

Winning back the land

A success story of how South Australian farmers overcame devastating soil erosion and are now improving their soils

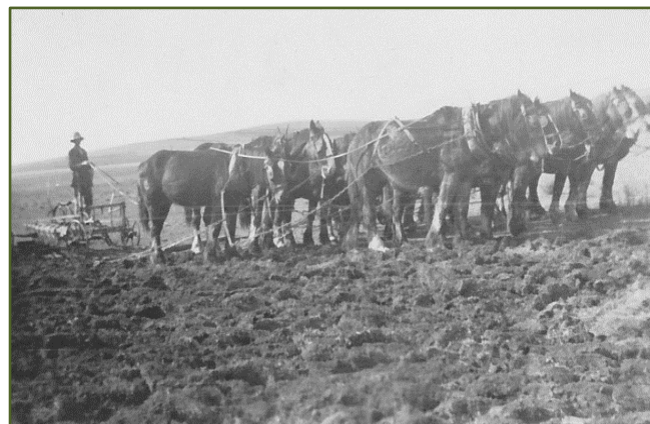
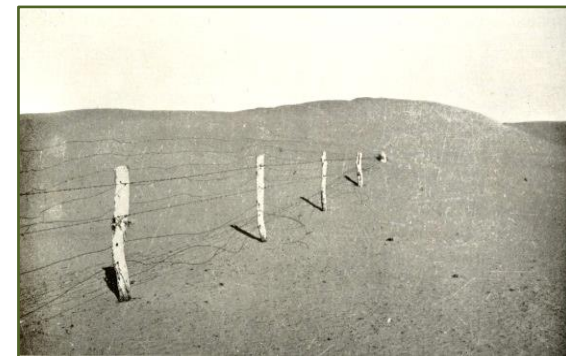


Our soil is vital for growing crops and pastures, and supporting the South Australian economy. However, degradation of the soil resource will severely affect its productive capacity and the industries that are dependent upon them.

The introduction of agriculture in the 1800s led to severe erosion and devastation of the soil within 50 years. Numerous cultivations and burning of crop stubbles and pasture residues were common practices when preparing land for cropping.

By the 1930s, farming and pastoral land was in a sorry state. Depression, drought, low commodity prices, rabbits and exploitive farming practices such as over-grazing and wheat-fallow rotations, resulted in land being ravaged by wind and water erosion.

Fences, roads and railway lines were covered by drift in sandier areas, and water gouged the landscape in hilly areas, carving gullies and washing soil from paddocks.



From 1940, farmers, farmer groups and government worked together to deal with erosion. It was obvious that if erosion continued at the rate it was occurring, it would not be long before farmers would be unable to grow crops and pastures.

Farmers changed their farming systems and practices, and set out to repair the damage caused by erosion and protect the land in the future.

These included:

- Sowing cereal rye and perennial plant species to stabilise sandhills
- Building contour banks to slow water flows on sloping land
- Improving soil fertility to grow better crops, and hence more soil-binding roots and surface cover
- Introducing pasture phases into crop rotations to improve soil fertility and reduce the amount of cultivation of the soil
- Replacing cultivation with herbicides for weed control
- Keeping crop stubbles after harvest instead of burning them, covering the soil and protecting it from wind and water
- Managing stock grazing of paddocks so that the land is not bared out
- Adopting no-tillage seeding methods with significantly reduced soil disturbance and greater seeding efficiency.

Farmers continue to adopt more sustainable farming practices that improve and protect the soil. While they cannot control the weather such as dry seasons and stop damaging wind and rainstorms occurring, nor major bushfires, the soil is now in much better condition so that it is less prone to erosion when these events happen.

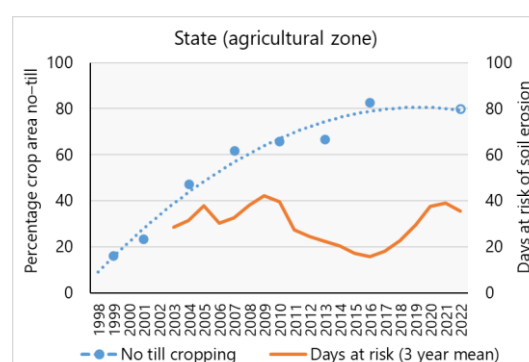


South Australia's farmers are not only looking after their land but are also improving it. The adoption of no-tillage (now used for sowing around 80% of crops) and stubble retention farming practices, and improved grazing management including confinement feeding, has significantly reduced the risk and incidence of erosion.

The Department for Environment and Water has been assessing and estimating how much of South Australia's agricultural land is adequately protected from erosion for over 20 years.

Over this period the number of days in a year that the State's agricultural land was regarded as being at risk of soil erosion peaked at 42 days (3-year mean) in 2009, then decreased to 16 days in 2016. It then increased in years up to 2021 because of very dry seasonal conditions. It is estimated that in the 1930s and 1940s, the number of days the soil was at risk of erosion was around 165 days.

The graph below shows estimated days at risk of soil erosion (days, 3-year rolling mean) and the estimated proportion (%) of crop area sown using no-till methods. (Data from DEW surveys and MODIS satellite data).



For more information:

Department for Environment and Water

Email: DEWSOilsInfo@sa.gov.au

Website: www.environment.sa.gov.au

Prepared by Tim Herrmann and Giles Forward (DEW) and Mary-Anne Young (PIRSA)

