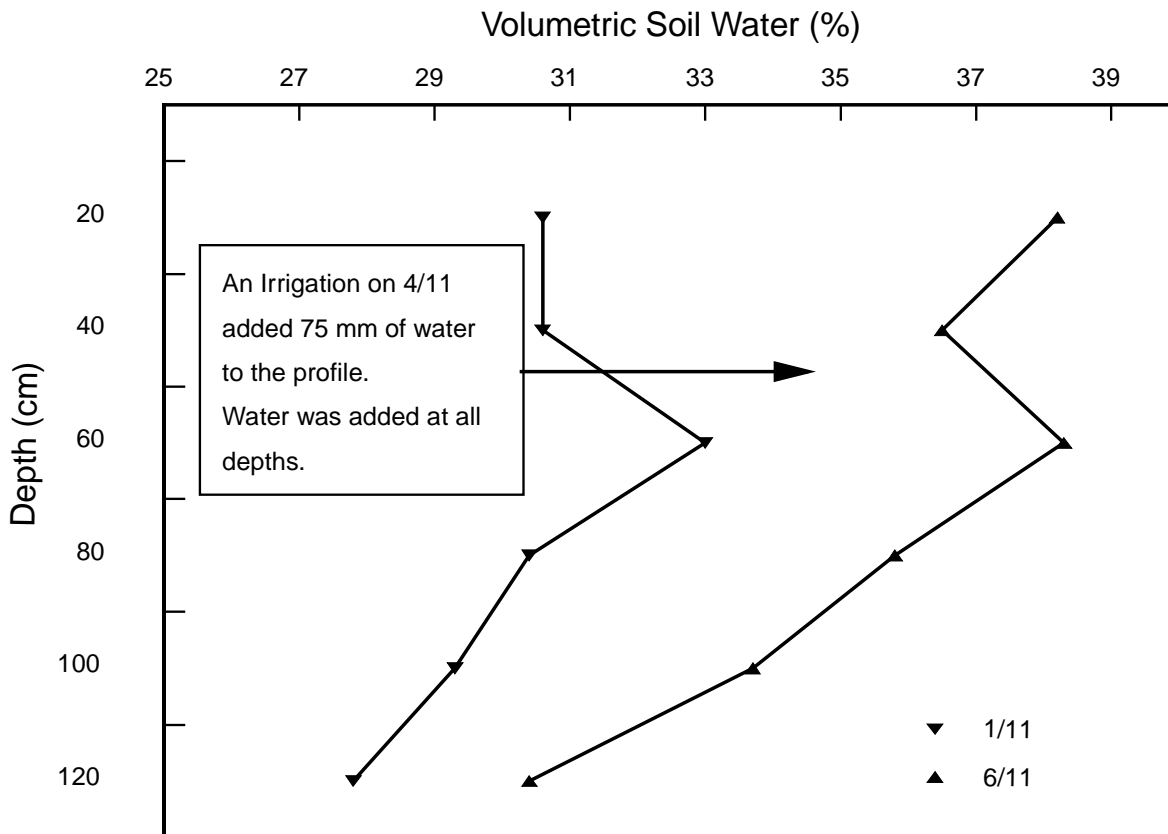


# Seed Lucerne at Forbes

Lucerne is a common crop on the alluvial plains of the Lachlan River in the Forbes area. The lucerne crop described is grown to produce certified seed. Seed crops are generally cut twice before being "locked up" for seed. Irrigation is border check flood irrigation with bays 56 metres wide and 600 metres long, and a flow of 20 megalitres per day. The soil is a silt loam over a light clay loam (alluvial yellow box country).

The crop was first cut on the 28th October and then irrigated on the 4th November. This irrigation added water at all depths down to 120 cm and 75 mm of water was added to the 0-130 cm layer of the soil profile (figure 1). The next irrigation was predicted for the 26th November. However the second cut was due on 28th November. An irrigation this close to a cut is not advisable because of compaction on wet ground and high dew levels leading to bleached hay. It is also not advisable to move the cutting date back as this effectively moves the whole seed production phase back. The crop must flower during the hottest part of the year and be harvested before autumn rains and cool weather. Therefore it was decided to irrigate on the 20th November even though well above refill.



**Figure 1. First Irrigation in Lucerne.**

The drying cycle between these two irrigations is shown in figure 2. This graph shows the crop's roots extracting water down to 100 cm. Figure 3 shows that the second irrigation is still adding water to the profile at 100 cm and 120 cm and figure 4 shows that some of this water is subsequently lost as deep drainage. Deep drainage on these well drained alluvial soils can be a problem, especially under flood irrigation. Quick application of irrigation water by using short runs, relatively steep slopes and high volumes of applied water to have the water on for as short a time as possible is important to minimise deep drainage

# Seed Lucerne at Forbes

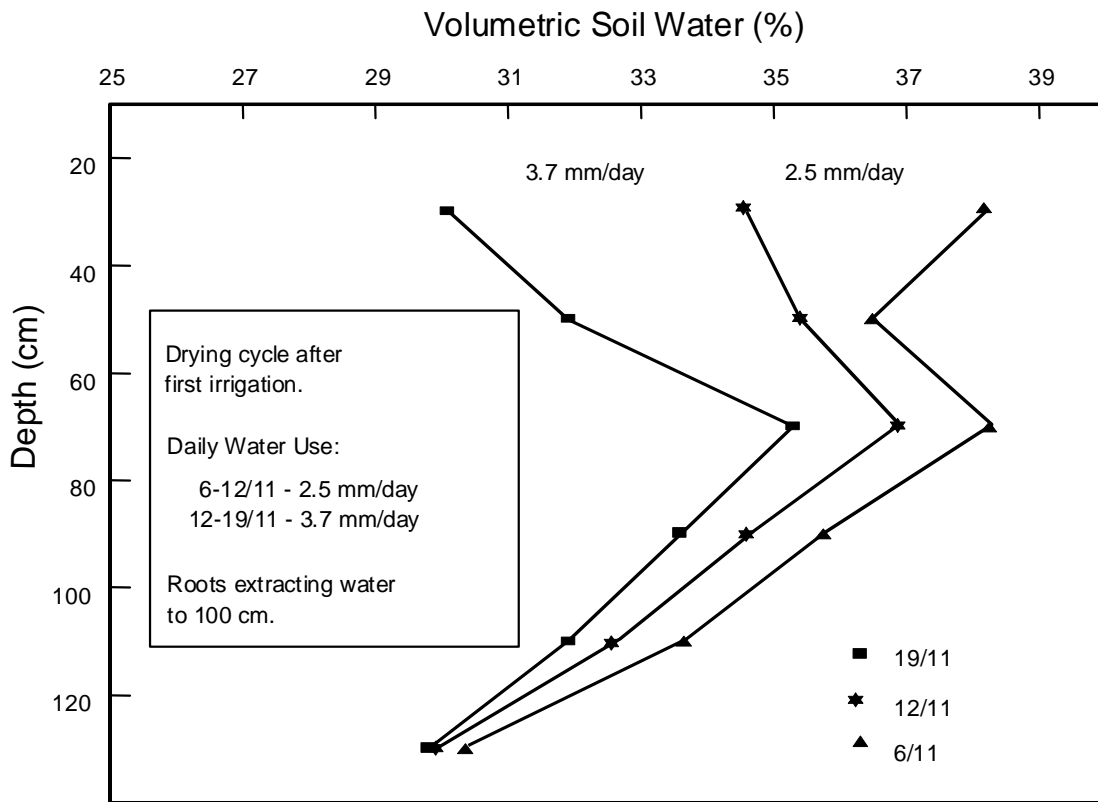


Figure 2. Drying Cycle in Lucerne.

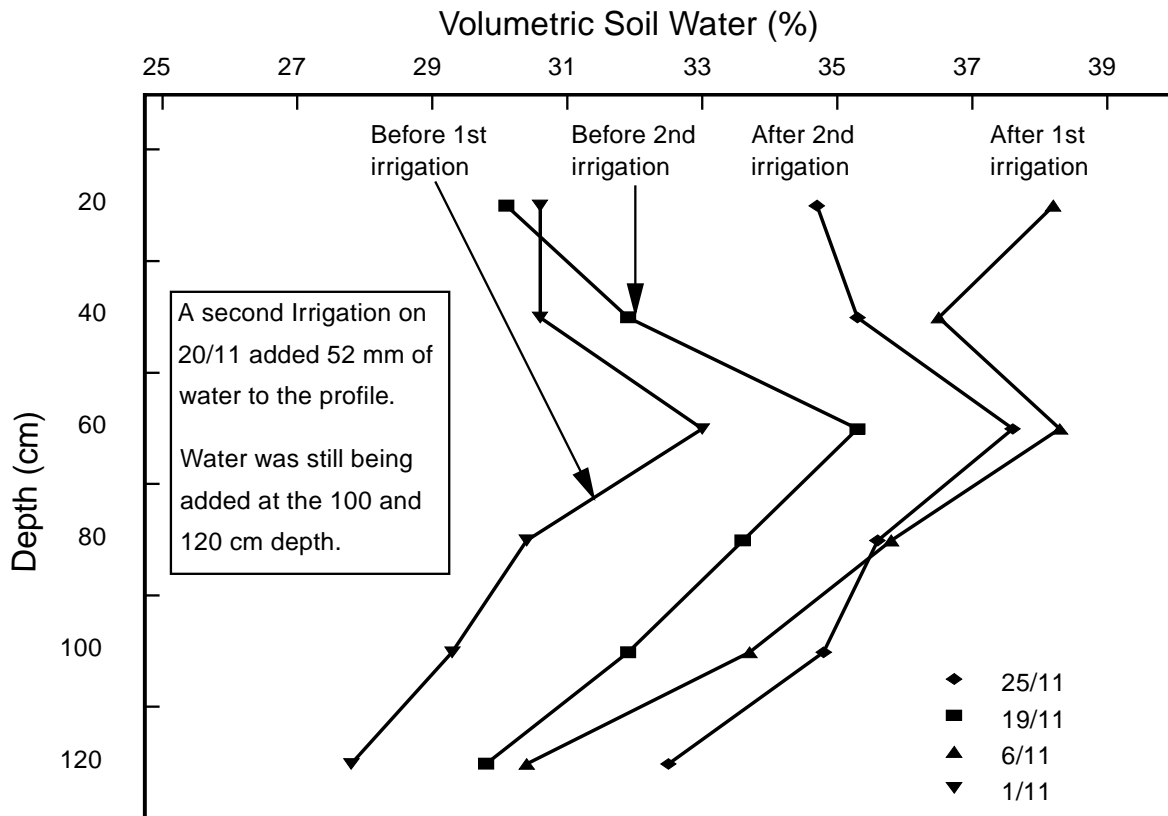
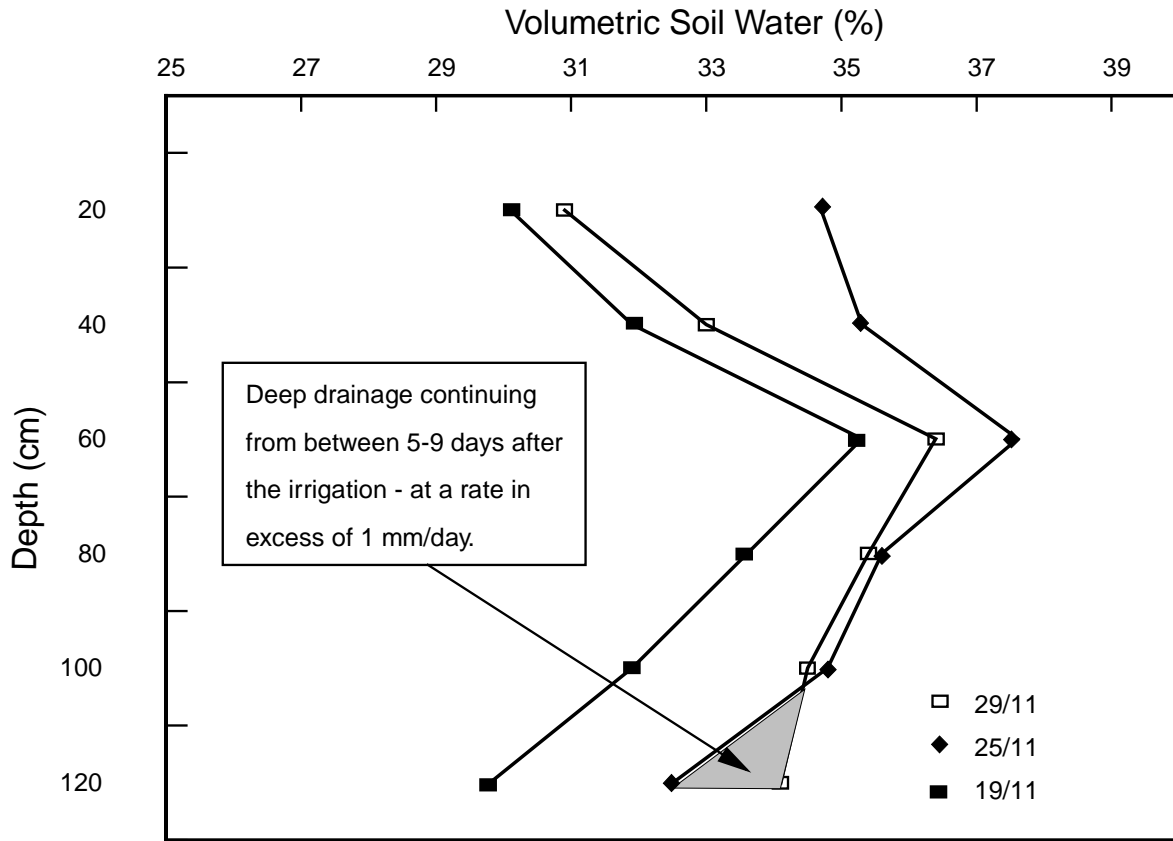


Figure 3. Second Irrigation in Lucerne.

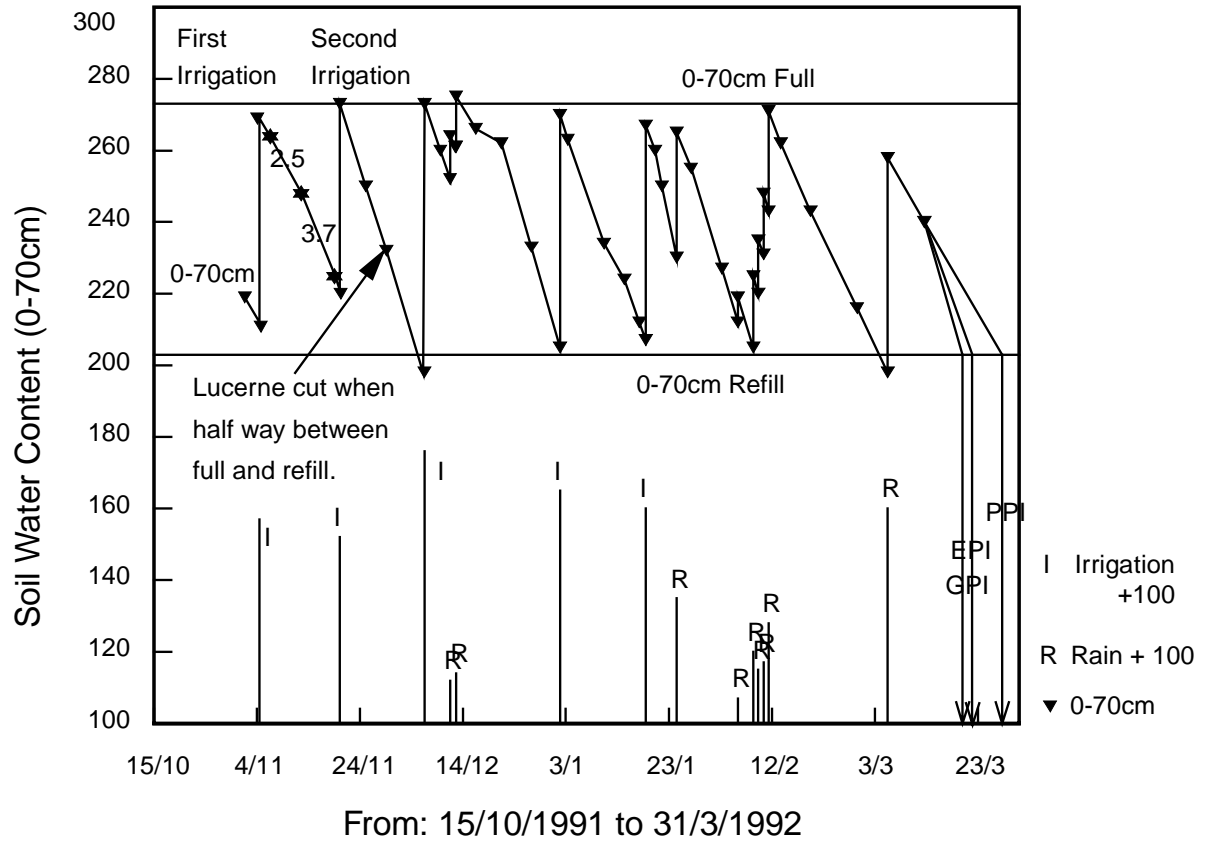
# Seed Lucerne at Forbes



**Figure 4. Deep Drainage in Lucerne after Second Irrigation.**

This crop was irrigated as per schedule after the second cut and regular irrigations were applied to optimise the use of applied water, increase the production of flowers, raise the numbers of sites for seed setting on stems and therefore maximise potential yield. Figure 5 indicates that soil moisture levels were closely monitored and the crop was irrigated at or near refill throughout the remainder of the season. It is important to eliminate stress as stress will significantly reduce yield particularly during floral initiation and flowering.

# Seed Lucerne at Forbes



**Figure 5. Soil Water Content over the Season in Lucerne.**

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