Aim

Soil properties at the beginning of crop cycles were quite homogeneous at the beginning of crop cycles (first and second); The soil properties of the experimental fields in the selected areas showed a wide variety of pedons to be used for the comparison of CC and LM effect in different climate zones. Soils from the Northern European sites are more acid and richer of nutrients and organic matter with respect to the soils in Southern sites.

Field homogeneity in OSCAR-MEE WP 5 – Soil Ecological Impact

Materials and Methods

The experimental field has four replication for two tillage levels. Eight soil samples were collected in each block at soil tillage depth. Soil physical-chemical analysis were performed on air dried samples with the exception of nitrates and ammonium content (frozen samples). All biochemical assays were made on conditioned soil at 40.°C. W.H.

Results and discussion

1. Soil chemical properties of the field experiments were quite homogeneous at all sites. The most heterogeneous were: ORC and SLU at first cycle and SLU at second cycle.
2. C/N ratio was the most fluctuating property at the beginning of both cycles;
3. Microbial biomass size and activity (Enzyme activities involved in C cycle) varied within MOR2 field for the first crop cycle and SLU field at second crop cycle;
4. In the first cropping cycle soil properties widely varied among the Northern, Central European and Mediterranean countries:
   1. Total organic Carbon from 3.08% (SLU) to 1.23% (UNITUS);
   2. Soil pH (H2O) from 8.3 and 8.0 (MOR 1 and MOR2, respectively) to 5.7 (SLU);
   3. Clay content from 64% (MOR 2) to 1.24% (UNITUS);
5. In the second cropping cycle soil properties widely varied among the North, Central Europe and Mediterranean countries:
   1. Total organic Carbon from 2.86% (SLU) to 1.24% (UNITUS);
   2. Soil pH (H2O) from 7.6 (MOR 1) to 6.1 (SLU);
   3. Clay content from 57% (MOR 1) to 29% (ART and SLU).

Table 1: Soil properties of OSCAR-MEE at the beginning of cycle 1

Table 2: Soil properties of OSCAR-MEE at the beginning of cycle 2

Table 3: Significant differences of soil properties among MEE blocks at cycle 1

Table 4: ANOVA analysis of soil properties in OSCAR-MEE at cycle 2

Conclusions

✓ Soil properties of the fields were quite homogeneous at the beginning of crop cycles (first and second);
✓ The soil properties of the experimental fields in the selected areas showed a wide variety of pedons to be used for the comparison of CC and LM effect in different climate zones.
✓ Soils from the Northern European sites are more acid and richer of nutrients and organic matter with respect to the soils in Southern sites.

INFO:
Sara Mammani: mammani@unito.it

References

Unitis n=32; Mor (1) n=24; Mor (2) n=24; Orc n=16; Art n=32; Slu n=40.
ANOVA: *, **, *** indicates significant difference at p<0.05, p<0.01, p<0.001 between blocks

Unitis n=32; Mor (1) n=24; Mor (2) n=24; Orc n=16; Art n=32; Slu n=40.