

Visual Soil Assessment

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https://esdac.jrc.ec.europa.eu/events/SummerSchool_2004/files/Beat_Vis.pdf

and from a more in-depth article

https://orgprints.org/id/eprint/30582/1/VSA_Volume1_smaller.pdf

4. Carrying out the test

- » Take the test sample. Dig out a 20 cm cube of topsoil with the spade. If the topsoil is less than 20 cm deep, trim off the subsoil before moving on to the next step. The sample provides the soil from which most of the soil state indicators are assessed.



The drop shatter test – Drop the same test sample a maximum of three times from a height of 1 m (waist height) onto the wooden square in the plastic basin. Then transfer the soil onto the large plastic bag and grade so that the coarsest clods are at one end and the finest aggregates are at the other end (as shown in the “Instructions” sections).

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- » The drop shatter test. Drop the same test sample a maximum of three times from a height of 1m (waist height) onto the wooden square in the plastic basin. Transfer the soil onto the large plastic bag and grade so that the coarsest clods are at one end and the finest aggregates are at the other end (as shown in the ‘instructions’ sections, pages 17 and 57).

Systematically work through the score card, assigning a visual score (VS) to each indicator by comparing the soil laid out on the plastic bag with the photographs and description in the relevant section of the field guide.

SCORE CARD

Visual indicators for assessing soil quality
under pastoral grazing on flat to rolling country

SOIL INDICATORS

Land use:

Site location/Paddock name:

Date:

Soil type:

Textural qualifier: ☐ Sandy ☐ Loamy ☐ Clayey

Moisture condition: ☐ Dry ☐ Slightly moist ☐ Moist ☐ Wet

Seasonal weather conditions: ☐ Dry ☐ Wet ☐ Cold ☐ Warm ☐ Average

Visual Indicator of Soil Quality	Visual Score (VS) 0 = Poor condition 1 = Moderate condition 2 = Good condition	Weighting	VS Ranking
Soil structure & consistence (Fig. 1, p.57)		× 3	
Soil porosity (Fig. 2, p.59)		× 3	
Soil colour (Fig. 3, p.61)		× 2	
Number and colour of soil mottles (Fig. 4, p.63)		× 2	
Earthworm counts (Fig. 5, p. 65)		× 3	
Surface relief (Fig. 6, p. 67)		× 1	
RANKING SCORE (Sum of VS rankings)			

Soil Quality Assessment	Ranking Score
Poor	< 10
Moderate	10 – 20
Good	> 20

If your soil quality assessment is moderate or poor, guidelines for sustainable management are given in Volume 2, Part Two.

Soil Structure Evaluation



GOOD CONDITION VS = 2

Good distribution of friable finer aggregates with no significant clodding



MODERATE CONDITION VS = 1

Soil contains significant proportions of both coarse firm clods and friable, fine aggregates



POOR CONDITION VS = 0

Soil dominated by extremely coarse, very firm clods with very few finer aggregates

Soil porosity evaluation



GOOD CONDITION VS = 2

Soils have many macropores between and within aggregates associated with readily apparent good soil structure



MODERATE CONDITION VS = 1

Soil macropores between and within aggregates have declined significantly but are present on close examination of clods showing a moderate amount of consolidation



POOR CONDITION VS = 0

No soil macropores are visually apparent within compact, massive structureless clods. The clod surface is smooth with few cracks or holes, and can have sharp angles

Soil Colour



GOOD CONDITION VS = 2

Dark coloured topsoil that is not too dissimilar to that under the fence line



MODERATE CONDITION VS = 1

The colour of the topsoil is somewhat paler than under the fence line, but not markedly so



POOR CONDITION VS = 0

Soil colour has become significantly paler compared with under the fence line

Number and color of soil mottles



GOOD CONDITION VS = 2
Mottles are generally absent.



MODERATE CONDITION VS = 1
Soil has common (10–25%) fine and medium orange and grey mottles



POOR CONDITION VS = 0
Soil has abundant to profuse (>50%) medium and coarse orange and particularly grey mottles

FIGURE 4: Visual scoring (VS) of number and colour of soil mottles under cropping

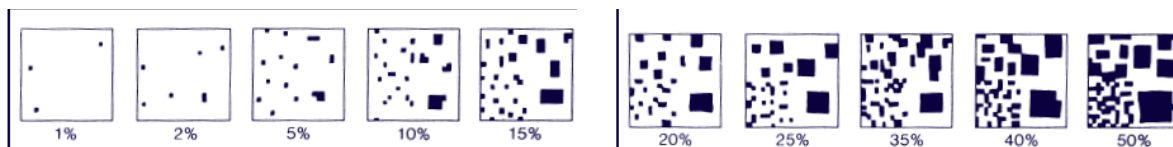


FIGURE 5: Visual scoring (VS) of earthworm counts under pasture



Earthworm Counts

Visual score (VS)	Earthworm counts (per 20 cm cube of soil)
2	>20
1	10-20
0	<10

Surface Relief



GOOD CONDITION VS = 2
Surface is relatively smooth and unbroken



MODERATE CONDITION VS = 1
Surface terrain is somewhat broken up and incised by occasional heavy treading events but it is not difficult to walk over



POOR CONDITION VS = 0
Surface is very broken and deeply incised by severe repeated treading. The terrain is difficult to walk across and care must be taken to avoid twisting ankles

FIGURE 6: Visual scoring (VS) of surface relief under pasture