days. However, monitor soil moisture closely and adjust irrigation schedule accordingly.

### **Early season disease management**

Managing crown and root rots is the first challenge in disease management for the season. Establishment is the time that root and crown diseases take hold and the risk of infection is increased if plants are stressed during this period. Infected plants may continue to grow and look healthy until the first flush comes on, but as the first flush develops, and there is increased demand on the plant, infected plants will begin to die. This will be worse in hot, dry conditions. It is important to maintain regular appropriate fungicide applications during the establishment period to reduce the risk of infection. Weekly phosphorous acid applications should be the foundation of this fungicide programme.

Once plants have established and started to produce new leaves it is important to protect this new growth from powdery mildew. During this first flush of leaf development growers should be maintaining a weekly rotation of the available powdery mildew fungicides. It is a good idea for growers to include a suitable potassium bicarbonate product such as EcoCarb in this rotation to take the pressure off the limited available chemistry. Be aware when using potassium bicarbonate that due to its highly alkaline nature it should not be tank mixed with any other products except those recommended on the label. Growers must also be aware that it is a purely contact fungicide so good coverage is essential for a good result. As part of a good fungicide regime it is a highly effective tool for managing powdery mildew.

### **Predatory mite strategy for the Queensland season**

Last season we utilised the predatory mite *Neoseiulus californicus* more than in previous years, with good results. As our confidence in the effectiveness of this predator has increased we have integrated it into our program to greater levels. Though it is not as aggressive a predator as *Phytoseiulus persimilis*, it is a generalist predator which enables it to survive even when there are very



**The Aerobugs drone releasing predatory mites into a strawberry crop**

low levels of two-spotted mites present. We have found that it is very effective as the first release in blocks that have low mite pressure. We follow this up with a second release of *P. persimilis* later in the season if two-spotted mite levels start to build. The *N. californicus* keep the two-spotted mite population in check while the *P. persimilis* numbers build to a good level and, in combination, the two species of predators clean up the block.

### **Drone releases by Aerobugs**

Last season Nathan Roy from Aerobugs consistently achieved excellent results and proved convincingly that drone releases are the future for predator dispersals in the outdoor strawberry industry. This season Aerobugs will again be an important partner for Bugs for Bugs and we will be encouraging all growers to utilise their services.

## **Summer season wrap-up**

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### **Southern strawberries**

In Victoria and Tasmania wet and cool conditions during spring delayed early production but growers had good fruit going into December. Production remained steady for the remainder of the season in Tasmania and they had a good autumn flush developing, though cool conditions have slowed ripening. Production dropped off rapidly in Victoria and there has been a lot of small fruit developing. Cool conditions coming out of summer has delayed the autumn flush and fruit generally remains small.

In both states there was some early pressure from two-spotted mites but predators had

cleaned them up on most farms by mid-December. Growers were starting to see mite populations build again during February and March, but predators have remained active and should keep these under control for the remainder of the season.

### **Stanthorpe**

Despite good volumes early in the season, Stanthorpe growers have had a tough summer. The extended period of hot weather from late December has caused poor flower and fruit set. As a result, both production and quality have generally been down. With temperatures remaining warm into March the autumn fruit set has been delayed. Despite poor production plants are generally in good shape and as long as temperatures begin to cool through March growers should get a good autumn flush.

Though farms had some high mite and thrips pressure early in the season, releases of *P. persimilis*, *P. californicus* and *Typhlodromips montdorensis* were very effective at gaining control of both pests. In addition to the introduced predators, by late summer there were very good numbers of a range of naturally occurring predators in the crops, and these made an important contribution to controlling pest populations. This shows that using a 'soft' chemistry pesticide program can encourage the presence of a diverse range of beneficial insects within the crop.

It was another year that provided some very good examples of how important overhead misting is in tunnel production for managing pests and preserving fruit quality.

## **Substrate strawberry production: is there a shift on the horizon?**

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Over the last few years the Australian strawberry industry has seen a rapid increase in the area dedicated to growing in coir substrate. There are various factors pushing growers to trial these systems and they certainly have their advantages. However, these systems are not without their challenges.



**Tabletop strawberries under poly tunnels**

Growers are attracted by the level of control that they can obtain in terms of irrigation and nutrient management. Fertiliser and irrigation inputs can be adjusted very easily and quickly to account for changing weather conditions and growth stage. This more refined management can translate to more efficient use of inputs and considerable gains in quality and yield.

Growers are also attracted by the gains that can be achieved in terms of labour. They have found that moving production off the ground, and on to table tops, has enabled them to obtain significant efficiencies in labour, resulting in reduced labour costs. They are also finding that they are more able to attract and retain good staff because they can provide more pleasant working conditions.

Overcoming limitations related to soil quality is another important advantage. Using coir substrate allows growers to take advantage of sites with suitable climatic conditions even when soil quality would not normally allow for good berry production.

An extremely important factor is the increasing challenge that growers have in managing soil borne disease. Since methyl bromide was de-registered the issues associated with soil borne diseases have become increasingly hard to combat. Moving production out of the soil and into coir is a very attractive solution to this problem.

Despite the apparent advantages to coir substrate systems there are definitely some challenges to be considered. Managing production in coir based systems requires a high level of technical expertise to achieve the benefits to production that are possible. If growers also install some type of protected cropping structure, which is usually the case, the technical expertise required to grow a good crop increases further. If growers don't

get it right they can find both their yield and quality decline rather than improve.

Another major consideration is the infrastructure costs. There are significant costs associated with establishing such a production system, particularly within a protected cropping structure. These capital requirements can have high servicing costs and long payback periods in an environment where margins continue to be squeezed.

Can the benefits gained by such systems outweigh the increased cost of infrastructure? There are certainly growers that are making a good go of it. These systems seem to be more likely to succeed in areas with long seasons like those experienced in Victoria or Tasmania rather than a short season such as Queensland winter production. However, there are Queensland growers that will be trialling coir with and without protected cropping structures this season. It will be interesting to see what kind of results they are able to achieve.

The move towards coir based production is not isolated to Australia. It is a trend that is happening worldwide for the same reasons that it is happening here. Only time will tell whether this is a trend that will continue, but with the likelihood of ever increasing labor costs and the current issues with soil borne diseases, it seems to be something that is here to stay.

## **Coragen permit to expire**

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The permit for use of Coragen in strawberry crops for the control of *Heliothis* caterpillar will expire on May 31 this year. Bugs for Bugs recommends that growers use Belt in place of Coragen after this date. Belt is registered in all states for use in strawberry crops for the control of Cluster and *Heliothis* caterpillars. It is a group 28 chemical (the same chemical group as Coragen), has a 1 day withholding period and is very soft on predators, making it ideal for use in an IPM program.

## **Bayer Serenade Prime**

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There has been growing interest in biological soil amendments in recent times. The increased level of understanding of how important soil biology is for good plant growth

has led to a large range of products now being available on the market. A new product available for use this season is Serenade Prime produced by Bayer.

Serenade Prime is a product containing a specific strain of the bacteria *Bacillus subtilis*, which is a recognised plant growth promoting microorganism. The bacteria inhabit the root surface and the soil surrounding the root and form a symbiotic relationship with the plant. Among the benefits of this relationship are improved water and nutrient availability.

More information regarding this product can be found at: <https://www.crop.bayer.com.au/find-crop-solutions/by-product/bayer-biologics/serenade-prime>

## Change of management at the Sunshine Coast insectary

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I'd like to take this opportunity to announce the resignation of Geoff Jenke who has been managing our Sunshine Coast insectary for the past 5 years. Geoff has been instrumental in developing the insectary to its current

operating capacity and we greatly value his contribution. We are sad to see him go and wish him all the best in his future endeavours.

As a result of Geoff's departure I will be spending the majority of my time at the insectary this year to assist the new management team to develop the systems and skills required to ensure the insectary is operating at its optimum capacity.

Under my guidance Sam Dunlop, Angus Durham and Fraser Hairs will be the key field representatives for this season and will be happy to address any of your questions or concerns.

Monitoring services will commence as soon as plants are establishing. If you have any questions or concerns prior to this, please do not hesitate to get in touch.

I wish you all the best for the coming season and trust we can be of immeasurable assistance.

*Paul Jones*  
*Bugs for Bugs IPM specialist*



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