

Land Management

Land degradation is the decline in the quality of land as a consequence of poor management. On agricultural lands, degradation results in a loss of productive capacity. As yields decrease, costs increase if the land user attempts to maintain the level of production. Lands can become totally useless for rural production if degradation levels are extreme.

Conservation Farming

This involves using the land within its capability and sustainability. Each farm has a different combination of soil, climate, landform, economic situation, farmer history and so on. There are a number of recognised good farming practices from which to choose for a particular farm e.g. minimum tillage. Conservation farming is a whole farm approach to management in which a property plan is a major part.

The property plan includes the management of stock and crops, soils, paddocks, trees, wildlife, water supply and other resources that make up the property. It includes financial planning as well. The property plan starts with a large vertical air photograph of the property. The following are marked on it or on plastic overlays:

- physical features such as fences, dams, tracks, gates, gullies etc.
- paddock land use history such as cropping, pasture etc.
- soil types
- problem areas including erosion, salinity, poor pastures, stock water supply
- solutions to problems such as changing fence lines, soil conservation works, tree plantings etc.

An important part of the property plan is a property development budget showing the cost of implementing the plan and future income.

Land Capability Mapping

To maintain the highest possible sustainable production, land must be managed within its capability. To achieve this, land is first mapped according to a land capability classification system, then managed according to the principles of conservation farming which aims to conserve resources while ensuring continued farm productivity.

The Department of Land and Water Conservation have a land capability mapping system whereby land is given a number (classification) between 1 and 8. The lower the number, the better or more productive the land. The number awarded depends on the limitations the land has to agriculture. The classification number indicates the maximum potential safe use of the land for crop production, pasture improvement and grazing. The use of a block of land may be limited by very steep slopes, poor drainage (swamp), or rock outcrops and may be classified as 8. Another block may be flat, have deep soil and have no real limits to what a farmer can do with it and will be classified as 1.

Each classification number has recommended management practices. These include strip cropping, conservation tillage including direct drill, crop rotation, stubble retention structural soil conservation works including graded banks, grassed waterways, diversion banks. Pasture improvement, stocking rates, tree regeneration areas, fertiliser, contour ripping, fire prevention and vermin control.

Classifications 1-3 represent land capable of frequent cropping which use tillage practices involving a series of workings. This land must be able to sustain two consecutive crops in two years without incurring soil structure breakdown or an increase in soil erosion.

- Soils are deep to moderately deep, well drained and with adequate water.
- Soils can be maintained in good structure and productivity, although they may require a ley phase to allow soil structure to re-establish.
- Lands are not likely to accumulate excessive salt or develop high water tables.

Classifications 4-5 includes land capable of infrequent cropping when using tillage practices which involve a series of soil workings. This land is best left to Grazing but can be occasionally tilled for crops or pasture establishment or renewal. Because of site factors such as climate, soil, topography or drainage, it is unsuitable for repeated cultivation.

- Land not capable of continual cropping due to severe soil erosion problems likely to develop.
- Soil limitations include: shallow depth, heavy texture, high erodibility, low water holding capacity, low nutrients, occasional high water table.
- Slope gradients may range from flat to moderate (25 - 33%).

Classification 6 is grazing land unsuited to tillage. Soil limitations include depth, stoniness, drainage and erodibility.

- Shallow soils, high rock content (>50%).
- Excessive salt, impeded drainage.
- Steep slopes.

Classification 7-8 includes land unsuited to either promote the sustainable use of natural cropping or grazing. These areas should be not be cleared but left in green timber.

Class 7 land has severe soil erosion hazard and site limitations.

- Slope usually exceeds 33%.
- Extreme soil erodibility. Extensive gully erosion

Class 8 land has severe physical limitations to the land.

- Steep slopes (>50%).
- Rock outcrop or permanent inundation (swamp).

Total Catchment Management

Many farm problems cannot be fixed on the property on which they occur because they are caused by management practices or factors else where in the catchment. A good example is dryland salinity on one property which may be caused by land clearing on other properties higher in the catchment. Sedimentation and consequent increased flooding of a river may be caused by erosion higher up the catchment. To manage these problems requires the cooperation resources

provide stable and productive soil, quality water and protective vegetation cover within each of the State's catchments.

The Catchment Management Act of 1989 defines Total Catchment Management (TCM) as the coordinated and sustainable use and management of land, water, vegetation and other natural resources on a catchment basis so as to balance resource utilisation and conservation.

The objectives of TCM are to ensure that natural resources are managed by:

- coordinating, policies, programs and activities within catchments
- active community participation in catchment management
- identify and fix natural resource degradation
- promote the sustainable use of natural resources
- provide stable and productive soil, quality water and protective vegetation cover within each of the State's catchments.

The underlying theme of TCM is the community and government working together to achieve sustainable natural resource management. The government has developed three major components to achieve this:

1. Local action by groups who share a common concern such as Landcare Groups.

2. Catchment Management Committees and Trusts, which oversee and coordinate management activities at a regional or entire river valley level e.g. Murrumbidgee catchment. CMC's advise on and coordinate the natural resource management activities of government agencies such as Dept. land and Water. Conservation, Dept. of Agriculture and Landcare and other groups. CMC's are made up of community members such as farmers and government members

such as Soil Conservationists. of all land holders within the catchment. A catchment is an area of land in which water drains to the same lowest point. A catchment provides a natural planning unit for natural resource management.

3. A State Catchment Management Coordinating Committee provides the central mechanism for implementing TCM throughout NSW.

Landcare Groups

Landcare groups form when people face a common problem such as salt affected farming land. The concern stems from degradation that causes a loss of production from their land and damage to the environment. These problems affect them financially and socially.

The members themselves form the group which are independent and self reliant. Landcare group members work together on local problems and local solutions and attract the support of government agencies such as Dept. Land and Water Conservation for advice, funding and assistance from people such as those employed as Landcare Coordinators. Land and water degradation does not stop at fences. Most Landcare groups have formed to care for a particular subcatchment of the larger river catchments which have CMC's. There are also urban Landcare groups being formed and some within schools.

A priority of most Landcare groups is a catchment management plan which is based on an air photo and map of the catchment and indicates problem areas such as saline or erosion areas and proposed methods of managing them.

