



Comparison of area data LULUCF - Agriculture

Data of “Cropland-” and “Grassland-“ area is used both in the LULUCF- and agriculture-sector of the Swiss Greenhouse Gas Inventory. The data compilation presented in this document shall give an overview over the most important numbers of both sectors in order to allow cross comparisons and statements concerning data consistency.

Data from the LULUCF-sector were provided by Beat Rihm on the 23rd of march 2009:

- 1.) AREA 92/97: areas of ASCH-92/97 categories
- 2.) Swiss Greenhouse Gas Inventory - LULUCF: areas of combination category (NIR table 7-5)

To allow comparisons with data from the agriculture sector some categories had to be eliminated and others had to be regrouped according to the scheme in Table 1.

Data from the agriculture-sector were taken from:

- 3.) Swiss Farmers Union (SBV/SFU) (Statistical yearbook, Statistische Erhebungen und Schätzungen über Landwirtschaft und Ernährung)
- 4.) Swiss Greenhouse Gas Inventory – Agriculture: calculation of areas by dividing total crop yield (t) by standard crop yield rates (t/ha).

Table 1 Extract from NIR Table 7-4: Relation between different land-use categorisations: IPCC main categories (IPCC 2003), LUcode sub-divisions, LUcode (aggregated ASCH code; FOEN 2006b), ASCH code and description (SFSO 2005), Excat code (extrapolation category; this report), combination category (CC), and CC code (FOEN 2007f).

Main Category	LUcode Sub-division	LUcode	ASCH-code	ASCH-description	Excat code	Combination Category (CC)	CC code
Cropland		20	52	Garden allotments	24	Cropland	21
			71	Regular vineyards	30		
			72	"Pergola" vineyards	30		
			73	Extensive vines	30		
			78	Horticulture	21		
			81	Favourable arable land and meadows	21		
			21		21		
Grassland	Permanent Grassland	31	37	Green motorway environs	34	Permanent Grassland	31
			38	Airfields, green airport environs	34		
			54	Golf courses	50		
			67	Green railway environs	34		
			68	Green road environs	34		
			82	Other arable land and meadows	31		
			83	Farm pastures	31		
			85	Mountain meadows	31		
			87	Remote and steep alpine	31		
			88	Favourable alpine pastures	31		
	89	Rocky alpine pastures	31				
	Grass with Perennial Woody Biomass	32	16	Scrub vegetation	30	Shrub-Vegetation	32
			17	Groves, hedges	30		
			18	Clusters of trees (on agricultural areas)	30		
			19	Other woods	30		
75			Intensive orchards	30			
Unproductive Grassland	33	76	Rows of fruit trees	30	Vineyards, Low-Stem Orchards, Tree nurseries	33	
		77	Scattered fruit trees	30			
		84	Brush meadows and farm pastures	30			
		86	Brush alpine pastures	30			
		97	Unproductive grass and shrubs	30			
30		30	Copse	34			
30		30	Orchards	35			
30		30	Stony Grassland	36			
30		30	Unproductive Grassland	37			

1.) AREA 92/97

Table 2 "Cropland" area according to AREA 92/97

ASCH-Description	ASCH-Code	ha
Regular vineyards	71	15292
"Pergola" vineyards	72	146
Extensive vines	73	227
Intensive orchards	75	8288
Rows of fruit trees	76	3306
Scattered fruit trees	77	29886
		57'145
Horticulture	78	4038
Favourable arable land and meadows	81	547765
		551'803
Total „Cropland“		608'948

Table 3 "Grassland" area according to AREA 92/97

ASCH-Description	ASCH-Code	ha
Other arable land and meadows	82	289374
Farm pastures	83	87304
Mountain meadows	85	32316
Remote and steep alpine	87	51124
Favourable alpine pastures	88	368692
Rocky alpine pastures	89	46024
		874'834
Brush meadows and farm pastures	84	1708
Brush alpine pastures	86	39646
		41'354
Total „Grassland“		916'188

Total Agricultural Area **1'525'136**

2.) Swiss Greenhouse Gas Inventory - LULUCF

Table 3 "Cropland" and "Grassland" area according to the Swiss Greenhouse Gas Inventory - LULUCF

Categories	CC code	ha 1995	ha 2000
Cropland	21	494'992	483'709
Vineyards, low stem orchards, tree nurseries	33	47'295	46'753
Orchards	35	864	744
Total „Cropland“		543'151	531'206
Permanent GL	31	952'019	955'750
Total „Grassland“		952'019	955'750
Total Agricultural Area		1'495'170	1'486'955

3.) Swiss Farmers Union (SBV/SFU)

Table 4 "Cropland" and "Grassland" area according to the Swiss Farmers Union (SBV/SFU)

	ha 1995	ha 2000
Ackerland total (u. a. mit Kunstwiesen)	423'266	410'958
Dauerkulturen total	23'601	24'214
Total „Cropland“	446'867	435'172
Dauergrünland	1'134'408	1'089'947
Total „Grassland“	1'134'408	1'089'947
Total Agricultural Area	1'581'275	1'525'119

4.) Swiss Greenhouse Gas Inventory - Agriculture

Table 5 "Cropland" and "Grassland" area according to the Swiss Greenhouse Gas Inventory - Agriculture"

	ha 1995	ha 2000
Ackerland total (u. a. mit Kunstwiesen und Dauerkulturen)	430'777	437'333
Total „Cropland“	430'777	437'333
Dauergrünland	1'153'754	1'149'473
Total „Grassland“	1'153'754	1'149'473
Total Agricultural Area	1'584'532	1'586'806

Summary and conclusion

Different definitions and assignments of the individual land use subcategories make it difficult to conduct a fair comparison. Especially the assignment of intensive meadows in a crop rotation and permanent crop cultures such as vineyards and orchards is handled differently. It should also be noted that the term "Cropland" is not an exact translation of the German term "Ackerland". "Ackerland" usually refers to arable farmland which does not necessarily include permanent crop cultures (vineyards, orchards etc.) or intensive meadows. Furthermore it must be noted, that the Swiss GHG Inventory-LULUCF dataset is still based on an extrapolation of a sample region that comprises only 35% of the total land surface of Switzerland.

Despite the attempt to consider most of the above mentioned difficulties, values of areas for "Cropland", "Grassland" and total agricultural land are different in the four data sets. Total agricultural area is somewhat smaller in the LULUCF-sector than in the agriculture sector (Table 6, Figure1). At the same time the share of cropland is higher in the LULUCF sector.

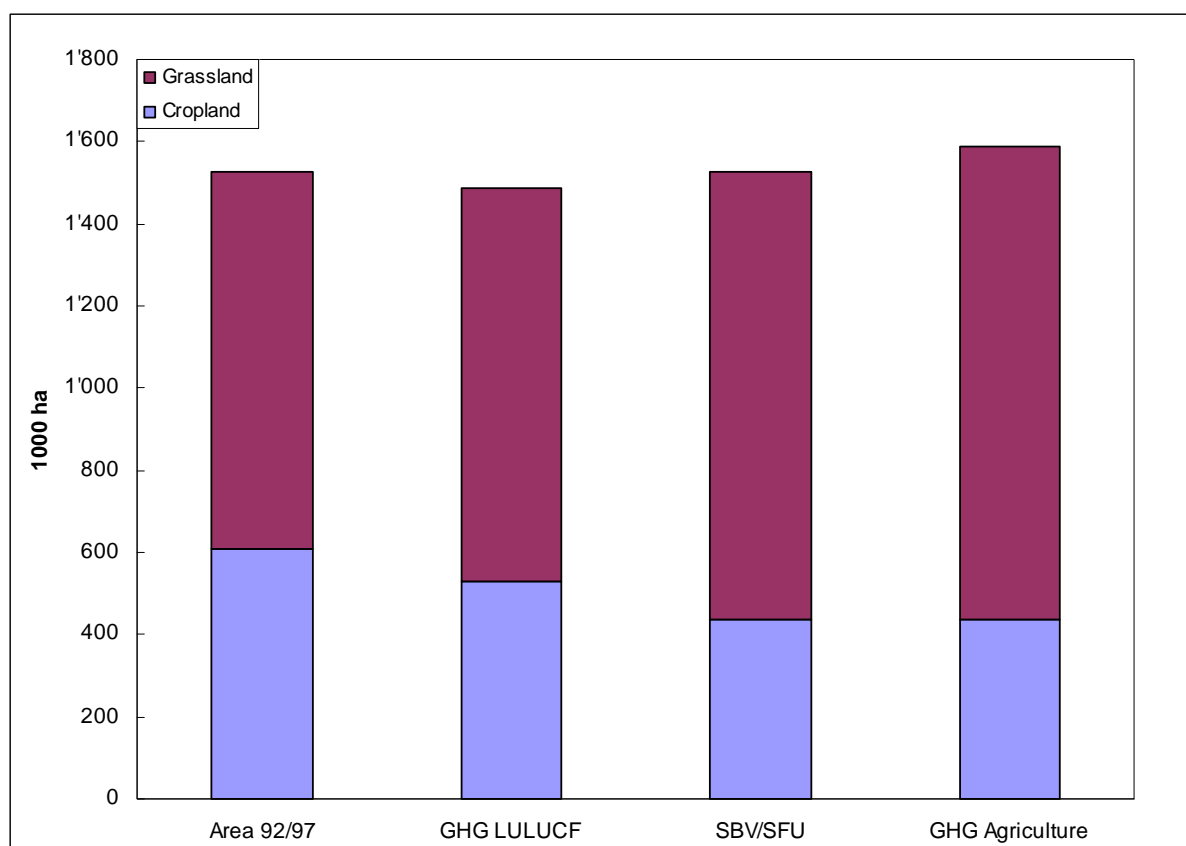
The greatest difference can be found between "cropland"-area of AREA 92/97 and the respective data from the SBV/SFU, the first being 39.9% higher. It is not clear, however, whether the ASCH-categories "Pergola vineyards", "Extensive vines", "Rows of fruit trees" and "Scattered fruit trees" of the AREA 92/97 dataset are also represented in the SBV/SFU-data. Furthermore it can be assumed that the ASCH category "Favourable arable land and meadows" comprises also areas otherwise allocated to "Grasslands".

Overall it must be concluded, that a fair comparison between land area data of the LULUCF and agriculture-sector is hardly possible due to methodological differences, especially different definitions and allocations of land use sub categories. Conclusions about cross sectoral data consistency or inconsistency are therefore only valid to a limited extent.

Table 6 Comparison of “Cropland” and “Grassland” area (all values refer to the year 2000 except “Area 92/97”)

	„Cropland“	„Grassland“	Total Agricultural Area
AREA 92/97	608'948	916'188	1'525'136
Swiss GHG Inventory LULUCF	531'205	955'750	1'486'955
Swiss Farmers Union (SBV/SFU)	435'172	1'089'947	1'525'119
Swiss GHG Inventory Agriculture	437'333	1'149'473	1'586'806

Figure 1 Comparison of “Cropland” and “Grassland” area (all values refer to the year 2000 except “Area 92/97”)



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