

Interactive comment on “Remediation of degraded arable steppe soils in Moldova using vetch as green manure” by M. Wiesmeier et al.

M. Wiesmeier et al.

wiesmeier@wzw.tum.de

Received and published: 12 February 2015

We appreciate the positive review of our paper by Prof. Dr. Boincean. We fully agree to the mentioned shortcomings of the paper:

1. "The capacity of cover crops alone to improve soil fertility is problematic" Yes, we agree that a beneficial influence of cover crops is related with adapted crop sequence, tillage practice and soil fertilization, we will point to this in a revised version of the paper.
2. topic of low C/N..."The above mentioned circumstances create the danger of increasing the decomposition of SOM as a source of carbon...There is also a danger of nitrogen leaching..." We agree that the low C/N ratio of vetch biomass may accelerate its decomposition which probably leads to N leaching. It depends on how the

C26

incorporated vetch biomass will be stabilized in the soil. As the studied soils have high silt and clay contents and a high stabilization capacity by free mineral surfaces as explained, a considerable proportion of vetch biomass will probably be stabilized within organo-mineral associations. However, in the short term, the "labile fraction is probably dominating" as supposed. Right now, we started to fractionate soil samples from the study sites in order to reveal the distribution of SOM. We will include the fractionation results in a revised version of the paper in order to strengthen our assumptions.

3. "In order to evaluate the real changes in time of the stocks of SOM a longer period of time is required". We agree that a longer period of observation is needed to derive conclusions in terms of net SOM changes. However, we believe that the observed changes of SOM stocks already point towards the direction of the development and can thus be an indication for the SOM stock change in the future.

4. "Authors are affirming in the conclusions a possible increased infiltration and water holding capacity...without experimental data which prove such a statement". Yes, we have no data on this, this was an assumption which was based on the fact, that water holding capacity is strongly bound to SOM, so if SOM increases substantially the water holding capacity should increase simultaneously. We will formulate this more carefully.

Interactive comment on Solid Earth Discuss., 7, 509, 2015.

C27