



Target 100% Weed Control – Optimising Weed Control with a Double Knock Strategy

TECH NOTE

Targeting 100% weed control.

WHY PRODUCT CHOICE MATTERS

A key focus of Sinochem is to assist growers in improving weed control so they can achieve better outcomes in the short and long-term. Sinochem is investing in on-farm and laboratory research to determine the best products and techniques to target 100% weed control.



Many areas in Southern Australia face the challenges of controlling populations of glyphosate-resistant annual ryegrass. By not controlling these populations effectively, farmers risk increased numbers of resistant ryegrass plants across paddocks utilising moisture and nutrients and ultimately causing yield loss.

The Target 100% program looks at different ways to target and achieve 100% weed control in every situation; whether resistance is already a problem, or to reduce the risk of it developing.

DOUBLE KNOCK HERBICIDE STRATEGIES

'Double Knock' is often implemented as two herbicide applications in close succession. The second application is designed to control weeds that survive the first spray. Double Knock is an extremely effective tactic that has been proven to delay the development of herbicide resistance.

THE IMPORTANCE OF TIMING WHEN UTILISING A GLYPHOSATE AND PARAQUAT DOUBLE KNOCK APPROACH

The correct use and timing of both the glyphosate and paraquat applications will provide the best chance for success in controlling resistant annual ryegrass.

1. GLYPHOSATE APPLICATION

The aim of the initial glyphosate application is to control as many weeds as possible, or 100% if there is no resistance present. It is crucial that a lethal dose of glyphosate be delivered quickly to the target sites within the plant.

The use of a performance product should be considered to maximise the weed control with the initial application. Roundup Ultra® MAX contains superior surfactant technology to deliver faster performance. In a recent independent study, Roundup Ultra MAX was shown to be more effective in controlling glyphosate-resistant annual ryegrass than an alternative 540g/L glyphosate formulation (P. Boutsalis 2016, Reference Trial 1627).

2. PARAQUAT APPLICATION

A second application used in the Double Knock strategy is designed to control any surviving weed species. The number of days between applications is important to achieve this result.

Research undertaken by Dr Chris Preston, of the University of Adelaide in South Australia, looked at the ideal window to apply paraquat after a glyphosate application.

The research demonstrated a window of one to five days after the initial application was ideal to maximise control of surviving annual ryegrass plants.

IMPORTANCE OF USING A HIGH QUALITY GLYPHOSATE

“High quality glyphosate products have better quality surfactant packages that mean the glyphosate works better. This becomes more important when glyphosate is used under conditions that are not ideal. If you wish to use a generic glyphosate you should be aware that you will generally need to apply a higher rate of a generic glyphosate to obtain the equivalent level of control.” Dr Chris Preston, University of Adelaide.

WHY 1-5 DAYS?

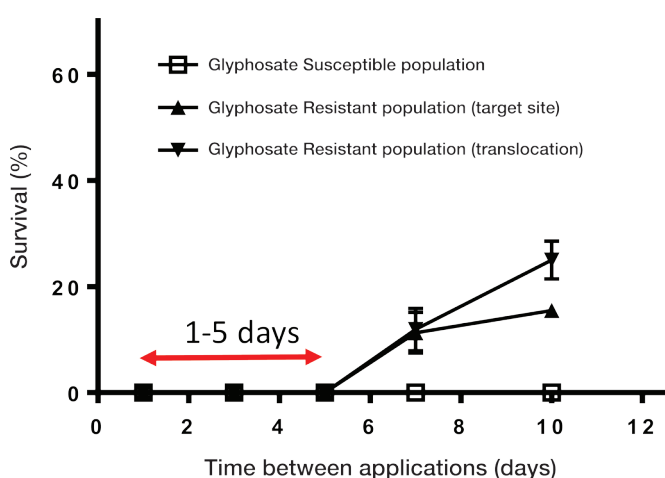


Figure 1: Graph showing % survival of glyphosate-resistant annual ryegrass plants sprayed first with glyphosate then paraquat 1, 3, 5, 7, and 10 days later, highlighting the importance of the 1-5 day application window. Data courtesy of Dr Chris Preston, University of Adelaide.

- Under normal conditions ryegrass plants need a minimum of one day to get a lethal dose of glyphosate.
- Poor growing conditions (e.g. cold temperatures, poor light intensity, etc.) may slow the uptake and translocation of glyphosate, so the paraquat application can be delayed beyond day 1.
- Actively growing annual ryegrass plants (both glyphosate-resistant and susceptible) will become stressed 5 days after a glyphosate application as they metabolise the glyphosate. This stress can reduce the uptake of paraquat.

MAXIMISING A DOUBLE KNOCK STRATEGY

Growers should follow a number of basic principles to ensure an effective result;

- Ensure plants are actively growing and not stressed.
- Use robust herbicide rates reflecting plant age, not just size.
- Have sound application technique to provide adequate herbicide coverage.
- Choose high performance herbicide products with quality in-built surfactants.



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