Chelmsford Monitor Farm – Organic Matter Try-Out

Christy and Hew Willet, Chelmsford Monitor Farmers, are keen to investigate how high organic matter can be raised using a range of treatments on a field of their farm, during their Monitor Farm three year period.

A range of treatments will be tested including sewage sludge, compost, turkey manure and a grass ley, along with a control strip. A baseline set of measurements will be taken, to include physical and biological soil analysis. The field will then be monitored over the next three years using a range of parameters including soil analysis, earthworm numbers, yield etc to analyse their effectiveness at improving organic matter.

The results from the try-out will be shared with the Monitor Farm group and the industry.

<u>Try-out Details</u>

Field: Brookfield

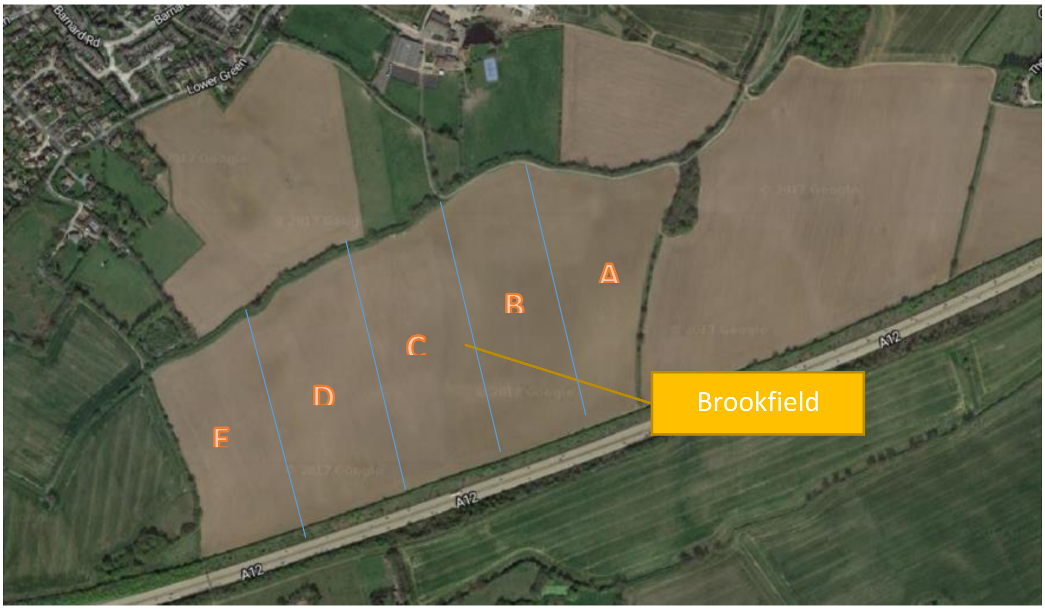
Size: 28ha

Soil Type: Clay Loam

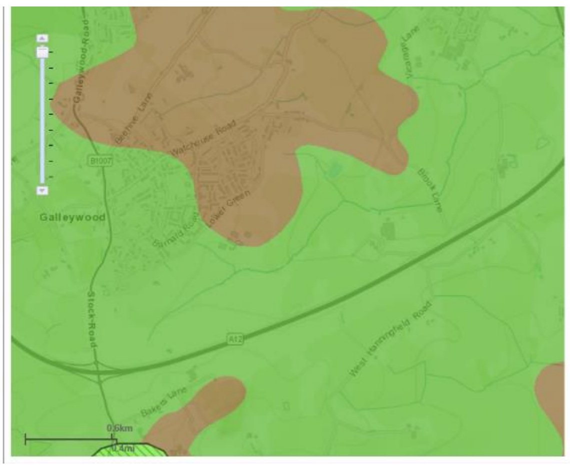
Previous Crop: Beans

Maps:

Field Location:



Soils Map and Description (Cranfield University):



Soilscape description:
Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils

Texture:
Loamy and clayey

Coverage:
England: 19.9% Wales: 2.4% England &Wales: 17.5%

Drainage:
Impeded drainage

Fertility:
Moderate

Habitats:
Seasonally wet pastures and woodlands

Landcover:
Grassland and arable some woodland

Carbon:
Low

Drains to:
Stream network

Water protection:
Main risks are associated with overland flow from compacted or poached fields. Organic slurry, dirty water, fertiliser, pathogens and fine sediment can all move in suspension or solution with overland flow or drain water

General cropping:
Mostly suited to grass production for dairying or beef; some cereal production often for feed. Timeliness of stocking and fieldwork is important, and wet ground conditions should be avoided at the beginning and end of the growing season to avoid damage to soil structure. Land is tile drained and periodic moling or subsoiling will assist drainage

Baseline Soil Sampling

The results from the soil sampling completed as a baseline can be seen below:

FIELDREF	Calcium (ppm)	Magnesium (ppm)	MG_INDEX	Manganese (ppm)	Boron (ppm)	Copper (ppm)	Molybdenum (ppm)	Iron (ppm)	Zinc (ppm)	Sulphur (ppm)	Phosphorus (ppm)	P_INDEX	Potassium (ppm)	K_INDEX	Sodium (ppm)	Org. Matter - DUMAS (%)	pH	Lime Req. (t/ha)	Silt (%)	Clay (%)	Sand (%)	SClass	C.E.C. (meq/100g)	Texture - Lime
BROOKFIELD A	3010	190	4.1	27	1.36	5.4	0.12	751	3.9	4	15	1.9	168	2.3	36	3.6	6.4	3	49.21	19.58	31.21	CLLO	19.5	LO
BROOKFIELD B	4071	106	3	54	1.89	7.3	0.32	630	5.3	4	13	1.5	153	2.2	27	3.3	7.3		52.37	22.69	24.94	CLLO	21.6	
BROOKFIELD C	3553	139	3.5	61	1.44	6.3	0.14	639	4.1	2	12	1.4	157	2.3	34	2.8	6.8		53.29	24.06	22.65	CLLO	23.2	
BROOKFIELD D	2943	118	3.2	59	1.14	5.8	0.12	639	3.9	2	12	1.4	154	2.2	27	2.7	6.6		48.54	28.93	22.53	CLLO	20.1	
BROOKFIELD E	3565	165	3.8	55	1.48	6	0.21	719	4.2	1	12	1.4	168	2.3	26	3	7.1		48.82	21.88	29.3	CLLO	21.6	

Treatment Applications and Cropping – Harvest 2018

The first applications applied to Brookfield are as shown below:

	Harvest 2018			
	Treatment Applied – Harvest 2018	Application Rate (t/ha)	Date Applied/Sown	Cropping Harvest 2018
Brookfield A	Sewage Sludge	20t/ha	21/9/2017	Winter Wheat Drilled: 06/10/17
Brookfield B	Turkey manure	20t/ha	21/9/2017	Winter Wheat Drilled: 06/10/17
Brookfield C	Green Waste Compost	20t/ha	21/9/2017	Winter Wheat Drilled: 06/10/17
Brookfield D	N/A – Control	N/A	N/A	Winter Wheat Drilled: 06/10/17
Brookfield E	Grass Ley (Ryegrass)	Seed: 35kg/ha	24/9/2017	Grass Ley Drilled: 24/9/2017