

Stop seed set in feathertop Rhodes grass

■ By Cindy Benjamin, WeedSmart

FEATHERTOP Rhodes (FTR) grass is quickly becoming one of the biggest weed threats in Australian farming systems, demanding swift and decisive action.

The vast number of seeds produced per plant and the species' ability to germinate and establish on very small rainfall events, gives this weed a real competitive advantage, particularly in a fallow situation.

In the northern cropping region researchers have observed FTR grass (*Chloris virgata*) germinating almost all year round, at temperatures ranging from 15/5° to 35/25°C (day/night temperatures). While many seedlings that establish in winter are killed by frost, some will survive and it only takes a few plants to produce a large number of viable seeds for the next generation. Recent research by Queensland Alliance for Agriculture and Food Innovation (QAAFI) weed researcher Dr Bhagirath Chauhan has demonstrated that some populations of FTR grass are producing seed that is capable of germinating just two weeks after they mature.

"Night temperature does affect seed production of feathertop Rhodes grass so it is important to concentrate efforts on preventing germination or controlling these weed populations in spring and early summer," says Bhagirath. "These early germinated populations are also more able to compete with summer crops and then set seed in-crop."

Being able to tolerate both knockdown and residual (pre-emergent) herbicides, FTR grass can quickly gain a foothold in no-till farming systems. No-till and stubble retention also provides a favourable environment for germination, establishment and



Feathertop Rhodes grass is a serious weed challenging no-till farming in Australia. Herbicide is largely ineffective on FTR grass unless it is applied to small, actively growing seedlings.



Feathertop Rhodes grass is susceptible to crop competition. Front – FTR from fallow, Middle – FTR from 1m row sorghum and Back – FTR from 0.5m row sorghum.

survival of FTR grass because of the moist soil conditions around the weed seed.

An integrated approach, like the WeedSmart Big 6, is needed to tackle this serious weed before it forces a return to full cultivation for weed control.

Diverse crop rotations

FTR grass is a year-round weed. Having diverse and competitive crops in rotation reduces the risk of a blow-out situation.

Mix and rotate herbicide MOA

FTR grass is not reliably controlled with a single post-emergent herbicide application. To be effective, the weeds must be sprayed when they are very young and not stressed. At this stage, high rates of glyphosate with the best surfactants available, along with some group A products, can reduce the population. Residual herbicides like metolachlor applied in late winter fallows are very useful in moist soil conditions.

Double knock glyphosate

Plan to follow any glyphosate application with a double knock to reduce the number of FTR grass survivors.

Grow competitive crops

FTR grass is sensitive to crop competition. All efforts to increase crop competition through crop and variety choice, narrower rows and stubble management will suppress FTR grass germination. Early weed control in sorghum can effectively suppress weed seed production of FTR grass plants that

germinate later in the crop. A competitive cover crop could also be a valuable option.

Stop weed seed set

This is the single-most effective tool to prevent an FTR grass incursion. FTR grass is a prolific seed producer and can quickly get out of hand. Initial invasions often occur as a weedy patch forms around a few 'mother' plants. Removing large FTR grass plants before they seed, using patch cultivation, chipping, hand pulling or fire, is the best option. Seed is easily spread in overland flow and on vehicles, machinery (particularly headers), people and animals. Extreme care is required when managing weedy patches to avoid spreading the problem.

Harvest weed seed control

FTR grass could be a good candidate for weed seed collection and destruction at harvest. One study has shown that as much as 93 per cent of the weed seed was retained (held) on the plant at the time of mungbean harvest (Chauhan et al., unpublished data). Increased crop competition tends to encourage taller FTR grass plants, making it easier to capture the seedheads at harvest.

"We also found that FTR grass seed on the soil surface is not viable after 12 months. Burying the seed lengthens the period that the seed remains viable, so unless the seedbank is completely buried to a depth of five cm or more and left undisturbed for more than 18 months, cultivation on its own might not be a good control tactic," says Bhagirath. "If FTR grass seed is left on the surface, and no more seed is allowed to set, the seed bank will deplete in 12 months. In dry years the seed is likely to persist longer and some seed can be buried at planting or simply fall down cracks in the soil."



Clumps of FTR grass in a paddock.

Feathertop Rhodes grass is already widespread across Australia and it is easily transported to new areas during floods, on machinery and in hay. Roadsides, water channels, head ditches, and on-farm tracks are all sources of weed seed, which can then easily enter cropping areas. If hay is brought in, it is wise to feed out in defined areas so any FTR grass plants can be more readily seen and removed before they set seed. It is also important for agronomists, researchers and contractors to strictly follow biosecurity practices and 'Come Clean, Go Clean.'

For more information about managing feathertop Rhodes grass visit the website: www.weedsmart.org.au



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