

Improving irrigation for white clover

Approximately 95 per cent of Australia's white clover seed is produced in the south eastern districts of SA and Victoria's west Wimmera region. Therefore, it is logical that the MacKillop Farm Management Group, which incorporates the White Clover Growers Association, address white clover seed production issues in their research and extension activities.

The White Clover Growers Association has received funds from National Landcare Program (NLP), Rural Industries Research and Development Corporation (RIRDC) and South East Natural Resources Management Board (SENRM). The funding from these three organisations is being used to determine best management practices for irrigation scheduling of white clover for seed production.

In June 2006, four trial sites were established on the major soil types where white clover seed crops are grown. These sites are located near Neuarpuur and Minimay in Victoria, and Frances and Bool Lagoon in SA.

White clover is a perennial seed crop that is generally grown over a four year period depending on seed certification regulations. The project is looking at the impact of different irrigation scheduling for seedling crops in the first year and through the established crop phase in subsequent years at various crop growth stages.

Growers have identified the need for objective data on which to base irrigation decisions, especially in relation to how irrigation practice can be optimised in relation to growth stage.

"Decision-making for irrigation scheduling has typically been based upon information developed to maximise white clover dry matter production. This project is specifically for optimising seed production rather than dry matter," explained Jen Lillecrapp, Operations Manager for the MacKillop Farm Management Group.

"It is also imperative to gain information on how scheduling changes may impact on dryland salinity and sodicity"

The trials are gathering a vast quantity of soil and water data.

Soil moisture monitoring equipment and lysimeters have been installed at each of the trial sites. These instruments will provide information on depth of crop water use and readily available water. The lysimeters will monitor the movement and accumulation of salts through the soil profile.

Meteorological data is being downloaded from local weather stations. This data together with crop growth stage and canopy cover will be logged together with timing and volume of irrigation.

In addition, water samples are collected and analysed by the CSIRO to evaluate movement and distribution of nutrients through the soil profile.

Soil samples are being analysed to determine changes in soil salinity, pH, sodicity and nutrient availability during the season and over time.

"From all this data the aim is to determine crop water requirements through the season."

"This information is important so we can objectively assess the timing, frequency and penetration of irrigation relative to weather conditions and crop growth stage and develop sustainable irrigation schedules.

"By better matching irrigation to requirement the water will be used more productively and cost effectively."

In September 2006 a workshop was convened to provide growers and advisers with the skills and methodology to assess the efficiency of centre pivots, by comparing the volume of water being pumped to the amount and distribution being applied across the centre pivot. This information enables growers to identify the level of inefficiency in application and distribution uniformity. The workshop then provided growers with information to identify causes of inefficiencies of centre pivots such as sprinkler height, droplet size, distribution uniformity and pump efficiency.

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