Water is stored at a capital cost of about £A21 an acre-foot. Cost of filling the dam is 1s. worth of diesel fuel per acre-foot for every foot in height the water is lifted.

Necessary Conditions for Water Harvesting

Two essential requirements for water harvesting are (1) good water-holding soils and (2) suitable topography. Heavy clay subsoil is a great advantage in eliminating trouble from seepage and tunnelling, and gently undulating country is ideal in that a large storage of water is possible for each cubic yard of excavation. However, there is no doubt that sites for dams can be found under a variety of different conditions, though flat land is necessary for the turkey nest tank.

Evaporation from the dams has been much less serious than was at first thought. As the shallowest parts of the dams are used up first while irrigating, this reduces the water surface for evaporation. The storage system at Badgery Creek holds 48 million gallons of water, and it is considered that this would last through a 12 months' drought. Practically the entire farm of 400 acres is now drained into these dams, and about 200 acres are under irrigation. It would be safe to allow a storage of 1 million gallons for every 3 acres irrigated. In most of New Zealand, however, where droughts are less severe than at Badgery Creek, it is probable that 1 million gallons would irrigate a considerably greater area.

Irrigated Pastures

Irrigated pastures seen were dominantly white clover with some red clover, subterranean clover, and strawberry clover in the wetter parts. Growth was extremely vigorous. The grass (mostly short-rotation ryegrass) was rather sparse, but all pastures seen were young, and the oldest of these (3 years) was getting a better balance of grass to clover. Pastures were strip grazed with use of an electric fence.

On the 200 acres irrigated some 150 head of dairy stock were being carried, 60 of these being milked at the one time. The high proportion of young and dry stock is due to the fact that the herd size is being substantially increased. The farm supplied whole milk to Sydney, and a few cows were calved-down each month. About 70 sheep were carried in addition.

Pasture mixtures sown were generally 13lb. per acre, comprising 6lb. of short-rotation ryegrass, 2½lb. of white clover, 2lb. each of red clover and subterranean clover, and ½lb. of strawberry clover. Cocksfoot, paspalum, and timothy were under trial. Manurial treatment was 4cwt. of superphosphate per acre in the first year in two dressings of 2cwt. each, plus 2cwt. a year thereafter. Molybdenised superphosphate was used when sowing down to pasture and occasionally afterward, as the soil is somewhat responsive to molybdenum.

Methods of Irrigation

Sprinkler systems were used for irrigation, the water being pumped out of the storage dams nearest to the paddock being irrigated. The farm has 45 chains of spray lines and, with 60ft. moves, three men were kept busy irrigating much of the year. At present the usual rate of watering is 1in. every week, but it is intended to investigate various times, frequencies, and rates of irrigation.

It is considered that on a one-man farm 10 to 20 acres could be irrigated, and the labour requirements for this, though considerable, should be set against the fact that smaller amounts of conserved feed should be required.

Application in New Zealand

"Water harvesting" would seem worth while in much of New Zealand, particularly those districts with a rainfall of 30in. and under or where summer drought is frequent and serious. It offers a means of water conservation and reducing run-off which will interest all concerned with flood-control problems. Water for irrigation is obtained cheaply and costs of application are relatively low, as irrigated paddocks can be located close to the source of supply. If the paddocks are at a lower level than the water in the dams (as can frequently be arranged), pumping costs are lowered.

The huge capital costs of most irrigation schemes are eliminated and water may be made available in districts which such schemes cannot hope to service. Much of the foothill and downland country of Canterbury and Otago in particular would seem to be well suited to water harvesting. However, many problems remain to be solved before the method can be properly evaluated. Farmers would be wise to study the project carefully, and if their conditions appear suitable, to begin in a small way first, as no doubt modifications would be necessary in different districts and on different soils.

Agricultural and Pastoral Show Dates

THE following are dates and venues of A. and P. shows up to the end of December:—

NORTH ISLAND

October

*18 and 19 October—Poverty Bay A. and P. at Gisborne.
*22, 23, and 24 October—Hawke's Bay A. and P. (Royal Show) at Hastings.

November

31 October and 1 and 2 November—Waikato A. and P. at Hamilton.
1 and 2 November—Wairarapa and East Coast P. and A. at Carterton.
2 November—Tokoroa A. and P. at Tokoroa.
6 November—Waikato Central A. and P. at Cambridge.
8 and 9 November—Whangarei A. and P. at Whangarei.
*8 and 9 November—Manawatu and West Coast A. and P. at Palmerston North.
9 November—Clevedon A. and P. at Clevedon.
15 and 16 November—Wanganui A. and P. at Wanganui.
*16 November—Bay of Islands P. and I. at Waimate North.
16 November—Waihi A. and P. at Waihi.
22 and 23 November—Rotorua A. and P. at Rotorua.
22 and 23 November—Egmont A. and P. at Hawera.
28, 29, and 30 November—Auckland A. and P. at Auckland.

December

*7 December—Helensville A. and P. at Helensville.
7 December—Kaikohe A., P., and H. at Kaikohe.
7 December—Hauraki A. and P. at Paeroa.

SOUTH ISLAND

October

19 October—Ellesmere A. and P. at Leeston.
26 October—Northern A. and P. at Rangiora.

November

*1 and 2 November—Timaru A. and P. at Timaru.
2 November—Amberley A. and P. at Amberley.
7 November—Ashburton A. and P. at Ashburton.
8 and 9 November—Marlborough A. and P. at Blenheim.
*13, 14, and 15 November—Canterbury A. and P. at Christchurch.
16 November—West Otago A. and P. at Kelso.
20 November—North Otago A. and P. at Oamaru.
22 and 23 November—Nelson A. and P. at Richmond.
*23 November—Courtenay A. and P. at Kirwee.
23 November—Waimate A. and P. at Waimate.
23 November—South Otago A. and P. at Balclutha.
30 November—Motueka A. and P. at Motueka.

December

3 and 4 December—Gore A. and P. at Gore.
6 December—Wyndham A. and P. at Wyndham.
7 December—Otago Peninsula A. and P. at Portobello.
*10 and 11 December—Southland A. and P. at Invercargill.

* The Department of Agriculture exhibit will be staged at this show.

Main Wool Sales

The dates and venues of main wool sales until the end of January are:—

23 and 25 October: Dunedin.
30 October: Christchurch.
8 November: Auckland.
13 November: Wanganui.
18 and 20 November: Napier.
25 November: Wellington.
4 December: Christchurch.
9 December: Invercargill.
14 December: Dunedin.
18 December: Timaru.
10 January: Wanganui.
15 and 17 January: Auckland.
22 and 24 January: Napier.
29 and 31 January: Wellington.