AHDB-BBRO Soil Biology and Soil Health Partnership

The Soil Biology and Soil Health Partnership is evaluating traffic light values for soil organic matter. Although data from research is often quoted as total organic carbon; here values are given as % OM. 1% total organic carbon is considered to equate to 1.72% soil organic matter.

The draft traffic light values for organic matter are given below and all feedback from practice will be warmly welcomed (please contact: elizabeth.stockdale@niab.com)

Traffic lights for cropping systems are set according to topsoil texture (in the cross-compliance groups) and for regions. There is a separate table for all lowland grasslands.

The approaches used to derive the traffic lights is described in the report "Selecting methods to measure soil health and soil biology and the development of a soil health scorecard" (Final Report No. 91140002-02, AHDB, published February 2018). Traffic lights were allocated using a large database of data collected for Defra projects SP0306 and SP0310 as follows:

Very low for the climate / soil type (lower than lower range in the table)
Lower than average (between the lower limit and the median)
Target (Between the median and the upper range)
Very high for the climate / soil type (above the upper range)

England and Wales – Cropping - low rainfall = E England

%OM	Light	Medium	Heavy
<1	🟥		
1 - 2	🟧	🟥	🟥
2 - 3	Target	🟧	🟧
3 - 4	High	Target	🟧
4 - 5	High	Target	Target
5 - 6	High	High	Target
6 - 7		High	High
7 - 9		High	High
> 9			High

England and Wales – Cropping - mid rainfall = NE England, Midlands, S England

%OM	Light	Medium	Heavy
<1	🟥		
1 - 2	🟧	🟥	🟥
2 - 3	🟧	🟧	🟥
3 - 4	Target	🟧	🟧
4 - 5	High	Target	🟧
5 - 6	High	Target	Target
6 - 7	High	High	Target
7 - 9		High	High
> 9			High

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England and Wales – Cropping - high rainfall = SW England, NW England

%OM	Light	Medium	Heavy
<1	🔴		
1 - 2	🔴	🔴	
2 - 3	🟠	🔴	🔴
3 - 4	🟠	🟠	🔴
4 - 5	Target	🟠	🟠
5 - 6	Target	Target	🟠
6 - 7	High	Target	Target
7 - 9	High	High	Target
> 9		High	High

England and Wales – Grassland – all climates (N.B. lowland)

%OM	Light	Medium	Heavy
<1			
1-2	🔴		
2-3	🟠	🔴	
3-4	🟠	🟠	🔴
4-5	Target	🟠	🟠
5-6	Target	Target	🟠
6-7	Target	Target	Target
7-9	High	Target	Target
>9	High	High	High

Scotland

Using the JHI Soil Information System database (http://sifss.hutton.ac.uk/SSKIB_Stats.php),
By drawing on a specific location for a sampling site, the Soil Information System identifies the main expected soil series. Hence the thresholds can be related to this detailed and extensive database, providing data that are relevant for each particular soil type and location. The database gives the main soil series and ranges of LOI for each soil series in the form of a box and whisker plot (Figure 3a), from which the thresholds can be generated (Figure 3b).
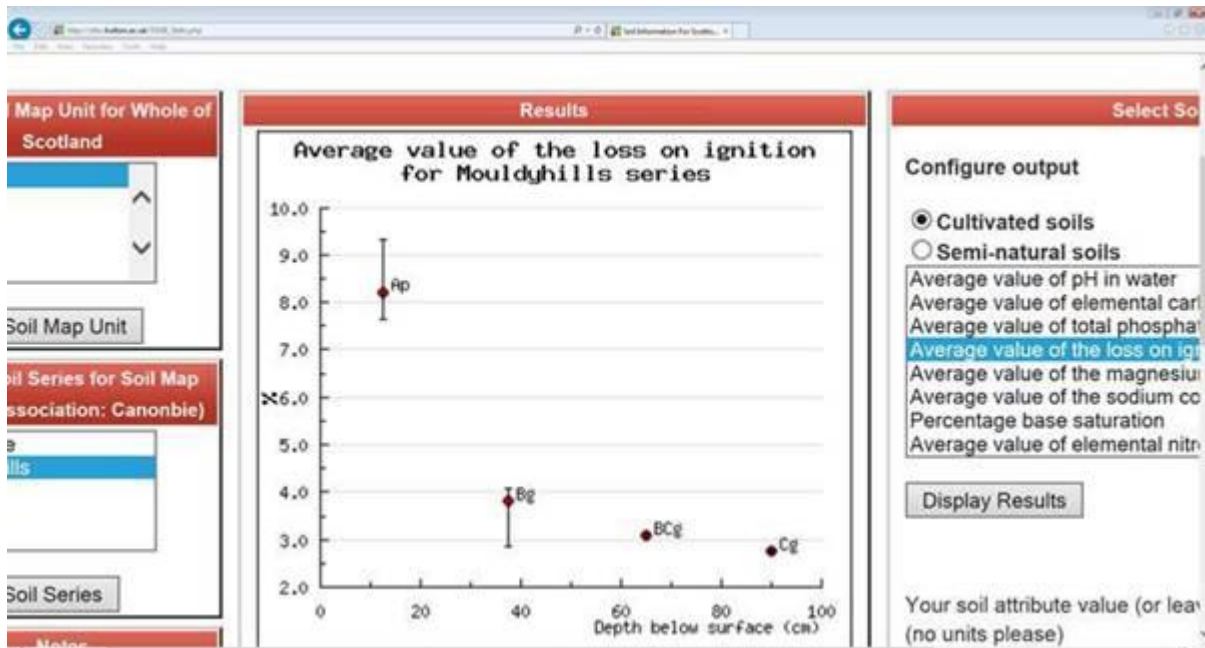
Figure 3a. Example output from the JHI Soil Information System for Mouldyhills series soil, whose cultivated layer of soil has a median %LOI of 8.2% and a lower quartile of 7.6%

LOI class for particular soil series	Traffic light colour	Any additional description of this class (e.g. toxic)
Less than lower quartile	🟥	Poor; consider management action
Between lower quartile and median	🟧	Moderate
Greater than median	🟩	Good

Figure 3b. For each soil series, where data exists the data would then be allocated as above