

# Germinating ideas

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Cotton growers may soon have the choice of new seed treatments that give early season insect control equivalent to Temik and Thimet without the handling and safety issues associated with these products.

For the past decade we have been looking for a product that gives early season insect control equivalent to the granular planting insecticides. Products such as Temik and Thimet give exceptional control of thrips, aphids and other sucking pests as well as very good suppression of wireworms. In situations where the pest pressure is heavy we have sometimes measured significant yield increases with these products over the untreated controls and other seed treatments.

The problem with granular planting insecticides is that they require special applicators on the planter. The products are quite toxic and operators need to be very careful when handling the insecticide. If robust seed treatments with good residual activity were available, we believe that many growers may choose to use seed treatments rather than Temik and Thimet.

During the past two seasons, CSD

has been evaluating some new experimental seed treatments in association with Syngenta and E-Chem. The results so far have been very encouraging. The new treatments have consistently outperformed existing seed treatments and have approached or exceeded the efficacy of granular insecticides.

The data shown in Figure 1 was from a high yielding site near Wee Waa picked in 2008.

This site also showed a significant yield response to the new seed treatments. It should be noted that yield responses to seed treatments and granulars are not consistent and vary from season to season depending on the pest pressure.

**TABLE 1: Yield Data from 'Greenbah' 2008**

	Lint/ha	b/ha
Untreated	2377	10.5a
Thimet	2436	10.7a
Exp1	2605	11.5b
Exp2	2604	11.5b
Exp3	2410	10.6a
(lstd)	125	

All three experimental treatments have performed well in terms of efficacy. Residual protection also appears to be similar to Thimet used at a rate of 2.5 kg per hectare.

A trial at 'Boolaroo' Moree has shown similar results from the new seed treatments.

CSD will continue evaluations of the new seed treatments in the coming season and begin larger scale demonstrations to test grower satisfaction with the products. If you are interested in trialing the new treatments contact a member of the CSD Extension and Development team.

Special thanks to Clinton Freer ('Greenbah') and Ray Fox (AFF 'Boolaroo') for assistance in running seed treatment trials this year.

## Gin turnout

Feedback of gin turnout so far this season is that it has been variable — some fields are high, some are low, and there's often no rhyme or reason. In reality, it is a very complicated measure to either predict or interpret, but consideration of some of the fundamentals can often provide some clues.



Untreated controls.



Clinton Freer picks the seed treatment trial located at 'Greenbah' Wee Waa.

**TABLE 2: Gin turnouts from large scale CSD variety trials**

		Sicot 71BR	Sicot 289BR	Difference
<b>All trials, all years (55)</b>		<b>38.8</b>	<b>36.6</b>	<b>2.2</b>
<b>By year</b>	2006-07 (10)	39.1	38.0	1.1
	2005-06 (17)	38.2	35.4	2.8
	2004-05 (20)	39.4	37.0	2.4
	2003-04 (8)	38.1	36.2	1.9
<b>By region</b>	Central QLD (8)	39.5	37.1	2.4
	Balonne (9)	38.6	36.8	1.8
	Darling Downs (4)	39.5	36.6	2.9
	Gwydir (9)	37.7	35.4	2.3
	Namoi (9)	38.5	36.0	2.5
	Macintyre (6)	39.2	37.0	2.3

Data generated by the CSD Variety Comparison Tool available at [www.csd.net.au](http://www.csd.net.au)

A number of factors will influence gin turnout and unfortunately there is very little literature available.

**Trash content:** The presence of large amounts of extraneous matter (for example, leaves, bark, boll walls etc) will obviously decrease the proportion of lint in a module. In seasons with generally good defoliation/picking conditions, this is not a major factor in variability in turnout.

**Module consistency:** Gin turnout is calculated as a percentage of the module weight that enters the gin yard and the amount of lint compressed into bales. Turnout is an indication of the amount of seed and other 'non-lint' material that arrives at the gin. Any part of the module that is lost between the gin yard and the module feeder is not included and will decrease gin turnout. This highlights the importance of building and positioning modules so that they are not prone to weather damage or breakage during transport.

**Variety:** There is considerable variability in turnout between varieties and this is loosely related to seed size. While the ac-

tual turnout of a particular variety will vary significantly by region or year, the relative differences often remain the same.

A good illustration of this is the comparison of turnout per cent between two of the most popular varieties for the past four seasons — Sicot 71BR and Sicot 289BR. Table 2 shows the average turnout results for large scale replicated CSD variety trials where both these varieties were included. Under all scenarios, the difference between these varieties averages between one per cent and three per cent. (Number of trials in brackets).

Generally a seed will reach its maximum size (diameter) in the early parts of the boll formation process but will continue to fill with oil and protein for the full duration of the boll maturation process.

Generally seeds in early set bolls will be larger than those in later set bolls as there are more assimilates available per total fruit when these bolls are maturing.

For the same reason, there is often more fibre in these bolls as well. So, if a high proportion of a crop is comprised of

early set fruit, it may contribute to a lower turnout as you may have bigger seeds.

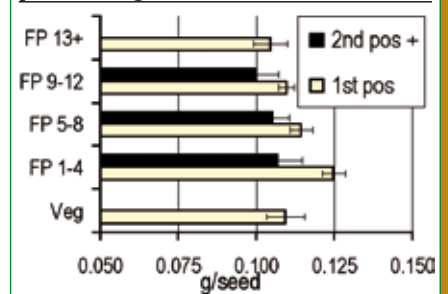
In most cases, seeds in later set fruit, such as the top of the plant, the outer positions or fruiting branches will have smaller seeds. So, if a high proportion of a crop comprises late set fruit, it may contribute to a higher turnout as you may have smaller seeds.

Data from the large number of sites analysed in CSD's segmented picking program in recent seasons showed that while 1st position seeds were nine per cent larger than outer position seeds (Figure 2), they also had 10 per cent more lint per seed (Figure 3). This resulted in only a 0.4 per cent difference in turnout between first position and outer position bolls.

In some scenarios however, such as late water or excessive N, the seeds in the later set bolls may continue to fill with protein and oil, making them heavier than normal, reducing turnout.

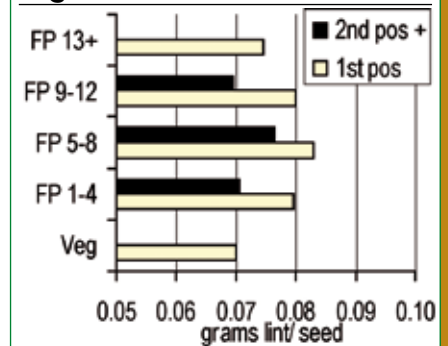
In conclusion, gin turnout is a complicated measure that should be interpreted carefully.

**FIGURE 2: Average weight per seed (grams) from each plant segment**



1st position = 0.113g/ seed.  
 2nd and 3rd position = 0.104g/seed.  
 1st position seeds 9 per cent heavier.  
 FP= Fruiting Branch on the main stem.  
 Veg= Fruit on vegetative or lateral branches.

**FIGURE 3: Amount of lint (g) per seed from each plant segment**



1st position = 0.079 g lint/seed.  
 2nd and 3rd position = 0.072 g lint/seed.  
 1st position seeds have 10 per cent more lint.  
 FP= Fruiting Branch on the main stem.  
 Veg= Fruit on vegetative or lateral branches.

**FIGURE 1: Thrips control — 'Greenbah' 2007**

