

Variable descriptions for file one (3-year forage based fallows experiment) pertaining to

Vanek et al. 2020, Participatory design of improved forage/fallow options across soil gradients with farmers of the Central Peruvian Andes.

Variable name	description
Community-zone	Community/zone as described in paper: Castillapata High Zone, Quilcas Middle Zone, or Quilcas High Zone
Site (numbered)	number of experiment field (farmer names removed from database)
Treatment	Unseeded control or different treatments as described in Vanek et al. 2020
Elevation_masl	Elevation of the experiment field in meters
Slope_(%)	Slope of the experiment field, % gradient
Sand_(%)	Sand content of the soil from the initial sample of the field before experiment (%)
Silt_(%)	Silt content of the soil from the initial sample of the field before experiment (%)
Clay_(%)	Clay content of the soil from the initial sample of the field before experiment (%)
soil_pH	Soil pH of the the initial sample of the field before experiment
Soil_total_N(%)	Soil total N content of the the initial sample of the field before experiment
SOM_(%)	Soil organic matter content of the the initial sample of the field before experiment
Soil_availK_AmAcet_kg-1	Soil available Potassium (mg K kg-1) using the ammonium acetate extraction of the the initial sample of the field before experiment
Soil_availCa_AmAcet_kg-1	Soil available Calcium (mg Ca kg-1) using the ammonium acetate extraction of the the initial sample of the field before experiment
Soil_availMg_AmAcet_mg_kg-1	Soil available Magnesium (mg Mg kg-1) using the ammonium acetate extraction of the the initial sample of the field before experiment
Soil_OlsenP_mg_kg-1	Soil available Phosphorus (mg P kg-1) using the Olsen extraction of the the initial sample of the field before experiment
POXC_mg_kg-1	Soil pH of the the initial sample of the field before experiment
SoilCover_percent_70days	% cover by live vegetation at between 65 and 75 days after seeding
Seeded grasses_kg_ha	Biomass of seeded grasses after 1 rainy season of growth (april 2014), kg/ha
Seeded legumes_kg_ha	Biomass of seeded legumes after 1 rainy season of growth (april 2014), kg/ha
Other species_kg_ha	Biomass of other non-seeded species, including legumes and grasses after 1 rainy season of growth (april 2014), kg/ha
Total biomass_kg_ha	Total plant biomass after 1 rainy season of growth (april 2014), kg/ha
FractionBiomass_SeededLegumes	Fraction of total biomass that is seeded legumes after one rainy season of growth (april 2014)

Variable name	description
FractionBiomass_SeededGrasses	Fraction of total biomass that is seeded grasses after one rainy season of growth (april 2014)
Forage_Crude_Protein_percent	Crude protein of total biomass sample from first rainy season using an NIR forage analysis, %
Forage%N	Nitrogen content of total biomass sample from first rainy season using an NIR forage analysis, %
ADF_forageQuality	Acid-detergent fiber content of total biomass sample from first rainy season using an NIR forage analysis, %
aNDF_forageQuality	Neutral-detergent fiber content of total biomass sample from first rainy season using an NIR forage analysis, %
%TDN_forageQuality	Total digestible nutrient content of total biomass sample from first rainy season using an NIR forage analysis, %
Ca%_forageQuality	Calcium content of total biomass sample from first rainy season using an NIR forage analysis, %
P%_forageQuality	Phosphorus content of total biomass sample from first rainy season using an NIR forage analysis, %
Mg%_forageQuality	Acid-detergent fiber content of total biomass sample from first rainy season using an NIR forage analysis, %
K%_forageQuality	Acid-detergent fiber content of total biomass sample from first rainy season using an NIR forage analysis, %
Lignin%_forageQuality	Acid-detergent fiber content of total biomass sample from first rainy season using an NIR forage analysis, %
ThirdYearBiomass_2016_seededGrasses_kg_ha	Third year biomass (2016) of seeded grasses, kg ha-1
ThirdYearBiomass_2016_seededLegumes_kg_ha	Third year biomass (2016) of seeded legumes, kg ha-1
ThirdYearBiomass_2016_OtherSpecies_kg_ha	Third year biomass (2016) of non-seeded species, kg ha-1
ThirdYearBiomass_2016_Total_kg_ha	Third year total biomass (2016), kg ha-1
ThirdYearBiomass_RumexWithinOther_Total_kg_ha	Third year (2016) estimated biomass of Rumex acetosella within non-seeded species, kg ha-1
ThirdYearBiomass_BroadleafWithinOther_Total_kg_ha	Third year (2016) estimated biomass of broadleaves other than Rumex acetosella within non-seeded species, kg ha-1
ThirdYearBiomass_GrassesWithinOther_Total_kg_ha	Third year (2016) estimated biomass of grasses within non-seeded species, kg ha-1
ThirdYearBiomass_LegumesWithinOther_Total_kg_ha	Third year (2016) estimated biomass of legumes within non-seeded species, kg ha-1
ThirdYearBiomass_LegumesIncludingOther_Total_kg_ha	Third year (2016) estimated biomass of grasses including seeded and unseeded species, kg ha-1
ThirdYearBiomass_GrassesIncludingOther_Total_kg_ha	Third year (2016) estimated biomass of legumes including seeded and unseeded species, kg ha-1
Potato_experimentPlanted	Whether or not an experiment to measure potato yields and soils impacts was planted after the experiment at this site (9 sites planted)

Variable descriptions for file two (Potato growth experiment as a response to forage-based fallows in nine sites) pertaining to:

Vanek et al. 2020, Participatory design of improved forage/fallow options across soil gradients with farmers of the Central Peruvian Andes.

Variable name	description
Site, numbered	Site number, corresponding to sites in the initial biomass sampling during the first three years of the experiment
treatment management during fallow	Initial seeding treatment of the experiment Management by farmer during the fallow: left unused, pastured, tied grazing, cut (all three years), cut, then fallowed
Commercial_Potato_yield_kg_ha-1	Yield of “Yungay” potatoes meeting quality standards for sale, kg per ha
Total_Potato_yield_kg_ha-2	Total yield of “Yungay” variety potatoes including damaged and those too small to sell.
PercentTubers_diseased	Weight percentage of tubers damaged by disease
FarmerRanking_1to6	Farmer ranking of treatments within each site from one (best) to six (worst)
elevation_masl	Elevation of experiment field in meters
Clay_Initial_wholeField_percent	Original measurement of clay content in the field, 2013
Sand_Initial_wholeField_percent	Original measurement of sand content in the field, 2013
Sand_final_perTreatment_percent	Final measurement of sand content in each treatment, 2016
Silt_final_perTreatment_percent	Final measurement of silt content in each treatment, 2016
Clay_final_perTreatment_percent	Final measurement of clay content in each treatment, 2016
Soil_pH_initial_wholeField	Original measurement of soil pH in the field, 2013
Soil_pH_final_perTreatment	Final measurement of soil pH in each treatment, 2016
Soil_pH_change_initial_final	Change of soil pH from 2013 to 2016 in each treatment
Olsen_P_initial_wholeField_mg_kg-1	Original measurement of Olsen P in the field, 2013, mg kg-1
POXC_initial_wholeField_mg_kg-1	Original measurement of POXC in the field, 2013, mg kg-1
SOM_initial_wholeField_percent	Original measurement of Soil Organic Matter in the field, 2013, percent
Avail_K_initial_wholeField_mg_kg-1	Original measurement of soil available K in the field, 2013, mg kg-1, Ammonium Acetate extraction
SOM_final_perTreatment_percent	Final measurement of soil organic matter in each treatment, 2016, percent
SOM_change_initial_final_percent	Change of soil organic matter from 2013 to 2016 in each treatment, percent
OlsenP_final_perTreatment_mg_kg-1	Final measurement of Olsen P in each treatment, 2016, mg kg-1
OlsenP_change_initial_final_mg_kg-1	Change of Olsen P from 2013 to 2016 in each treatment, mg kg-1

Variable name	description
Avail_K_final_perTreatment_mg_kg-1	Final measurement of available potassium in each treatment, 2016, mg kg-1, Ammonium Acetate extraction
AvailK_change_initial_final_mg_kg-1	Change of soil available potassium from 2013 to 2016 in each treatment, mg kg-1, Ammonium Acetate extraction
POXC_final_perTreatment_mg_kg-1	Final measurement of soil POXC in each treatment, 2016, mg kg-1
POXC_change_initial_final_mg_kg-1	Change of soil POXC from 2013 to 2016 in each treatment, mg kg-1
Total_N_final_perTreatment_percent	Final measurement of total soil nitrogen in each treatment, 2016, percent
OrganicC_final_perTreatment_percent	Final measurement of Soil Organic Carbon in each treatment, 2016, percent