

## ***THERE IS NO ONE ANSWER***

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Some of the most frequently asked questions of extension officers and research scientists are "What is the best canopy management strategy? How can I maintain or improve my yield and fruit quality and yet reduce my trees to a more manageable size? During these conversations growers often state, "I've tried a number of canopy management options but none of them have really worked for me" or "why do you keep changing your story on canopy management? Every time I talk to a scientist or extension officer they tell me something different". Often these conversations are imbued with a sense of frustration as the grower wants the simple ONE answer.

However, there are many reasons why some of the canopy management systems do not work as well in practice as they do when reported at conferences or in the literature. This talk is about why some of the systems may not work as well in practice as in theory and it is about some of the things that must be taken into consideration when choosing a canopy management system that will suit your operation.

Firstly, one system will not fit all growers for a variety of reasons, some of which we will discuss later. Secondly, a canopy management system cannot be applied in isolation and for any of the systems to work they need to be part of an holistic management package that is tailored to your operation. Thirdly, a good canopy management system is not static, it will evolve with time in response to different seasons, tree requirements, market requirements, and new technology and ideas.

With this in mind the field day tomorrow has been developed to demonstrate a range of canopy management options that are successfully being employed by growers in the region. When viewing these systems you need to keep in mind what will work for you and your farm rather than what sounds like a good idea or appears to be giving the highest yields.

So what are some of the things you need to consider when you are thinking about changing your canopy management system? I have chosen to illustrate this point using the hedgerow/plant growth (PGR) system as an example and have drawn up a rough checklist, certainly not exhaustive, of some of the things I think need to be taken into consideration. All the points I discuss and questions I pose must be asked of any canopy management option you choose.

The hedgerow/PGR system has the potential to deliver considerable yield and fruit quality increases for those who are able to implement it successfully. However, it does require a high level of management and expertise as well as considerable machine and human resources.

## **Orchard floor management.**

One of the most important factors when considering the hedgerow/PGR strategy is the level of orchard floor management. This system is a high 'stress' system as the tree is being constantly manipulated to produce maximum yield and you cannot risk any component of the system failing. The type of questions you need to ask are: Does my orchard floor management system produce the optimum conditions for root growth? Are the trees sufficiently self mulching or does the system need the additional suitable organic matter and can this be sourced and applied cheaply? Is my nutrition program balanced that is, does it supply sufficient nutrients for production without stimulating excessive vegetative growth? Is my irrigation management capable of matching the amount of water supplied to tree requirements? Do I have adequate drainage and most importantly how good is my root rot control? This strategy will not succeed if there is a root rot problem as even trees with low levels of this disease can go downhill very rapidly once growth regulators are used. The first step therefore, is to realistically assess the level of root rot in the orchard. If you have a high or even moderate level then you will need to implement a strategy that will reduce and then maintain root rot at a very low level. If this is the case then getting an orchard to a level of health where PGRs can be used may take several years and during this period the canopy will still need to be controlled. However, even if the incidence is low you will still need to ask the question "is my orchard floor management good enough to consistently maintain a low incidence of root rot even when the trees are cropping heavily"?

During your visits to the orchards tomorrow it is as vital to look at the orchard floor management system as it is the canopy management system, the two are absolutely dependent of each other.

## **Optimising growth regulator performance**

Optimising growth regulator performance is a not a simple operation. It requires some knowledge of the avocado growth cycle and tree physiology. These chemicals need to be applied at the physiologically correct time and in the correct amount, both of which can vary with the season, tree health and previous cropping history. It also requires an in-depth knowledge of your orchard - how do blocks within your farm respond to changing seasons, cropping patterns and loads? While the person who best understands your farm is you, in the initial stages it may be beneficial to get advice from people who have had experience with PGR application. In this case you need to find the persons with this experience, determine their availability at the critical times, and take into account that if they are private consultants this advice will come at a cost.

## **Time of pruning**

The time of pruning is critical to the success of the hedgerow/PGR system and you may require repeat access to a mechanical pruner at short notice during the season. This system relies on pruning trees at the correct time during summer to ensure the regrowth has matured in time for flower induction. For example, research by Leonardi and Whiley (2000) has indicated that if you have rows running east-west then the southern side of the row may need to be pruned earlier in the summer than the northern side. This is because shoot growth is slower on the cooler southern side and shoots may not be physiologically mature at the time of flower induction.

Again, if you are going to go down this path there are a number of practical things that need to be taken into consideration. The most important of these is timely access to pruning equipment. If you own your own saws then this is not likely to be a problem. However, if you do not then there are a number of things you will need to consider, for example, if you are going to buy a mechanical pruner can you justify the cost? If you are going to use a contractor then you have to consider that your peak demand period for the pruner is also that of other growers therefore will the job be done on time? Also, you will need access to the pruner several times during the season and if the contractor is not locally based then this will add considerably to the cost.

Work place safety may also impact on your ability to successfully implement this system. If you are on sloping country where rows run on the contour, pruning on the uphill may be possible but not on the downhill side.

Also, when you have your mechanical saw do not think this is the end of hand pruning. This system still requires a great deal of manual work to remove aggressive water shoots and to cut 'windows' in the canopy to prevent a 'wall of leaves' effect.

If you are considering this system and can't be sure that you can meet these pruning requirements all year every year, you need to ask yourself, "is this system for me"?

While it may appear that I have tried to do a demolition job on the hedgerow/PGR system I do believe it is the way of the future, however, I say again these are the sorts of questions that you will need to ask of all the systems you will see tomorrow. The field day is about stimulating ideas and discussion, about seeing a range of canopy and orchard floor management systems that are working and delivering high yields of quality fruit. It is about helping you to make the decisions that only you can make knowing your farm, your management objectives and the resources you have available to you.

## **References.**

Leonardi, J. and Whiley, A., (2000). Pers comm.