Machinery Development – Cotton Industry

Murray Schoenfisch
National Centre for Engineering in Agriculture
Toowoomba Qld

Project Aims:

1) To continue and develop the work begun in USQ6C which focuses on residue handling in back to back cotton and rotation crops while optimising the control of diapausing heliothis pupae
2) To visit growing areas (irrigated and rainfed) and confirm a basis for other machinery needs in the industry, including planting and cultivation equipment
3) Field test equipment changes
4) Seek backing from commercial entities to limit funding drain of research monies
5) Pursue the involvement of commercial manufacturers where appropriate to help in the adoption of improved technology.
6) To monitor commercialisation of a fully tested computer based guidance system

Industry Significance and Initial Research Priorities:

Wide support was received at grower and industry meetings for work to be done on machinery development specifically for the cotton industry. Areas of immediate need were:

1) Stubble handling equipment to leave residue in the most beneficial form in both cotton and rotation crops
2) Planting and cultivation equipment capable of allowing high stubble clearance
3) Moisture conservation equipment for rainfed cotton while still achieving pupae and stubble management
4) Production of a **Machine-*PAC***, which reports on different equipment and residue management, options
5) Monitoring and improvement of picker efficiency
6) Investigation of machinery options - wheel spacing, row spacing, and equipment width
7) Experimentation and development of bed shaping equipment options.

Work is presently underway on all of these projects, with the focus being stubble management and over wintering pupae control. The new project will place the work on a sound footing and allow it to proceed with changing industry needs. Field trials will be instigated to prove the developments and to provide information flow to farmers. It is important that a move be made towards solutions being applied to problems highlighted during the soil research work done over the last several years. This will assist the adoption of soil management techniques important to the long-term viability of the cotton industry.

Progress Report

Work on the project has proceeded well. Industry collaboration has continued with farmer cooperation high.

General visits to major growing areas have been well received. Information and photographs collected have been collated and few gaps remain to be filled.
Information transfer has increased this year, and has become a major focus, especially to do with pupae management and tillage effectiveness as a method of control. Farmer groups and industry liaison officers are more readily asking for assistance, increasing the efficiency and opportunities to spread information on machinery options for pupae control. There are now relatively few areas that are unaware of the need to cultivate to control over-wintering heliothis pupae. Even though our advice is still mutating to cover all options, the message seems to be getting through.

The production of Machine-PAC is almost complete, apart from legal opinions and a few appendices. Another small document detailing the required control levels for pupae destruction and some machinery guidelines is now in circulation, and has been widely distributed to farmers. Anyone yet to see a copy may contact me for details.

Farmers have been very cooperative with the processes involved in this project, and it has been appreciated. Comments and access to machinery has helped no end in the compilation of documents to date, and will continue to be an important resource.

Extension work will continue this year and form a major part of the remaining project time. It is essential that this process continue, to ensure that the farmers benefit from the information gathered during the last few years.

Products that have been developed as a result of this project and are now released to the market include:

a) The Vision Guidance System is available from Case and is ready for immediate sale through your local dealer. Any inquiries may be directed to Kieren Hogan on 02 9673 7777.
b) The Auto-Track furrow based guidance system is also available, offering a cheaper solution to automated steering control. This system steers the tractor relative to a physical furrow, and is ideal for planting and cultivating operations. Agri-Dry Rimik in Toowoomba are manufacturing and marketing the device.

c) Cotton picker guidance has re-emerged as an issue, and a simple system is being finalised to give reliable, accurate and moderately priced control. We hope to have good prototypes available for the 1999 harvest.
d) A cotton yield monitor developed in conjunction with Darling Farms is now commercially available through Precision Farming Australia on 08 90632636 and Pivot Prescription Farming Centres.

As can be seen, good progress in equipment development and technology transfer has been achieved. I hope to continue developments and information transfer this year, and see the Machine-PAC completed and distributed throughout the industry.

For more information, please contact:
Murray Schoenfisch
Development Engineer
National Centre for Engineering in Agriculture
PO Box 277
Darling Heights
Toowoomba 4350
Ph: 07 46311718
Fax: 07 46311870