SOIL
Discussions

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Interactive comment on "Local soil quality assessment of north-central Namibia: integrating farmers' and technical knowledge" *by* Brice Prudat et al.

A. Groengroeft (Referee)

a.groengroeft@ifb.uni-hamburg.de

General comments:

On page 3, the technical knowledge is highlighted because it facilitates international communication. Keeping this in mind, I wonder, why the authors do not try to present some information about the soil classification (reference groups and qualifier) according to FAO of the studied soils. The system is applied in Namibia and thus, from my perspective, this seems to be necessary.

Both variables in the SQ toolbox (sand content and color shade) are not independent

and are known by the local farmers in its indicative value. Although SOC is undoubtedly a very relevant variable for SQ, the direct link to color shade with one unit discriminating between the qualifier + and – is an over-interpretation of the possibilities of soil color interpretation. As given in figure 3, there is a significant overlap of SOC between neighboring color shade classes. The Munsell Soil Color Charts do not present colors (also not figure 3) for the broken classes as given in figure 4. Thus in the field very slight differences in color divide between the qualifier + and -, if the evaluator cannot decide, the qualifier becomes 0. Thus for me the combination of the variables fine particles and color is relevant, however, it is not promising to distinguish between 29 classes, as has been proposed in the toolbox by the authors.

The general problem of smallholder agriculture in the studied region is: i) Soils best suitable for cropping become scarce, thus expansion in the pristine woodlands will become increasingly restricted. ii) In the consequence, also those soils are cultivated, of which the farmers know their lower productivity. iii) the ongoing crop production is especially restricted by the lack of nutrient inputs, here N and P, and – off course – years with low rainfall. The future challenge is i) to concentrate crop production on the best suitable soils and ii) to improve nutrient inputs on these areas in an intensity, that yields are just water or management controlled and iii) to develop sustainable LU management techniques (e.g. conservation agriculture). This development needs help by the agriculture extension services. The mapping of the best suitable soils should be oriented to technical knowledge for its comparability, however should include farmers views. The general objective of the paper just moves to the right direction, the presented toolbox however needs improvement (reduction in units).

Please also note the supplement to this comment:
http://www.soil-discuss.net/soil-2017-10/soil-2017-10-RC1-supplement.pdf

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