

SAXMUNDHAM: 125 YEARS OF PHOSPHORUS MANAGEMENT

Established in 1899, the Saxmundham Experimental Site in Suffolk is the third oldest agricultural experimental site 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 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
Adaptive P management	A treatment to test novel approaches - no soil applied P	0	2+	Previously a nitrogen-only treatment, this trial has been revised to evaluate novel P management strategies for potential further development. From 2019 to 2025, plots received foliar-applied mineral P (Folex P). From 2025 to 2030, the plots will investigate P-scavenging buckwheat as a cover, catch, and companion crop to enhance P uptake
P	P ₂ O ₅	2	2+	Mineral P or K applied individually to isolate their specific effects
K	K ₂ O	0	2+	
PK	P ₂ O ₅ + K ₂ O	2	2+	Annual application of mineral P and K fertilisers, maintaining Index 2 for both nutrients
P _L K	P ₂ O ₅ + K ₂ 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 treatment updates in 2019

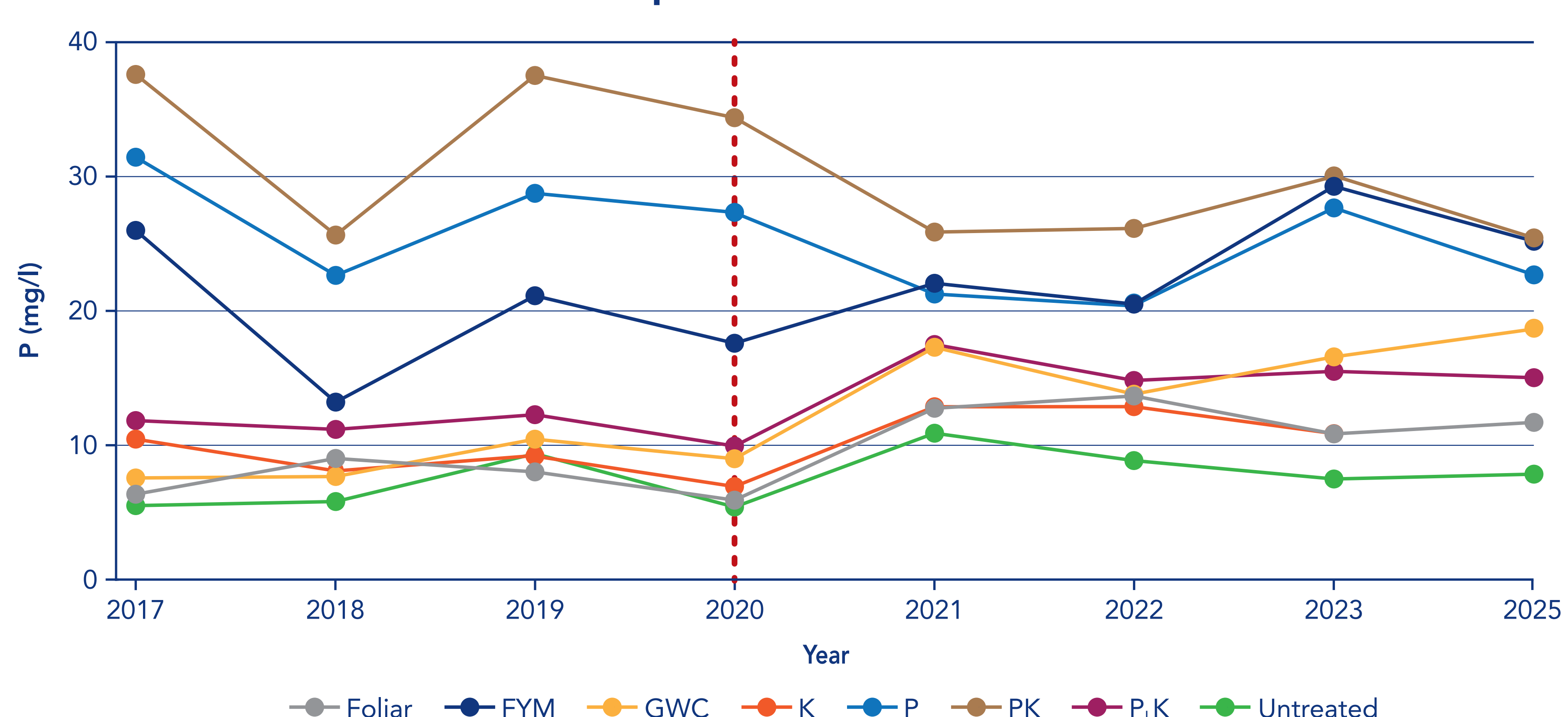


Figure 3. Saxmundham site through the ages



Historic photos: Edmund Brown