



EROSION ON FARM

UNDERSTANDING THE FARMING LANDSCAPE

What type of erosion do you have?

The Southwest Slopes' high, and often intense, rainfall makes the region's soils vulnerable to water erosion, such as splash, sheet, rill and gully erosion. The prediction of more droughts and variable climate indicates a higher risk of wind erosion in the future.

Splash erosion

Splash erosion is the first stage of the erosion process and occurs when raindrops hit bare soil. The soil is broken up due to the explosive impact of the raindrops, and the soil particles are 'splashed' onto the soil surface. If you intervene early, splash erosion will not grow into a larger and more complex erosion issue.

Sheet erosion

Sheet erosion is also caused by raindrops that remove thin layers of soil, or by shallow surface water flow. The removal of these layers contains most of the available nutrients and organic matter in the soil. The soil loss is often gradual and can go unnoticed, however it does account for a large soil loss over time.



Rill erosion

Rill erosion is the intermediate stage being sheet and gully erosion. Rills are shallow drainage lines that are less than 30cm

deep. When surface water concentrate in low points in the paddock it erodes the soil and causes these rills. Rills can often be removed at low cost by farm machinery.

Gully erosion

Gullies are deeper than 30cm and cannot be removed by regular cultivation. Gullies occur when surface water becomes trapped in a small concentrated stream and begins to erode a channel into the ground surface. As the water continues to undercut the gully, the sidewalls collapse and the gully grows. Gullies cause a large amount of soil loss. Extensive earthworks are often required to stabilize gully erosion.



Mass movement (landslips)

Mass movement is when soil and rock move down slopes and often occurs on bare ground after heavy storms. The soil becomes too heavy and waterlogged and is influenced by gravity to move down. Mass movement is a major form of natural land

degradation in some regions, especially those with high rainfall.

Streambank erosion

Streambank erosion can be caused by the force of stream flow which scours out the bank. Also streambanks can slump or collapse due to lack of vegetation to stabilize the bank, and from livestock trampling the bank.



Wind erosion

Wind erosion is the movement of soil particles by the air. Wind moves the soil leading to dust storms or sand drifts. Be ready for severe wind erosion seasons which tend to be the summers following dry autumns and winters.

Indicators of erosion

Some soil erosion is unmistakable. Gullies occurring across paddocks and landslips moving down the hill are easy to see. But there are many less obvious indicators of erosion that, if acted on early, can prevent further land degradation. It is far easier to fix small problems than repair larger gullies later.

Bare soil

If you have bare soil you will inevitably have erosion. Soil particles are easily carried away by the force of wind and water when there is no vegetation to protect these particles from moving.



Rills

Rills are small channels up to 30cm deep that form when soil is washed away by surface water. Rills are most commonly seen on cultivated bare soil or on dam banks. Gully erosion can develop when rill erosion has not been managed.

Silted dams

Silt in dams is soil that has eroded along the dam wall or from further up the catchment.



Muddy water runoff

When it is raining it is a great time to get out and look at the water moving on your property. When there is muddy water then it may be carrying sediment that has eroded from further up the catchment. It is a good idea to follow this water and identify if the issue is on your land.

Soil build up along fences

Eroded soil can build up on the upslope side of structures such as fences and gates.



As land begins to slip down a slope, small cracks will appear above the slip. This is the first sign that your land is at risk of mass movement (landslip).



Tunnels

Water can enter the subsoil through cracks and holes in the soil surface. If the subsoil is susceptible to erosion it will erode more readily than the surface soil which can form a tunnel. As the tunnel becomes larger the roof may collapse to form a pothole or gully.

Gravelly soil

As soil erodes the topsoil becomes thinner. Where all the topsoil has eroded the soil surface may appear hard and pavement-like or coarse and gravelly if finer materials have been removed. Underlying rock may also be exposed.

Exposed tree roots

Exposed tree roots mean that soil has eroded within the tree's lifetime. This is often due to excessive shade, removal of natural groundcover or fast flowing surface water underneath the tree.



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