

ALCIG – Agricultural Life Cycle Inventory Generator



*ALCIG is a web-based software that helps LCA practitioners who want to save time and resources and increase reliability of their results by easily generating **high quality inventory for crops** compatible with LCA software*



Direct emissions models used or integrated in ALCIG

Direct land use change from forest/grassland/perennial/annual to perennial/annual (adaptation from Blonk consultants LUC tool, with link to ecoinvent v3 "land tenure" processes (compliant with LEAP and PAS 2050))

Irrigation (Ecoinvent V3.0 guidelines "Good practice for life cycle inventories -- modelling of water use" (Lévová et al. 2012))

Soil erosion (Universal Soil Loss Equation as described in (Faist Emmenegger et al 2009))

More information to be provided in the future

Nitrogen oxides (NO_x) from fertilizers application (emission factors from EEA (2013))

Nitrous oxide (N₂O) (IPCC (2006) Tier 1 for crop production)

CO₂ from urea or lime application (IPCC (2006))

Methane (CH₄) from rice cultivation (IPCC (2006) Tier 2)



Nitrate leaching (NO₃) (SQCB-NO₃ model (Faist Emmenegger et al 2009))

Heavy metals to agricultural soil, surface water and groundwater (SALCA-heavy metal model (Freiermuth 2006))

Phosphorus (PO₄) to water (SALCA-P model (Prasuhn 2006))

Ammonia (NH₃) from mineral fertilizers application and manure spreading (EMEP/EAA guidelines (2013))



Up to 200 parameters to generate your inventory (system, fertilisers, pesticides, machinery, etc.)

Default data are used if no primary data is available



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Excel based data collection sheet

Crop		<select crop name>		
Country		<select country>		
	Pesticides	Data	Comment	Source
	Herbicides	Data	Comment	Source
	Fungicides	Data	Comment	Source
	Insecticides	Data	Comment	Source
	Other pesticides	Data	Comment	Source
	Machinery, work processes	Data	Comment	Source
	Total diesel consumption of machinery used for all work processes	[kg]	-	
	Plant protection		Data	Comment
	Total diesel consumption of machinery used for plant	[kg]	-	
	Type of work process applied			
	<select process>	[% diesel of total diesel used for plant protection]	-	
	<select process>	[% diesel of total diesel used for plant protection]	-	
	Soil cultivation		Data	Comment
	Total diesel consumption of machinery used for soil cultivation	[kg]	-	
	Type of work process applied			
	<select process>	[% diesel of total diesel used for soil cultivation]	-	
	<select process>	[% diesel of total diesel used for soil cultivation]	-	
	Sowing, planting		Data	Comment
	Fertilisation		Data	Comment
	Harvesting		Data	Comment
	Other work processes		Data	Comment
	Energy use	Data	Comment	Source
	Electricity		Data	Comment
	Electricity, low voltage, at grid	[kWh]	-	
	Electricity, photovoltaic, produced locally	[kWh]	-	
	Electricity, wind power, produced locally	[kWh]	-	
	Thermal energy		Data	Comment
	Diesel, excluding diesel used in tractor	[kg]	-	43.8 MJ/kg
	Lignite briquette	[kg]	-	9.0 MJ/kg