

Managing ryegrass populations

Key findings

- Attention to detail regardless of ryegrass control strategy, is important to ensure ryegrass seed set is minimised.
- Ryegrass numbers can be reduced from very high levels by implementing successive years of control, regardless of the tactics utilised.
- In favourable seasons low ryegrass plant numbers that are left uncontrolled have the ability to set prolific amounts of seed.

Why do the trial?

To evaluate integrated weed management strategies for the long-term control of annual ryegrass.

How was it done?

Ryegrass counts were carried out in the same locations of selected paddocks between 2006 and 2011. Multiple quadrant counts were taken along transects just before harvest each season. Each farmer used a range of control systems as part of an integrated weed management approach to managing ryegrass numbers.

10 paddocks were selected with patches of high ryegrass densities from growers using a range of ryegrass control strategies. While growers were selected based on their preferred strategies for controlling ryegrass, each grower used multiple options throughout the project. These included: export oaten hay, legume or oilseed break crops, short term pasture (1 yr), chaff catching, continuous cereal.

Results

The data collected throughout the project did not produce any new ryegrass control solutions or strategies. Rather, the results clearly reinforced existing principles developed and promoted in previous projects. More recent control options such as export oaten hay or chaff catching provided equivalent ryegrass control compared to older techniques.

Of the ryegrass control options monitored there was no strategy that clearly provided improved results compared to another. No system was able to consistently drive down ryegrass numbers (Figure 1).

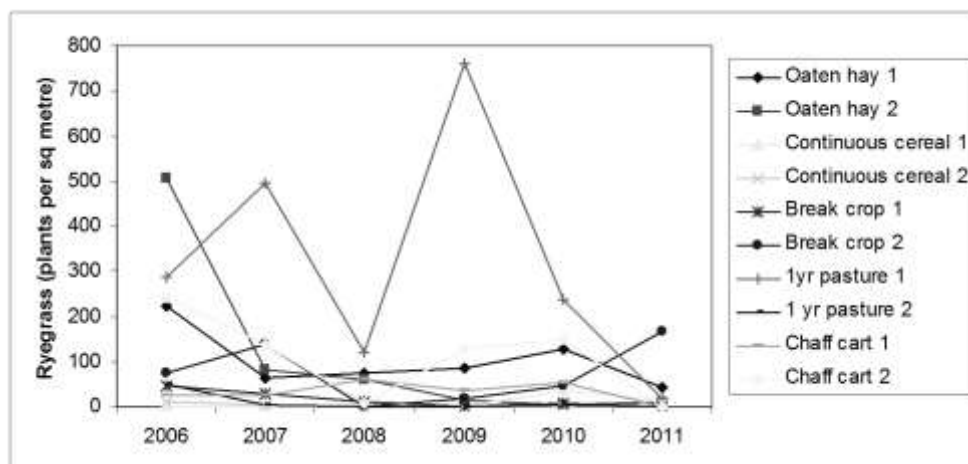


Figure 1. Ryegrass numbers for 5 control strategies and 10 paddocks in the Mid North from 2006 to 2011.

Low ryegrass numbers (ie less than 50 plants per square metre) are easier to maintain at manageable levels and might only require intermittent control. One year of ryegrass control (including seed set control) will significantly decrease the ryegrass seedbank

Once high numbers are reduced they are a lot easier to manage and keep at low levels. A one year break (control of ryegrass seed set) can have a big effect on plant numbers in the paddock the following season. In situations of high ryegrass numbers often 2 or 3 break crops might be required to satisfactorily reduce the ryegrass seed bank (Figure 2). A rough guide is that ryegrass plant numbers need to be below 50 plants per square metre to avoid another break crop.

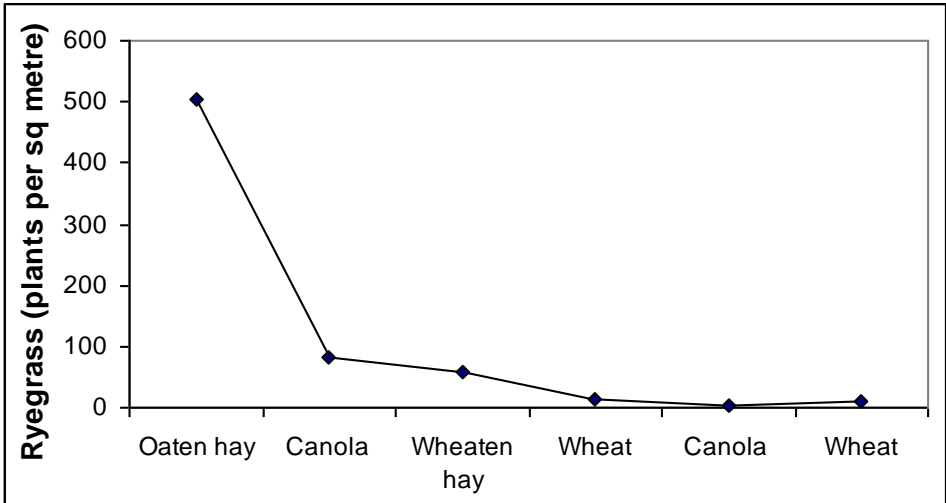


Figure 2. Ryegrass control using three consecutive break crops in the Mid North between 2006 and 2011.

Timeliness and attention to detail were important features of paddocks where ryegrass numbers were successfully reduced. This included strategies such like crop topping, which wasn't utilised in Figure 3, hence ryegrass number increased following the bean crops.

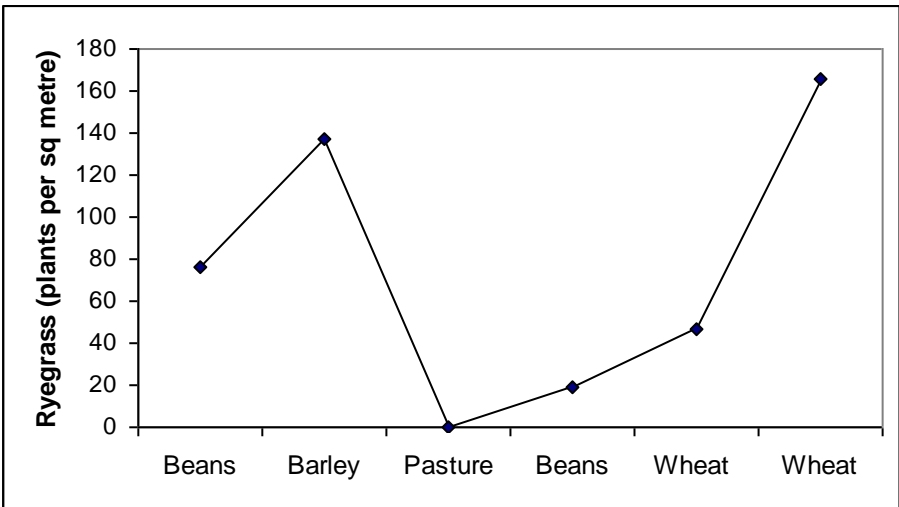


Figure 3. Ryegrass control using legume break crops in the Mid North between 2006 and 2011.



Ryegrass plant numbers can increase quickly (Figure 4). After two successive wheat crops a third cereal crop (barley) resulted in a 6 fold increase in ryegrass numbers. Timeliness when deciding to implement a control system is important. Implementing a control system after two successive wheat crops should have further reduced ryegrass plant numbers and avoided a blow-out in the following barley crop. A two year break of legume pasture followed by canola was then required to reduce ryegrass plant numbers in the paddock from 761 in 2009 to 17 in 2011 (2).

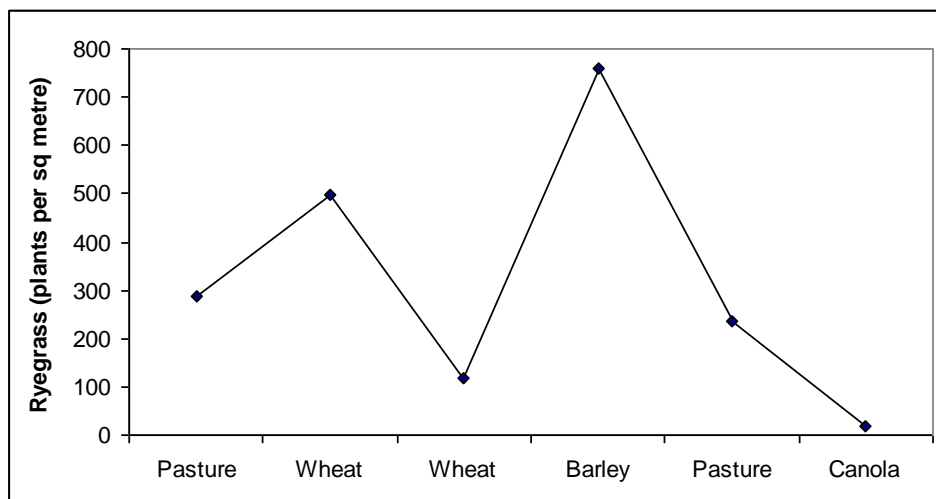


Figure 4. Changes in ryegrass plant numbers between 2006 and 2011 using 1 year pasture or canola break crops.

Seasonal conditions and the regional environment will have an impact on the success of ryegrass control techniques. Of the monitored paddocks the continuous cereal rotations were more likely to occur in lower rainfall areas.

Additional information relating to ryegrass control.

- Later districts and / or late season rainfall can influence the number and viability of ryegrass seed set.
- Attention to detail is still the key. Monitoring, follow up assessment of control system, late season seed set control of escapes if required.
- Three years complete control maybe required if very high plant numbers and to allow for exhaustion of seed bank.

Additional practices can also be implemented to improve control.

- Burning stubbles or windrows
- Crop topping cereals
- Crop topping pulses
- Spraying under canola windrows
- Competitive crops - early sowing, increased seeding rates