Down & Dirty

with

Visual Soil Assessment

This is copied from the following reference

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

WHAT ARE WE DOING TODAY?

- 5 W’s
- Outline assessment
- Let’s do it!
- Share results
- Debrief and questions
- Cleanup!


WHEN
WHERE
WHAT
WHO
HOW
WHY

Visual Soil Assessment (VSA) process – Field Guide for cropping and pastoral grazing–

- Visual Soil Assessment (VSA) process – Field Guide for cropping and pastoral grazing–

- 2000 by Graham Shepard, Soil Scientist New Zealand.
  - Volume 1 – Outlines visual assessment
  - Volume 2 – Discusses land management practices to restore soil quality

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

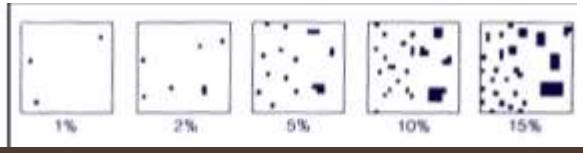

FIGURE 5: Visual scoring (VS) of **earthworm counts** under pasture

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

Earthworm Counts

earthworms in 5' count

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

HOW

- 20 cm (8”) cube of soil
- ‘Shatter test’ – drop from a waist height 3 times
- Separate aggregates based on size from largest to smallest
- Compare soil sample to indicator photos
- Score on card

HOW

PREP

- Group up and come up with team name (optional!) assign data recorder
- Lay out plastic sheets
- Get sample and score card (1 per group)
- Follow link to assessment photos from QR code

HOW

Execution

- Log sample info
- Perform shatter test
- Separate soil aggregates out based on size.
- Evaluate sample indicators


1


2


3


4


5


6

Questions?

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