DUCHY of CORNWALL

Farm Carbon Consultancy

Soil analysis report

Contact: H Jones

Farm Carbon Toolkit

Farm name: Trendeal Vean
Estate: ARR
Date of sampling: 18th May 2021
Soil type: Clay loam

Nutrient and pH results

Four fields were selected to represent the diversity of the rotations and management at Trendeal Vean. Fifteen random samples were taken per field from a depth of 0 to 30cm depth and bulked. The following four tables provides the analyses of these bulked samples for mineral availability of phosphate, potash, magnesium oxide and also pH. The guide values provide the standard agronomic reference range, and interpretation gives a rough guide to each nutrient level at the time of sampling in May 2021.

Hilly Slad (4986 + 6884) – Temporary pasture				
Analysis	**Index**	**mg/l or pH**	**Guide**	**Interpretation**
P	1	15	16-25	Low
K	1	93	121-180	Low
Mg	2	58	51-100	Normal
pH		6.2	6.2	Normal

24 Acres (6300 + 8900) – Stubble into broccoli				
Analysis	**Index**	**mg/l or pH**	**Guide**	**Interpretation**
P	3	27.2	16-25	High
K	2-	140	121-180	Normal
Mg	1	47	51-100	Low
pH		6.1	6.2	Normal

Ivon Hoe (7622) – Winter wheat with barley shooting cover				
Analysis	**Index**	**mg/l or pH**	**Guide**	**Interpretation**
P	2	16.2	16-25	Normal
K	1	65	121-180	Low
Mg	2	55	51-100	Normal
pH		6	6.2	Normal

3 Acres (4100) – Permanent pasture				
Analysis	**Index**	**mg/l or pH**	**Guide**	**Interpretation**
P	1	15.2	16-25	Low
K	2-	122	121-180	Normal
Mg	2	65	51-100	Normal
pH		5.7	6.2	Low

The indices reported come from the Defra Index scale and are dependent on the concentration of nutrient within the soil sample.

The pH results are classified into 5 categories; these are strongly acid (less than 5.5), slightly acid (5.5 – 6.5), neutral (6.5 – 7.5), slightly alkaline (7.5 – 8.5), strongly alkaline (more than 8.5).

Analysis for soil organic matter

The following table provides the soil organic matter and bulk density for the three soil depths: 0-10cm, 10-30 cm and 30-50cm. As a rough guide soil organic matter levels should be above 6% but this varies with soil type. Soil organic matter has been analysed at three different depths within the soil. The analysis has been completed by Forest Research using the loss on ignition method. Bulk density is the weight of soil in a given volume. Bulk density can be used as an indicator of soil compaction and levels are expected to be less than 0.65g/cm^3 although they will normally increase with soil depth. Sandy soils are more prone to a higher bulk density.

	Soil organic matter %			**Bulk density g/cm^3**		
Field	0-10cm	10-30cm	30-50cm	0-10cm	10-30cm	30-50cm
Hilly Slad (4986 + 6884)	7.7	7.3	5.0	0.70	0.55	1.37
24 Acres (6300 + 8900)	7.0	6.8	6.04	0.68	0.75	1.40
Ivon Hoe (7622)	6.7	6.4	5.1	0.68	0.65	0.87
3 Acres (4100)	13.7	11.8	7.0	0.88	0.58	1.06

Soil Carbon results

We have calculated the carbon yield of your fields based on the bulk density and soil organic carbon percentage. The calculation for the amount of carbon held within your fields is to multiply 1ha by the depth of soil (0-10cm, 10-30cm or 30-50cm), the bulk density and the soil organic carbon percentage (calculated as SOM% divided by a correction factor of 1.72). This gives the amount of carbon in tonnes/ha in your soil at each depth. An estimate of the total carbon held within the soil of each field area is also provided in the last column table.

	Soil Carbon Yield (tonnes/hectare)			
	0-10cm	10-30cm	30-50cm	Total across all depths for field area
Hilly Slad (4986 + 6884)	31.5	46.5	79.7	1220
24 Acres (6300 + 8900)	27.7	59.4	77.9	1563
Ivon Hoe (7622)	26.4	48.7	51.7	724
3 Acres (4100)	70.1	79.7	86.1	281

Additional test results

Three points in each field were selected to look at a range of other indicators that relate to soil structure and overall soil health.

VESS score – a scoring system which rates the soil in terms of its structural condition from 1 (friable and good structure) to 5 (very compact and impacting on plant root growth and function). The VESS scores are divided up into top and bottom as the topsoil and subsoil were looked at and rated in terms of their structure.

Worms - were counted from a soil pit that was 20cm x 20cm x 30cm deep. All the worms present in the soil sample were counted. The higher the value the more worms were present. It should be noted that at the time of sampling soils were very dry, which results in the worm counts being low. Under dry conditions, worms generally burrow deep within the subsoil and could have been deeper than 50cm depth.

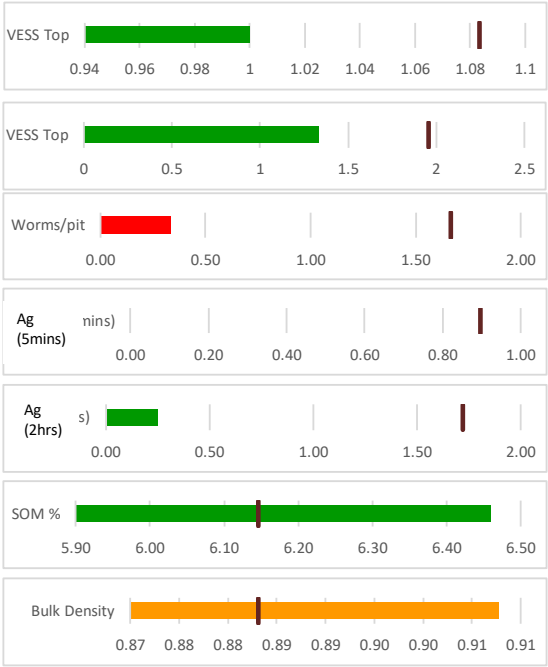
Ag – This stands for aggregate stability and is thought to be a good indicator of biological activity in soil. A handful of soil from each pit was taken away and air dried. Once dry, four lumps of soil are submerged in water and assessed for how well they hold together after 5 minutes and then again after two hours. The lumps of soil are scored using a scale of 0-4 with 0 being good and the lump remaining intact and 4 the score when the lump breaks down to fine fragments.

Soil Analysis Report

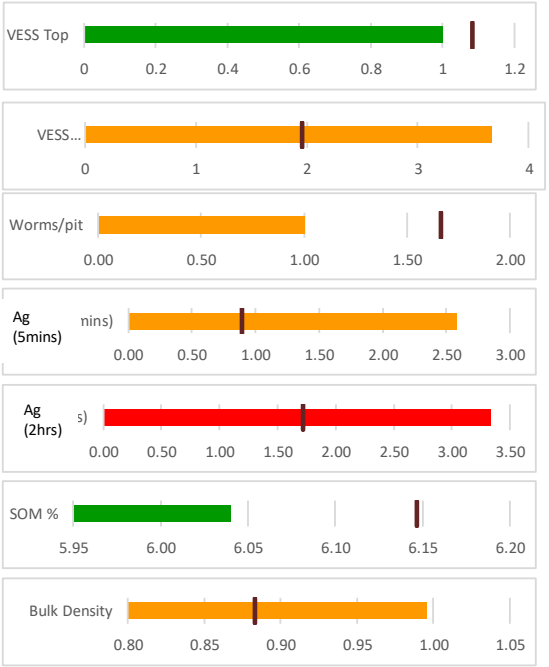
Contact: Trendeal Vean

Your Measurements | Project Average Values

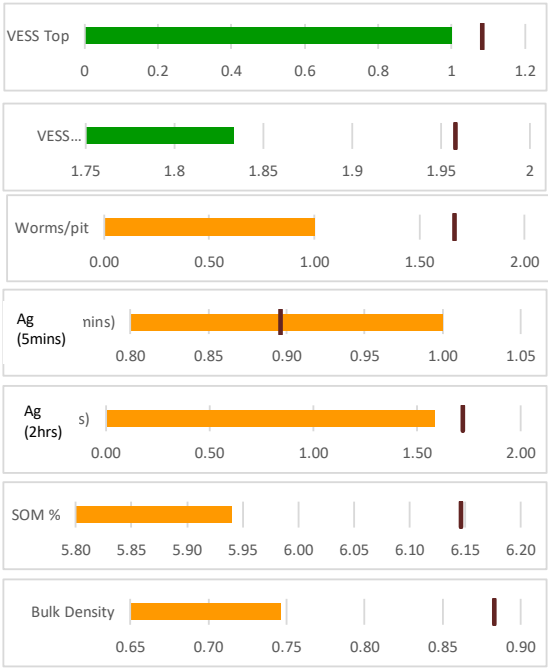
Trendeal Vean Hilly Slad (4986 + 6884)



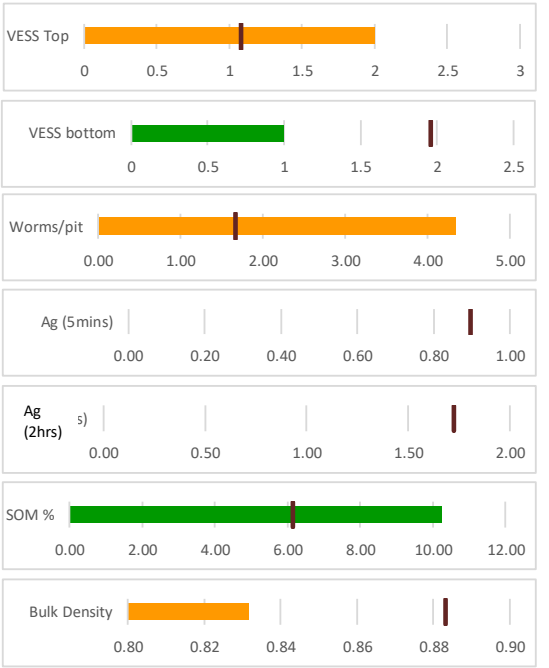
Trendeal Vean 24 Acres (6300 + 8900)



Trendeal Vean Ivon Hoe (7622)



Trendeal Vean 3 Acres (4100)



Farm Carbon Consultancy

This report was completed by Farm Carbon Consultancy Ltd.

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