



Nitrate leaching from grain maize after different tillage methods and long/short term cover cropping

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Results. Average nitrate leaching (kg N/ha/yr) and maize grain dry matter yield (Mg/ha) as influenced by soil tillage and CC use.

Treatment	Time of cultivation	Previous use of CC	Nitrate leaching	DM grain Yields	
				2009	2010
Soil tillage					
Ploughed	Autumn	Last 16 years with CC	72	7.5	6.8
Ploughed	Autumn	38 years with CC	61	7.6	6.6
Ploughed	Spring	First 24 years with CC	63	6.7	7.1
Ploughed	Spring	40 years without CC	48	6.9	6.8
Rotovated (5 cm)	Spring	40 years with CC	72	5.5	6.8
Direct drilling	Spring	40 years without CC	55	7.0	7.1
			ns	*	ns
Present use of CC					
With CC			56	6.8	7.0
Without CC			69	6.9	6,8
			*	ns	ns

Introduction

The maize area in northern Europe has increased dramatically during the last 20 years.

Knowledge about nitrate leaching from maize under temperate coastal climate conditions is sparse.

Cover Crops (CC) may be a tool to reduce nitrate leaching.

Method

A maize experiment with soil tillage and CC was established in a field trial initiated 1968 on coarse sandy soil in Denmark.

Leaching was measured by ceramic suction cups (two in each plot in four replications).

Conclusions

The effects of tillage and previous use of CC on nitrate leaching were insignificant.

The present use of CC slightly reduced nitrate leaching as compared to no CC.

Grain dry matter yield of maize was not significantly affected by tillage or present CC.

The CC was well established but grew less vigorously during autumn due to competition from the maize crop.

