

Years in which Broadbalk soil properties were measured, 1966-2017, and chemical properties which were analysed, with explanatory notes.

| Year | Depth | %N | %SOC | Olsen P # | pH | Exchangeable cations § | | | | % CaCO ₃ | Number of plots |
|----------------------|---------|----|------|-----------|-----------------|------------------------|----------------|----------------|------------------|---------------------|-----------------|
| | | | | | | Ca | K | Mg | Na | | |
| 1966 ^a | Topsoil | ✓ | ✓ | ✓ | ✓ | ✓ ^b | ✓ ^b | ✓ ^b | ✓ ^b | ✓* | 128 |
| 1987-88 ^c | Topsoil | ✓* | ✓* | ✓* | ✓* | ✓* | ✓* | ✓* | ✓* | N/A | 151 |
| 1992-96 ^d | Topsoil | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | 188 |
| 1997-99 ^e | Topsoil | ✓* | ✓* | ✓* | ✓* | ✓* | ✓* | ✓* | N/A | ✓* | 150 |
| 2000 ^f | Topsoil | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | 188 |
| 2000 ^f | Subsoil | ✓* | ✓* | ✓* | ✓* ^g | ✓* | ✓ | ✓* | N/A ^h | ✓* | 97 |
| 2005-6 | Topsoil | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | 188 |
| 2005-7 ⁱ | Subsoil | ✓* | ✓* | ✓* | ✓* ^j | ✓* | ✓* | ✓* | N/A | ✓* | 91 |
| 2008-12 | Topsoil | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | 188 |
| 2013-17 | Topsoil | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | 188 |

N/A = not available

All plots and sections, except where shown as *. This table lists the major soil samplings; other samples will have been taken from selected plots and sections in other years, to investigate specific questions. Samples were also taken from Sections 2, 4, 5 and 7 in 2001-4. This data is not included, as there was a comprehensive sampling in 2000 and in 2005-6.

Olsen P – soil phosphorus in plant-available form, extracted with 0.5M NaHCO₃. Also known as bicarbonate soluble-P.

§ Exchangeable cations – Calcium (Ca), Potassium (K), Magnesium (Mg) and Sodium (Na). Extracted with 1M ammonium acetate (NH₄CH₃CO₂).

^a **1966 data** is included here, although the experiment was not divided into 10 sections until 1968. Section 0 and 1 use data from Old Sections Ia and Ib respectively; Sections 2 and 3 use data from Old Section II; Sections 4 and 5 use data from Old Section III; Sections 6 & 7 use data from Old Section IV; Sections 8 and 9 use data from Old Sections Va and Vb respectively. Bulked Va and Vb samples (ie Sections 8 and 9) were used to determine %SOC (plots 2.1 and 2.2 only) and for all plots for Olsen P, %CaCO₃ and Exchangeable cations. There was no plot 1 in 1966, this was created in 1968. The soil was sampled in September 1966, but no day is given. It is shown as 15/09/1966 in the database.

^b Exchangeable cations from 1966 samples re-analysed in 2019.

^c No samples taken from Sections 6 and 8 in 1987-88.

^d 1992-6: Section 3 was sampled in the spring (28/03/1996) rather than the usual autumn, after the autumn fertilizers had been applied. It was sown to winter oats, which did not receive FYM or fertilizer N.

^e No samples taken from Sections 2 and 3; no data for %N or %SOC for Sections 2-5, 1997-9.

^f Many other soil chemical properties were measured in soil sampled in 2000: total elements by Aqua Regia digests, including total P, total K, total S, total Zn (all Sections); a range of exchangeable cations, in addition to Ca, K, Mg and Na, by Ammonium Acetate leachates (Sections 0 and 1 only).

^g pH measured in 2000 23-46cm subsoil layer only.

^h Subsoil exchangeable Na was measured in 2000 but has not been collated. The values are low and the blanks are high, often more than 30% of the total value.

ⁱ 2005, 2006 23-46cm. Section 6, plots 5, 8, 14 and 16 measured in both years. All other plots and Sections measured only once 2005-2007.

^j pH not measured in 2007 subsoil.