A MONITORING, REPORTING, AND VERIFICATION SCHEME FOR GLASGOW CITY COUNCIL

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An outline of the presentation:

- **Why an MRV scheme?**
- **Our vision and mission**
- **Our approach**
- **The MRV breakdown**
- **Financial summary**
- **Questions**

Executive Summary

Monitoring

- Installation of carbon monitors in areas of concern
- Integration of green life

Reporting

- Daily readings of carbon levels
- Reporting of carbon before the project is initiated

Verification

- National communications and BURs
- verification via the UNFCCC
- cultivation of carbon credits

Introduction

- Facing the climate crisis will require the involvement of private finance - that was one of the central conclusions of the 2021 COP26 UN Climate Conference, held here in Glasgow.
- Engaging private finance requires the appropriate due diligence, including a way of measuring the impact a potential solution can have
- An MRV scheme like the one we are proposing today can form a vital piece of the puzzle in the struggle against climate change at a municipal level

Current MRV models within the City Council

- The City Council already engages in internal forms of MRV, including as part of its obligations under the Climate Change (Scotland) Act
- These measurements are used for accountability within the public sector, but could also be used for engaging private finance
- However, no mechanism like the one we are proposing currently exists for Glasgow, or most other municipalities

Vision & Mission

01. Vision

A flourishing, green and responsible Glasgow, keeping and fulfiling its climate promises

02. Mission

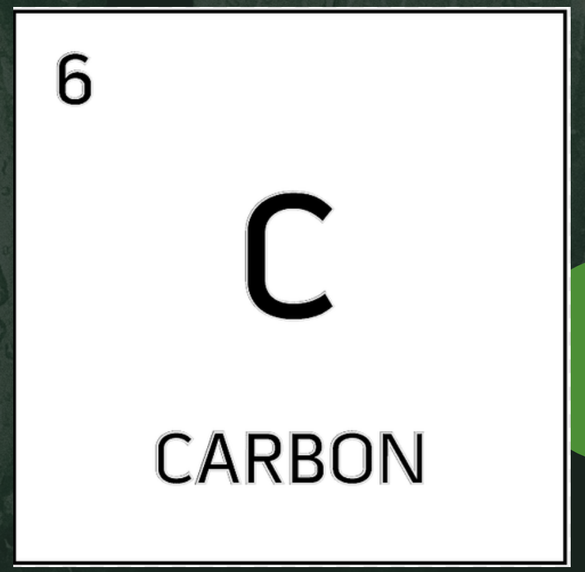
Creating a Monitoring, Reporting, and Verification scheme that can firmly put Glasgow on track to Net Zero by encouraging private investment

How much carbon do you think one tree stores per year?

"A tree absorbs anywhere between 10-40Kg per year, on average"

ecotree.green

But before we talk about gold bars, lets talk about carbon...



What strategies can we use?

Soil/grass Trees Maintenance

The trifecta of carbon storage in urban areas!

1. Introduce new species to the already green areas of Glasgow
2. Encourage local communities to take part in small-scale projects
3. Ensure proper and constant maintenance is enforced

How is it helpful?

- A study by Yang et al found a correlation between soil species and carbon storage.
- This graph shows between 1 and 13 years of the study.
- This graph and the next focuses on soil of 0-20cm deep.

What can we take from this?

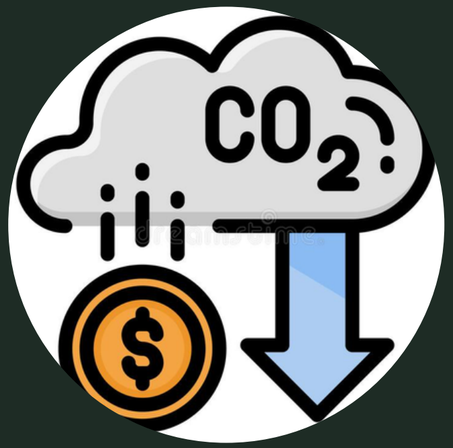
- If we improve the quality of existing soil and introduce new species, we can enhance the carbon storage.
- This graph represents years 13-22 of the same study.
- Can you see the difference?

I bet you're thinking...

"But how does this link to us?"

Well...

As investors, it's important that you understand how the sciency bits contribute to giving you an ROI ...



If we enhance green areas in urban cities, we can use the carbone we save to make money.

Before the MRV we must...

Take baseline measurements

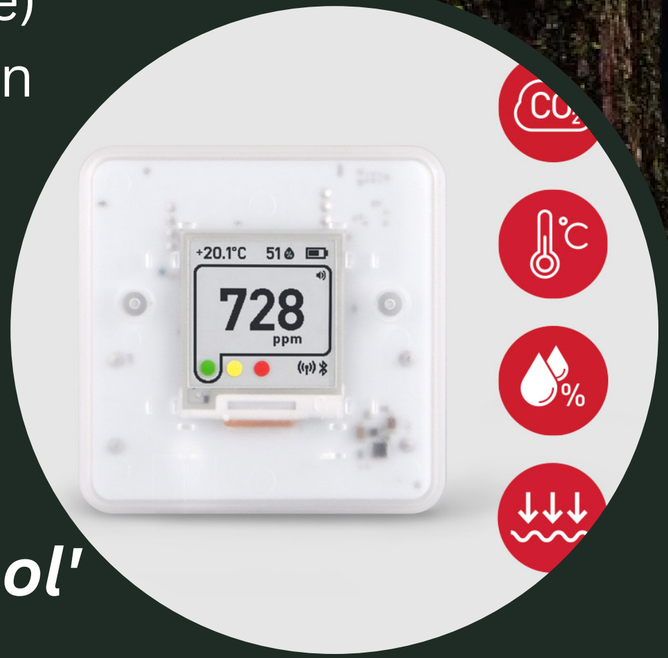
Decide how many and where?

Start implementation process

Techniques to consider

1. Implementation of advanced technology

- Using the likes of Aranet 4 (RRP £200/piece) in order to take daily readings of the carbon in the air within the green spaces.



2. **The use of pre existing data**

- Sourcing and citing previous studies to create a baseline for the scheme.

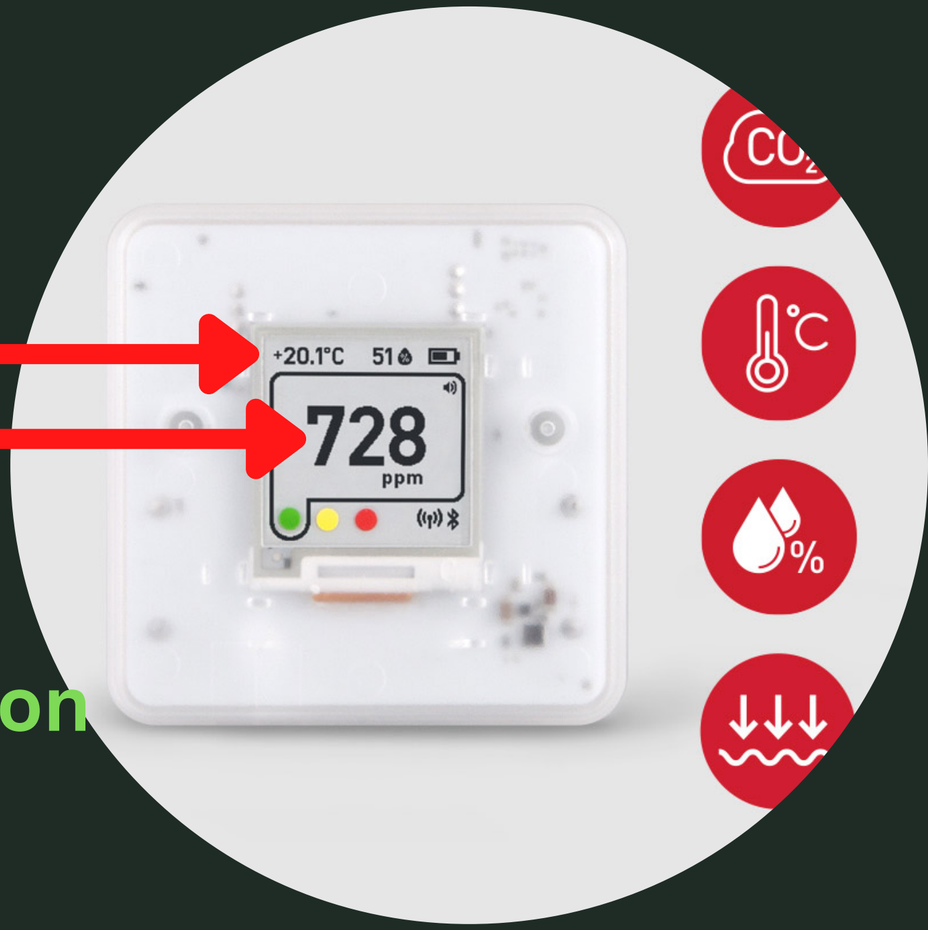
3. **For prosperities sake..Go *'old school'***

- Be like the guy in the picture - do everything by hand!

The 'Holy Grail' of Techniques

ARANET 4

Measures temperature
Measures Carbon!



Using technology like this within the 'M' portion of the MRV will provide reliable and credible data that follows IPCC guidelines of carbon credit measurements

Monitoring

Daily Readings

- Taking daily readings of the air quality within green areas of focus.
- Continuously ensure the quality of soil and grass is properly maintained by ***experts.***
- Further encourage local communities to engage in helpful activities.
- Follow IPCC guidelines for methods used.

Reporting

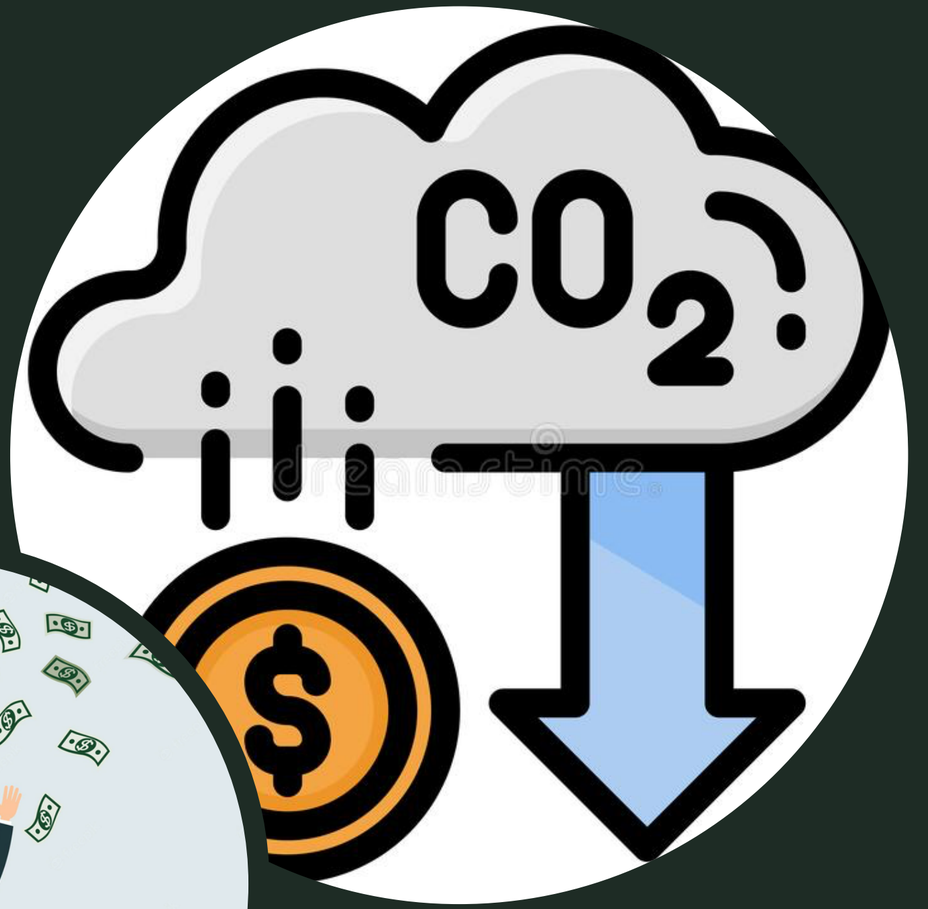
A comparison of data

- Merge data to find differences in air quality
- Determine how much carbon emission has been avoided
- Create National Communications and BURs for verification

Verification

Sending off our data to the UNFCCC

- Verification by the use of ICAs.
- Conversion of the carbon credits generated from the carbon saved into money!
- The option to trade the carbon credits within stock markets.



Financing Summary

How do we plan to seek funding & collaboration for the MRV implementation?

NEXT STEPS

Collaboration

Private Investments

- Collaboration with carbon heavy firms (ie. SageCity, Pixelette Technologies and Scottish Power; blockchain development companies and oil companies respectively)
- Why? They are able to BUY carbon credits from the agricultural industry.
- Collaboration promotes sustainable developments whilst supporting agricultural trade in an urban climate.
- GDP increases (albeit marginal) as private Investment increases, funding increases.
- **WIN-WIN!** Sustainable developments whilst supporting agricultural trade in an urban climate.

The World Bank Incentive Scheme & Net-Zero 2030 Budget

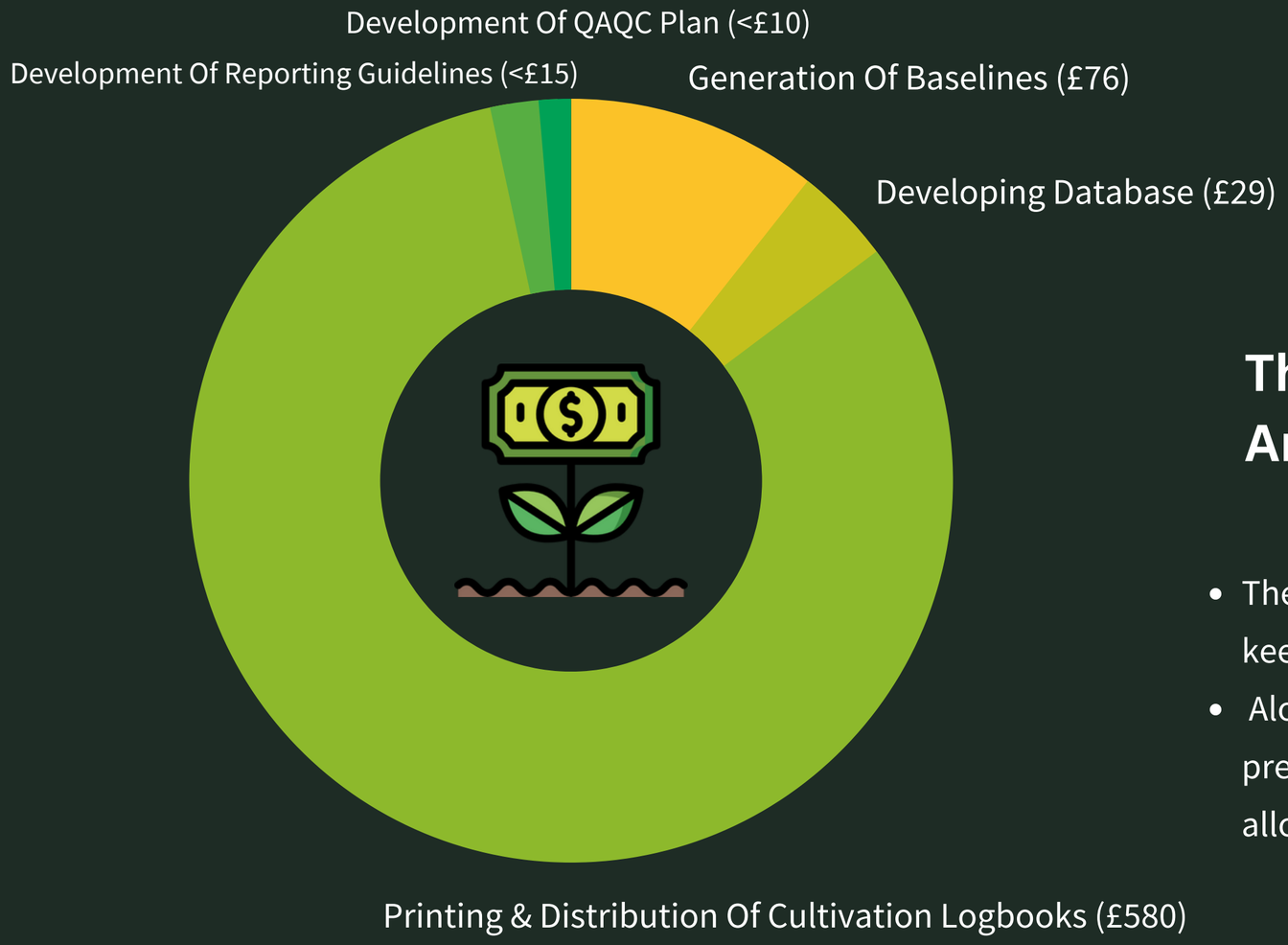
Funding & Budget...

- **$2 billion USD in emissions reduction payments through over 200 ERPAs in 65 countries.**
- Financial incentives will be able to spur government, local communities, private sectors and other stakeholders to participate in climate-smart activities such as recycling programs and further man-power requirements for the said MRV implementation.

- Glasgow’s sustainability Investment budget, ‘Green print for Investment’ amounted to £30bn towards transformative climate investment projects to boost 2030 Net-Zero
- ‘Invest Glasgow’ portion which provides comprehensive business support and guidance to all investors and developers looking to locate their business into the city
- This might spur larger funding for sustainability budgets towards climate change projects AND increase the GDP (albeit marginal) to fund the project.

Expected Investment

The implementation costs of the MRV system implementation vary significantly



The Total Set Up Costs is £711,000
Annual maintenance costs <£45,000

- The use of existing data-gathering and management systems can also keep maintenance costs low after implementation.
- Along with the partnership with domestic institutions as mentioned previously and collaboration, resources and funding can all be efficiently allocated provide a sustainable, low-cost outcome.

***COSTS ARE SHOWN IN '000s and in GBP**

***This is based on an average of 4 countries: Bangladesh, Mexico, Vietnam, India.**

Conclusions

- This scheme is likely to bring further private investment into Glasgow
- It is imperative in fulfiling the city's climate change commitments
- It follows the spirit of the landmark COP26 Glasgow Climate Pact at a municipal level

QUESTIONS?

THANK YOU FOR LISTENING!

Appendices

MRV SYSTEM COST ELEMENTS*	Bangladesh	India	Mexico	Vietnam
AREA COVERED (ha)	215-1,935	3,500-14,100	399-1,600	340-3,060
First-Year (Setup) Costs				
Generation of baselines	$50-75	$100-150	$100-150	$50-75
Developing database	$5-60	$5-60	$20-60	$5-60
Printing and distribution of cultivation logbooks	$464	$2,200	$60	$160
Development of reporting guidelines	< $18	< $18	< $18	< $18
Development of QAQC plan	< $12	< $12	< $12	< $12
TOTAL SETUP COSTS	$549-$629	$2,340-$2,440	$210-$300	$245-$325
Ongoing (Annual) Costs				
Measurement of number of hectares with adoption and sustainable development indicators, training, and data entry	< $20	< $20	< $20	< $20
Report to the UNFCCC	< $10	< $10	< $10	< $10
Peer or technical review of source data and methodologies	< $5	< $5	< $5	< $5
Routine quality control of activity data, calculations, emission factors, etc.	< $10	< $10	< $10	< $10
External verification process for the information reported on the NAMA	< $10	< $10	< $10	< $10
TOTAL ANNUAL COSTS	< $55	< $55	< $55	< $55
TOTAL COST OVER 20 YEARS	$1,600-$1,700	$3,400-$3,500	$1,300-$1,400	$1,300-$1,400
TOTAL COST/T OVER 20 YEARS	$0.05-$0.45	$0.05-$1.25	$0.30-$1.05	$0.01-$0.10

*Costs are shown in thousands (000s) of USD.

Fig 1.0

Graph taken from monitoring, reporting and verification requirements and implementation costs for climate change mitigation activities, Basak R. (2016), p.3

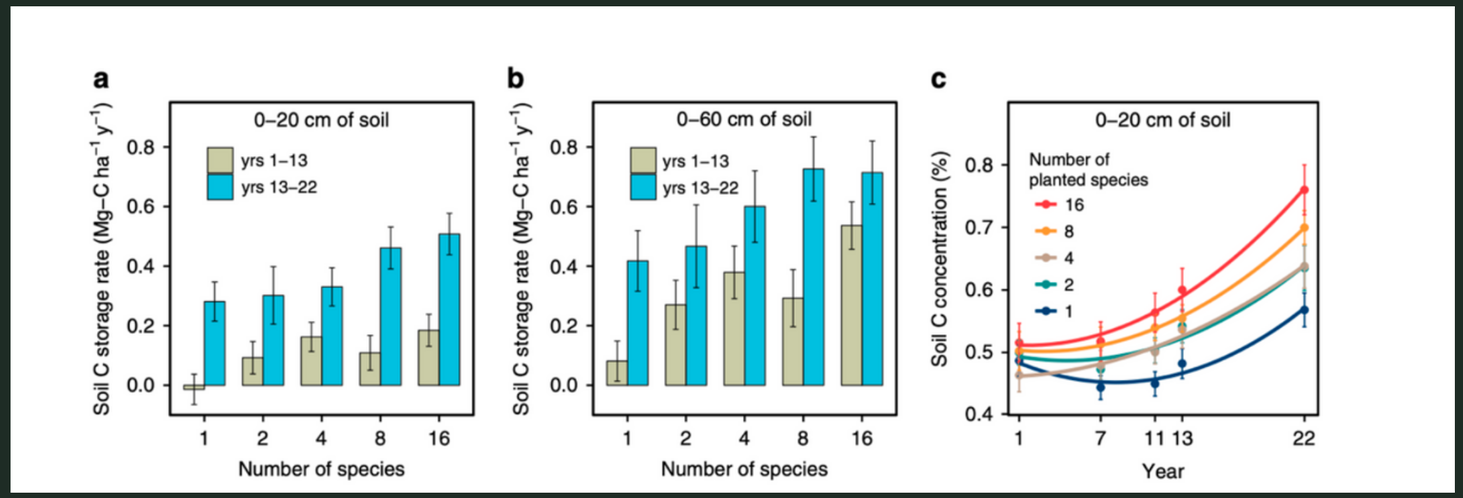


Fig 2.a.

Graph taken from Yang et al (2019), p2, depicting the change in carbon sequestered when new soil speciies are introduced and the overal carbon storage

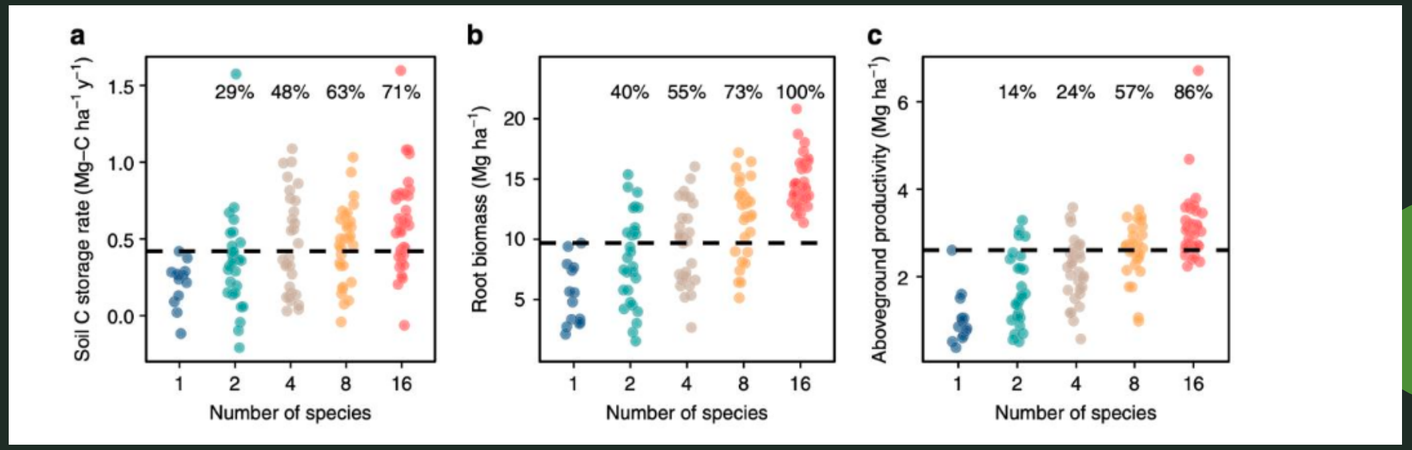


Fig 2.b

Graph taken from Yang et al (2019), p4, correlation of soil maintenance and carbon storage rates

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