

# SAXMUNDHAM: 125 YEARS OF PHOSPHORUS MANAGEMENT

Established in 1899, the Saxmundham Experimental Site in Suffolk is the third-oldest agricultural experiment in the UK. It was originally set up to demonstrate to growers that the then-modern mineral fertilisers were just as effective as traditional applications of farmyard manure (FYM). Since then, the experiments with those at Rothamsted have been used to shape the P management guidelines we use today.

The site has been managed by various organisations, including NAAS (now ADAS) and Rothamsted Research. After a period of dormancy, The Morley Agricultural Foundation secured a long-term lease in 2013 and, through Niab, reinstated the historic Rotation 1 experiment treatments in 2014.

## Treatments and experimental aims

The first four years, 2014-2018, were used to re-establish treatment baselines and monitor crop responses. In autumn 2019, three of the historic treatments were updated to reflect questions regarding modern P management strategies, creating a gradient of Olsen P levels (Index 0-2) using both mineral and organic sources (Figure 2).

Figure 1. Current treatment list and target soil indices

Treatment	Annual application	Target P	Target K	
Untreated	-	0	0	No mineral or organic P applied for over 125 years. Consistently maintained at Index 0
Farmyard manure (FYM)	25 t/ha	2	2+	Annual application of cattle manure at 25 t/ha, contributing both P and organic matter
Green Waste Compost (GWC)	~18 t/ha	1	2+	Applied to match FYM's organic matter contribution. With lower P content, it aims to build soil organic matter while keeping soil P at a lower index
Foliar	4 applications of Folex P (15 l/ha, 14% N, 46% P <sub>2</sub> O <sub>5</sub> )	0	2+	Adaptive management since 2019. Previously an old nitrogen treatment, now receiving foliar-applied mineral P (Folex P) to explore ways of improving P uptake without increasing soil P
P	P <sub>2</sub> O <sub>5</sub>	2	0	Mineral P or K applied individually to isolate their specific effects
K	K <sub>2</sub> O	0	2+	
PK	P <sub>2</sub> O <sub>5</sub> + K <sub>2</sub> O	2	2+	Annual application of mineral P and K fertilisers, maintaining Index 2 for both nutrients
P <sub>L</sub> K	P <sub>2</sub> O <sub>5</sub> + K <sub>2</sub> O	1	2+	A former K-only plot now receives limited P to maintain Index 1 as a low-P comparison for GWC treatments

Figure 2. Soil Olsen P levels since 2017. ----- = indicates since new treatments established

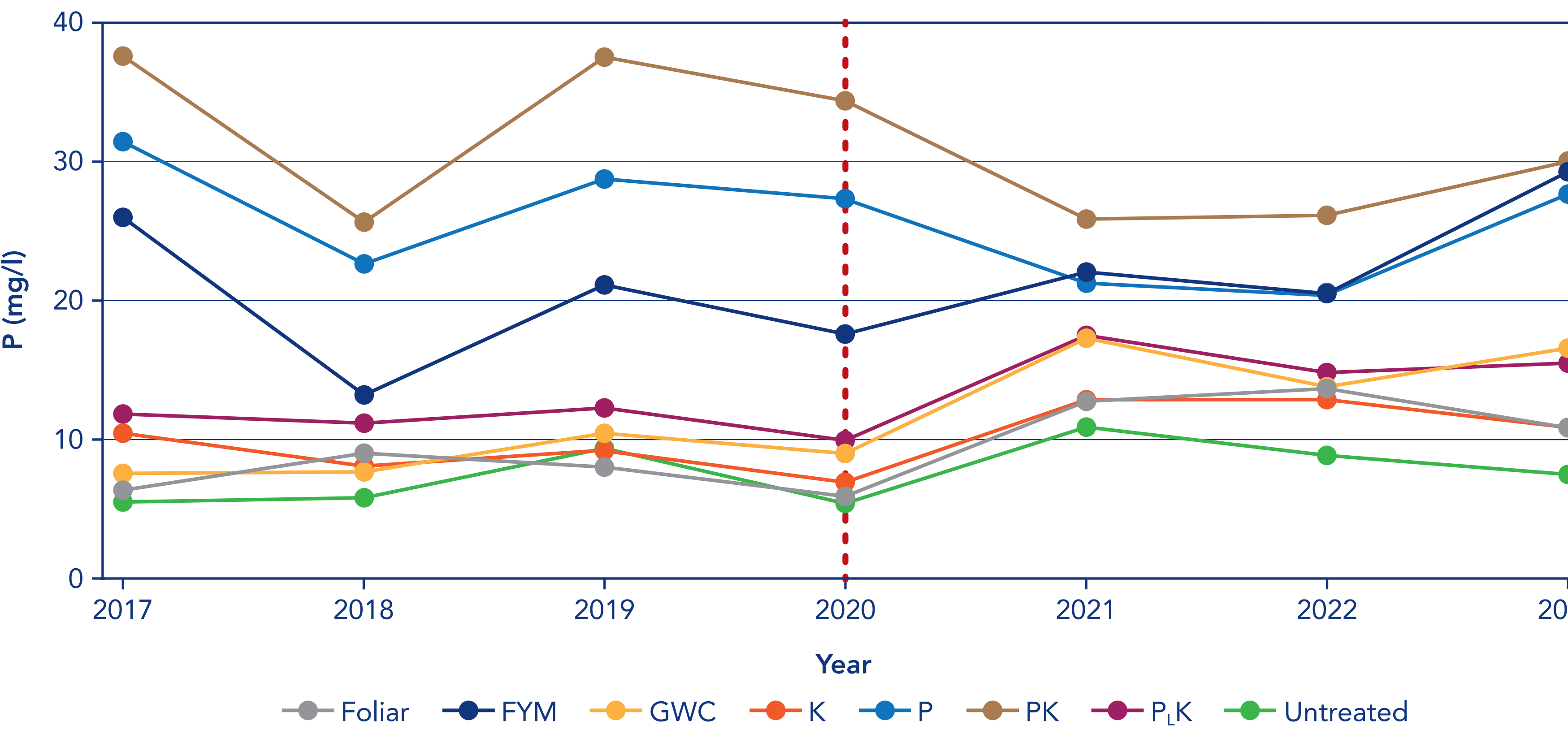
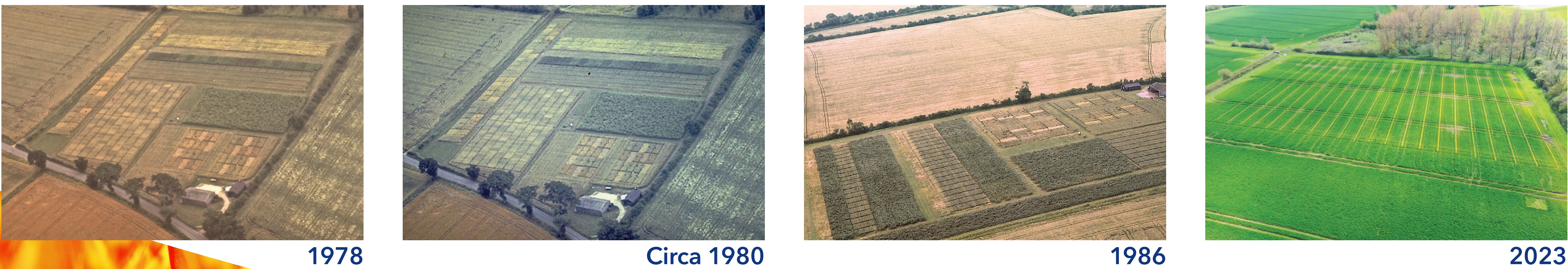


Figure 3. Saxmundham site through the ages



Historic photos: Edmund Brown