Plant Science into Practice

MORLEY LONG-TERM EXPERIMENTS

Long-term experiments (LTEs) are a valuable strategic resource that are difficult to maintain through short term or commercial funding and hard to replace once lost. An example are long-term rotation studies, which are rare in our industry but provide powerful agronomic and financial information for UK farmers.

Within East Anglia (notably at Morley, Norfolk and other locations in Suffolk) there are several LTEs supported by charitable and external funding (Figure 1 and 2). These experiments are critical for understanding how our cropping systems, soils and environment are responding and what interventions can enhance our resilience. These LTEs also contribute to a range of other research programmes and act as platforms for further studies both to other research organisations and students.

Monitoring system change

The Morley winter wheat fungicide response trial has been running since 1986 and provides an annual appraisal of disease pressure and fungicide performance for the area. With climate change it is expected that autumn and winters will become warmer and wetter across the region, meaning conditions might become more conducive for disease development.

Figure 3 shows how the yield response to fungicide strategies varies significantly by season. These experiments can provide an opportunity to monitor how changes in on-farm practice impact production compared to an historic baseline.

Figure 1. Long term experiments supported by The Morley Agricultural Foundation (TMAF), delivered by Niab, investigating rotations, cultivations, fungicide response, soil amendments and mineral fertilisers

Experiment	Start date	End date	Funders	Location
New Farming Systems: Cultivations	2007	On-going	TMAF, JC Mann	Morley, Norfolk
New Farming Systems: Rotations	2007	On-going	TMAF, JC Mann	Morley, Norfolk
New Farming Systems: The Manure and Organic Replacement Experiment (MORE)	2011	On-going	TMAF, JC Mann	Morley, Norfolk
Sustainable Trial in Arable Rotations (STAR)	2005	On-going	TMAF, Felix Thornley Cobbold Trust	Otley, Suffolk
The Saxmundham Experiment: Rotation I	1899	On-going	TMAF	Morley, Norfolk
Morley fungicide response trial in winter wheat	1986	On-going	TMAF	Morley, Norfolk
Morley fungicide response trial in winter barley	2010	On-going	TMAF	Morley, Norfolk
The Morley Soil and Agronomic Monitoring Study (SAMS)	2018	On-going	TMAF	Morley, Norfolk
Periodic lift in sugar beet	1997	2024	TMAF	Morley, Norfolk
Soil amendments	2007	2022	TMAF, JC Mann	Morley, Norfolk
Straw incorporation study	1985	2019	TMAF	Morley, Norfolk

Figure 2. Niab's New Farming Systems long-term experiments at Morley, Norfolk

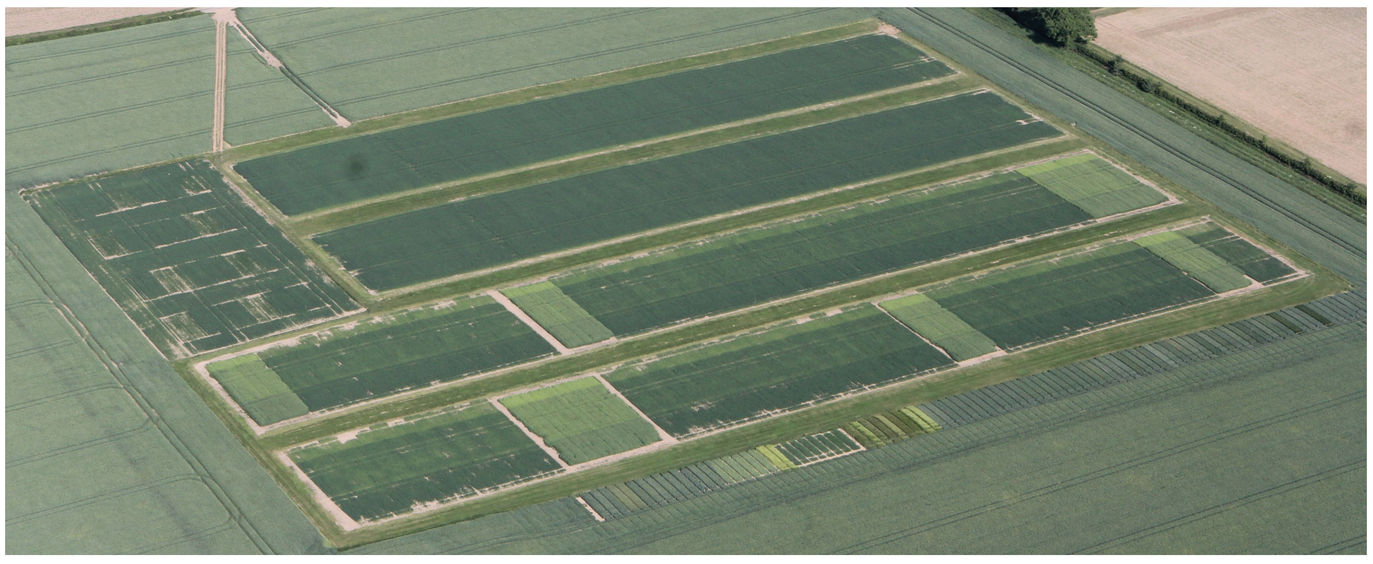
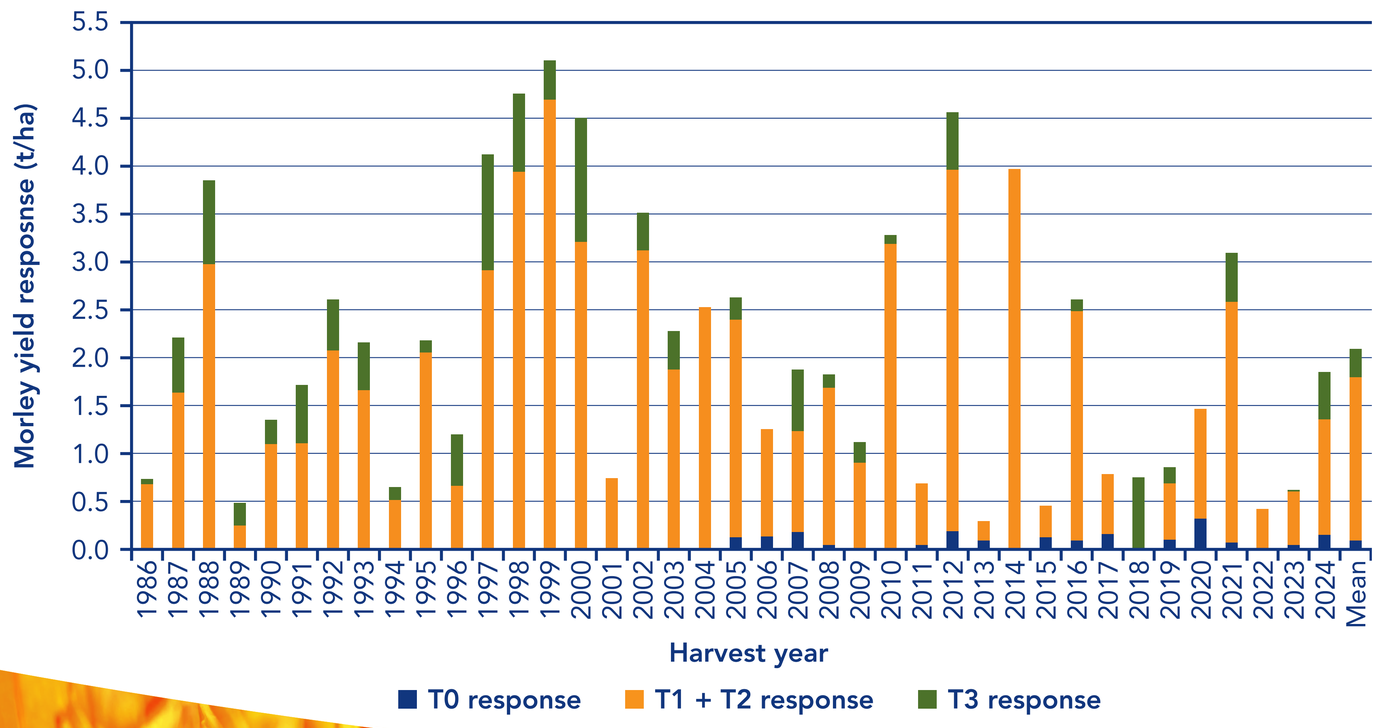


Figure 3. Yield responses of winter wheat (typical farm varieties selected for moderate disease resistance) to fungicide programmes at Morley, Norfolk



THE MORLEY AGRICULTURAL FOUNDATION

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