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How to reduce spending on land conservation

By Tim Negus, Coordinator, Landcare Technicians Training Scheme, Department of Agriculture, Narrogin

Heavy spending on capital works for land conservation is usually out of the question in the present financial climate, but the recession does not mean that landcare must be abandoned. There are many aspects of landcare that involve little or no extra cost. Soil conservationist Tim Negus discusses them in this article.

Good land conservation involves a lot more than simply spending thousands of dollars on capital works. Good conservation farming is really a part of efficient farm management, with a bit of 'tender loving care' for the soil thrown in.

Taking care not to rip waterways or work soil too quickly or when it is too dry or too wet is just as important as excavating expensive drainage works or fencing off areas for tree plantations.

It is important that you draw up a conservation farm plan of your property. The plan itself costs little and low cost aspects of the plan can be put into action, while capital costs are deferred. The plan involves mapping the different soil types and land classes on to an air photograph, identifying land degradation problems and deciding the best solution for each.

Many farmers draw up their own farm plans, often using help from a soil conservation adviser. More recently land conservation district committees have started running farm and catchment planning workshops where farmers can learn the basic principles and start working on their own plans.

Often these farm planning workshops are conducted with groups of farmers, all from the same river sub-catchment. This enables group members to view their farm plans within the context of the overall catchment perspective.
In the next year or so, most wheatbelt farmers will need to concentrate on the low cost and no cost aspects of landcare. To help farmers do this, the Department of Agriculture's Community Landcare Branch has set up a small task force to highlight low cost conservation activities.

Aspects of landcare which can be given attention during the recession include:

- Self education and landcare planning
- Use of lower cost materials
- Ways to reduce earthmoving costs
- Adoption of improved cropping techniques
- More conservation grazing management
- Greater attention to detail

**Self education and planning**

Although the Department of Agriculture has been teaching soil conservation principles to farmers since the early 1950s, many farmers still have knowledge gaps on aspects such as design of earthworks, salterland hydrology, the use of geophysical survey methods, and establishment methods for puccinellia and saltbush, to mention but a few.

Education in landcare must be an on-going process as the next generation of farmers takes over the reins.

There are many opportunities for farmers and their families to gain a better insight into the technical aspects of land conservation. Throughout Western Australia there are farm and catchment planning workshops at which farmers learn to prepare their own farm plans. Most land conservation district committees also organise field days, seminars, and bus tours of conservation program areas.

Other field days run by the Department of Agriculture cover everyday farming techniques such as minimum tillage and soil structure improvement, which add little or nothing to farm costs but are basic aspects of wheatbelt landcare.

The Department of Employment, Vocational Education and Training (DEVE1), formerly TAFE, is also becoming involved in presenting short courses on aspects of landcare, as is the Land Management Society.

None of these educational activities is expensive to attend. The greater understanding which results will lead to better conservation planning and more cost-effective use of funds.

**Lower cost materials**

Many of the materials used in landcare can be obtained for little or no cost.
Improved cropping techniques

In recent years research by the Department of Agriculture has shown that early sowing of the correct cereal variety with increased inputs of nitrogen fertilisers has produced highly profitable increases in crop yields. A cereal/legume rotation is also accepted as an important technique for control of grass weeds and take-all root disease.

Reduced earthmoving costs

Many soil conservation earthworks are constructed using bulldozers or roadgraders. This machinery is needed for large capacity channels and where deep channels have to be cut into hard subsoil clay.

But a cheap and simple basic earthwork which is often needed throughout the agricultural areas to control surface run-off is the grade bank and grass waterway system.

Back in the 1950s and 1960s, many farmers built good grade banks using small (14 to 18) disc ploughs. There are still plenty of disc ploughs around. Eight to 12 runs are enough to build a 5-cm-high bank for just the cost of the diesel fuel. The more expensive absorption banks and seepage interceptor drains may have to wait for a while. However, the economics of seepage interceptor drains are good, and they can often be paid for by yield increases in the first one to two crops after construction.

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A prime example is saltbush seed. Seed from a seed merchant costs $40 to $60 per kilogram. Farm families can harvest their own seed at no cost either from their own or neighbours' properties or from one of the many seed nurseries or demonstration sites now set up through the State. One person can harvest about 20 kg of saltbush a day – enough to seed about 20 ha. It is best to test saltbush seed for germination before you plant it to ensure good establishment.

Other seeds the family can readily collect include eucalypts, acacias, casuarina and tagasaste.

Many farmers now grow their own tree seedlings. A small 'backyard' shadehouse will produce 500 to 1000 trees per year – enough for an on-going, long-term program on most farms. Many farm nurseries have shadehouses made of scrap materials, piping, old stock crates and the like. Systems of bottom watering in PVC-lined sand beds have also been developed to minimise water use in such nurseries.

Plants such as tamarisks and saltbushes can be easily and cheaply propagated by taking cuttings.

Fencing is a major item held up as a 'no-no' in the present economic climate. Recycling old sheep and rabbit netting takes time, but involves little out-of-pocket cost. Some farmers routinely roll up and re-use pre-fabricated fencing from around tree plantations once the trees are big enough to withstand sheep grazing.

Low cost electric fencing is highly suitable for protecting young trees. This approach is detailed in Department of Agriculture Farmnote No. 32/89 'Simple electric fencing to protect bush areas on farms', published by the Department but written by members of the Denmark Land Conservation District Committee.

There is scope for growing fence posts on the farm, as has been demonstrated by Esperance farmers. Wheatbelt farmers could cut brown mallet posts and young marri saplings, which should be treated with creosote.

Many areas already fenced-off to protect new plantings need more trees, plants or shrubs and grasses to overcome past establishment failures, locust plagues and so on.

Reduced earthmoving costs

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But a cheap and simple basic earthwork which is often needed throughout the agricultural areas to control surface run-off is the grade bank and grass waterway system.

Back in the 1950s and 1960s, many farmers built good grade banks using small (14 to 18) disc ploughs. There are still plenty of disc ploughs around. Eight to 12 runs are enough to build a 50-cm-high bank for just the cost of the diesel fuel.

The more expensive absorption banks and seepage interceptor drains may have to wait for a while. However, the economics of seepage interceptor drains are good, and they can often be paid for by yield increases in the first one to two crops after construction.

Improved cropping techniques

In recent years research by the Department of Agriculture has shown that early sowing of the correct cereal variety with increased inputs of nitrogen fertilisers has produced highly profitable increases in crop yields. A cereal/legume rotation is also accepted as an important technique for control of grass weeds and take-all root disease.
Adoption of these techniques offers hope for more profitable arable farming, and also usually results in earlier, more vigorous protective ground cover early in winter – a basic item of landcare in many situations.

Adoption of direct-drilling or minimum tillage and various approaches to stubble management and retention also have important spin-offs in terms of maintaining surface cover on the soil for as much of the year as possible.

Farmers will have to do some homework to understand the technical know-how needed to make high-yield cropping package and minimum tillage/stubble retention systems work. The information is freely available from Department of Agriculture advisers and technical representatives of herbicide firms.

Now may be a good time to plan how best to change your cropping systems when prices improve and money can be spent on machinery replacement.

**More conservation grazing management**

Much of the wind erosion and thunderstorm damage during summer occurs on paddocks which have been bared by sheep run at high stocking rates. A protective cover must be kept on soils which blow or wash easily.

The formation of soil from granite rock is estimated to be about one millimetre per 1000 years. Severe windstorms like Cyclones Alby and Fifi sort out and blow away the highly fertile clay and silt from the top 10 to 20 mm of soil in half a day. Our fragile soils can’t stand such losses.

The Department of Agriculture at Katanning has developed a feed budgeting approach to enable farmers to assess more accurately in spring the safe carrying capacity of pastures for the coming summer. This should allow them to destock paddocks early while sheep are in good body condition. Perhaps now is a good time for some farmers to review their grazing policy in relation to long-term landcare requirements.

**Attention to detail**

There are many small things that farmers can do (or avoid doing) which are important to landcare. Many of these are simple, common sense and cost nothing – except a little ‘tender loving care’ for the land.

Many of these small points are listed in Department of Agriculture Farmnote No. 21/91 ‘Landcare at low or no-cost’. Here are some of them.

- Don’t cultivate grassed waterways
- Never drive vehicles along waterways or around the discharge ends of banks
- Maintain contour banks to 50 cm high
- Don’t cultivate and seed down a ‘funnel-type’ headland
- Locate tracks and firebreaks along ridge tops and on the contour
- Use chemical firebreaks and, if possible, fewer firebreaks; make them with a scarifier rather than a plough
- Don’t drive over wet and boggy paddocks
- Avoid dragging machinery over contour banks and so reducing their height
- Peg wet spots in paddocks before planning drainage works

These are only a few examples of the many small points which are regular practices of the good conservation farmer.

**Further reading**
