

Transitioning to a more sustainable way of farming



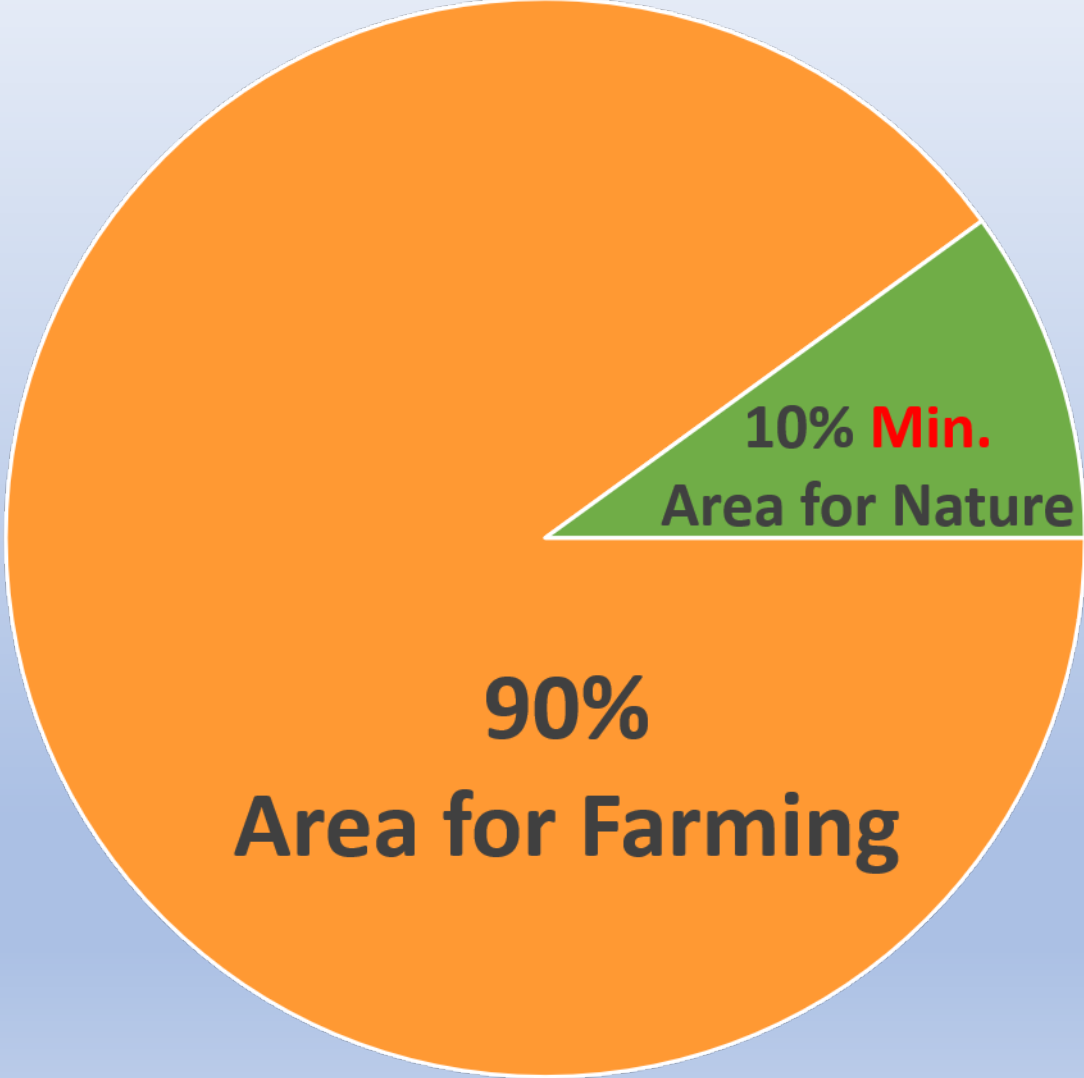
Fertilizer Association of Ireland
Annual Spring Seminar, 2nd February, 2021
Donal Sheehan, dairy farmer, East Cork

“Sustainable”

- The word sustainable, means that ‘we have considered - and will continue to consider - the long-term net consequences on the natural environment (locally and globally), as well as on our personal and social well-being, choosing a route that is most likely to give the best possible outcome.’
- The word *sustainable* means we have considered the following:
- **the long-term net consequences, locally and globally, on the natural environment that includes air, soil, water, habitat and biological diversity**
- **the long-term net consequences, locally and globally, on personal and social wellbeing**



EU Green Deal / Farm to Fork





Hedgerows – 4560m²



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Field Margins – 6076m²



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Wild Bird Cover – 4815m²



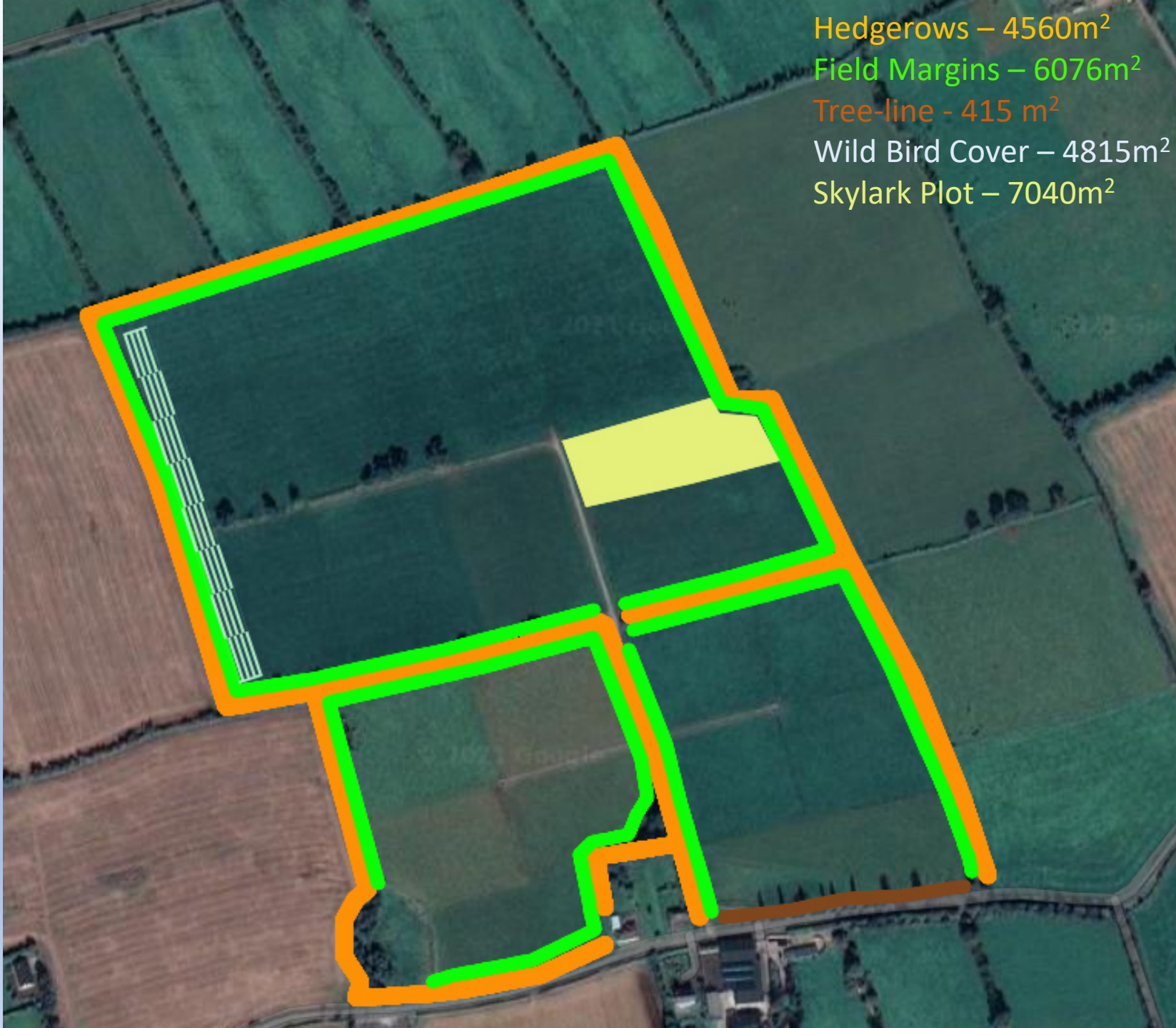
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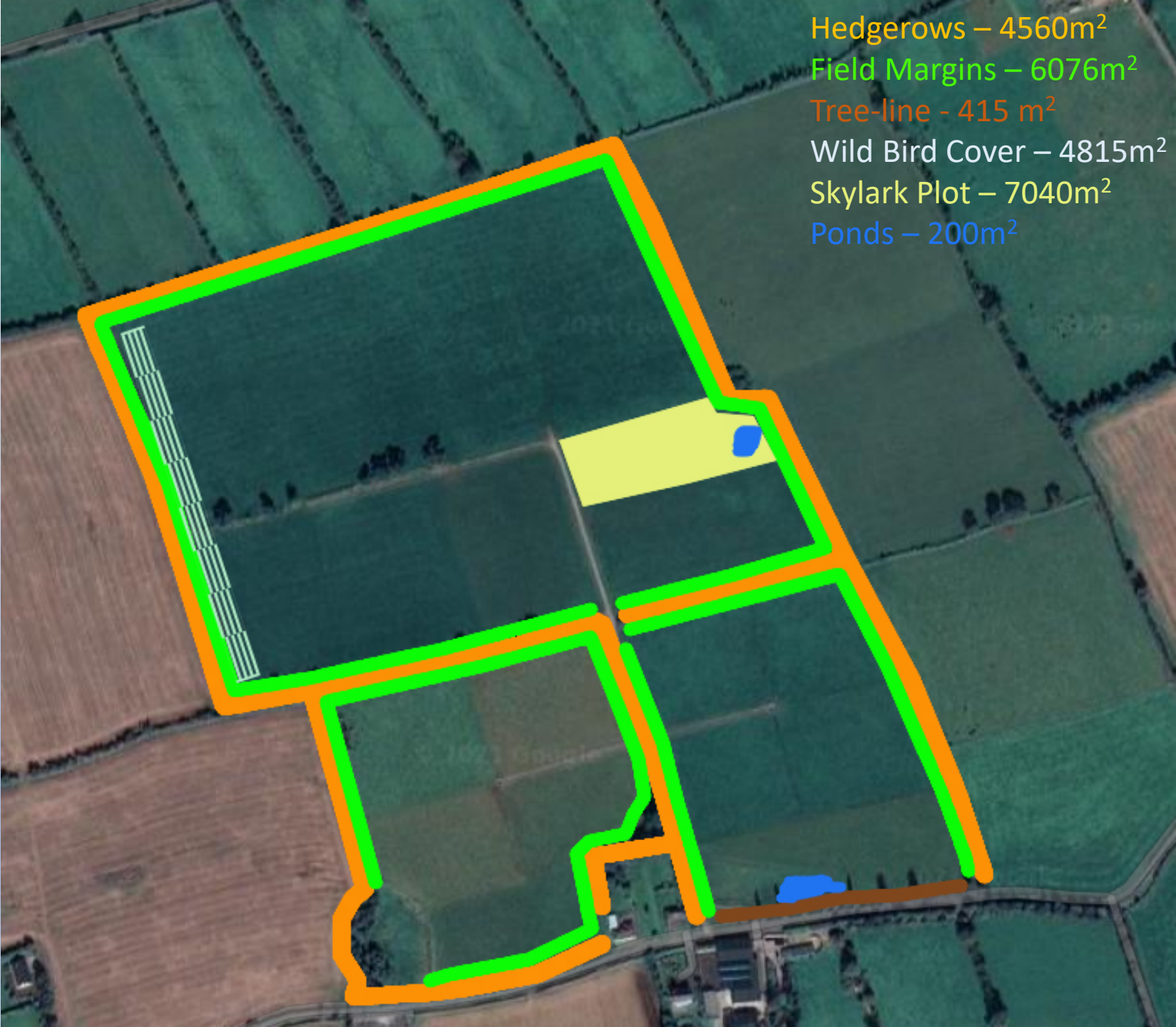
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Skylark Plot – 7040m²





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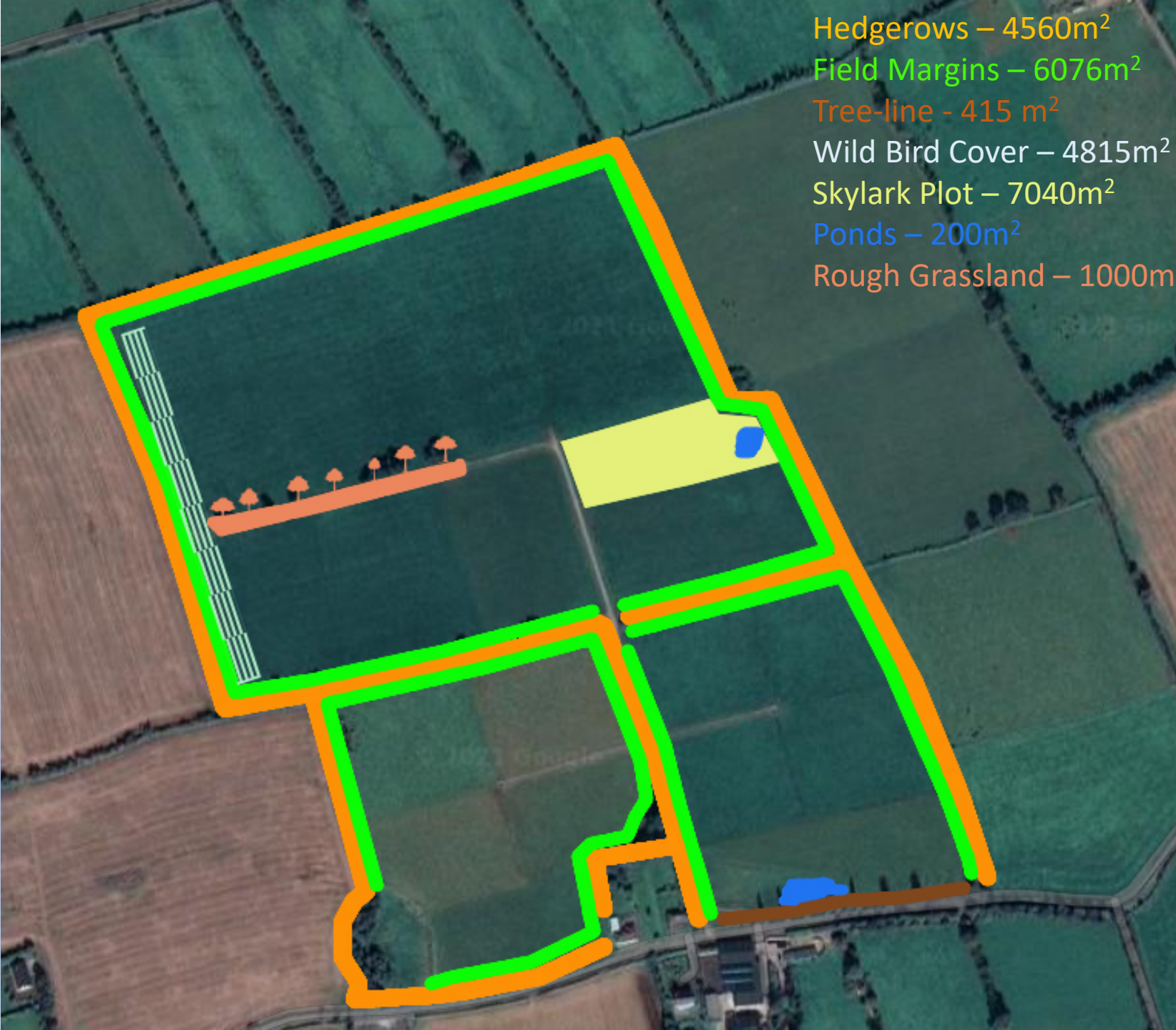
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Rough Grassland – 1000m²



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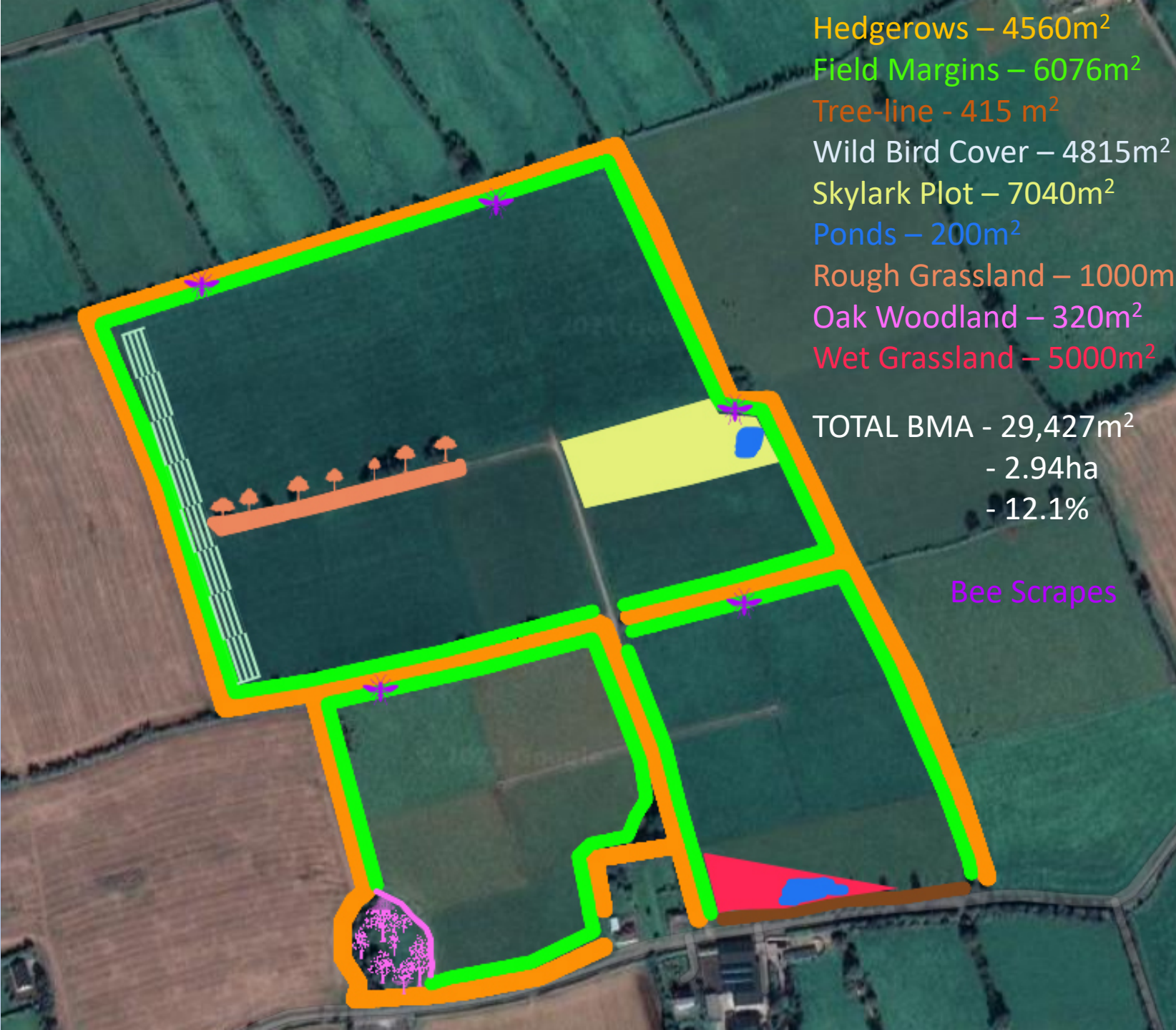
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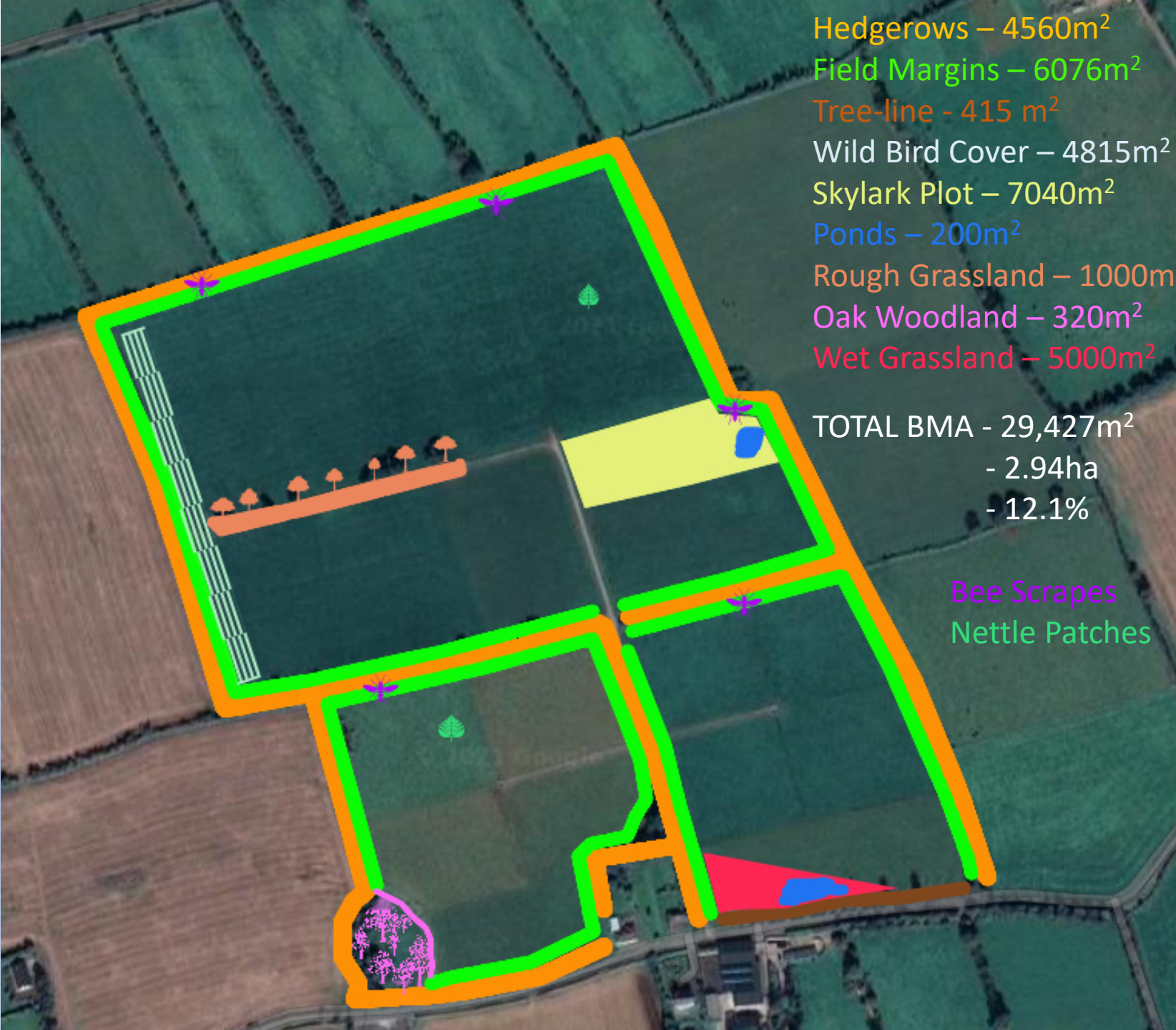
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- 2.94ha
- 12.1%



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Bee Scrapes

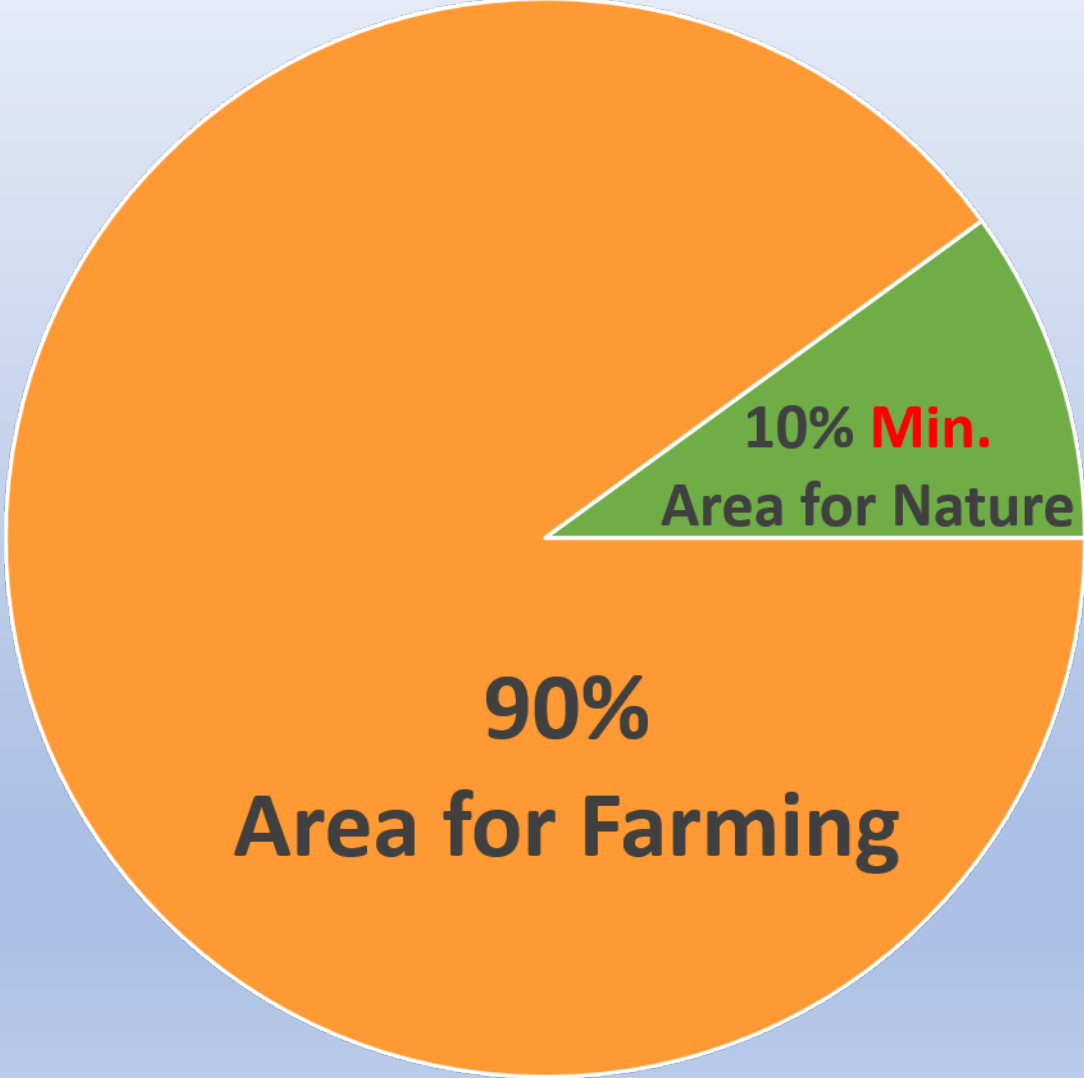


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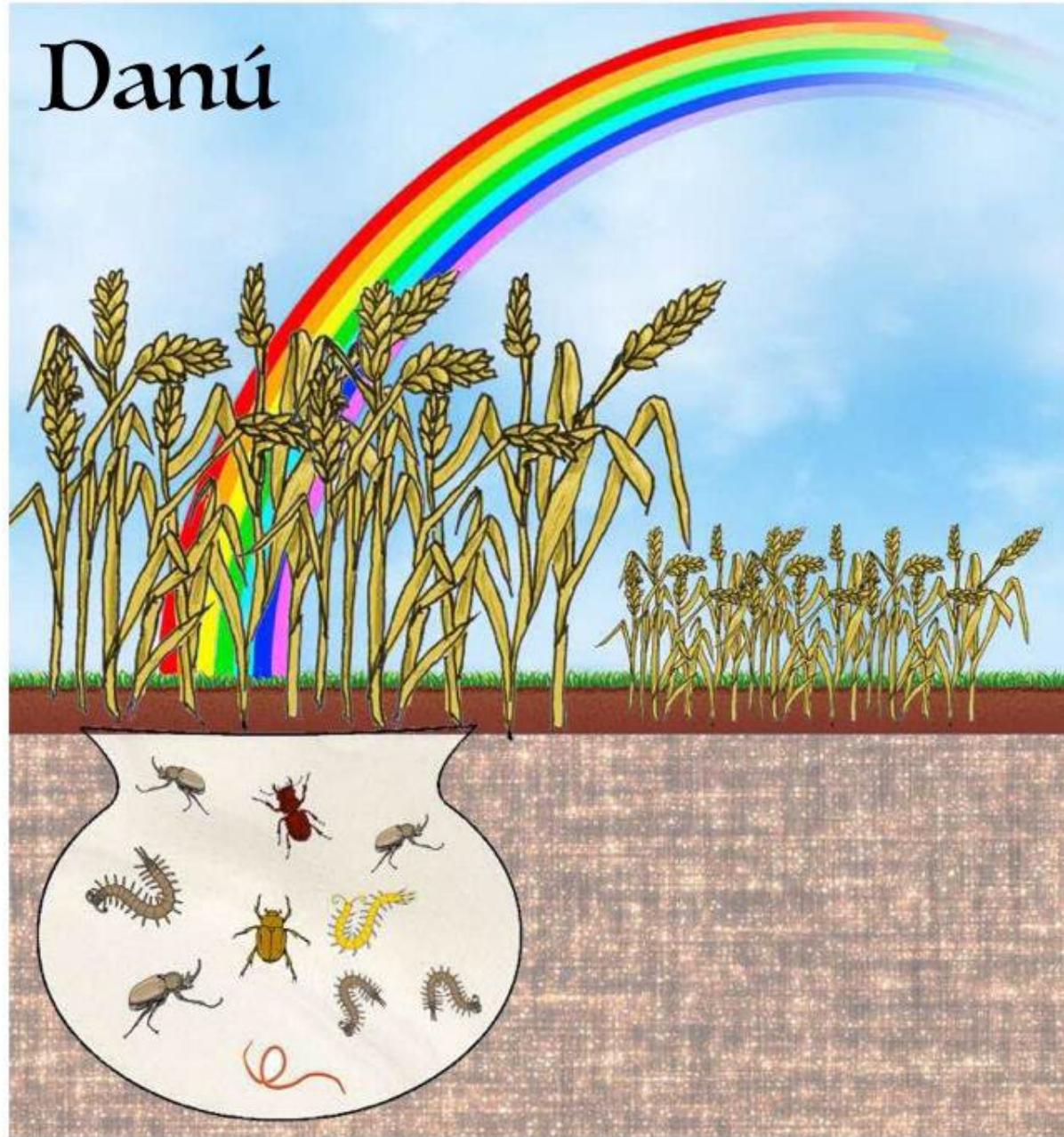
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Bee Scrapes
Nettle Patches

EU Green Deal / Farm to Fork



Danú



Nurturing nature's abundance



Soil Analysis Detailed Report

Johnstown Castle, Wexford
 Phone: 053-9171200
 Email: soilsampleinfo@teagasc.ie
 www.teagasc.ie

Client	Advisor	Sample Details	
#Blossom Farm Ltd	Mr. Edmond Moakley - (OFB)	Service No:	Soil 1
Ballyarra Castletelyons Co.Cork	Teagasc, Moorepark, Fermoy,	Field No./NMP	HOME BOREEN 1,2
Co.Cork	Co. Cork.	Enterprise	Dairy (D)
		Received/Authorised	30 Jan 2018 / 09 Feb 2018
		Land Parcel No.	D378
		Sample ID	294

Nutrient Test Results - On Mineral Soil - Good Permanent Grass Nutrient Advice - No
Org. Manure

Soil Index								
Nutrient	Result	Very Low (1)	Low (2)	Medium (3)	Sufficient (4)	/ha	/ac	
pH	6.6						XSL	XSL
N						0 kg	0 units	
P	4.2 mg/l					0 kg	0 units	
K	89.4 mg/l					0 kg	0 units	
Mg								
SMP pH	7							
Soil Nutrient Supply		Very Low	Low	Medium	Sufficient			

Nutrient	Laboratory Comments
LR - Lime Requirement	
P - Phosphorus	Insufficient stocking rate information to give nutrient advice.
K - Potassium	Insufficient stocking rate information to give K nutrient advice.
Magnesium (Mg)	

Advisor Comments / Field Advice

Miscellaneous Notes

Insufficient information to give nutrient advice.
 XSL = excess lime mg/l = milligrams per litre ppm = parts per million mg/kg = milligrams per kilogram SR – Stocking Rate
 kg/ha x 0.8 = units/acre (e.g. 100kg x 0.8 = 80 units/acre) tonnes/ha x 0.4 = tons/acre litres/ha = gallons/acre x 11 (e.g. 3,000 gallons/acre x 11 = 33,000L/ha or 33m³ /ha). P, K and Mg by Morgan's extraction method

This advice is given for the area sampled and is based on test results from a Teagasc selected laboratory and on the information supplied with the soil sample. Do not exceed N & P limits as set out in the NAP on a whole farm basis. Teagasc cannot be responsible for any losses which occur from the use of this report.



SSM Soil Advisor: Padraig Shevlin
Facts Fertiliser Advisor: Padraig Shevlin FE/5488

Field ID: 15-19 0 Ha CROP SOWN: No Crop Given

Active pH 6.40 A slightly acidic soil. Very good crop responses.	Consider Req: Crop pH	Total Exchangable Capacity (TEC)	A key measure of the soil's ability to hold & exchange soil nutrients. 6 = small, 40 = large.	Result 9.16	Estimated Soil Type light coloured Sand
Buffer pH 7.00					Dry bulk density t/m ³ 0.982
Organic Matter Min >3% 6.70		Levels helping soil structure and nutrient holding capacity		Estimated NR 79 kg of NR from OM	
Organic Carbon ideal >5% 3.93		Maintaining organic Carbon is essential for sustainable farming.		T/C/ha Target 75 Found 58 T/C/ha	

OM pH and CEC

pH pH adjustment recommendations would depend on the crop type, some adjustment may benefit some crops.
Calcium Calcium levels are within the acceptable range
Magnesium Magnesium levels in the soil solution need to be increased to ensure adequate availability to the crop.
Potash Potash is low and should be increased appropriately, this could affect potassium : sodium ratios.
Sodium Sodium levels are elevated against our guides. Sodium should be monitored as part of a program, or raise potash if it is low
Phosphates Apply phosphate in an acceptable product type for the soil's pH; include a soil phosphate build factor if possible.
Sulphates Low levels of sulphate in reserve; look to build soil levels if possible. ?N:S ratios

Summary

Base Cation Saturation figures

Major Elements in Elemental form	CROP AVAILABLE NUTRIENTS			TOTAL IN SOIL RESERVES		% Base Cation Saturation Ratios (BCSR)	
	kg/ha DESIRED	kg/ha Found	Difference	ELEMENTAL kg/ha	DESIRED	FOUND	
Calcium (Ca)	2771	2955	184	4518	67.50	71.98	
Magnesium (Mg)	308	253	-55	2524	12.50	10.28	
Potassium (K)	300	271	-29	2070	3.70	3.39	
Sodium (Na)	42	36	-6	84	0.89	0.76	
Other elements	7%	3.10		Minor Importance	7.41	3.10	
Σs	8%				8	10.5	
sulphur	28	10.43	-18	756			
Morgan Phosphate	35	15	-20	1486			

Cation Ratios

	RATIOS : 1	Target level	Found	Structural comments	Plant health comments
Calcium	Ca : Mg	5.40	7.0	Ideal bulk soil structure	Magnesium is low.
Magnesium	Mg: K	3.38	3.04	Soil should be workable.	Increase solution magnesium.
Potassium	K : Mg	0.97	1.07	Some crops may have problem getting Mg.	Potash should be increased.
Potassium	K : Na	4.15	4.46	Sodium levels OK.	Limited issues from Na.

Sodium

Electrical Conductivity & Total Desolvable Salts	EC/TDS 0.00	Sodium Adsorption Ratio Guide <4 0.11	Estimated Sodium Potential (ESP) Guide result <6 0.76	Na : K ratio OK Na should be lower than K ratio OK
	This has not been tested			

Biology

Phosphorus	1.04 % 5-8	Poor soil phosphate functionality. Consider why phosphate is functionality is low.
C:P ratio	39.0 40to1	Reduced soil humus reserves.. can lead to poor phosphate functionality.
pH	6.40	A good biological environment.
Organic Carbon	3.93 %	A measure of the functioning of the soil carbon. Aim for soil carbon to be above 5%

Trace Elements

Predicted availability of trace elements	Found	Guides	IMPLICATIONS	Treatment
Boron B mg/l	1.00	1.2-2.4	Low poor N & Ca Utilisation, effect on Meristem growing points	
Iron Fe mg/l	301.00	18 - 189	Excessive; potential consolidation; poor biology. Investigate.	reduce levels
Manganese Mn mg/l	96.70	18 - 70	High, watch relationship with Ca,Fe and low soil pH.	
Copper Cu mg/l	2.20	2.5 - 7	Very low; increased disease risk; blind grain sites; animal health issues.	
Zinc Zn mg/l	2.50	4 - 10.	Very low, plant health. And rooting concerns.	
Chlorine Cl mg/l	30.00	9-20.	Negative effect on soil biology. and clay.	
Iodine I mg/l	0.00	1	Not reported.	
Molybdenum Mo mg/l	0.50	0.5-0.7		
Cobalt Co mg/l		0.5-2.		

Index Figures

Standard UK index to ISO/JEC 17025-2005		Morgan / Reams		Modified Morgan	
mg/l	Index	Buffer pH	Index	Mg/l	Index
10.3	1	Phosphorus	1	3	Phosphorus 0 0
114	1	Potassium	2	89	Potassium 0 0
106	3	Magnesium	4	109	Magnesium 0 0
		Calcium			
		Organic Matter	6.7		Organic Matter 0
					Standard testing method for Europe

PENERGETIC IRELAND

0
0
0

0
0



Sample No: Q23804
LAB No: 107614
Sample DATE: 15/01/2021
Report DATE: 00/01/1900

SSM Soil Advisor Padraig Shevlin 0
Facts Fertiliser Advisor Padraig Shevlin FE/5488

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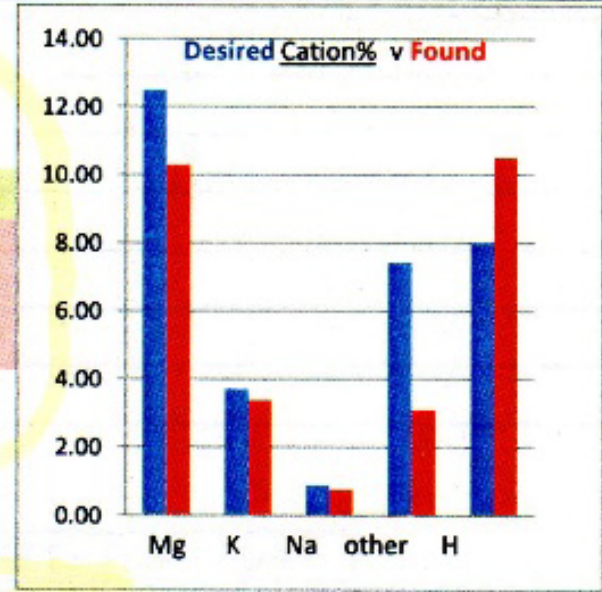
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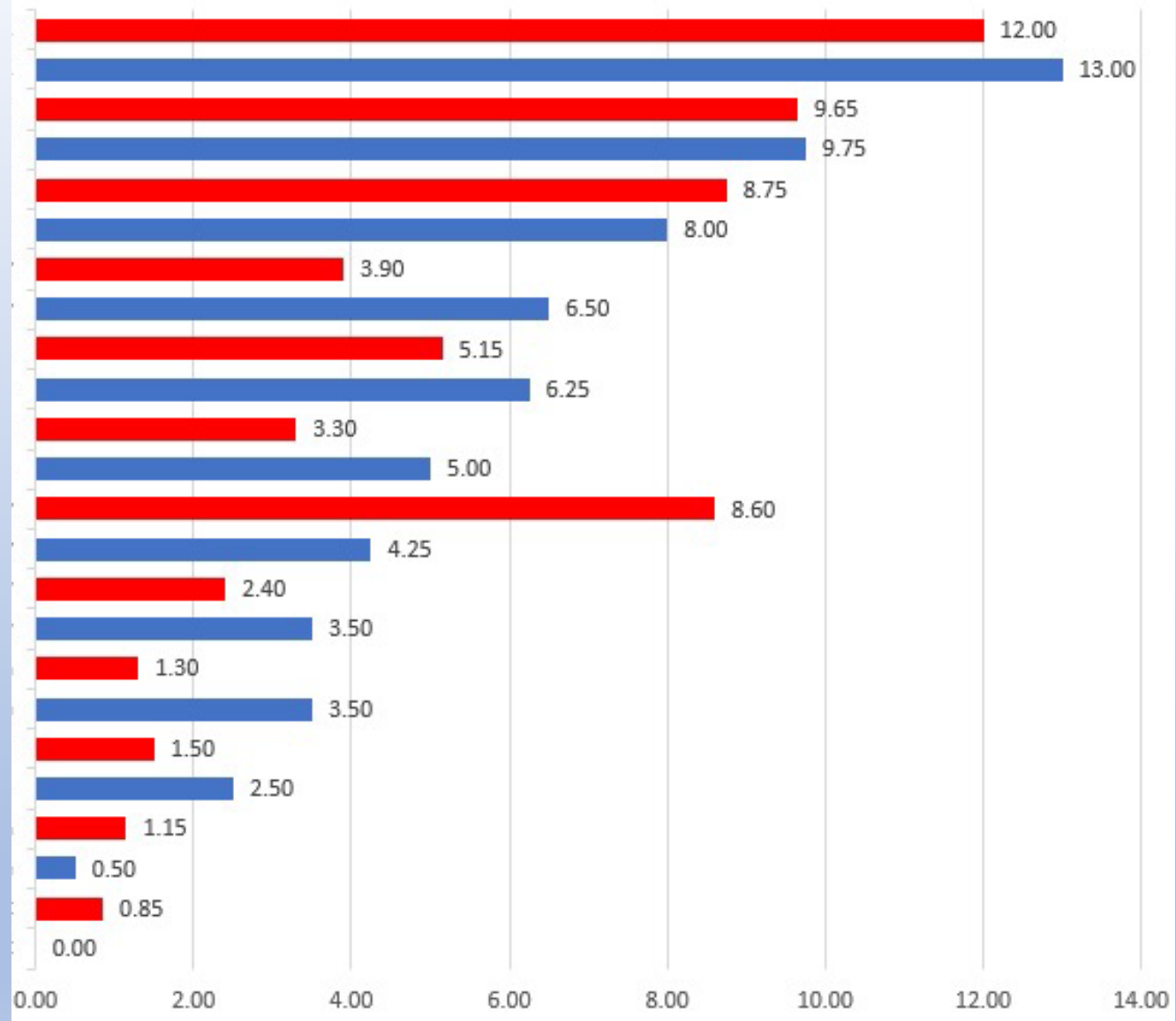


General comment on Calcium

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No of Earthworms











BRIDE PROJECT EIP

Farming with Nature - RBP Score Card

Habitat No. 22

RIPARIAN BUFFER (Bride river) (Max Score = 100)

Date checked : **Annually**

1. % of Buffer 3+ metres			
<30%	30-60%	61-90%	>90%
0	10	30	70

2. Free from Disturbance	
No	Yes
See below	20

3. Cover of Invasive Species (%)			
> 50%	25 - 50%	10 - 25%	<10%
0	2	5	10

Invasive Species
Giant Hogweed
Himalayan Balsalm
Japanese Knotweed
Laurel
Travellers Joy
Bracken

Disturbance	Point Deduction
Livestock Access	Autofail
Farmyard Runoff	Autofail
Pesticide Application	Autofail*
Fertiliser Application	Autofail
Slurry Application	Autofail
Dumping/Spoil	Autofail

* Unless under the guidance of the ecologist





Multi-species Sward



Summary

Changes made to improve environmental sustainability

- Increased stock numbers but decreased stocking rate
- Changed from splash plate to low emission slurry spreading
- Incorporated slurry additive to winter slurry
- Reseeding now with multi-species sward
- Targeted nutrient use for individual fields, now based on Albrecht soil test
- Increased focus on improving soil biology and reducing excessive nutrients including utilising available nutrients in the soil
- Protected urea?
- Possibly changing over to liquid nitrogen use rather than granular