

DAN60C Executive Summary

1. Summary

DAN 60C was to be a 3 year project, but has been discontinued after the first season, in favour of a new and expanded project, accepted and funded by the CR&DC as N.21. Consequently, this report covers only one seasons results.

This project focused on the control of nutgrass. Nutgrass (*Cyperus rotundus*) is considered to be the world's worst weed and infests over 15% of the cotton growing area. Nutgrass adversely affects cotton by competition for light, nutrients and water, and indirectly through lint contamination, reduced irrigation efficiency and increased soil problems.

The project assessed the effects of herbicides, cultivation and rotation crops on nutgrass control using a number of field experiments located throughout the NSW cotton area. Most of these experiments will run for at least 2 seasons, but only the results of the first season are covered in this report.

A number of the herbicide and cultivation combinations evaluated in these experiments gave surprisingly good results. In cotton, the use of shielded and directed applications of glyphosate resulted in relatively high cotton yields and suppression of nutgrass tuber development. This tuber suppression was enhanced when glyphosate was used in combination with norflurazon.

In a bare fallow, repeated applications of glyphosate gave excellent nutgrass control when compared to untreated plots, although there was still an increase in the tuber number in the artificially wet conditions of the first season. Alternating glyphosate and cultivation gave a similar level of nutgrass control at a much lower cost.

A comparison of the effect of 2,4-D additives to glyphosate efficacy showed no benefit from these combinations.

Rotation crops suppressed nutgrass tuber production, but under dry conditions, the use of glyphosate in spring was apparently detrimental to nutgrass control. Under different conditions, the results of this treatment may have been very different.

Although MSMA herbicide is widely used by the cotton industry for nutgrass control, these experiments have shown no advantage from the use of this herbicide for *C. rotundus* control. Other experiments associated with this project have shown that MSMA controls *C. bifax*, a closely related and commonly mis-identified species of the nutgrass family which also occurs in the cotton areas.

This work was greatly assisted by the development of a tractor mounted herbicide boom and curtained sprayer, which was undertaken as part of the project.