



IMPROVING THE EFFICIENCY OF FARM DAMS

The south-west agricultural areas of WA have been drier than normal over the 10 years to 2022 and the projection is for more dry seasons. These conditions increase the need for improved water harvesting into farm dams. (1)

ROADED CATCHMENTS



Pattersons' new 8,000-yard dam was built halfway up a hill in 2020 with two roaded catchments. The dam is enclosed with banks on all four sides.

Water runs off the roaded catchments into a silt pit in front of the dam. Twin 600mm diameter poly pipes slope upwards from the silt pit, allowing water to enter the dam with minimum silt. Ben estimates that it only takes about 10mm of rainfall to fill the silt pit and overflow into the dam. It has a surface area of around 2,400 m² when full.

The dam provides water to sheep in the paddock. A solar pump is used to transfer water from the dam to Ben's new home at the top of the hill for watering trees, a vegie garden and lawn. He plans to run water downhill from the new dam to supply troughs in a patch of fenced saltbush so they can confinement-feed ewes before lambing.

Total dam project cost: \$32,000

"The inconvenience of manoeuvring large cropping machinery around the roaded catchments is a necessary evil but it's worth it to harvest the water more efficiently and keep the dams as full as possible,"
- Ben Patterson

What is a Roaded Catchment?

A roaded catchment is a water-harvesting structure designed to increase the amount of run-off from the catchment above a receiving farm dam.

Roaded catchments are lined with clay and compacted to make a smooth surface that reduces infiltration and increases run-off. The Pattersons of Woodanilling believe that roaded catchments are an efficient and cost-effective way to harvest maximum quantities of water into their dams.

Meet the Farmer

Name: Ben Patterson, Bibikin Farms

Location: Woodanilling, Great Southern

Farm Size: 13,000 acres / 5,200 ha

Number of livestock: 7,000 - 9,000 sheep

Ha crop: 3,300 ha

Number of dams: 50

- There are around 50 dams across the Patterson properties.
- They have all been upgraded with roaded catchments over the past 20 years.
- Some old roaded catchments were filled in and new ones installed to suit GPS lines which makes cropping around them much easier.
- Building new dams halfway up a hill allows options to pump and gravity-feed water to other areas of the farm.



Left: Roaded catchment running directly up slope.

Below: Roaded catchment following the contour.

Having both allows better water-harvesting capability.



References: (1) DPIRD.



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UPGRADING EXISTING DAMS

RIGHT: This dam originally had two roaded catchments - one ran uphill and the other was narrow and short, running across the hill to the farm sheds.

The dam was upgraded with an additional two roaded catchments - one along the contour line (south), the other next to the existing uphill roaded catchment (east).

The dam supplies a 1,500-head sheep feedlot, farms sheds, sheep on crop stubble, crop spraying needs and the main homestead including lawn and garden. It's never gone dry but it needed to catch more water to supply the demands on it, which the roaded catchments are helping achieve.

The dam is located at the foot of a hill which only allows water to be pumped out of it, not gravity-fed. The Pattersons plan to bolster this dam by installing a pipeline to pump extra water from the new dam into this one.



The Pattersons believe that road catchments are the best value for money. Ben said: "You can spend quite a bit of money on drilling trying to find a good bore and it might take days to find one. With roaded catchments, you spend the money and you are guaranteed to get water."

Tips for Planning Roaded Catchments

- Keep silt traps small so they overflow in smaller rainfall events.
- Ensure to harvest catchment from both sides of the dam.
- Ensure the inlet pipe slopes upwards to prevent silt entering the dam.
- Employ a professional contractor with suitable knowledge, experience and GPS equipment.
- Assess the terrain to determine the best location for the roaded catchments, considering factors like slope stability, ease of construction and without interfering with cropping land and A-B lines but sometimes this isn't possible.
- Study rainfall patterns and run-off characteristics in the area to design the catchment system effectively.
- Plan for regular inspection maintenance to prevent deterioration and ensure functionality.

DPIRD advice states that weeds growing on roaded catchments can dramatically reduce run-off from the surface by breaking up the compacted soil and thus increasing infiltration. Any loosening of the compacted surface will result in a small part of each rain shower being absorbed.

Every few years, the Pattersons get a contractor to maintenance grade some roaded catchments, where necessary, to keep them free of vegetation.

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