

Case study part 2

From pests to market tests

In part 1 of this report, which appeared in the spring issue of the *Journal*, University of New England researcher Jade King identified production methods and weed management practices at Coochin Hills organic strawberry farm. In part 2, pests, disease and marketing methods are detailed in a case study.

The main pests encountered at Coochin Hills Organics, a 5.5-hectare fruit and vegetable enterprise at Beerwah, on the Sunshine Coast in south-east Queensland, occur at various stages throughout strawberry growth, starting with Cluster caterpillars (*Spodoptera litura*) and the two-spotted mite (*Tetranychus urticae* Koch) early in the season, slugs throughout the established period and Rutherglen Bug (*Nysius vinitor Bergroth*) going into August.

Fruit fly has not been found to be an issue for this organic strawberry enterprise, unlike conventional enterprises within the area.

In cases of major infestations of the caterpillars and slugs, BFA-registered product BioSoap is used to deter them. Biological control is used to prevent any infestations of the two-spotted mites, whereby a bought predator mite is introduced into the system within the early stages, effectively preventing infestations from occurring.

Finally, the Rutherglen bug problem is believed to be avoided by building up silica levels in the soil by using Casuarina tea, subsequently reducing the appeal of the strawberry to the bug.

DISEASE

Coochin Hills Organics use a combination of methods to prevent and deal with diseases in the strawberries. The most common diseases there are black spot (*Colletotrichum acutatum*), grey mould (*Botrytis* Grey Mould) and powdery mildew (*Sphaerotheca macularis*).

Planting blocks are all located in an elevated position, recommended as studies indicate this encourages sufficient aeration, optimises sunlight penetration and encourages water drainage (Ames *et al*, 2003; Kuepper *et al*, 2004; Pritts & Kovach, 2003).

Good organic management focusing on maintaining soil organic matter levels by incorporating cover crops is also used

at Coochin Hills Organics to reduce disease incidence. It is reported that soils high in organic matter are inhospitable to soil-borne pathogens (Ames *et al*, 2003; Kuepper *et al*, 2004; NSW Agriculture, 2004a).

Furthermore, general practices involving annual rotations, plus resting periods for blocks after three years of production, are also implemented. Finally, a Casuarina tea is used on a regular basis to reduce the potential for disease to occur.

The producers were apprehensive about using copper and sulphur to deal with bacterial diseases and powdery mildew as they have had great success with Casuarina tea for both pests and diseases.

ECONOMICS

Last year, about 40,000 tonnes of strawberries were produced in Australia, with a farm-gate value of about \$200 million (Austrade 2005).

With consumer demand for organic produce growing rapidly at an estimated rate of 20%-30% a year, there is significant potential for organic enterprises, including organic strawberries (Alexandra & May 2004 & Halpin 2004).

The producers at Coochin Hills Organics have found producing organic strawberries very economically rewarding, despite being in the 'in conversion' stage of organic production.

They have indicated that it has involved a lot of innovative thinking and evolution of their product. To ensure economic viability outside the strawberry season, small-scale herb and vegetable production has been required.

MARKET OPPORTUNITIES

Coochin Hills Organics sells to markets in Sydney, Melbourne and Brisbane. The producers have also established themselves at a certified organic market in Brisbane where they take their organic produce every Saturday.



Black spot. Photo: US Dept of Agriculture.



Cluster caterpillar (*Spodoptera litura*). Photo: WA Dept of Agriculture.



Two-spotted spider mite (*Tetranychus urticae* Koch). Photo: US Strawberry.

Finally, as an additional source of income, the producers participate in a Community Supporting Agriculture (CSA) scheme. This involves the public buying a bag of produce weekly at a nominal fee, providing the public with the knowledge of where and how their food is grown and by whom.

Furthermore, the CSA scheme provides a support backing for the producers and organic farming in general.

Coochin Hills Organics considered market opportunities and supply consistency as the most significant issues encountered when undertaking organic farming.

PRICE PREMIUMS

Despite being in conversion status, Coochin Hills Organics receives a price premium for its product, more so from the Sydney markets than Brisbane and Melbourne.

The market tends to dictate prices but generally the southern markets attract greater profits, on the occasion retailing at \$9 a punnet. The final retail figure at Brisbane markets is generally about \$6.50.

The producers indicated that if price premiums were not available, it would not be economically viable for them to undertake strawberry farming due to the relatively small land area of their enterprise.

Furthermore, the returns from the current conventional strawberry market would not allow repayments needed for their commercial loan.

Finally, the producers indicated their prices can be dictated by conventional prices of strawberries in addition to supply and demand because consumers consider the margins between the two.

CONCLUSION AND RECOMMENDATIONS

It is apparent that Coochin Hills Organics is an economically viable organic enterprise with successful organic management practices in place. It appears to be an innovative, well-designed organic enterprise that has continually evolved since conception.

While the system is proving successful, changes will be made over time in an attempt to optimise the yield and flavour of the strawberries. Following are recommendations for some areas where change may be beneficial.

It is recommended that once the enterprise is more established in organic strawberry production, planting part of the crop without using plastic could be trialled. Despite previous such trials failing, it is recommended that the location be selected more carefully for greatest sun penetration.

It is proposed that this will aid in warming the soil bed, increasing growth and yield. Furthermore, to reduce weed establishment in the absence of the plastic, it is suggested that

a combination of sugar-cane mulch and a cover-crop be used.

In Canadian trials, interseeding with sudangrass has proven successful (Ames *et al*, 2003). This recommendation is made primarily to address discomfort expressed by the producer in using plastic due to environmental and soil management concerns.

During the research for this report, it was noted that companion planting appeared to be neglected as a consideration. Research has indicated that strawberry fields can experience greater yields when planted in conjunction with borage.

Furthermore, borage is known to attract bees and accumulate silica and potassium, which can then be incorporated into the soil. The borage would need to be planted out of season, which would reduce its development.

Alternatively, consideration could be given to increased variations within the strawberry fields, for example placing rows of other farm produce compatible with strawberries, such as snow peas, among rows of strawberries.

It is proposed that this would provide greater habitat diversity for beneficial predators and, in the case of snow peas, potentially provide an added nitrogen source.

It is also recommended that more exposure to the public via the local paper would increase sales from the farm. In particular, it is suggested that an article explaining the 'Community Supporting Agriculture' scheme would evoke community awareness and support.

It is understood that the local paper does a weekly write-up on local businesses, which could be economically beneficial to Coochin Hills Organics.

External to Coochin Hills Organics, it is recommended that Government increase information availability on organic strawberry production in Queensland. This could be achieved by culminating information from current organic strawberry producers in Queensland, in addition to conducting research and development projects.

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