

Timing pasture irrigation with a "home-made" evaporation tank

J.H. Mount

Department of Agriculture, Maffra, Victoria, 3860

Many dairy farmers in the Macalister Irrigation District of Gippsland, Victoria, are using a simple evaporation tank to help decide when to irrigate their pastures. Before, irrigators depended on past experience and guesswork. The result was usually too long an interval between irrigations and reduced pasture production.

Research work at the Macalister Research Farm (1,2) has shown that more frequent irrigations than was the general practice result in increased water use per hectare per year and higher pasture production. Pasture irrigated when $E - R$ (evaporation less rainfall) totalled 50 mm produced an extra 1489 kg DM per ha per yr compared with pasture irrigated at $E - R = 63$ mm. The corresponding increase in water use was 1.2 (4.1 - 5.3) M1 per ha per yr. The reason for the higher water use was an increase of 2 irrigations per yr with the more frequent interval of $E - R = 50$ mm.

The average district water use between 1975 and 1980 was 4.3 M1 per ha per yr. The increased value of pasture to dairy farmers, due to an increase in water use from 4.3 to 5.3 M1 per ha per yr, was estimated at over \$3 million.

The next step has been the development of an extension program to reduce the average district irrigation interval to $E - R = 50$ mm. For farm use, a method of measuring $E - R$ on a cumulative basis, rather than the standard daily method, was considered better. An evaporation tank was the solution chosen. The tank was filled after each irrigation and left. When the water level had dropped to a mark equivalent to $E - R = 50$ mm the next irrigation was due.

The tank was made from the base of a 200-litre drum cut to 350 mm. A fixed point was made from rod to stand 250 mm from the base. An overflow hole was drilled in the side of the drum level with the top of the fixed point. The correlation with daily readings from a Class A pan evaporimeter showed a water level drop of 65 mm was equivalent to the official $E - R = 50$ mm.

Observations over the last two years have shown that the correlation is good when there is little or no rain. However, the tank under-allows for rain by about 20%. This is not considered a problem unless continual rain prolongs the period between irrigations.

The evaporation tank is recommended as a very useful guide to on-farm irrigations. It is simple to make and use, and specific for each farm.

1. Mount, J.H. and Churchley, R. 1977. Water Talk No. 40 SRWSC, Victoria.

2. Mount, J.H. 1979. Irrigation Efficiency Seminar ANC ICID Sydney. 373.\