

## Fact Sheet: Soil Organic Carbon for Drought Resilience and Carbon Credits

Soil organic carbon (SOC) reduces erosion and increases water retention in soils. The increased Carbon stored in soils can be sold as "*carbon credits*" to the Government Emission Reduction Fund (ERF) or onto the open market, offering economic incentives for sustainable land management.

### *1. Functions of Organic Matter in Soils:*

#### **a. Soil Structure and Erosion Control:**

In Australia's arid inland, 590 000 ha are affected by scalding on solodic soils, infrequently flooded alluvials, and seasonally flooded clay soils.

Organic matter promotes the formation of stable soil aggregates. The improved soil structure allows soils to retain water and resist erosion.



Severe gully erosion creeping uphill- caused by long term overstocking with sheep in the early 1900's

#### **b. Water Retention:**

Organic matter acts like a sponge, effectively retaining moisture in the soil. Soils with higher levels of organic matter can supply water to plants for longer durations, enabling them to withstand extended dry spells and promoting healthier and more resilient vegetation.

*1% increase in soil organic carbon  
can result in up to 187,000L of  
available water per hectare.*

#### **c. Carbon Credits:**

Landowners can earn carbon credits by adopting practices that increase soil organic carbon. These credits can be sold in carbon markets, providing an economic incentive for sustainable rangeland management.

To earn carbon credits through the Governments Emissions Reduction Fund (ERF) it is necessary to implement one or more of the following newness factors (new/additional eligible land management activity):

- Modify landscape or landform features to remediate land (eg erosion control practices, alleviating soil compaction, deep ripping etc)
- Re-establish or rejuvenate a pasture by seeding;
- Establish, and permanently maintain a pasture where there was previously no or limited pasture, such as scalded or low production grazing systems;
- Alter the stocking rate, duration or intensity of grazing to promote soil vegetation cover or improve soil health, or both.

### *2. Carbon Sequestration and the Sale*

### 3. CHRRUP Project's activities promote drought resilience and are Government Emissions Reduction Fund (ERF) approved

Improved ground cover supports soil carbon accumulation by reducing erosion, enhancing root growth, increasing plant residue, promoting microbial activity, slowing decomposition rates, and facilitating long-term carbon sequestration.

#### d. Modify landscape or landform features to reduce erosion and improve ground cover.

Recovery of scalded areas: paddock treatments include installation of stick contours to slow water flow; Yeomans ploughing; seeding with over 10 pasture species.



A previously scalded area with 20% ground cover, 18 months after treatment.

#### e. Alter the stocking rate, duration, or intensity of grazing to improve ground cover.

By reducing walking distance to water and optimizing paddock size, producers can boost production, minimize erosion, reduce selective grazing that puts pressure on preferred species, simplify cattle management, and incorporate rotation grazing, all of which can also contribute to increased soil carbon.



Large volume (54,000gal) water tank positioned on a rise to allow water distribution over 5km.



Poly pipe is buried parallel to a new fence line and distributed to troughs located 1km apart.



The new fence halves the paddock area and reduces time for mustering.