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To line or not to line the big ponds?

By Howard Keene

ATER storage reservoirs have become a common feature of the Canterbury Plains in recent years, but the question for farmers is whether to build a lined pond or an unlined pond which uses up big areas of productive land.

South Canterbury arable farmer Murray Turley made the decision to go for a deep, lined pond which will hold 400,000 cubic metres of water. Recently completed, it is one of the biggest lined ponds around.

Mr Turley grows potatoes, specialist small seeds, and cereals on his Turley Farms Ltd operation. Initially, the new pond will store water from his current allowable irrigation take. However, he should eventually get water from the proposed Rangitata South Irrigation Scheme, making use of winter rains and spring snow melt.

The scheme plans to irrigate 12,000ha of farmland in the area, and like other new irrigation schemes the aim is to provide reliable water utilising storage ponds.

Turley Farms plans to irrigate at least 1000ha, which would require 250,000cu m of storage under the scheme. However, to future proof their operation they have opted for 400,000cu m of storage.

Instead of going for the more traditional type pond with a shallow earth dam which would take up a large area of land, they chose to build a 10m deep dam which would take up less productive land and have much a smaller surface area minimising water losses from evaporation.



Above: Turley Farms new water storage reservoir in South Canterbury. Below: Laying the liner in Turley Farms new water storage reservoir.

To achieve that amount of storage from a traditional earth dam with a depth of 2m, the reservoir would have taken up about 25ha of land. The Turleys' reservoir takes up 5.76ha or the equivalent of about eight rugby fields.

The smaller surface area means less loss to evaporation during the hot, dry summers experienced in the area, and no loss from seepage, which is significant in unlined reservoirs.

For a liner the Turleys selected EPDM membrane manufactured by Firestone Building Products USA and distributed in Zealand by Cosio Industries because of its dura-

Vaughan Podbielski product manager of Firestone Liners said it has a 20-year Firestone material warranty, and satisfied engineers and building consent requirements by having a life expectancy of over 50 years.

The excavation and construction was done by Rooney Earthmoving of Ashburton and the lining laid by Young Farmer of the Year Tim O'Sullivan and his Canterbury Environmental Linings business partner Simon Metcalf.

Mr Podbielski said that due to one of the wettest May's on record the installation of the liner took longer than expected, but now it is completed the reservoir is expected to take about 60 days to fill.

He said the synthetic rubber waterproofing membrane was quick to install because of its wide 15.25m x 61m standard roll

Irrigation New Zealand chief executive Andrew Curtis said that while more expensive than community schemes, on-farm storage was important in reducing risk.

"If you haven't got risk then you can optimise irrigation effi-



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