

Managing ratoons and volunteer cotton

As anyone who has tried to kill cotton will know, controlling unwanted plants can range in difficulty. However, ensuring successful crop destruction is a critical part of weed and resistance management. The effective removal of volunteer and ratoon cotton between seasons helps to reduce the risk of *Helicoverpa* spp. resistance to Bt toxin proteins and prevent pests and diseases overwintering.

Controlling volunteer cotton

Volunteer cotton plants occur wherever cotton trash is left following a crop. Cotton trash and volunteer plants are inevitable in-field following a crop, but also occur wherever bales or modules are placed, along the roads frequented by module trucks and in channels and drains where trash accumulates.

Volunteer seedlings that emerge over winter are likely to be killed by frosts, but seedlings that emerge later in the year are likely to establish and grow, whether they occur in a channel, in what is now a wheat paddock or a cotton field, or anywhere else. These unwanted seedlings are a major weed problem for the industry and need to be controlled before they become a host for pests and diseases, compete with other crops or cause other problems.

Like most cultivated crops, cotton has little hard-seededness, meaning that most volunteer cotton seedlings will emerge as soon as conditions become favourable in spring, although in wet winters, much of the seed may die before spring and relatively few volunteer seedlings are likely. Volunteer problems are most problematic following dry winters, with potentially very large numbers of seedlings emerging following spring rains or irrigation.



It is important to get on top of ratoons and volunteers early. Lack of control increases resistance risks as well as serving as a reservoir for pests and diseases.

There are several herbicides registered for controlling volunteer cotton seedlings, as listed in the [Cotton Pest Management Guide](#), with most chemicals being effective in controlling four to six node seedlings. These registrations give growers a range of options that can be effective for controlling cotton seedlings in a range of situations.



Cultivating to control volunteer cotton.



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However, the emphasis is on seedlings, with no registrations for seedlings beyond nine nodes of growth. Even within the label window, it is highly recommended that growers target smaller seedlings wherever possible, as 100 percent control is unlikely on larger seedlings under less-than-ideal conditions, such as moisture stress or cold stress. For all these herbicides, best results will occur from using a double-knock strategy, such as using a registered herbicide to control volunteer seedlings prior to crop emergence followed up by an early inter-row cultivation to remove any survivors. When volunteer plants get beyond this growth window, there are no registered herbicides for controlling these weeds and cultivation is the most cost-effective and efficient option.



A few stragglers can get out of hand quickly, and provide a trigger point for pest and diseases problems.

Controlling ratoon cotton

Ratoon cotton occurs when a plant survives over winter and then regrows from the old root stock. This is not an unexpected outcome where plants are not disturbed, as cotton is a perennial plant, and has the potential for plants to grow over many years, becoming progressively larger and more difficult to manage.

Hence, cotton is best managed post-harvest through effective root cutting and mulching, with a follow up pupae busting operation or cultivation if required. However, this may not be the preferred option in dryland systems or in limited irrigation scenarios, where management decisions are focused on conserving soil moisture.

Three herbicide options are available for the control of large volunteer cotton or ratoon cotton amongst stubble or fallow, as listed in the [Cotton Pest Management Guide](#). These options are registered for both optical boom and broadacre application.

AquaTill Injeticide, a new tool incorporating herbicide with ultra high-pressure water cutting, could offer dryland cotton growers an alternative method of crop termination with minimal soil disturbance post-harvest. The technology was first tested on mulched cotton in 2017, through a CRDC-supported project looking at opportunities for dryland cotton with Bollgard 3®. Read more in the [Inside Cotton research library](#).



Left unchecked, cotton has the potential to grow progressively larger each year.

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