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Water ponding on Larrawa station, November 2011: a photo story

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Introduction

On-ground works completed at Larrawa station producer demonstration site in 2011 focussed on building open water ponds and collecting data on their cost (\$) to construct. Water ponding is a proven regeneration technique developed in western New South Wales, helping to slow down overland water flow and increase infiltration, thereby increasing soil moisture available for plant growth.

Ninety ponds were built at Larrawa station in 2011. The amount of water ponded at each pond ranged between 10 cm and 15 cm. Data were collected on pond length, ponded height and time to construct. Two permanent Rangeland Condition Monitoring sites were installed. Two different sized machines (road graders) were compared; 16G and 12G. The model 16G grader is significantly larger and more powerful than the model 12G.

Results and Discussion

Data collected during 2011 indicated that a 16G grader was more economical at water pond construction than a 12G machine. Table 1 displays the median cost per metre and approximate cost to build a 210 m pond for both 16G and 12G machines.

Table 1 Data collected for a 16G and 12G grader

	16G	12G
Machine cost per hr (with operator & without fuel)	\$175.00	\$150.00
Diesel used per hour (litre)	22.5 L	22.5 L
Median cost to build pond per metre	\$.32	\$.49
Approx. cost to build 210 m pond	\$67.00	\$102.90

Other costs

- Cost to construct a pond includes x2 rips along borrow area and x2 rips inside of pond.
- Cost of diesel was \$1.48/litre.
- Ferry of 16G to Larrawa from Kununurra was \$1000 each way (not included in above costs).
- Forage sorghum seed (Sprint) cost \$7.26/kg, approximately 2 kg used per ha.

The estimated cost to build two ponds on 1 hectare is:

- Surveying (not included).
- x2 ponds at \$67 each.
- 2 kg of forage sorghum seed was \$14.52.

Total cost is \$148.52 per hectare (construction, ripping and seeding).

Two Range Condition Monitoring sites were installed where open water ponds were constructed in November 2011. No annual or perennial plants were recorded at either site during installation. At the time of reassessment in April 2012 all quadrats (25) at site four (LAR REG 4) recorded some annual ground cover. No data was collected for site 1 (LAR REG 1), however visual observations indicated a similar increase in annual ground cover. Pigweed (*Portulaca* sp.) provided the majority of ground cover recorded; Kimberley couch (*Brachyachne convergens*) and sprint sorghum (*Sorghum sudanense* X *Sorghum sudanense*) were also recorded on site. At the control site (LAR REG 3) where no regeneration activities were undertaken no change in perennial or annual groundcover was recorded, the site remained bare at the time of re-assessment in April 2012.

At the time of reassessment, no improvement in land condition was recorded, however an increase in groundcover was observed — attributable to increased soil moisture and a sign of improved ecological function.

Key knowledge gained

- A 16G was more economical than a 12G to build water ponds — won more dirt per pass.
- Surveying for ponds is best completed by a professional experienced in surveying ponds.
- An experienced machine operator is essential to get full value out of ‘machine hire’.

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