Irrigation of green beans

B. Chung

Dept. of Agriculture, P.O. Box 303, Devonport, Tasmania, 7310

In Tasmania, green beans are grown during the period late spring to early autumn and irrigation is applied by all growers. This paper describes the response of green beans to irrigation and discusses a proposed irrigation program for this crop.

Methods

Creen bean cultivar 'CV50' was sown in early December into moist soil and the experiment received one overhead irrigation to bring the soil to field capacity and to ensure uniform crop establishment. The treatments were: A - one irrigation at flowering only; B - preflowering irrigation only; C - post irrigation only; D - irrigation applied throughout the season. Irrigation was applied using Agrodrip pipes whenever the pan evaporation approached 35 mm. Crop water use was recorded using a neutron moisture meter. There was no effective rainfall during the season.

Results and Discussion

Irrigation had no effect on total dry matter production (TDM) from emergence to one week before flowering (Fig. 1). This indicates that irrigation is not necessary during this stage of growth. There was no difference in TDM between B and D for about two weeks after flowering. Hence, the required frequency of irrigation after flowering appears to be about 10-14 days. The quantity of water required can be estimated from the crop factor (Fig. 2) which varied from 0.25 in the pre-flowering stage to 1.2 at maturity. Using this approach it was possible to develop a practical irrigation program to maximise the yield of green beans. This program consists of five irrigations strategically timed during the season, and applying 50 mm of water at each irrigation.

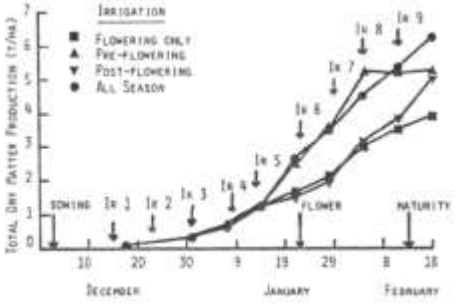

Fig. 1. Total dry matter Production

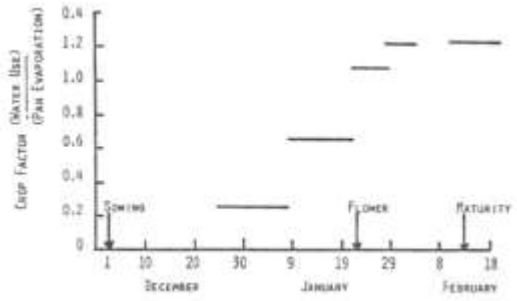

Fig. 2. Changes in the crop factor