



Nitrogen use in the Netherlands in relation to Nitrogen application standards

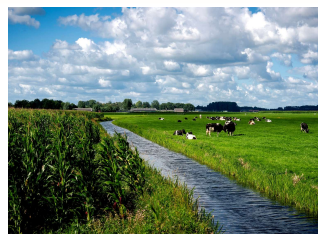
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Introduction

In the Netherlands, a decrease in the Nitrogen fertiliser application standards is prescribed in so called 'nutrient polluted areas' since 2023. These areas are mainly located on drier sandy soils in the East and the South of the Netherlands, but since 2024 also on clay, loess and peat soils across the country. The question arises to what extent dairy and arable farmers use all space that is offered to them within the Nitrogen application standards. If farmers fertilise with Nitrogen below these standards, then a, maybe necessary but limited, decrease of Nitrogen application standards would not affect crop yields.

Objective

- This study provides insight in:
- to what extent Nitrogen application standards are utilized on arable and dairy farms in various regions;
 - types and distribution of Nitrogen fertilisers used.



Method and Data

Calculation, by means of weighted averages because of the sample characteristics of the source, of:

- Average plant available Nitrogen in kg per ha;
- Average Nitrogen application standards in kg per ha;
- Utilisation rate of Nitrogen application standards;
- Share of different fertiliser types in total Nitrogen use.

Data source is the Farm Accountancy Data Network of Wageningen Social & Economic Research:

- Nitrogen use per type of fertiliser and application standards per farm in kg per ha for arable and dairy farms for the years 2019-2023;
- Selection of arable farms with no animals and of dairy farms;
- Distinction in soil type: Peat (only dairy), Clay and Sand.

Results: use and standards in kg N per hectare

	Arable farms					Dairy farms				
	2019	2020	2021	2022	2023	2019	2020	2021	2022	2023
Clay										
Total Nitrogen applied	247	241	242	233	235	383	388	379	375	376
Plant available Nitrogen	193	186	190	179	182	259	264	259	251	254
Nitrogen application standard	203	199	201	203	195	325	322	325	326	312
Sand										
Total Nitrogen applied	205	197	203	194	195	312	328	320	313	316
Plant available Nitrogen	151	147	153	141	142	202	214	210	203	206
Nitrogen application standard	163	165	162	162	153	234	233	236	235	229
Peat										
Total Nitrogen applied	-	-	-	-	-	350	353	355	328	323
Plant available Nitrogen	-	-	-	-	-	221	226	228	210	207
Nitrogen application standard	-	-	-	-	-	264	262	262	265	256

Table 1. Total Nitrogen applied, Plant available Nitrogen and Nitrogen application standard for **arable and dairy farms** on Clay, Sand and Peat soils (kg N per ha per year)

Arable and dairy farms on Clay have higher application standards and use of Nitrogen (total and plant available) than those on Sand. Dairy farms have higher application standards and use of Nitrogen (total and plant available) than arable farms. Application standards differ between years caused by changes in cropping plan and in regulations.

Results: shares of different manure types

- Farms on Clay use relatively more inorganic fertiliser than farms on other soils.
- Arable farms use relatively more other organic fertilisers than dairy farms.
- Dairy farms use relatively more animal manure than arable farms.
- Dairy farms on Peat have the highest share of animal manure.

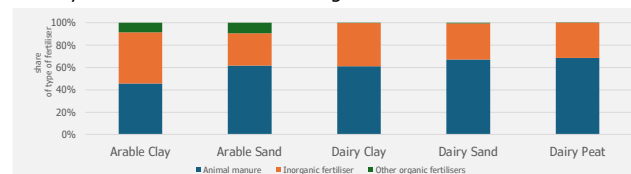


Figure 1 Share of Nitrogen use per type of fertiliser of arable and dairy farms per soil type, average of 2019-2023, (%).

Results: utilisation rates

The utilisation rate varies between 75-95%. Arable farms have a higher utilisation rate than dairy farms. Because of the high prices of inorganic fertilisers and the draught in 2022 utilisation rates are the lowest in the shown period.

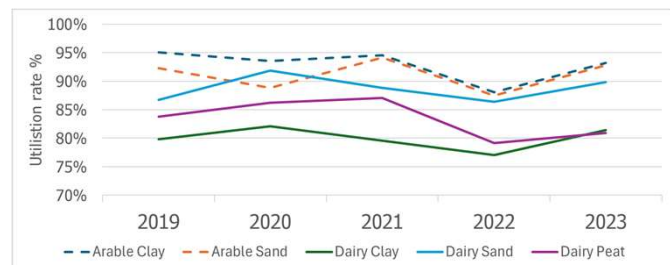


Figure 2. Utilisation rate of Nitrogen application standard for arable and dairy farms on Clay, Sand and Peat soils, period 2019-2023 (%)

Conclusions

- Availability of animal manure on dairy farms leads to higher share in total Nitrogen applied but not to a higher utilisation rate in comparison with arable farms.
- Application standards on arable farms are more restrictive than those on dairy farms.
- Lower application rates on dairy farms lead to less use of Nitrogen but utilisation rates are higher (>85%).

Acknowledgements

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CD0 Droogte? In 2019 en 2020 waren er ook droge perioden, zeker in Zuid- en Oost-NL. Verder in 2022 extreem hoge kunstmestprijzen.

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HMO 0 Dank. Hoge prijzen toegevoegd. Ik heb niet veel ruimte om droogte gespecificeerder toe te lichten. Dus hier geen verandering gedaan.

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