

Tab. SM3 - Data fields for NitroEurope Component 2 (“manipulated sites”).

Field	Unit	Field	Unit	Field	Unit
Treatment details		Age of the ecosystem	yr	Wood dry biomass (forest, shrubland, wetland), Shoot dry biomass (arable, grassland)	g dry matter m ⁻²
Treatment_name and description 1 to 10	text	Planting, thinning and harvest history (dates and description) (forest)	text	Root dry biomass and Leaf dry biomass	g dry matter m ⁻²
Site and PI details		Fertiliser application (rate, incorporation depth), Chemical form of mineral N, P and K applied	text	Leaf Area Index	m ² m ⁻²
Name of site, description, Workpackage number, report period	text	Form and application method of organic fertiliser applied at each fertiliser event	text	Maximum vegetation height	m
PI name, address, phone, fax, email	text	Pesticides and herbicides details (name of pesticide, added amounts of active chemical etc.)	text	C to N ratio of wood biomass, shoot biomass, root biomass, leaf biomass	g C g ⁻¹ N
Site manager name, address, phone, fax, email	text	Irrigation, Liming details	text	Leaf nitrogen concentration	% by dry biomass
Methods for measurements		Grazing (duration, animal species, animal density - grassland/shrubland/wetland)	text	Biomass C and N	
Details of methods for 170 measurements	text	Cutting dates (grasslands)	text	Biomass carbon and nitrogen yield (which is removed from the field - arable, grassland)	g(C) m ⁻² , g(N) m ⁻²
Crop management and fertilizer data		Is the site drained and how?	text	biomass carbon and nitrogen yield of grain (which is removed from the field - arable)	g(C) m ⁻² , g(N) m ⁻²
Crop type	text	Tillage details (e.g., ploughing, stubble, weed harrowing and hoeing etc.)	text	biomass carbon and nitrogen yield of straw (which is removed from the field - arable)	g(C) m ⁻² , g(N) m ⁻²
Sowing density	plant units ha ⁻¹	Other events (date and description of main events, e.g., fire, flood etc.)	text	biomass carbon and nitrogen in residues left after harvest (arable, grassland)	g(C) m ⁻² , g(N) m ⁻²
Height of vegetation before and after each cut (grasslands)	m	Site details		Maximum potential total yield carbon and nitrogen (best guestimate or highest literature value - arable)	g(C) m ⁻² , g(N) m ⁻²
Amount of N, P, K applied at each mineral fertiliser event	kg N, P, K ha ⁻¹	Latitude, Longitude	text	Litter data	
kg of dry matter fertiliser applied at each fertiliser event	kg dry matter ha ⁻¹	Elevation	m	Litter mass (forest, grasland, shrubland, wetland)	g dry matter m ⁻²
Estimated total N content of the organic fertiliser	g N kg ⁻¹ dry matter	Slope	°	Litter layer depth (forest, grasland, shrubland, wetland)	cm
Estimated total C content of the organic fertiliser	g C kg ⁻¹ dry matter	Depth of field drains	m	Total organic C and N in litter (forest, grasland, shrubland, wetland)	% by weight
Estimated available N (ammonium and nitrate) content of the organic fertiliser	g available N kg ⁻¹ dry matter	Mean and maximum rooting depth	m	Annual litter production carbon and nitrogen (forest, grasland, shrubland, wetland)	g(C) m ⁻² yr ⁻¹ , g(N) m ⁻² yr ⁻¹
Estimated available C content of the organic fertiliser	g available C kg ⁻¹ dry matter	Soil details		Soil details	
Estimated N applied to surface from organic fertiliser for each application	kg N ha ⁻¹	Soil type (FAO soil classification)	text	Total number of soil layers included in profile excluding the litter layer	integer
Estimated C applied to surface from organic fertiliser for each application	kg C ha ⁻¹	Soil texture	text	Soil layer number counted from the top, i.e., first layer is number 1 etc.	integer
Depth of tillage	m	Litter type (Mull, Moder or Rawhumes)	text	Bulk density	g soil cm ⁻³
Amount of water applied during irrigation	L ha ⁻¹	Vegetation details			
Typical LAI during grazing (grassland)	m ² m ⁻²	Age of vegetation (average) (forest, shrubland, wetland)	yr		
Land management		Canopy / vegetation height	m		
Rotation length/cropping practice	text	Stems diameter breast height and Number of stems per ha (forest)	cm		

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Field	Unit	Field	Unit	Field	Unit
Soil clay, sand, silt content	% by volume	Soil water concentration of dissolved organic C (DOC) from suction cups etc.	mg C L ⁻¹	Ecosystem NO-N flux	µg NO-N m ⁻² h ⁻¹
Stone fraction (of mineral soil)	g cm ⁻³	Soil water concentration of dissolved organic N (DON) from suction cups etc.	mg N L ⁻¹	Ecosystem NO ₂ -N flux	µg NO ₂ -N m ⁻² h ⁻¹
Soil hydraulic conductivity	m h ⁻¹ MPa ⁻¹	NO₃ leaching		Ecosystem NH ₃ -N flux	µg NH ₃ -N m ⁻² h ⁻¹
Soil porosity	% by volume	Seepage water	mm	Ecosystem CH ₄ -N flux	µg CH ₄ -C m ⁻² h ⁻¹
Moisture content at field capacity, Moisture content at wilting point, Moisture content - available water	% by volume	Soil NO ₃ - leaching	g N m ⁻²	Soil CO ₂ -C dark respiration	mg CO ₂ -C m ⁻² h ⁻¹
Total organic C	% by weight	Atmospheric N deposition		Net ecosystem CO ₂ -C exchange	mg CO ₂ -C m ⁻² h ⁻¹
Total organic N	% by weight	Wet atmospheric nitrogen deposition	g N m ⁻² yr ⁻¹	Soil temperature during flux measurement	°C
pH	logarithm	Dry atmospheric nitrogen deposition	g N m ⁻² yr ⁻¹	Air temperature during flux measurement	°C
Soil pF		Total atmospheric nitrogen deposition	g N m ⁻² yr ⁻¹	Chamber temperature during flux measurement	°C
Soil water content at corresponding pF	m ³ m ⁻³	N-fixation		PPFD during flux measurement	µmol Quanta m ⁻² s ⁻¹
pF at corresponding soil water content	logarithm	Nitrogen fixation	g N m ⁻² yr ⁻¹	Soil water during flux measurement	% by volume
Soil Nitrogen		Meteorological parameters		Evapotranspiration	mm d ⁻¹
Soil nitrate concentration	µg N g ⁻¹ dry soil	Air temperature (mean, min, max)	°C	Micrometeorological parameters	
Soil ammonium concentration	µg N g ⁻¹ dry soil	Global Radiation	W m ⁻²	Reflected or short wave outgoing	W m ⁻²
Soil total N concentration	µg N g ⁻¹ dry soil	Photosynthetic Photon Flux Density	µmol Quanta m ⁻² s ⁻¹	Long wave incoming	W m ⁻²
Soil biomass		Precipitation	mm	Long wave outgoing	W m ⁻²
Microbial biomass carbon per gram of dry soil	mg C g ⁻¹ dry soil	Snow depth	cm	Net radiation	W m ⁻²
Microbial biomass nitrogen per gram of dry soil	µg N g ⁻¹ dry soil	Throughfall (forest)	mm	PAR incoming radiation	W m ⁻²
Nitrogen cycle processes		Depth of groundwater table	m	PAR outgoing radiation	W m ⁻²
Net nitrogen mineralization	µg N g ⁻¹ dry soil	Relative Humidity	%	Global radiation	W m ⁻²
Net nitrification	µg N g ⁻¹ dry soil	Horizontal wind speed	m s ⁻¹	Air pressure	kPa
Net denitrification	µg N g ⁻¹ dry soil	Atmospheric CO ₂ concentration	ppm by volume	Canopy radiative temperature	°C
Soil water processes		Atmospheric NH ₃ concentration	ppb by volume	Soil heat flux 1 and 2	W m ⁻²
Soil water concentration of NO ₃ from suction cups etc.	mg N L ⁻¹	Soil water and temperature time series		Wind direction	°
Soil water concentration of NH ₄ from suction cups etc.	mg N L ⁻¹	Soil water content (at least from one soil depth)	% by volume	Water vapour concentration	mmol H ₂ O mol ⁻¹
		Soil temperature (at least from one soil depth)	°C	Sensible heat flux	W m ⁻²
		Ecosystem flux and associated data		Latent heat flux	W m ⁻²
		Ecosystem N ₂ O-N flux	µg N ₂ O-N m ⁻² h ⁻¹	Momentum	kg m ⁻² s ⁻¹
				Friction velocity	m s ⁻¹
				CO ₂ storage in canopy air layer	umol CO ₂ -C m ⁻² s ⁻¹
				Heat storage in canopy air layer	W m ⁻²