

Moisture the key to seed coat fragment contamination

By Jack Murray, Deltapine Technical Services Manager

The 2004–05 season saw Australia's first incidence of seed coat fragment with approximately three per cent of bales affected. The question is will it be an issue again this season? This we cannot answer but we do know that the environmental conditions late in the season will be important.

Seed cotton with a higher moisture content will be less likely to be impacted by seed coat fragment. We are closely monitoring the situation and will be discussing it with gin managers in an attempt to minimise any possible negative impact.

Following on from the 2004–05 season, Deltapine discussed the issue with Dr Tom Kerby and other experts. Having considered physiological aspects of cotton growth and the type of environmental conditions that the season delivered, we believe the following prioritised factors contributed to this disorder.

1. Moisture content of the seed cotton at the time of ginning

Last season saw abnormally low percentage moisture in seed cotton (as low as two or three per cent), due to the total absence of moisture in the boll opening phase prior to harvest. In situations where the moisture content was above eight per cent, there was a much lower potential for seed coat fragments to form in the sample.

Last season, cotton picked after a rain event showed no sign of seed coat fragment compared to cotton on the same farm picked prior to rain. This lack of moisture in the bolls had an effect on the dry and brittle seed coat which predisposed the cotton to seed coat fragment.

2. Varietal differences

There were suggestions that some varieties are more prone to seed coat fragment than others. With normal weather conditions at harvest, we envisage there will be no differences amongst varieties.

3. Adverse environmental conditions

Adverse conditions towards the end of the season and associated stresses may have contributed to the problem. When



Low-moisture seed is more prone to producing seed coat contamination.

conditions are adverse for a prolonged period of time, plants may not be able to provide sufficient energy to bolls that are too old to shed. In this case, instead of boll shedding, there can be an arrest in the development of some individual seeds in a boll.

These seeds are likely to have sufficient fibre so they will be ginned (as opposed to being taken out as motes in the trash pile) and individual seed weight may be less than half that of a normal developed seed. These smallest seeds are prime candidates to create seed coat fragment during the ginning process. Under more favourable growing conditions, there should be less immature seed and minimal predisposition to seed coat fragments.

Deltapine believe strongly that the occurrence of seed coat fragment will depend on the weather conditions from boll opening to harvest. Should dry condi-

tions prevail, we encourage growers to co-operate with their ginners to minimise this issue.

Ginners are aware of the issue after last season and are better equipped to deal with this problem should it arise. Ginners can make practical adjustments to their equipment, such as reducing seed roll pressures, reducing the running speed and also ginning suspected cotton as one 'run' to limit the readjustments that may need to be made.

There are no simple infield tests that a grower can perform to identify if there is a potential problem, so there needs to be awareness by ginners to look for signs, such as low moisture content of modules and fragments in the samples in the first few bales of potentially susceptible varieties.

Please contact Deltapine should you have any questions regarding seed coat fragment that may be associated with