



NORTHERN FOCUS

COVERING NORTHERN NSW AND QUEENSLAND

Sorghum spray-out timing

By Richard Daniel, Northern Grower Alliance

One of the summer projects raised by NGA local consultative committees has been to investigate and validate appropriate sorghum spray-out timing. In many areas of northern NSW, sorghum spray-out timing has often been regarded as overly conservative. As a result growers and advisers were interested in better understanding the 'best triggers' for timing and quantifying the risks and benefits to allow better on-farm decision making.

There were two key areas where growers believed an advantage might be gained:

- To avoid being overly conservative and consequently bring harvest dates forward and limiting exposure to adverse weather issues.
- To maximise the chance of double cropping to chickpeas by stopping sorghum soil moisture use as early as economically practical.

What was done?

This project was run in close collaboration with NSW I&I. In 2007-08 two trials were conducted on the Liverpool Plains with an additional eight trials in 2008-09 from southern Queensland to the Liverpool Plains.

The key goal was to evaluate the impact of spray-out timings on yield and grain quality and also to measure the impact of spray-out timing on soil moisture levels.

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Consultants' Corner



Consultants' Corner is an initiative by *Australian Grain* highlighting current GRDC-funded research with a particular focus on the commercial implications of adopting cutting-edge research.



TOP: Too early for sorghum spray-out.
CENTRE: Close to ideal.
BOTTOM: Later than necessary.

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<i>...SORGHUM SPRAY-OUT TIMING

KEY MESSAGES

The accompanying article by Dr Guy McMullen highlights the key trial results – some of the main messages are:

- Dramatic negative impact of early spray-out timing on yield and grain quality.
 - Little or no advantage from delaying past grain physiological maturity.
 - Soil moisture benefits from early timing were erratic and not consistent enough to budget on.
 - Approximately 35 days after flowering is a good time to commence checking for crop maturity.
 - Identify the latest heads–tillers that you consider important to take to harvest.
 - Assess ‘black layer’ or physiological maturity on grain in heads of that maturity and schedule timing accordingly.
- Clearly being aggressive and going be-

fore physiological maturity is far too costly in terms of sorghum returns and is not warranted by the soil moisture conserved.

But being overly conservative is also a production constraint to avoid. This was in fact seen at one trial site in 2007–08 where the commercial spray-out timing could have been considered two to three weeks earlier.

TO SUM UP

It is well known that sorghum grain or head colour is a poor indicator of actual maturity as it varies widely by both hybrid and environmental conditions. The rule of thumb used by seed companies such as Pacific Seeds and Pioneer to start looking in field from about 35 DAF was a good starting point but will always need to be refined in individual paddocks. Hybrids with staygreen attributes may take longer to mature but also individual paddock timing will be heavily influenced by row configura-

tion and particularly by the number of late tillers which can be taken successfully to yield.

Although sorghum spray-out can be a very useful management tool, it is unlikely to be appropriate in all cases. In situations with highly moisture stressed crops or with high stalk rot levels, sorghum spray-out may actually result in yield losses due to crop lodging. New research in this area is planned for 2009–10.

Certainly this project has confirmed the use of ‘black layer’ as the most practical tool for scheduling timing and reinforced the need to judge ‘black layer’ development on heads of the maturity you want to take to harvest. Although soil moisture benefits were recorded in some trials, the key approach should be to desiccate the sorghum as soon as practical after ‘black layer’ and treat any soil moisture benefit as a bonus. ■

THE RESEARCH VIEW

The impact of the timing of sorghum spray-out

By Guy McMullen and Alan Bowring, NSW I&I Tamworth

Sorghum desiccation, or spray-out, with glyphosate is a common practice for sorghum growers in NSW and Queensland. Anecdotal evidence has suggested that NSW growers and advisers are generally more conservative when determining the time of desiccation.

Desiccation can reduce the time to harvest, control late season weeds, increase soil water after harvest and increase the length of the fallow period to maximise future cropping opportunities. But desiccating the crop too early can result in increased lodging if harvest is delayed, reduced grain yield and grain quality – particularly grain size.

Typically it is recommended that desiccation should occur when the crop has reached physiological maturity, at about 25–35 per cent grain moisture.

An important indicator that the crop has reached this stage is to assess the later maturing grains in the bottom third of the head for the presence of the abscission or black layer.

Currently there is little published research available on sorghum desiccation and optimal timings for crop yield and quality under Australian conditions. To address this need research trials were conducted in the 2007–08 and 2008–09 seasons to answer the following main questions:

- What is the impact of spray-out timing on sorghum grain yield?
- How is grain quality affected by earlier spray-out? and,
- What are the benefits for soil water conservation with earlier spray-out?

In 2007–08 two small plot replicated trials were established on the Liverpool Plains, NSW in commercial sorghum paddocks. In 2008–09 seven trials were established from Goondiwindi in southern Queensland to Premer in northern NSW. Paddocks were targeted where growers indicated they were at least four weeks from commercially planned desiccation.

The trials evaluated five to six timings

TABLE 1: Location of sites, varieties and dates of desiccation sprays in 2008

Site	Spring Ridge	Spring Ridge	Premer	Pine Ridge	Goondiwindi	Goondiwindi	Millie
Variety	86G56	MR43	Buster	Buster	86G56	MR43	MR43
14 DAF	23/03/2009	9/03/2009	24/02/2009	23/03/2009	22/12/2008	19/02/2009	10/03/2009
21 DAF	30/03/2009	16/03/2009	3/03/2009	30/03/2009	29/12/2008	26/02/2009	17/03/2009
28 DAF	8/04/2009	23/03/2009	10/03/2009	8/04/2009	5/01/2009	4/03/2009	24/03/2009
35 DAF	26/04/2009	30/03/2009	17/03/2009	17/04/2009	12/01/2009	12/03/2009	1/04/2009
42 DAF	26/04/2009	6/04/2009	24/03/2009	27/04/2009	19/01/2009	19/03/2009	7/04/2009
49 DAF	—	—	—	—	28/01/2009	25/03/2009	15/04/2009