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The Long Term Experiments

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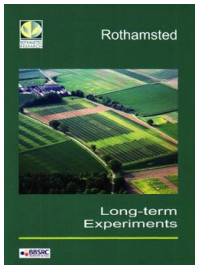

At Rothamsted

Rothamsted Research

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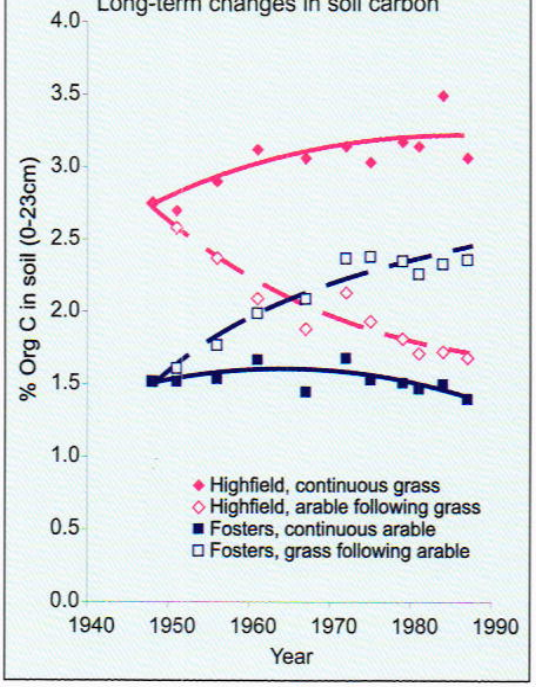
OTHER LONG-TERM EXPERIMENTS

In addition to the Classical experiments started by Lawes and Gilbert, there are several other long-term experiments at Rothamsted and at two other sites, Woburn and Saxmundham, on contrasting soil types. Some of these are discussed below.

AT ROTHAMSTED

The Ley-arable experiments at Rothamsted, on Highfield and Fosters fields, started in 1949. Their purpose was to look at the effects of different cropping systems on soil organic matter and yield. The two sites have the same soil type but the cropping histories of each are very different. Highfield had been in permanent grass for several centuries; on this site some plots stayed in permanent grass, others went into continuous arable cropping and some alternated between leys and arable. Fosters had been in arable cropping for several centuries; on this site some plots stayed in continuous arable, some went into permanent grass and others alternated between leys and arable. Although we no longer measure yields, we continue to monitor SOM. Figure 8 shows that, even after more than 40 years, soils had still not reached the equilibrium values associated with the revised cropping systems. Thus, in soils ploughed out of permanent grass, SOM is still declining whilst in soils put into permanent grass, SOM is still increasing.

Fig.8 Highfield and Fosters Ley-arable. Long-term changes in soil carbon



Other long-term experiments at Rothamsted have been used to study the effects on yield or soil of plant available P and K, liming, growing continuous maize, incorporating straw or of applying pesticides for many years.

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