Soil Respiration Measurement (RMS)

Aim: Measuring the respiration (O2-consumption) rates of soil microorganisms under standardized conditions, as a measure for soil activity.

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Surveys nb/year	Soil sampling once a year
When ?	after tillage at full bloom (flowering) of grapevine plants
Time estimate	2 days for soil sampling; half a day for installing soil samples in Berlese apparatus. 5 days of extraction and half a day for demounting the samples.

Material:

Measurements with micro-respirometer

- Sieved soil samples
- Scale
- Micro-respirometer

Protocol:

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- **8** soil samples (soil cores) for each **replicate/sample**, each ca. 30-50 cm apart, 0-10 cm deep
- **Pool** the 8 soil samples/replicate to obtain a representative composite soil sample => 2 composite samples (replicates) per plot
- pooling per hand, sort out stones, roots, mix or mechanically homogenize samples

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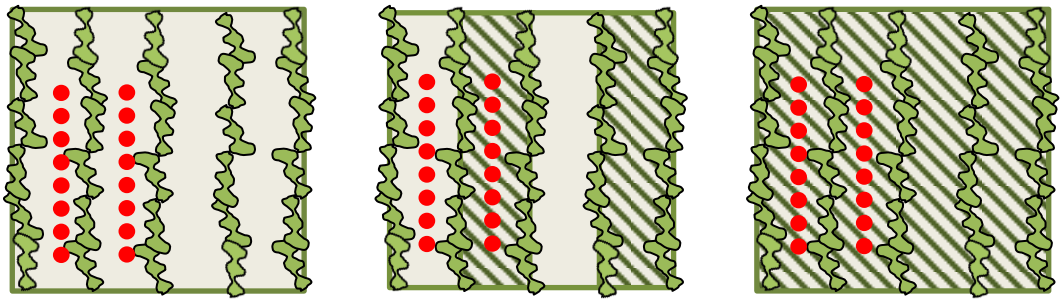

Figure 1 Soil sampling scheme

Measurement:

Respiration measurments from 3g of soil at 22°C.

Recording of soil respiration for 24 hours.

References

Scheu, S. (1992). Automated measurement of the respiratory response of soil microcompartments: Active microbial biomass in earthworm faeces. *Soil Biology and Biochemistry*, *24*(11), 1113–1118. http://doi.org/10.1016/0038-0717(92)90061-2

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