

5.7. Liming (3G)

5.7.1. Source category description

CO₂ emissions from application of carbonate containing lime and dolomite to agricultural soils have been estimated. CO₂ emissions from agricultural dolomite application have been included in CO₂ emissions from limestone application, as national statistics on amount of lime applied don't allow to disaggregate the two components (limestone and dolomite).

In 2025, CO₂ emissions from liming were 14.76 kt, which represents 0.7% of CO₂ emissions of the agriculture sector. CO₂ emissions from liming have not been identified as a key source.

5.7.2. Methodological issues

Tier 1 approach, assuming that the total amount of carbonate containing lime is applied annually to soil, has been followed; an overall emission factor of 0.13 t C (t limestone or dolomite)⁻¹ has been used to estimate CO₂ emissions, without differentiating between variable compositions of lime material.

The 2006 IPCC GL equation 11.12 has been used to estimate CO₂ emissions, without disaggregation between calcic limestone and dolomite, as national statistics report an aggregate annual amount of lime (LIMELAND STAT). In Table 5.38 activity data, emission factor and CO₂ emission trend from liming are shown.

Table 5.38. Activity data, emission factor and CO₂ emissions due to lime application

	Amount of limestone or dolomite, t/year	EF (t limestone or dolomite) ⁻¹	C emissions, kt	CO ₂ emissions, kt
1990	2,969	0.13	0.386	1.415
1995	2,984	0.13	0.388	1.422
2000	2,999	0.13	0.390	1.430
2005	3,014	0.13	0.392	1.437
2006	3,029	0.13	0.394	1.444
2007	3,045	0.13	0.396	1.451
2008	3,033	0.13	0.394	1.446
2009	3,037	0.13	0.395	1.448
2010	3,012	0.13	0.392	1.436
2011	4,407	0.13	0.573	2.101
2012	4,050	0.13	0.526	1.930
2013	4,644	0.13	0.604	2.213
2014	13,848	0.13	1.800	6.601
2015	13,663	0.13	1.776	6.513
2016	22,335	0.13	2.904	10.646
2017	31,451	0.13	4.089	14.992

	Amount of limestone or dolomite, t/year	EF (t limestone or dolomite) ⁻¹	C emissions, kt	CO ₂ emissions, kt
2018	25,799	0.13	3.354	12.297
2019	34,307	0.13	4.460	16.353
2020	40,448	0.13	5.258	19.280
2021	38,114	0.13	4.955	18.168
2022	40,115	0.13	5.215	19.121
2023	55,675	0.13	7.238	26.538
2024	34,792	0.13	4.523	16.584
2025	30,934	0.13	4.021	14.745

5.7.3. Uncertainty and time-series consistency

Uncertainty for CO₂ emissions from additions of carbonate limes to soils has been estimated to be 22.4%, as combination of 10% and 20% for activity data and emission factor, respectively.