THE SAXMUNDHAM EXPERIMENTAL SITE

The Saxmundham Experimental site, in Suffolk, aims to measure the response to crop and soil properties from the application of granular and foliar phosphate and potassium mineral fertilisers, manures, and organic amendments. The experiment started in 1899 with some original treatments unchanged while some newer treatments more relevant to modern nutrient management were introduced in 2019 (Figure 1).

Most treatments are at their target indices for P with the P, PK and FYM plots Index 2 and above with K and Untreated between Index 0 and 1 (Figure 2). In 2022 the GWC and P_LK plots were at target Index 1.

As the soils at Saxmundham are naturally K releasing all plots are an Index 2- and above for soil K, with only limited crop response to K recorded.

Soil Organic Matter is significantly higher in the FYM plots compared to all other treatments (Figure 3). Although FYM plots only record a 0.8% increase compared to PK it is important to put this into context. This is a 19% relative increase. Assuming a bulk density of 1.2 g/cm^3 this equates to an additional 19.2 t/ha of organic matter in the top 20cm of soil. After 120 years of FYM applications the soil has likely reached a new equilibrium.

How these properties impact wider soil properties, crop growth yield and grain nutrient content can be read in the annual report found on The Morley Agricultural Foundation website.

THE MORLEY AGRICULTURAL FOUNDATION

Figure 1. Current treatment list and target soil indices

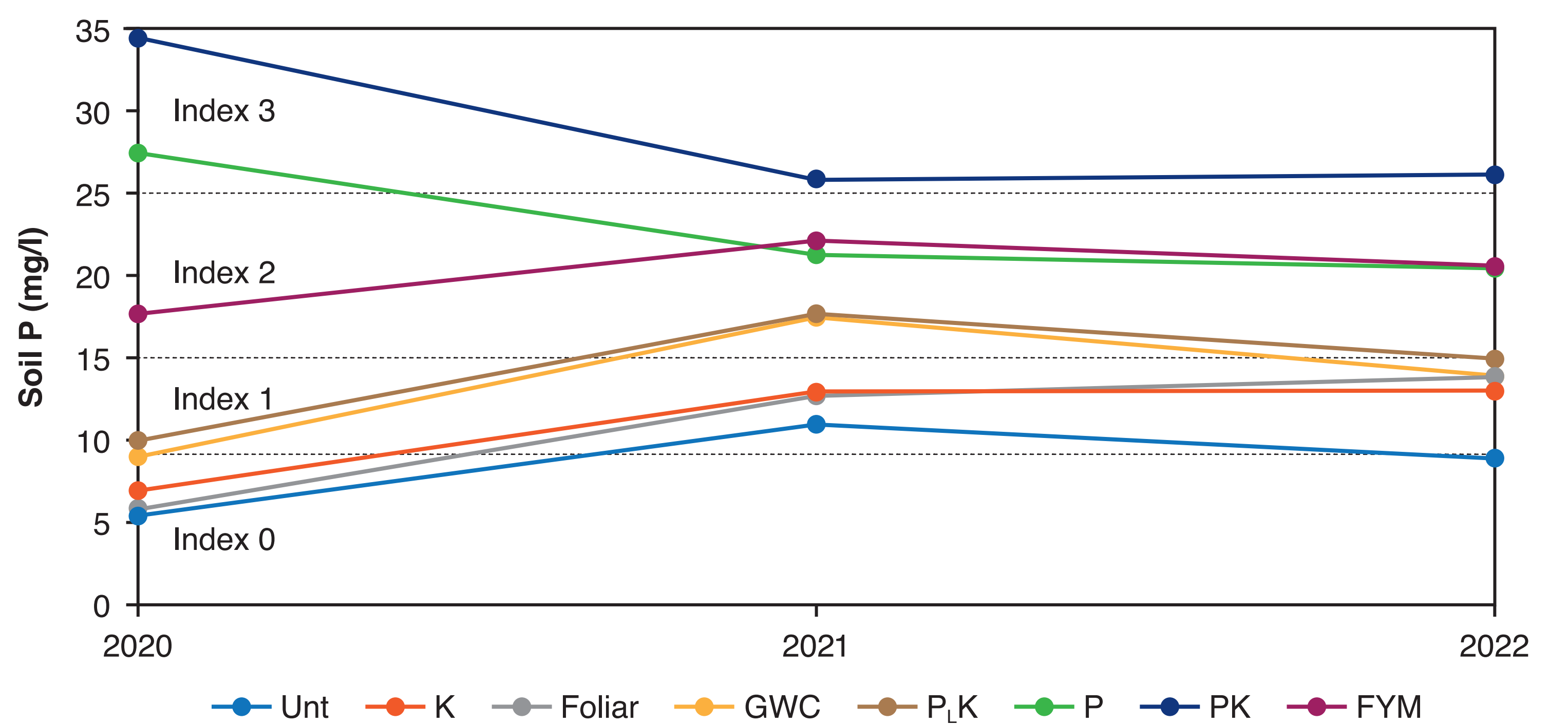| Treatment	Annual application	Target P	Target K
Unt	–	0	0
FYM	25 t/ha	2	2+
GWC	~18 t/ha (dose to match FYM organic matter additions)	1	2+
Foliar	4 applications of Folex P (15 l/ha, 14% N, 46% P_2O_5)	0	2+
P	P_2O_5	2	2+
K	K_2O	0	2+
PK	$P_2O_5 + K_2O$	2	2+
P_LK	$P_2O_5 + K_2O$	1	2+

Figure 2. Soil P since treatment update in Autumn 2019

Figure 3. Soil organic matter levels since treatment update in Autumn 2019

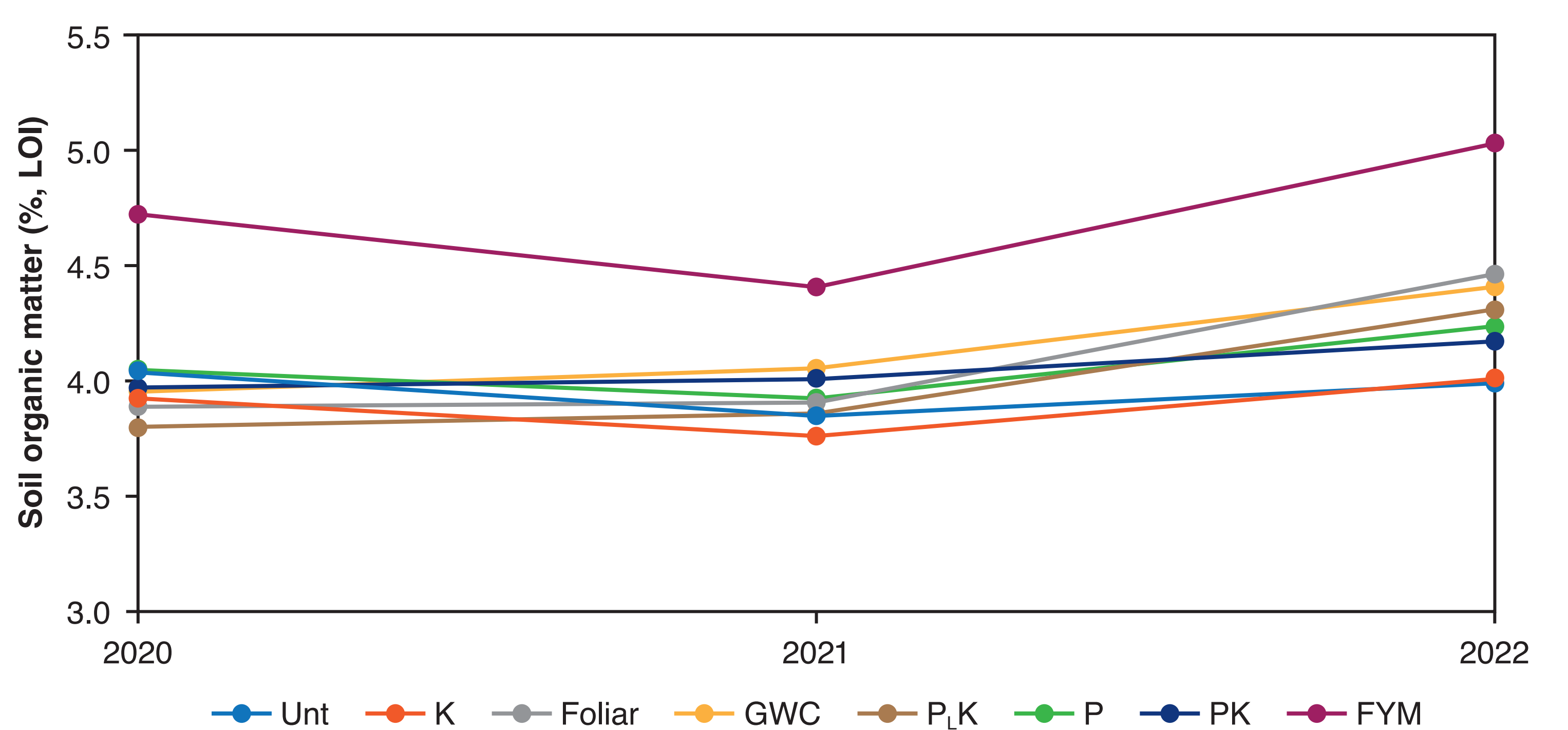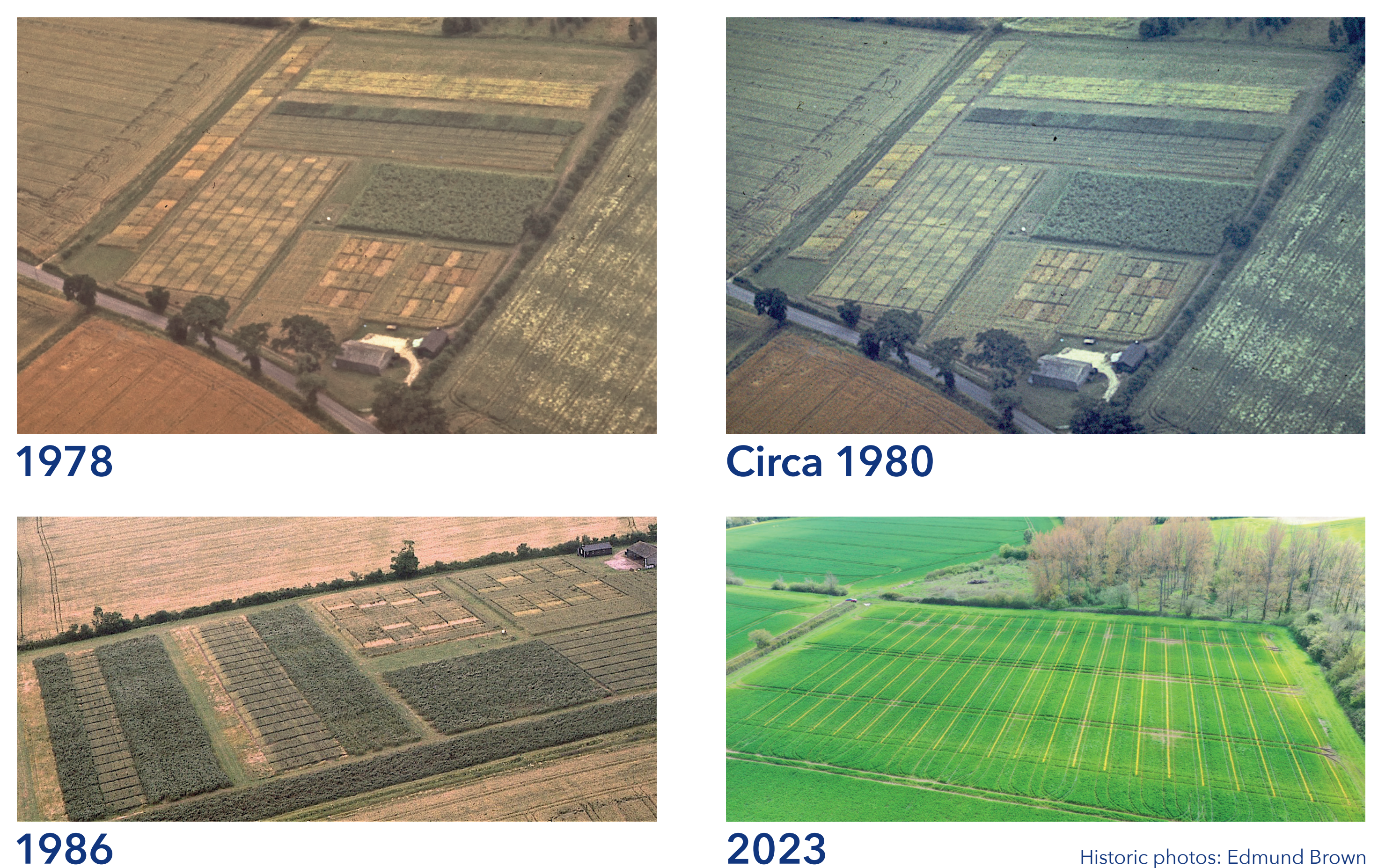## Figure 4. Saxmundham site through the ages

1978

Circa 1980

1986

2023

Historic photos: Edmund Brown