END THE CYCLE OF RURAL DECLINE.

From cycle of DECLINE to cycle of INCLINE.
What is Carbon Link?

Carbon Link is all about enabling farmers to put carbon on their bottom line and improve sustainability. We can provide end to end advice and services to help farmers achieve this goal.

Carbon Link has developed systems that provide a turnkey process for landholders to enter the carbon market.

Carbon Link leads the world in soil carbon sales and measurement and is one of the leading service providers in carbon farming markets by providing:

1. the training and guidance to implement practices that restore the landscape and store soil carbon;
2. services to measure carbon stocks in a cost effective manner; and
3. support with implementing projects, aggregation and carbon trading.

Carbon Link was born out of the need to support farmers to earn income by improving their soil. The opportunity farmers have in the emerging carbon market is at an exciting stage.

Carbon Link has:

1. Completed the first large scale accurate measurement of soil carbon in the world, down to one metre. This technology is 100 times more accurate than conventional methods.
2. Along with its partners, sold the first substantial volume of credits from soil carbon in the world.
The most common carbon schemes are based on slowing or avoiding emissions and are therefore very limited in the impact they can have on atmospheric carbon. The best they can do is to slow the rate of emissions. It’s like slowing down the rate at which someone drives toward a cliff.

Sequestration on the other hand removes carbon from the atmosphere and can occur in both biomass (normally trees) and soil.

Adding carbon to soil increases:
- food production,
- water holding capacity,
- mineral cycling,
- biodiversity, and
- food quality.

Why is Carbon Link needed?

For two centuries wealth has been flowing from rural to urban landscapes. Now is the time to bring wealth back to the struggling rural communities. Farmers are the only people on earth who have the capacity to remove CO₂ from the atmosphere.

Our Local Partners...

Resource Consulting Services (RCS)

Resource Consulting Services RCS is Australia’s best known and respected private provider of education, training and consulting services to the agricultural sector. Since its inception almost three decades ago, RCS has built its reputation through its vision for a regenerative Australian agricultural landscape.

See more on the RCS website: www.rcsaustralia.com.au

Forests Alive

Carbon Link is working with Forests Alive to offer protection and restoration projects to our clients.

For more information see the Forest Alive website: www.forestsalive.com

Corporate Carbon

Corporate Carbon has guaranteed the supply of carbon credits to the federal government thus removing a major risk factor from farmers.
What can I do to be a part of this positive movement?

The important steps are:

1. A due diligence process to ensure a property can meet its obligations. The process will outline the legal and production requirements along with potential income and costs.

2. Register the project with the clean energy regulator. Carbon Link will assist with this process.

3. Measure the carbon and carbon dioxide baseline for the property.

4. Begin the activity which will sequester carbon.

Six steps for measuring soil carbon...

Carbon Link has undertaken trials and an extensive review of technology and methodologies for measuring soil carbon and related agricultural credits. The results of this work and the technologies involved are discussed below.

The six steps involved are:

1. Early Survey & Feasibility (discovery process)
2. Stratification and sampling design
3. Soil sampling using high speed systems capable of coring to any depth
4. Soil Analysis using world leading high speed, high accuracy systems
5. Data analysis to calculate the baseline carbon stocks (in t SOC/ha)
6. Soil carbon mapping

STEP1 Early Survey & Feasibility

During this stage a feasibility study will be conducted to assess the extent and economics of a potential project. These include, soil carbon, livestock emissions, feed and supplements, fire, fertiliser and above ground woody biomass. There may be several aspects to a project, which need to be considered early.
**STEP 2**  **Stratification**

The second step involves several options for stratifying soil variation and then determining where soil samples should be collected. This may be done by ground survey, aerial survey or a combination of the two. The images on the right are examples of stratification. The colour variations are representative of the soil type variation and form a basis for stratification.

The dots on the large map to the right are the locations of soil samples which provide good spatial coverage and also of soil types and terrain features.

**STEP 3**  **Soil Sampling**

Step 3 involves taking soil samples at the locations determined in step 2. By using high speed systems it is cost effective to take more deep soil cores to improve baseline measurement.

**STEP 4**  **Soil Analysis**

The fourth step is analysis of the soil samples to determine the carbon content. This is done using a number of advanced techniques including gamma radiation, NIR and targeted combustion analysis for checking and calibration.
STEP 5  

Data Analysis and Calculate Carbon Yield

The fifth step is the analysis of the site ancillary and soil sample data. Current methods only give gross site estimates, are constrained to 30cm depth and have high uncertainty. Carbon Link used soil sampling and ancillary data to reduce uncertainty and produce detailed 3D maps of soil carbon.

On a recent project, soil carbon was analysed by CSIRO in 5cm increments to a depth of 1m across a 3,000ha property. The estimated carbon stocks are summarised in the table below. Significantly, the results show more soil carbon per hectare at depths >30cm demonstrating the reason Carbon Link measures deep soil carbon.

The table shows that total carbon across 3,000ha is 55.01t/ha +/- 0.29t/ha. The most outstanding feature of this value is the small variance. The implication of the low variance is that small changes can be detected giving the potential of early trading of sequestered soil carbon.

The table below (Internal Report, 2013) lists the soil carbon stock estimates from four methods of sampling and analysis. All methods estimate similar carbon stocks but there are significant differences in the variance. The results show that the advanced methods employed by Carbon link can be 100 times more accurate than traditional methods.

<table>
<thead>
<tr>
<th>SOIL ORGANIC CARBON t/ha</th>
<th>0-10cm</th>
<th>0-30cm</th>
<th>30-100cm</th>
<th>0-100cm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>8.85</td>
<td>24.49</td>
<td>30.52</td>
<td>55.01</td>
</tr>
<tr>
<td>Variance</td>
<td>0.03</td>
<td>0.11</td>
<td>0.20</td>
<td>0.29</td>
</tr>
<tr>
<td>SE</td>
<td>0.18</td>
<td>0.33</td>
<td>0.45</td>
<td>0.54</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SOIL ORGANIC CARBON t/ha (0-30cm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Random 1 Bulk Density</td>
</tr>
<tr>
<td>Mean</td>
</tr>
<tr>
<td>Variance</td>
</tr>
<tr>
<td>SE</td>
</tr>
<tr>
<td>Random Average Bulk D</td>
</tr>
<tr>
<td>Mean</td>
</tr>
<tr>
<td>Variance</td>
</tr>
<tr>
<td>SE</td>
</tr>
<tr>
<td>Random Individual Bulk D</td>
</tr>
<tr>
<td>Mean</td>
</tr>
<tr>
<td>Variance</td>
</tr>
<tr>
<td>SE</td>
</tr>
<tr>
<td>Stratified Random +Sensors</td>
</tr>
<tr>
<td>Mean</td>
</tr>
<tr>
<td>Variance</td>
</tr>
<tr>
<td>SE</td>
</tr>
</tbody>
</table>

STEP 6  

Soil Carbon Mapping

The sixth step is to provide 3D maps of soil carbon distribution. This is important to understand how best to manage and improve different areas. Carbon Link uses a range of approaches including:

- Statistics
- Geostatistics
- Modelling
- Hybrid measurement modelling approaches
- Use of ancillary data such as satellites and other proximal sensor data
Facts about soil carbon...

There is 800 Gt of carbon stored in the atmosphere, 610 Gt of carbon in all terrestrial life and 1,580 Gt of carbon stored in soils (to 1m), more than the first two combined. Soil is the largest carbon pool over which humans can have an influence. Soil therefore offers the greatest potential for removing CO₂.

What is unique about Carbon Link?

- Made up of farmers, educators, scientists and engineers.
- People who recognise farmers as heroes of the future.
- Moving toward something positive, not away from something negative.
- RCS connection.
- Can **ACCURATELY** and cost effectively measure soil carbon.
- WIN WIN WIN in **ALL** directions.
- Partnership with Corporate Carbon to market carbon credits and reduce farmer risk.
Please contact us for a feasibility and discovery process to see if your land and management practices are suitable for carbon trading. This will lead to a quote on the cost to baseline and the anticipated financial benefits of trading carbon credits.

**CARBON LINK WORKS TO BRING WEALTH BACK INTO AGRICULTURE.**

**For more information call**
(07) 4939 5255

**or visit:** www.carbonlink.com.au