GREEN PIGEON CONSULTING

# GRASSING UP COUNCILS FOR CARBON!

## £ BANK OF CARBON!

*Presented by*
**JUSTIN SMITH**
Green Pigeon Consulting

# THE GREEN PIGEON VISION

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- Green Pigeon's commitment to decarbonisation extends beyond buildings, recognising the potential of amenity spaces.

- A holistic approach to sustainability, integrating soil health and utilising new grass technology for carbon reduction.

**SUSTAINABILITY**

**CARBON REDUCTION**

**SOIL HEALTH**

# UNLOCKING THE HIDDEN POTENTIAL OF AMENITY SPACES

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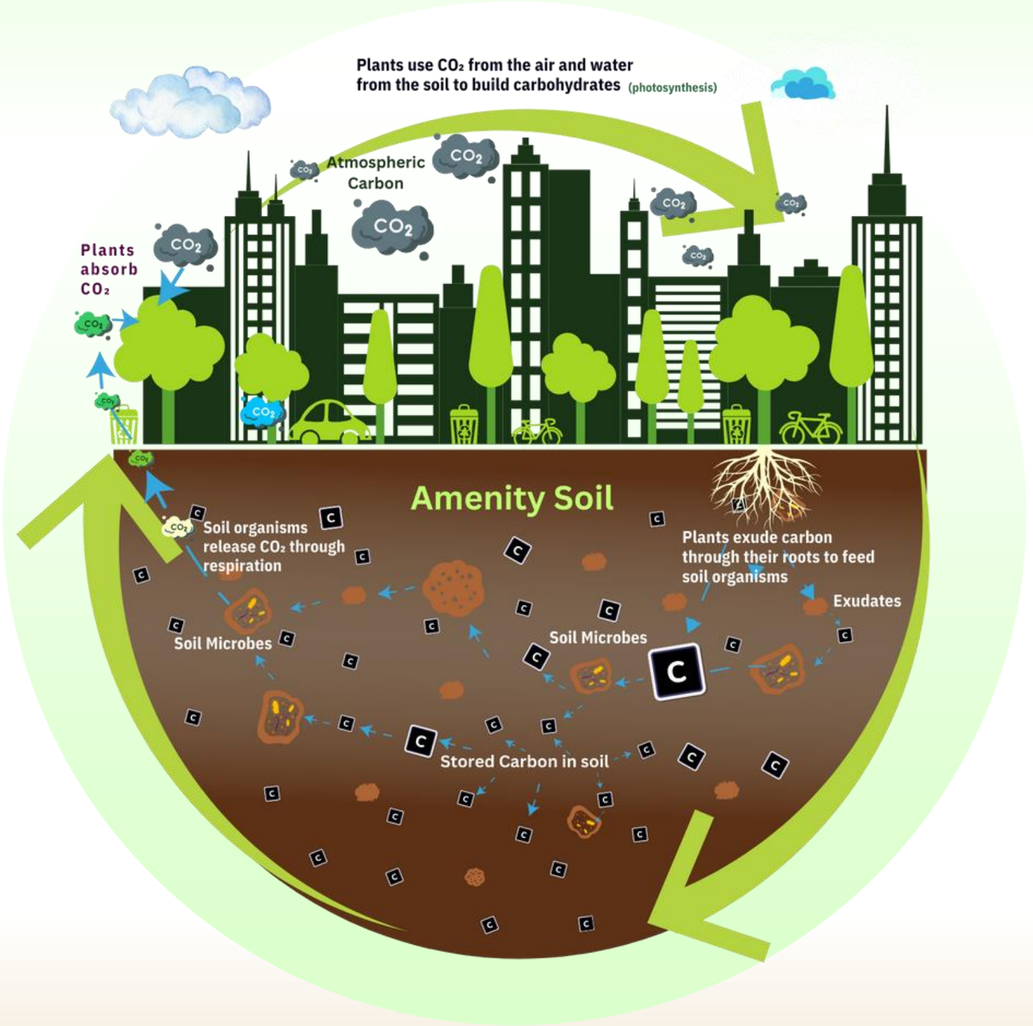
Grassland amenity spaces represent a vast, often overlooked opportunity for carbon sequestration and ecosystem restoration.



# THE UNTAPPED POWER BENEATH OUR FEET

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- One teaspoon of soil contains 10 billion micro-organisms
- There is sufficient DNA in 1 gm of soil to extend 1,598 km
- 25% of living beings on earth live in the soil
- Soil is technically a living entity
- 95% of all food production relies on soil
- It takes 500 years to produce 25 mm of top soil
- Top soil is a non renewable resource
- Topsoil is depleting 4 x faster than its being regenerated

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# “YOU CAN’T MANAGE WHAT YOU DON’T MEASURE!”

# IMPROVING SOIL HEALTH

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**“You can't manage what you don’t measure!”**

EMI Mapping for Soil Variability

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**“You can't manage what you don’t measure!”**


**EMI Mapping for Soil Variability**

# IMPROVING SOIL HEALTH

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**“You can't manage what you don’t measure!”**

Understanding the BASELINE and ATTAINABLE carbon stock levels is crucial to be able to demonstrate the carbon storage and removal achieved from various practices and management techniques.

Green Pigeon have been developing ways for councils to monitor carbon stocks on their sites, that are repeatable, accurate and affordable.

# IMPROVING SOIL HEALTH

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**“Baseline to Attainable Carbon, Simple Carbon Algorithm!”**

**In order to calculate carbon attainable stocks an extensive approach is required that requires detailed soil analysis and soil textural analysis.**

1. **Calculating SOC Stocks (t/ha):**
2. **Estimating the Relative Potential Increase in SOC:**
3. **Relating Attainable SOC to Clay Content:**
4. **Calculating the Carbon Saturation Deficit.**

# IMPROVING SOIL HEALTH

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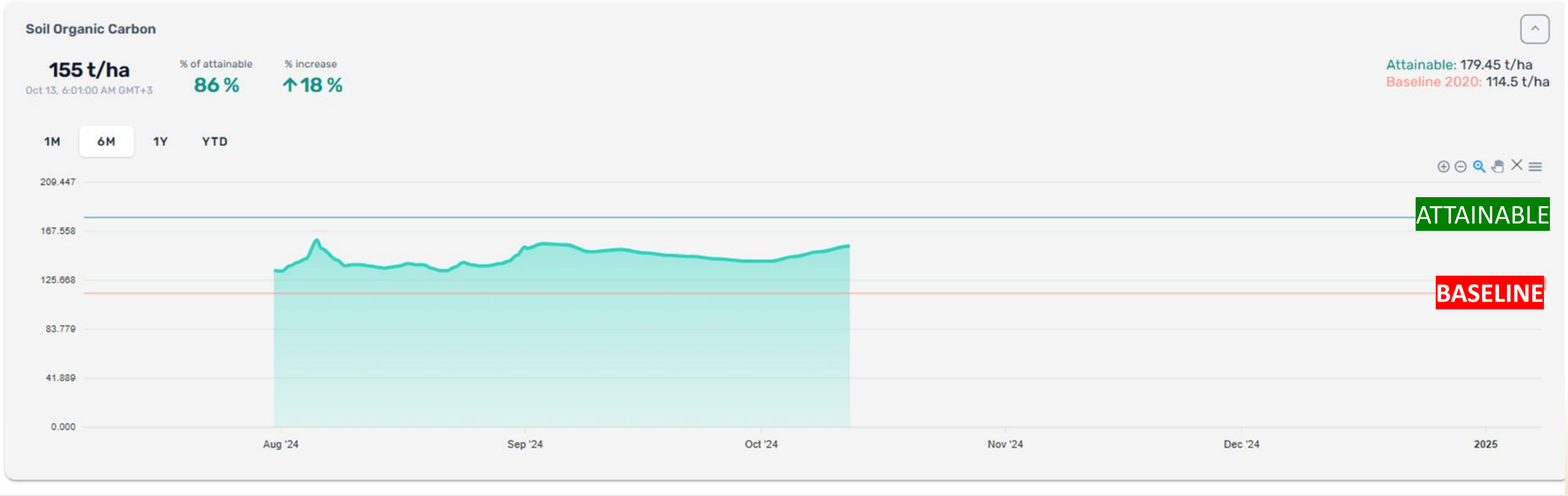
**“You can't manage what you don’t measure!”**



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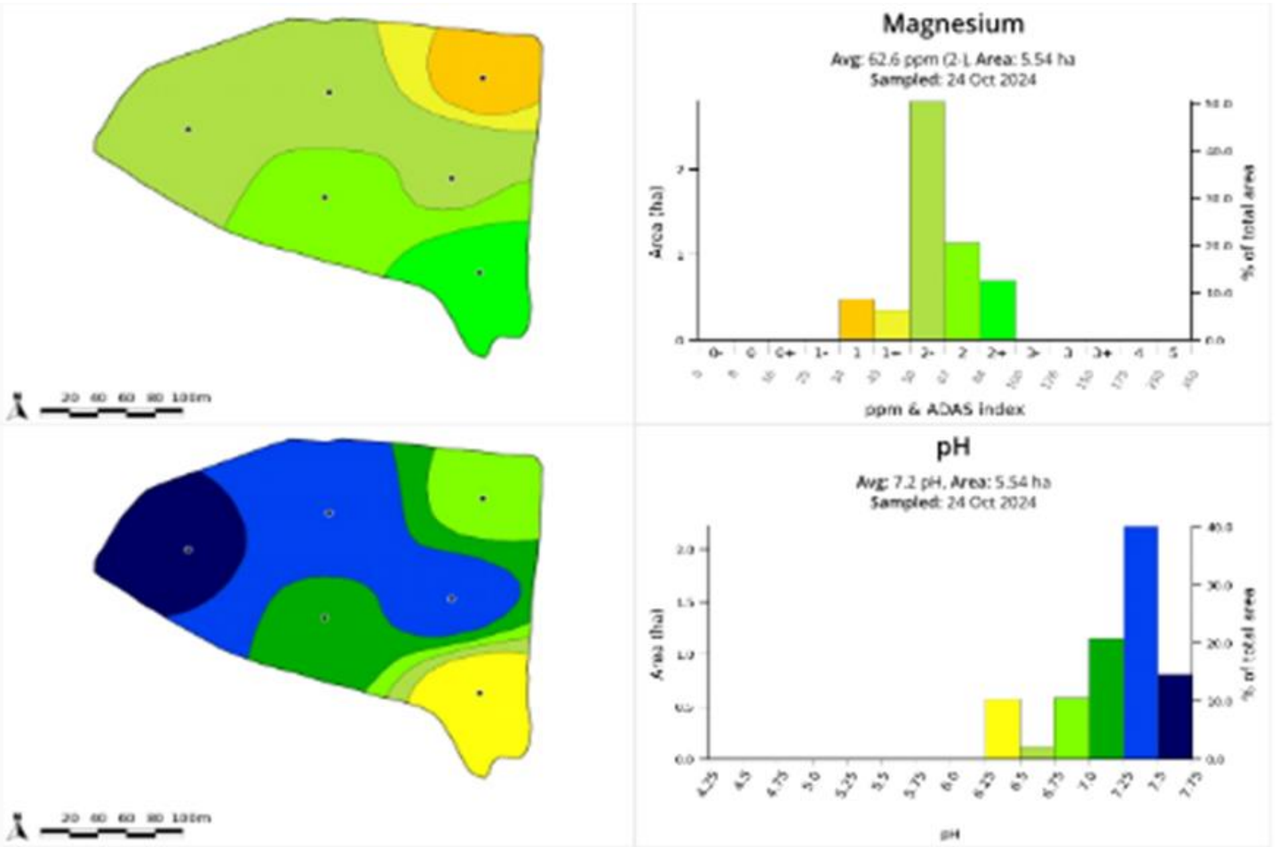


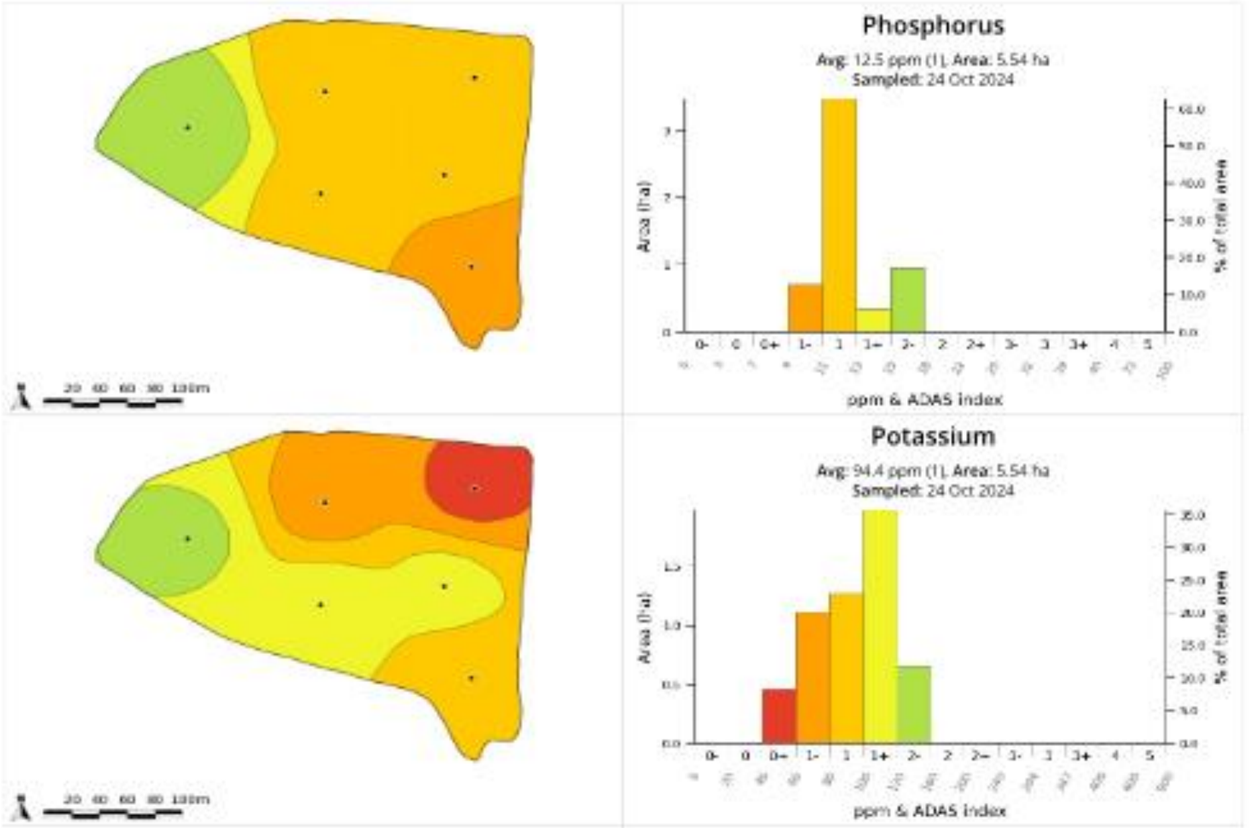

# IMPROVING SOIL HEALTH

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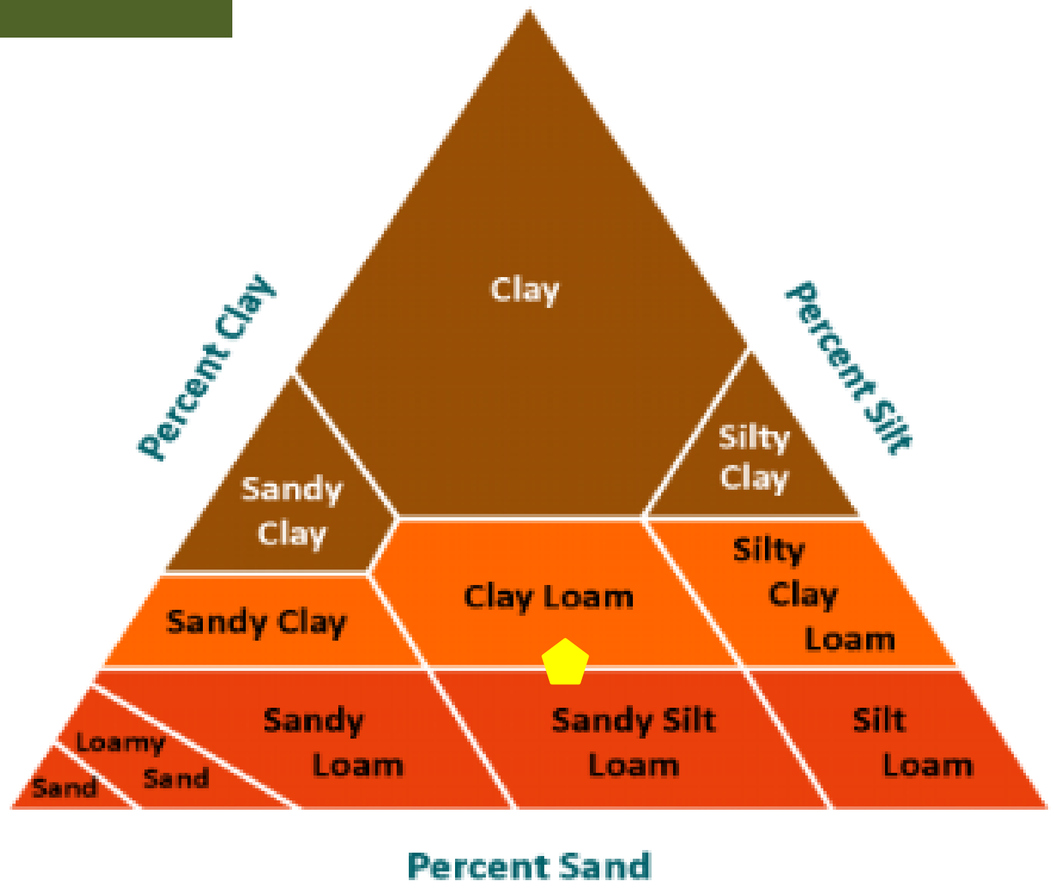
| Soil Characteristics | | |
|---|---|---|
| Soil texture | Clay Loam | |
| Sand | 35% | |
| Silt | 46% | |
| Clay | 19% | |
| pH | pH 8 | |
| OM LOI | 2.8% | LOW |
| OM Dumas | 2.5% | LOW |
| Org Carbon | 1.4% | LOW |
| Bulk Density | 1.115 g/cm3 | |
| Carbon Stock | 39.025 T/Ha | |



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# “IMPROVED SOIL HEALTH = IMPROVED SOIL CARBON!”

# INCREASING SOIL ORGANIC CARBON

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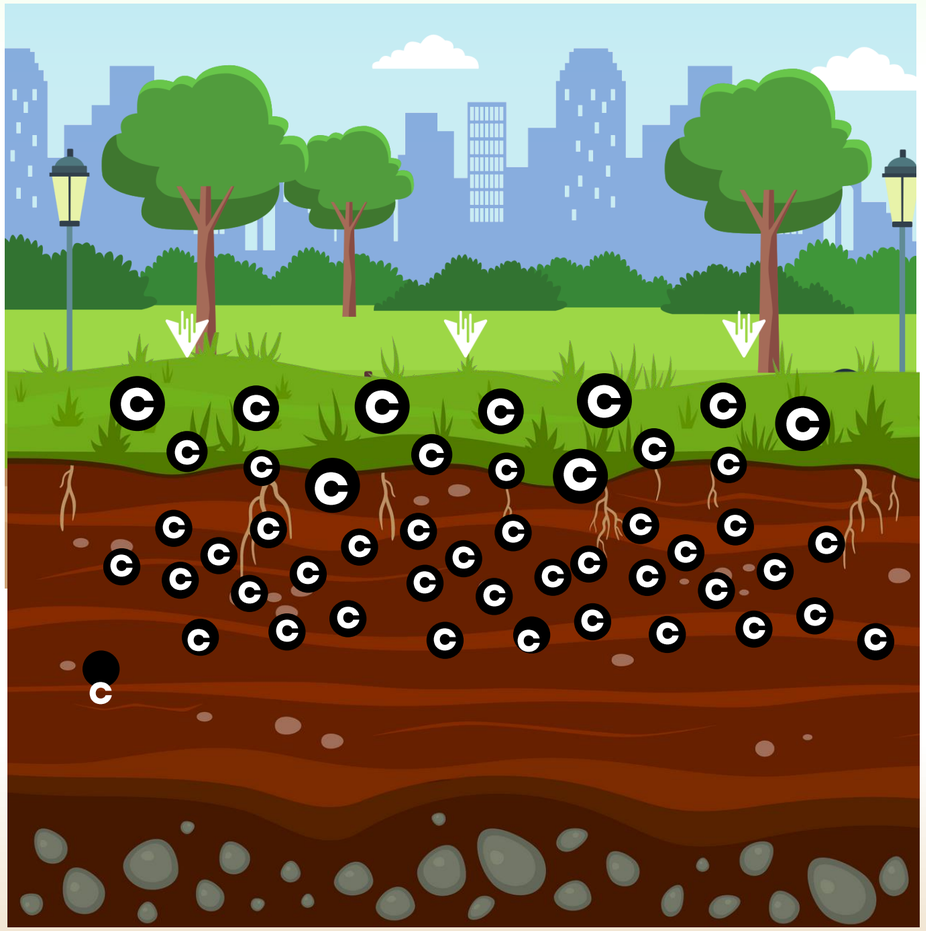

Organic matter is the key to carbon sequestration and soil health.


Every 1% increase in soil organic matter can sequester tonnes of carbon per hectare increasing Soil Organic Carbon.

# INCREASING SOIL ORGANIC CARBON

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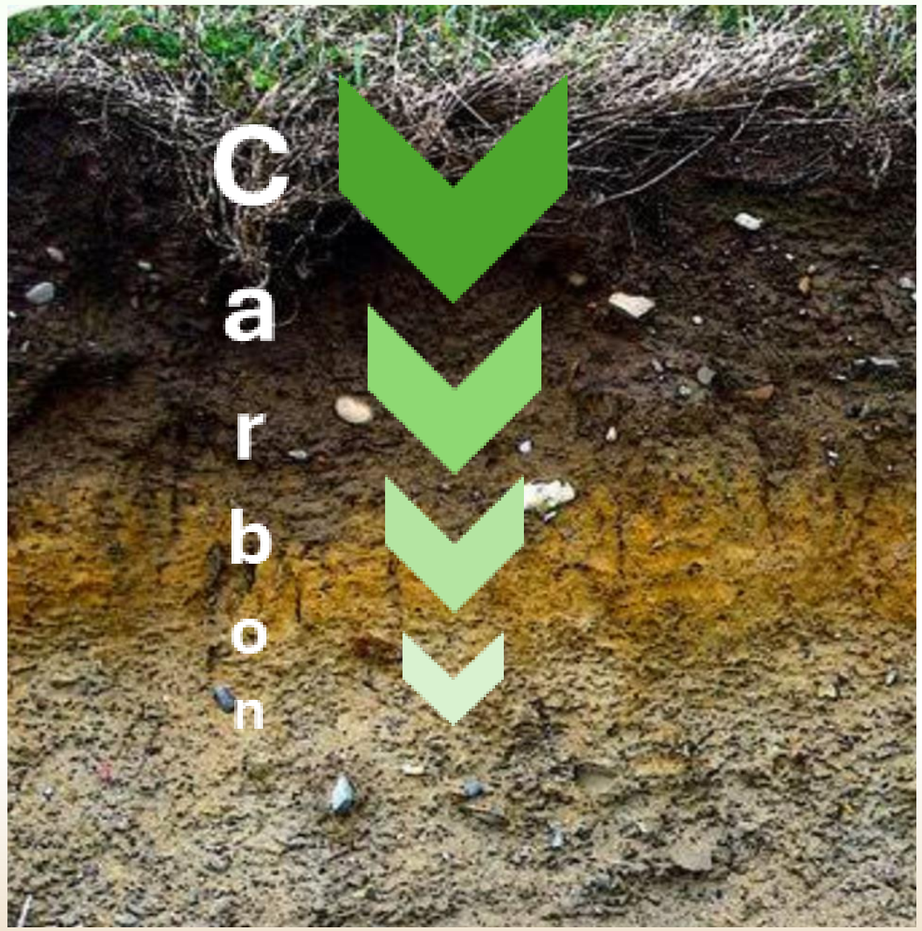


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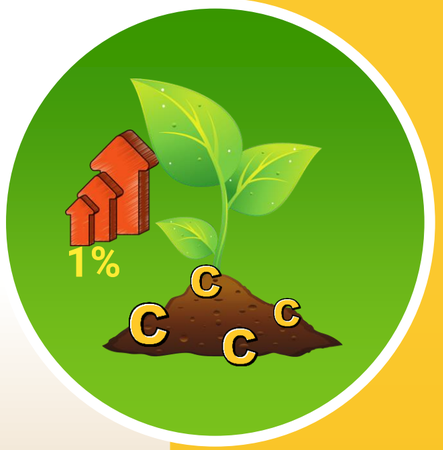


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# INCREASING SOIL ORGANIC CARBON

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**Aeration can help to  increase organic matter and SOC**


**Organic matter is the key to carbon sequestration and soil health.**

**Improving aeration increases micro-organism activity, root development and rooting depth.**

# INCREASING SOIL ORGANIC CARBON

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**Humic and Fulvic Acids can be found in the following organic compounds**

Leonardite

Compost Pellets

Clinoptilolite

**Organic matter is the key to carbon sequestration and soil health.**

**Increasing organic matter and SOC by introducing humic and fulvic acids and zeolites.**

# INCREASING SOIL ORGANIC CARBON

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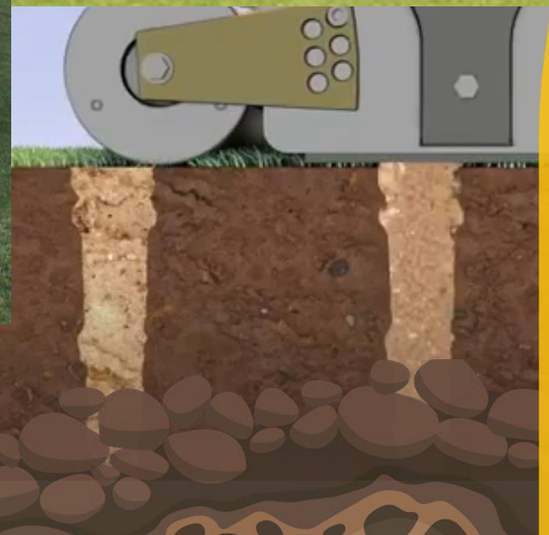
## Minimal disturbance incorporation





**Organic matter is the key to carbon sequestration and soil health.**

**New technology is being developed to input organic material into the soil without disturbing the surface.**

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# Now Build on this Foundation!

# CARBON GRASSES™.. WHAT ARE THEY?

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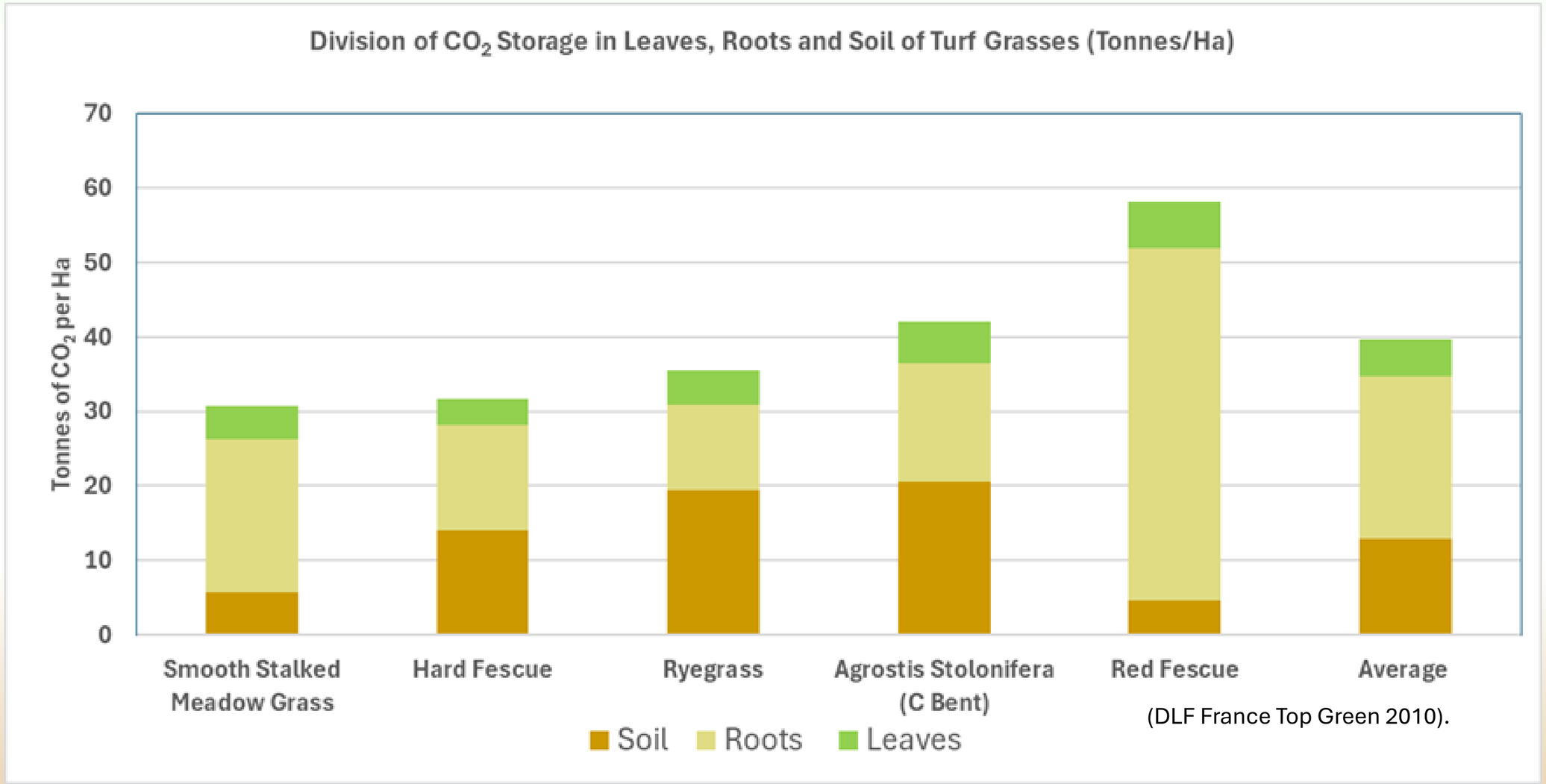


(DLF France Top Green 2010).

# CARBON GRASSES™

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The carbon mixes include a range of grass varieties that include tetraploid cultivars, these tetraploid varieties have deeper roots and greater root mass and are up to 40% slower growing.

Tetraploid Ryegrass



Diploid Ryegrass

(Images DLF France; Top Green and Origin Group).

# CARBON GRASSES™

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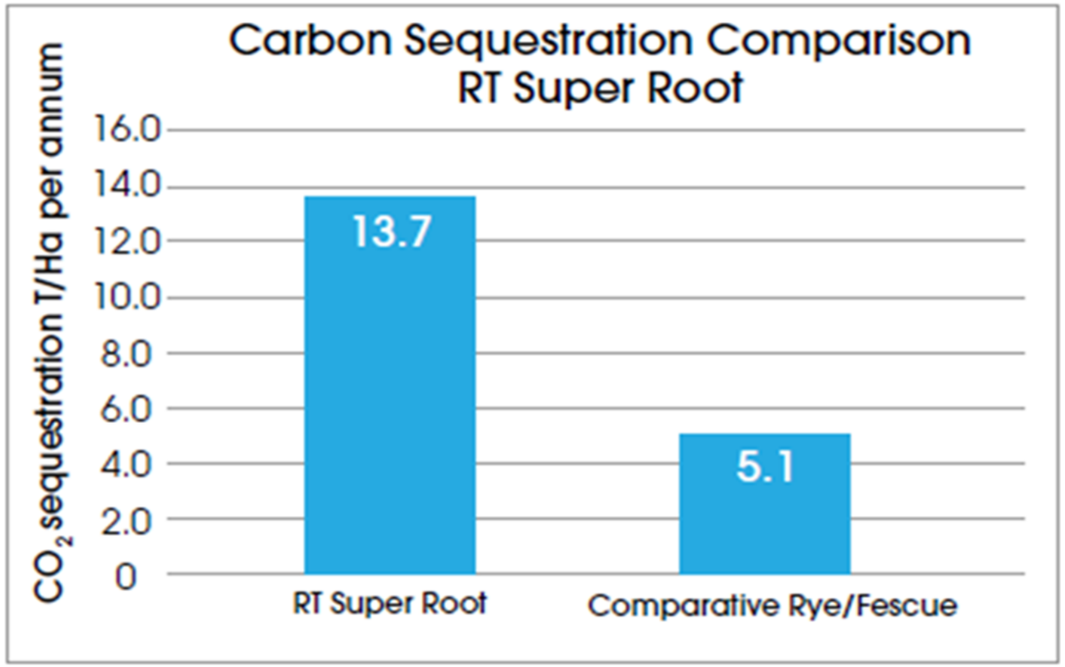
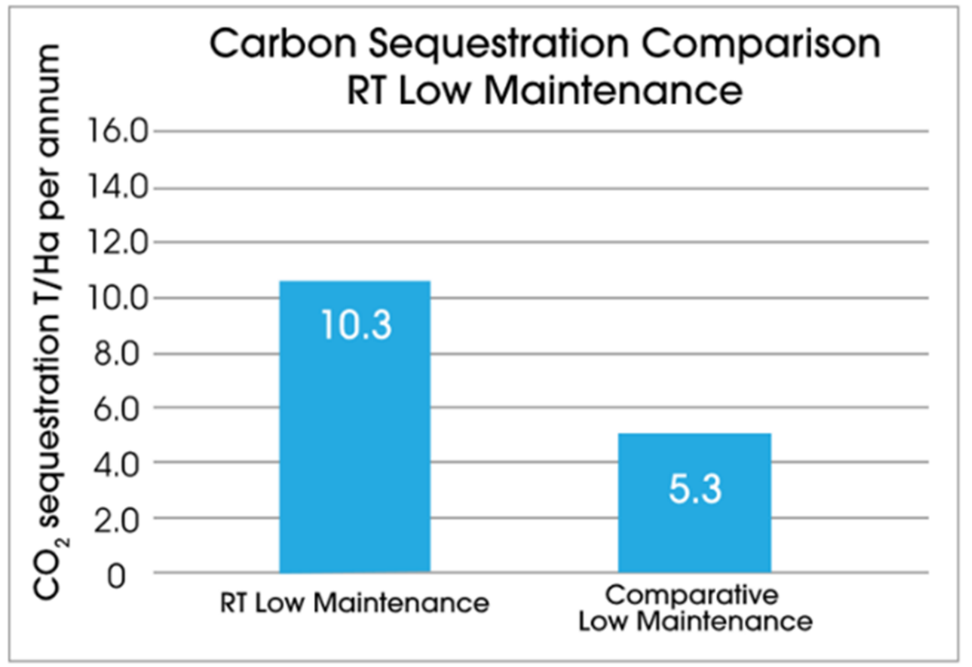
**Notwithstanding the deeper roots and root mass, tetraploid cultivars can photosynthesise at lower temperatures enabling them to sequester significantly more carbon than current amenity grasses.**



# CARBON GRASSES™

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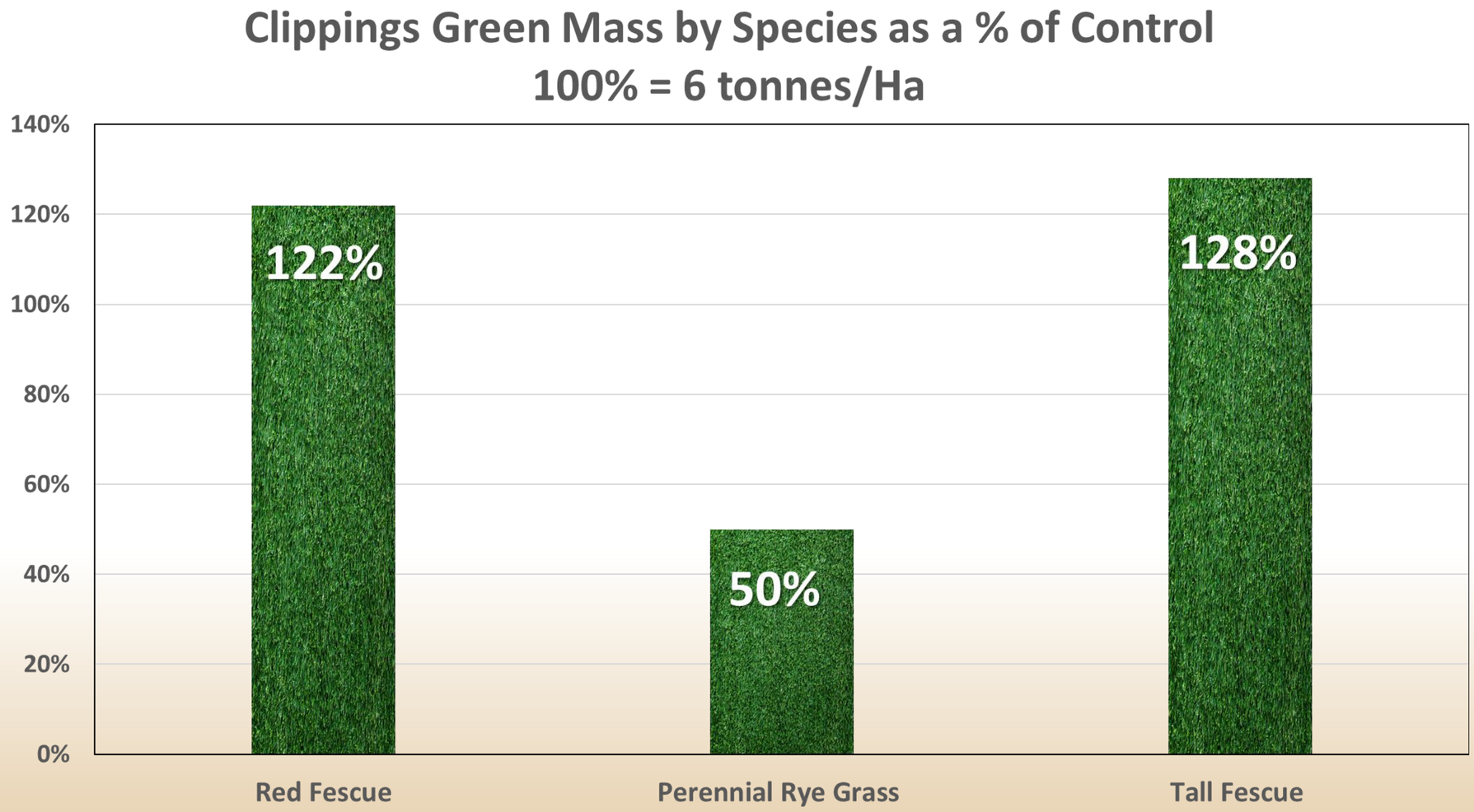


DLF Top Green 2002

# CARBON GRASSES™ SWARD SWAP™

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**Pesticide free old sward removal and reseeding with Carbon Grasses™**


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# SUMMARY

# CARBON MANAGEMENT SUMMARY

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| Data Collection | Diagnosis | First Level Treatment | Second Level Treatment | Maintain |
|---|---|---|---|---|
| **Mapping**<br>EMI Mapping<br>OM Data<br>Inorganic C<br>Organic C<br>Soil Nutrient Maps<br>CEC<br>Soil Texture | **Reports**<br>Soil Carbon Reports<br>Baseline Carbon Stocks<br>Attainable Soil Carbon<br>Carbon Audits<br>Sensor Installation<br>Recommendations | **Management**<br>Basic Soil Management<br>Aeration<br>Leonardites<br>Compost<br>Zeolites | **Management**<br>Sward Swapping<br>• Low Maintenance<br>• High Sequestration | **Monitor**<br>Further Sampling<br>Sensor Reports |

**SOIL CARBON STOCK**

# CONCLUSION

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**Investing in soil health is a vital investment for carbon capture.**

**By collaborating, we can reveal the untapped potential of amenity spaces!**

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# THANK YOU FOR YOUR ATTENTION!

## APSE CLASS ON GRASS – 2025

**At Green Pigeon, we aim to empower local governments to utilise amenity spaces to lower carbon footprints and improve soil quality. We seek to innovate and collaborate to create greener, resilient urban environments for both people and the planet.**

## KEEP IN TOUCH WITH US

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