US9C Executive Summary

**Title**: Management of VA Mycorrhizal Fungi for Sustainable Production of Cotton.

**Project Number**: US9C (1992/3)

Soil samples were collected from more than 60 locations between Emerald and Warren used to grow irrigated or dry-land cotton. Vesicular-arbuscular mycorrhizal (VAM) fungi found in the soils were identified. Pot cultures of selected, common fungi were established.

In each soil sample we found between 2 and 5 species of VAM fungi. All fungi were from two genera, *Glomus* and *Acaulospora*. All the fungi had relatively small spores. A total of 10 species have been identified, of which *Glomus intraradices* and *Glomus mosseae* are the most common. An undescribed species of *Acaulospora* is also common. The common species are found throughout the cotton growing areas.

In this and a related project funded by ARC, four fungal isolates of each of two common species were compared for their effect on plant growth. From this research we have concluded that the variation within one species is as great as the variation between species of VAM fungi. The first aim was to develop our understanding of each fungus so that we could predict the effect that fungus would have on growth of cotton. The practical consequence of our work is that knowing the species of fungus present in a soil provides us with little capacity to predict how it will influence plant growth.