Chapter E3. Case study 3

PURPOSE OF THIS CHAPTER

To present a case study of management of irrigated tomatoes

CHAPTER CONTENTS

- case study

ASSOCIATED CHAPTERS

- B11 ‘Case study 1’
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CASE STUDY 3

Roy Stillard produces processing tomatoes on two sites at Barooga in the Southern Riverina District of New South Wales. One site is a well structured clay loam; this case study looks at Roy’s second site, 45 ha of lighter soil ranging from a raw Sandmount sand through to patches of Cobram sand loam (Figure E3–1).

The perimeter of the site is protected by melaleuca windbreaks, which have also been used to divide the area into four internal sections.

Irrigation is provided by two subsurface streams. The total dissolved ion (NaCl) readings of these streams are 400 mg/L and 1400 mg/L, so salinity is a problem. To overcome this the water is ‘shandied’ from both streams via the irrigation system and leaches readily in the sandy soil.

Roy uses a fully reticulated trickle system with Netafim Dripmaster® self-compensating outlets. The trickle lines are rewound after harvest, and so far have lasted 15 years.

Soil tests are done annually, and leaf analyses are done regularly through the growing season. The pH is restored in any of the rotational crops if it falls below 6.

The base fertiliser is 1.5 t/ha of single super plus DAP at 125 kg/ha. Urea is applied as fertigation through the drip line at least twice a week, to a total of approximately 200 kg/ha. Potassium, zinc, boron and molybenum are applied as foliar sprays at rates determined by the results of leaf analyses.

Soil preparation starts with incorporation of the nitrogen-fixing lupin cover crop.

Tomato beds are initially formed in May. To overcome the serious problem of sand blasting, and to build up soil organic matter levels, barley is sown over the whole paddock. A 45-cm strip is then mulched in the middle of the reformed beds two weeks before sowing.

Devrinol® is used as a pre-sowing herbicide.

Before seed emergence the whole paddock is sprayed with glyphosate. As the tomatoes approach first flowering (when they are about 15 cm high) the barley is mulched. Two weeks later, when the tomatoes are 25 cm high, the beds are reformed. The trash from the mulched barley stabilises the soil and overcomes the sandblasting problem that can come with the strong September winds.

Roy Stillard’s rotation sequence is:

tomatoes
wheat
lupins
wheat
lupins
tomatoes

The annual average yield for tomatoes in the sandy soil is close to 100 t/ha. This compares favourable with the industry average of 66 t/ha.

Although sandy soils need precise water and nutrient management, they offer a big advantage in wet seasons, because there is less disease, as well as easier harvesting, easier maintenance of the schedule and no 'wet feet' problems.

Figure E3–1.

Roy Stillard standing in front of his recycled trickle irrigation lines. Roy has had 15 seasons out of these lines. (Bernie McMullen)

Figure E3–2.

Finley District Horticulturist Stephen Wade inspecting the sprayed-off oats and trickle line on Roy Stillard's tomato paddock. (Bernie McMullen)

Figure E3–3.

A well grown onion crop on red brown soil in the Griffith district. (Bernie McMullen)

Figure E3–4.

Mark Hickey, District Horticulturist, Yanco, inspecting part of the onion crop seen in the previous Figure. The poor establishment in this section has been caused by soil structural degradation through compaction. This section was formerly a roadway. Bernie McMullen