Organic matter cycling along geochemical, geomorphic and disturbance gradients in vegetation and soils of African tropical forests and cropland - Project TropSOC DATABASE_v1.0

3.1.2. Cropland – Biomass & management – Land management data

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Doetterl S., Asifiwe R.K., Baert G., Bamba F., Bauters M., Boeckx P., Bukombe B., Cadisch G., Cizungu L.N., Cooper M., Hoyt A., Kabaseke C., Kalbitz K., Kidinda L., Maier A., Mainka M., Mayrock J., Muhindo D., Mujinya B.B., Mukotanyi, S.M., Nabahungu L., Reichenbach M., Rewald B., Six J., Stegmann A., Summerauer L., Unseld R., Vanlauwe B., Van Oost K., Verheyen K. Vogel C., Wilken F., Fiener P. Organic matter cycling along geochemical, geomorphic and disturbance gradients in forests and cropland of the African Tropics - Project TropSOC Database Version 1.0. *Earth System Science Data* XXX, DOI XXX, 2021.

Introduction

The dataset comprises a unique plot identifier and 10 variables that provide information regarding soil and crop management of all cropland plots based on the findings of a farmer's questionnaire carried out during the time of soil sampling in 2018 for 87 out of 100 cropland plots. Apart from the unique plot identifier and field size information the data set comprises 8 cropping related variables, followed by 2 variables indicating the duration of use of the study site as cropland (=time since conversion from forest).

Data structure

No.	Variable	Explanation	Unit
1	plotID	unique identifier of each plot and point where data were collected	-
2	field_size	size of the field the plots are located in	ha
3	crop	cassava = 1, cassava with bean as co-crop = 2	-
4	crop_var	cassava variety. 1 = Amaduda; 2 = Bukalasa; 3 = Cidukura; 4 = Gitamisi; 5 = Ivura; 6 = Katawa; 7 = Kinyamangu; 8 = Liyayi; 9 = Majambere; 10 = Mbahilo; 11 = Mitarina; 12 = Mubalaya; 13 = Munyengereze; 14 = Mwabailon; 15 = Mwamizinzi; 16 = Mwananiburo; 17 = Nabiombo; 18 = Nakaranga; 19 = Nakenyere; 20 = Nguabe; 21 = Sambati; 22 = Sawasawa; 23 = Shayidire; 24 = Yamuliro.	-
5	crop_rotation	farmer information if other crops than cassava were part of rotation. only cassava = 0; maize = 1; bean = 2; sweet potato = 3; soybean = 4; potato = 5; onion = 6; pea = 7; maize and bean = 8; bean and soybean = 9; maize, bean and peanut =10	-
6	crop_pre	number of seasons of cassava cropping before switching to other crops. only cassava in rotation = 0; one season of cassava followed by one season of other crop or fallow = 1; two seasons of cassava followed by one season of another crop or fallow = 2	-
7	growth_dur	growth duration of cassava from planting to harvesting	month
8	fertilizer	form of fertilizer application; no fertilizer = 0; manure = 1; fallow = 2; chemical fertilizers = 3; manure and fallow = 4; manure and chemical fertilizers = 5	-
9	pest_manag	how pests are managed; manual weeding = 1; manual weeding and pesticides = 2	-

10	farmer	estimated time field has been used by the same farmer; less than 5 years = 1; 5 to 10 years = 2; 10 to 20 years = 3; 20 to 30 years = 4; more than 30 years = 5	year
11	deforestation	estimated time since deforestation (transformation of forests into croplands); less than 5 years = 1; 5 to 10 years = 2; 10 to 20 years = 3; 20 to 30 years = 4; More than 30 years = 5	year

Methods

A survey concerning land management practice and land use history was conducted among the farmers of 87 out of 100 sampled cropland plots using a pre-established questionnaire following the methodology of McCarthy et al. (2018). Using the results of this questionnaire, which were completed during the soil sampling campaign, information on the following parameters was collected:

- Field size (in ha)
- Variety of the planted Cassava
- Duration of the crop growth cycle (planting to harvest),
- Date of harvest (timing within season)
- Crop rotation cycle, including frequency of crop rotation and used crops,
- Soil fertility management,
- Crop protection strategies
- Type of tillage
- Years of field usage by the same farmer
- Estimated time since deforestation (i.e. transformation of forests into croplands). The duration since deforestation and the number of years of farmers' experience on the same land were recorded in five classes (i.e. < 10 years, 10 - 20 years, 20 - 30 years, and > 30 years).

Note that only fields without soil protection measurements were sampled and that all fields were cultivated using hand hoes.

Acknowledgment

TropSOC was funded via the Emmy-Noether-Program of the German Research Foundation (project ID 387472333).

References

McCarthy J. S., Ott K., Ridolfo H., McGovern P., Sirkis R., Moore D.: Combining multiple methods in establishment questionnaire testing: The 2017 census of agriculture testing bento box. Journal of Official Statistics 34(2), 341–364, 2018.