

Site description – Demo site 2 - Hagens Møllebæk

With an area of 2762 ha Demo site 2 (Hagens Møllebæk) is the larger of the two demo sites in the MapField-project, where Demo site 1 (Hulebro Bæk) has an area of 1129 ha.

Demosites - MapField project

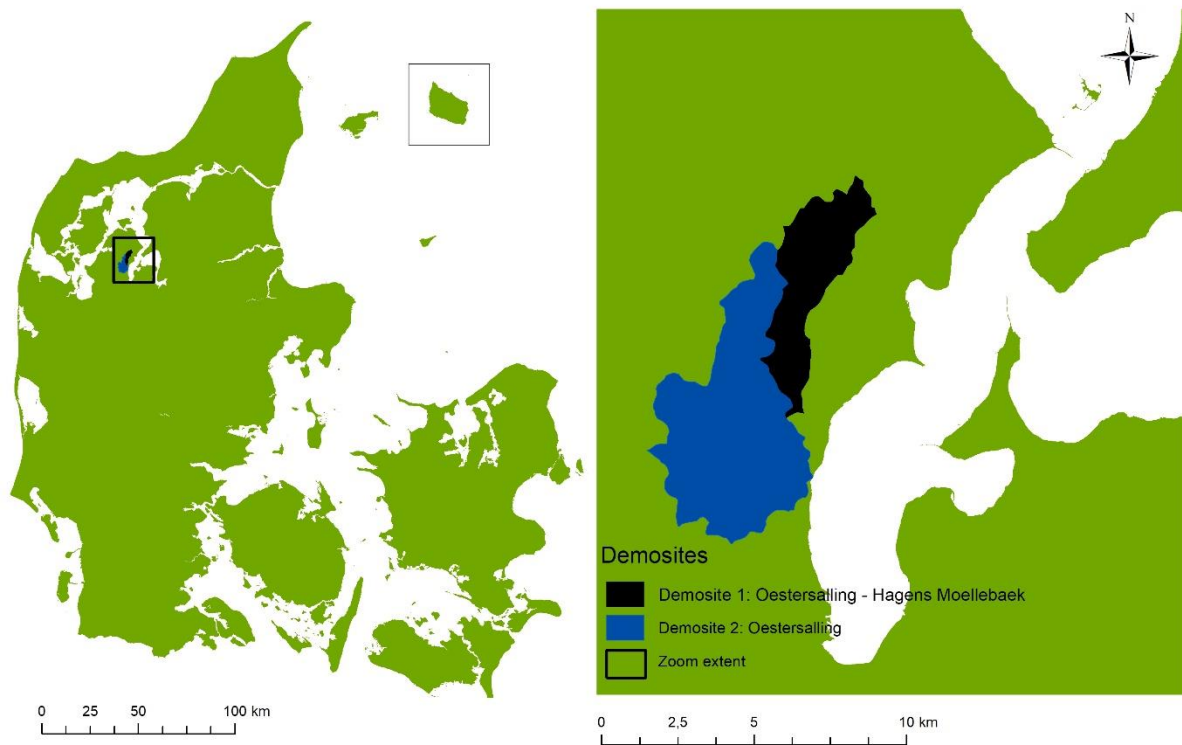


Figure 1: *The location of the two demo sites in the MapField-project.*

The land use in general

Demo site 2 is dominated by agriculture (87.2%, table 1) followed by urban settlement (10.7%) and some nature (i.e. forest, grassland and wetlands) (Figure 2). The share of agriculture is above the national average of approximately 63%.

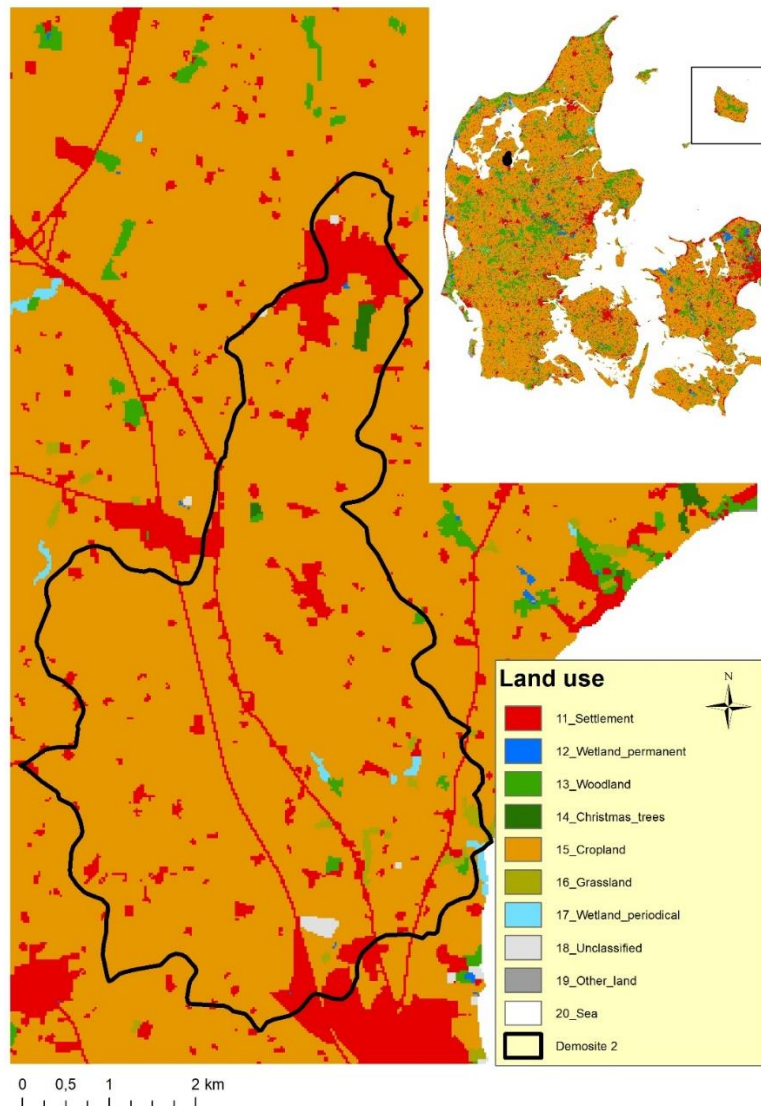


Figure 2: General Land use in Hagens Møllebæk from 2018 (see Levin et al., (2014) for method description).

Table 1: Land use in Hagens Møllebæk in ha and percentage of total area.

Land use	Area ha	Share of total area %
Settlement	294.3	10.7
Wetland permanent	0.7	0.0
Woodland	10.6	0.4
Christmas trees	10.6	0.4
Cropland	2407.7	87.2
Grassland	20.1	0.7
Wetland periodical	7.9	0.3
Unclassified	10.2	0.4
Sea	0.1	0.0

Soil types

Seven out of the 11 soil types are present in the area. The northern and the southwestern parts are characterized by clay soils, whereas the southeastern part is sandy soils (Figure 3). The dominating soil types are "Fine sandy clay soil" and "Fine clayly sand soil" which constitutes 50.32% and 46.48% of the area respectively (table 2).

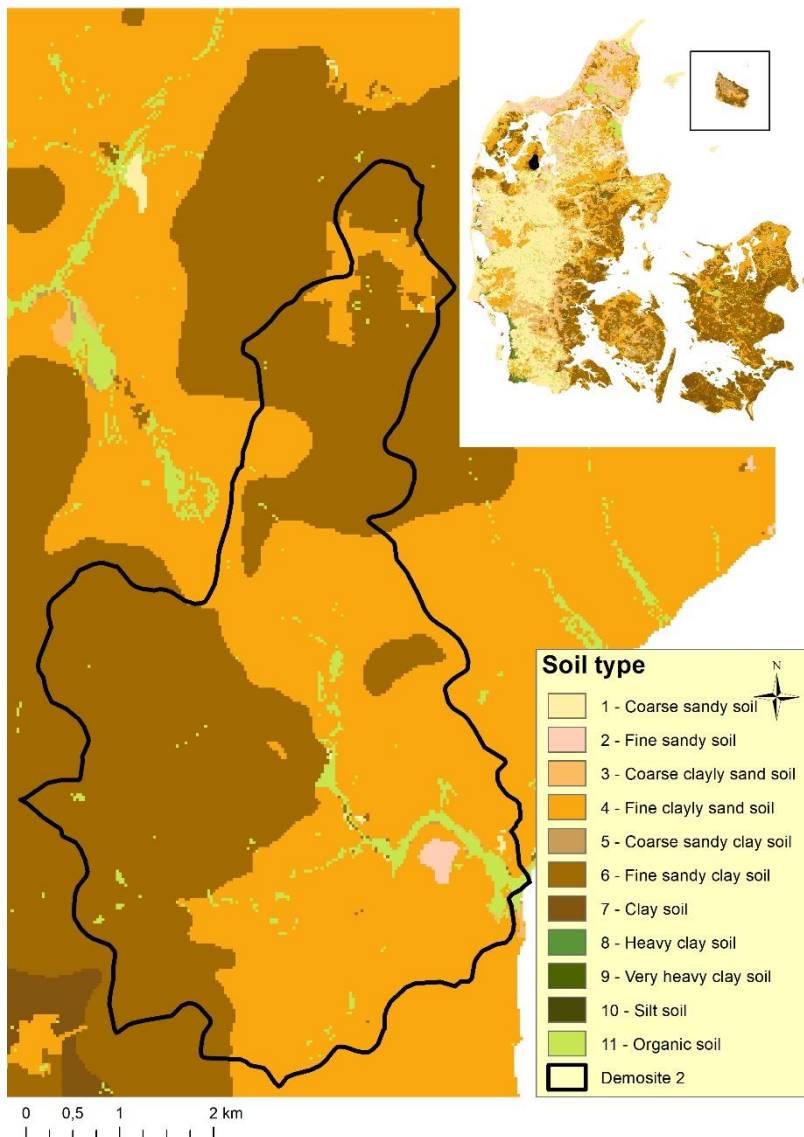


Figure 3: Soil types of Hagens Møllebæk (Adhikari et al., 2013).

Table 2: Soil types of Hagens Møllebæk in ha and percentage of total area.

Soil type	Area ha	Share of total area %
Coarse sandy soil	3.33	0.12
Fine sandy soil	12.85	0.47
Coarse clayly sand soil	1.29	0.05
Fine clayly sand soil	1284.12	46.48
Grov sandblandet jord	0.83	0.03
Fine sandy clay soil	1390.12	50.32
Organic soil	69.96	2.53

Carbon content of the soil

The carbon content of soils is of great importance, as soils with high carbon content has a tendency to emit more carbon dioxide than soils with low carbon content when cultivated. Why, it has been suggested that soils with high soil organic carbon (SOC) content should be taken out of production. Mineral soils with under 6% SOC are dominating the area (97.62%, table 3) where only a low share of the area has between 6 and 12% SOC (1.64%, table 3) or above 12 % SOC (0.74%, table 3).

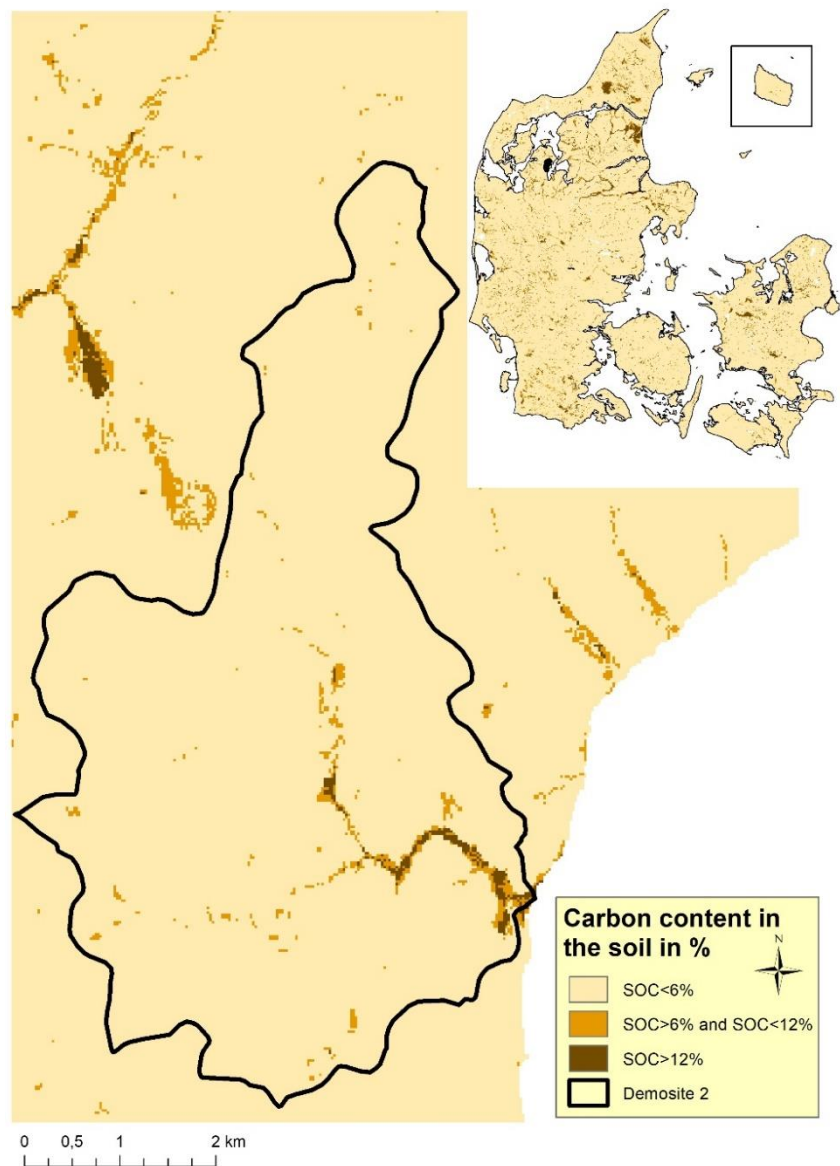


Figure 4: Organic carbon content of soils – Soil Organic Carbon (SOC) in Hagens Møllebæk (Adhikari et al., 2014).

Table 3: Carbon content of soils in Hagens Møllebæk in ha and percentage of total area.

Soil organic carbon (SOC) in the soil - %	Area ha	Share of total area %
SOC < 6%	2696.563	97.62
6% > SOC and SOC < 12%	45.1875	1.64
SOC > 12%	20.375	0.74
No value	0.125	0.00

Agriculture

In both 2018 and 2019 82% of the area in Hagens Møllebæk was registered in the Internet Markkort Database. The five crops most widely farmed besides grass is shown in table 4. Cereals were the primary choice of crops in both 2018 and 2019 - 63.3% and 59.0% of the area respectively. Winter crops (incl. winter rape) made up 42.3% and 54.9% of the area in 2018 and 2019 respectively. The share of non-productive areas (MFO, forestry, nature areas and recreational areas) increased from 0.5% to 1.0% from 2018-19.

Table 4: Top five crops and areas with grass in Hagens Møllebæk in the years of 2018 and 2019 based on registrations in the Internet Markkort database. The percent is of the total area registered in Hagens Møllebæk in the year of concern.

Top 5 crops and areas with grass in 2018	Area ha	% of agricultural areal	Top 5 crops and areas with grass in 2019	Area ha	% of agricultural area
Vinterhvede	576.4	25.4	Vinterhvede	789.4	34.8
Vårbyg	566.5	25.0	Vårbyg	272.7	12.0
Vinterraps	253.9	11.2	Vinterraps	248.2	11.0
Vårhavre	118.7	5.2	Vinterbyg	123.2	5.4
Silomajs	77.9	3.4	Silomajs	105.1	4.6
Grass in rotation (incl. grass seed production)	327.0	14.4	Grass in rotation (incl. grass seed production)	351.5	15.5
Permanent grass	77.7	3.4	Permanent grass	73.5	3.2

The farming styles are distributed as in table 5. Just below one third of the area in Hagens Møllebæk is farmed by dairy and cattle farmers, while approximately a quarter is farmed by pig farmer and likewise a quarter by plant producers. Part time and hobby farmers are not classified further. The area is primarily farmed by conventional techniques, while 12.2% of the area is registered as organic in CVR-register.

Table 5: General distribution of farming styles based on registrations in the Internet Markkort and CVR databases in 2018.

Farming styles	% of agricultural area
Dairy/cattle	28.5
Pigs	24.6
Plant production	23.5
Unclassified	10.1
Part time/Hobby	8.3
Poultry	5.0

References:

- Adhikari, K., Kheir, R. B., Greve, M. B., Bøcher, P.K., Malone, B. P., Minasny, B., McBratney, A. B., Greve, M. H. 2013. High-resolution 3-D mapping of soil texture in Denmark. *Soil Science Society of America Journal*. 77(3): 860-876.
- Levin G., Blemmer, M., Gyldenkærne, S., Johannsen, V.K., Caspersen, O. H., Petersen, H. S., Nyed, P. K., Becker, T., Bruun, H. G., Fuglsang, M., Múnier, B., Bastrup-Birk, A., Nord-Larsen, T. 2014. Estimating land use/land cover changes in Denmark from 1990 – 2012. Report nr 38, DCE – Danish Center for Environment and Energy.
- Adhikari, K., Hartemink, A.E., Minasny, B., Kheir, R.B., Greve, M.B., Greve, M.H., 2014. Digital mapping of soil organic carbon contents and stocks in Denmark. 9(8) Plos one.