Organic property leads in ecological management

By SARAH WOOLDRAGE

FARMING WITH ECOLOGICALLY BASED tools can benefit anyone, according to Rob Fenton, a combination organic producer and teacher who runs an organic farm project in Albury, NSW.

Mr Fenton and the National Environment Centre (NEC) team have established a farm that is designed to ecologically manage itself through an era when rainfall patterns are more erratic, climate is changing and availability of cheap energy is declining.

He says 10 years ago marked the start of his "relationship" with the drought and the beginning of a new approach to agriculture.

Currently the NEC produces organic sheep, firewood and olives but is diversifying in 2009 to include pasture-based eggs, dryland herbs and honey. The farm consists of 200 hectares, of which 40% is put aside for tree and native systems, 50% for grazing and the rest for recreational use.

"I was not prepared to let the drought get the better of me. I began to develop design tools in order to achieve a farm system that would be robust – a farm that would be more equipped to handle change," says Mr Fenton.

The first design tool he committed to was the five-star rule.

"The five-star rule is a way of ensuring we always design systems that require minimum industrial energy inputs and work towards taking care of themselves," he says.

This tool has three energy levels.

The first is one-star or industrial energy, which is anything that is powered from fossil fuels. This form of energy is polluting and expensive and will become harder to get. Under the five-star rule, one-star energy is minimised.

The second energy level is three-star and is based on cultural energy, where one relies on physical labour. Three-star energy is preferable to one-star but can be hard work, expensive and often impractical.

The third level is five-star and is based on farm ecosystem energy. This is where the system is

Farm part of TAFE diploma

As well as developing the farm, Rob Fenton has been sharing his knowledge of organic and sustainable farming practices as a teacher for the past 22 years. Recently, he achieved another milestone through designing his own TAFE course at the TAFE NSW Riverina Institute.

The nationally accredited Diploma in Organic Farming is a practical one-year course that offers students the chance to complete their study through practical exercises and developing organic management plans for their own farm.

"The students have two practical options with this diploma: they can either complete the course via correspondence and work on their own farms developing their own plans in the process or they can spend a year's 'internship' working along side us on the NEC farm," says Mr Fenton.

He says he hopes the National Environment Centre farm will help both conventional and organic farmers deal with uncertainty at a grassroots level.

"The aim of the farm is to provide examples of practical methods from the improvement of agricultural efficiencies.

"Everything from soil management to slowing the water flow as it moves through the farm landscape to improving the use of industrial energy will need to be addressed by agriculture in the future."

designed so everything on a farm will work automatically. An example is using the soil ecosystem to drive the nutrient cycle – having complex farm ecosystems will help manage pests and diseases.

"The farm runs with a minimum of one-star energy and we are constantly finding ways to minimise it. However, when you are in a drought this does become difficult at times. The five-star energy systems are constantly moving forward and improving with each year," says Mr Fenton.

"One example of using this tool is our long-term oat crop where we manage oat crops to provide feed for our lambs during times of shortage and then manage them to re-seed the following year with no establishment energy."

Seven seasons

Another 'design tool' used is called the seven seasons.

"Everyone knows we do not have spring, summer, autumn and winter around here but often we still work to a European calendar. Around Albury there are actually seven seasons: early summer, bushfire season, cooling dry, cool wet, cold wet, warming wet and the break," says Mr Fenton.

He says the NEC farm management calendar is based on seven seasons in the belief that each season has its own distinct characteristics which change in duration and time each year.

With seven seasons in mind, Mr Fenton contends farm management planning is more likely to be flexible enough to meet the changing demands in a time of change.

"We use rotational grazing to modify the plants in the pastures. There are some seasons where we have to maintain a strict rotation in order to manage internal parasites in our sheep (we do not drench)."

It is during these times where it is more difficult to manipulate plant populations by grazing. The seven seasons planning allows the property to develop grazing rotations to meet both requirements.

Slowing water

Water management by slowing water movement is another "design tool".The aim is to slow down the amount of time the water stays on the farm landscape. The NEC concentrates on using systems like keyline pattern ploughing, groundcover, soil organic matter and leaky dams.

"Keyline pattern ploughing uses contour lines to encourage water infiltration through the use of drainage ways and ridges that have being revegetated.

"Leaky dams are another way of slowing the movement of surface water. They are small banks that effectively 'leak' water slowly through the use of drainage lines and small wetlands for slower, longer-term flow rather than the water flowing off immediately and flooding the small creeks systems for a short time," says Mr Fenton.

Another aspect of helping to retain water flow on his farm is through landscape contours.

"The outline of the farm is based on the natural contours; the hilltops of shallower, less fertile soils have tree systems on them and the drainage lines with low-fertility fragile soils have wetland and tree systems, while the more productive slopes are the grazing areas linked with contour laneways – laneways protected by swales (low tracts of land)," says Mr Fenton.

Mr Fenton's rule of thumb is that a 1% increase in organic matter can hold another 25 millimetres of rainfall in the soil. The increase in organic matter will also lift soil biological activity, the key to successful organic farming.

"Organic carbon levels on the farm have increased from 0.5-0.7% to 3.5% in recent years," says Mr Fenton.

Adaptation

A design tool useful for combating uncertain rainfall is the adoption of plants and animals that do well across a broad range of conditions.

"For the farm we selected plants and animals that would do moderately well whatever the conditions instead of picking species which would only excel under one condition," says Mr Fenton.

With this concept in mind, Damara African Fat Tail sheep were selected for the farm as they are extremely hardy, produce well in a range of conditions and store fat in their tails, as well as being ready for Australian markets right across the year.

The NEC sells the organic Damara African Fat Tail at local farmers' markets.

With all of these design tools, it often comes across that this property is more of a trial rather than an actual working project. But at the heart of it, this farm is aimed a producing high-quality food with as little environmental impact as possible.

"The world is a different place now compared to when we started, and hopefully the farm system is responding to those changes," says Mr Fenton.

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Damara sheep

Boer goats and alpacas provide predator protection.

Leaky dams