

Residual effects of cutting and grazing on grass/clover growth

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Introduction

Animal excreta affects the growth and nitrogen fixation of the clover and grazing impose animal treading and more frequent defoliation. Different clover species have different abilities to survive under grazing conditions. We investigated the residual effect of grazing in perennial ryegrass/white clover mixtures alone or with inclusion of red clover.

Materials and methods

Seed mixtures: 15% white clover/85% perennial ryegrass or 4% red clover/14% white clover/82% perennial ryegrass. Grazing plots were grazed continuously by heifers. In grazed 2-4-yr-old plots, cuts were made in temporarily fenced off subplots and the rest period was the same as for the cutting regime in spring growth and 2nd regrowth.

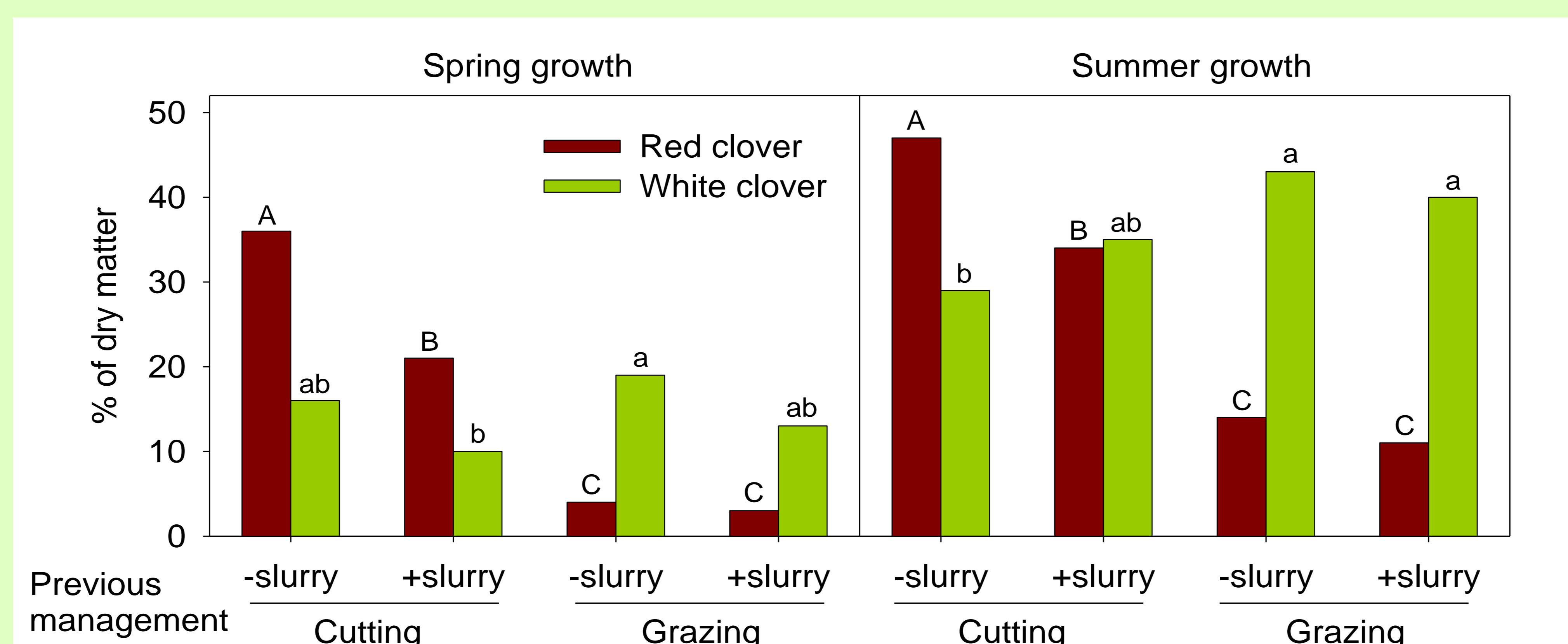
Yield, total clover proportion and N in herbage with different management (also in the previous years).

		Spring growth			Summer growth		
		DM yield (t DM/ha)	Clover (% of DM)	N (% of DM)	DM yield (t DM/ha)	Clover (% of DM)	N (% of DM)
Ryegrass/white clover							
- Slurry	Cutting	3.8 ^c	21 ^a	2.1 ^a	2.4 ^{ab}	58 ^a	3.3 ^a
	Grazing	3.9 ^c	11 ^b	1.7 ^b	2.4 ^{ab}	54 ^a	3.4 ^a
+ Slurry	Cutting	4.8 ^b	13 ^b	2.1 ^a	2.2 ^b	34 ^b	3.0 ^b
	Grazing	5.4 ^a	4 ^c	1.8 ^b	2.7 ^a	34 ^b	3.2 ^a
Ryegrass/white and red clover							
- Slurry	Cutting	5.0 ^b	52 ^a	2.7	2.3 ^b	76 ^a	3.6
	Grazing	4.9 ^b	23 ^c	2.1	2.9 ^a	57 ^b	3.3
+ Slurry	Cutting	5.6 ^a	31 ^b	2.5	2.5 ^b	70 ^a	3.7
	Grazing	5.9 ^a	16 ^d	2.1	3.0 ^a	51 ^b	3.6

- Ryegrass/white clover: Previous grazing reduced white clover content in the spring cut and significantly increased yields compared to cutting where slurry was applied.
- Ryegrass/white and red clover: The inclusion of red clover increased the total clover content and the effect of previous management disappeared.

- Fertiliser response was highest under previous grazing compared to cutting. The fertiliser response in the ryegrass/white clover mixture was twice as high as in the ryegrass/white and red clover mixture.
- The managements effects were not affected by the age of the sward

Proportion of red and white clover in ryegrass/white/red clover mixtures



- Red clover was very abundant under cutting regime, the content declined with grazing.
- White clover content was positively influenced by grazing.
- Under cutting regime red clover content was more reduced than white clover of slurry application

Conclusion

The experiment showed profound residual effects of management on white clover-perennial ryegrass swards both

with and without red clover. These effects can be utilised in farm management for improving yield and fertilizer response