



farmtalk



This article contains information most relevant to the less than 350 mm rainfall mallee farming region

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Summer Weed Control - Options for the Mallee

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The issue

Summer weeds are a constant management issue that confronts farmers in the mallee. In the era of the long fallow, weeds were controlled by cultivation. However, with the shift towards minimum till and no-till, the following questions concerning control options have been raised -

- Should summer weeds be ignored and dealt with at seeding time?

OR

- Should they be controlled during the summer and if so, at what stage?

Dealing with summer weeds in our current farming systems raises even more issues. For example:

- machinery blockages can occur at seeding time if vine weeds such as melons and caltrop are left to grow;
- stock poisoning is a potential concern if Potato weed (*Heliotropium europaeum*) and Caltrop (*Tribulus terrestris*) are left to be grazed; and
- stock handling and wool contamination become a problem if Innocent weed (*Cenchrus longispinus*) is not controlled.

Therefore, if we decide to implement a summer weed management program, what are the best control options?

- Do we revert back to mechanical control and run the high risk of wind erosion? OR
- Do we use some form of chemical control? That raises the issue of what stage of weed growth should be targeted for optimal control to be achieved.

What we know

If summer weeds are not managed over the summer period, then management needs to be performed prior to seeding **unless** seeding equipment includes the use of coulters. If pre-seeding chemical control is the preferred option, the cost is relatively high because weeds are older, larger, under more stress and thus harder to kill.

Some benefits of controlling summer weeds early include:

- potential increases in soil moisture and nitrogen for the next crop; and
- improved potential yield and grain quality. (The dry conditions of 2002 highlighted these responses.)

Chemical vs Mechanical control

There is **no** difference in crop response between chemical and mechanical weed control. Chemical control is an option, but the **timing** of control is critical. To obtain maximum benefits weeds need to be controlled early, when they are young and actively growing. An added advantage is that chemical control will also reduce the paddock erosion risk.

What this means

- Summer weeds **can** be successfully controlled, with some added crop benefits including increases in stored moisture and nitrogen levels in the soil profile.
- It is **important** to know your soil profile characteristics and determine whether there are any constraints in the upper horizons of the profile such as compaction or hostile sub soil layers (boron, alkalinity or sodicity). These constraints can limit the capacity of crop roots to take advantage of the extra moisture and nitrogen that has resulted from an effective summer weed management program.



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What can you do

- Implement a summer weed management program as **early** as possible. Weeds will be easier to control and the opportunities for additional in-crop benefits in the following season will be increased.

Figure 1 (below) shows the increase in stored soil moisture at the time of seeding and the corresponding responses in yield and protein for an Innocent weed site at Copeville, SA in 2002.

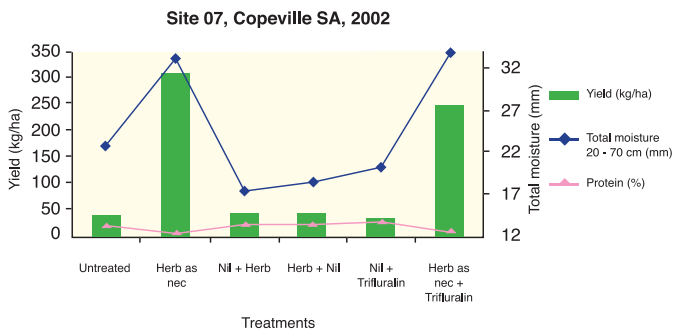


Figure 1. Yield and protein responses to total stored soil moisture (measured at seeding time).

- **Choose a form of control** that will reduce the risk of erosion, such as chemical fallowing or a mechanical fallow that will leave a lot of stubble or dry matter cover.
- **If using herbicides**, be aware of plant growth, previous rainfall events, weather conditions (relative humidity, temperature, delta T, and wind direction) and ground conditions (dust).
- **Be aware** of the responsible use of chemicals, particularly in areas containing sensitive crops.

Where to from here?

- If weeds are controlled over the summer, the next step is to continue the management program over a number of years to prevent seed set. This approach will help reduce the seedbank significantly.

Figure 2 (below)



Figure 2. Site 07, Copeville, SA. The left plot is the untreated control; the right plot is where innocent weed was controlled for the whole summer.

- Issues on weed control, where there is a high dust presence, needs further research. This is due to the potential reduced efficacy of chemicals when used as a management tool.

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