

Spring nitrogen fertilization of perennial ryegrass: effect of type

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APPLIED PLANT RESEARCH
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History and new research

- 1978-1983: 14 trials (60-210 kg N/ha), one variety in one trial → advice clay soils: 165–0.6 (N in soil 0–90 cm) (Meijer and Vreeke; 1988)
- 2000-2004: 5 trials (advice, advice–30, advice–90 kg N/ha), two series of seven varieties/trial: test of efficiency of nitrogen use (no Moddus)
- 1999-2001: 4 trials Moddus: advice, advice+45 kg N/ha (different varieties)
- 2000-2003: 5 trials splitting nitrogen (Elgon, tetraploid early type): advice–90 till advice+45 kg N/ha

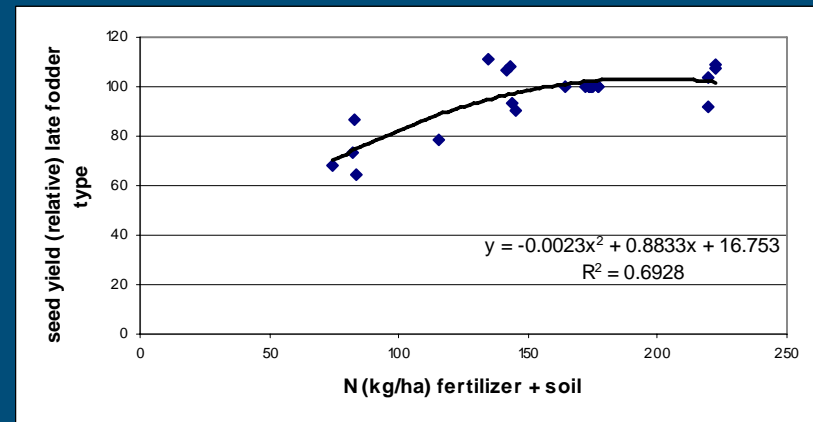
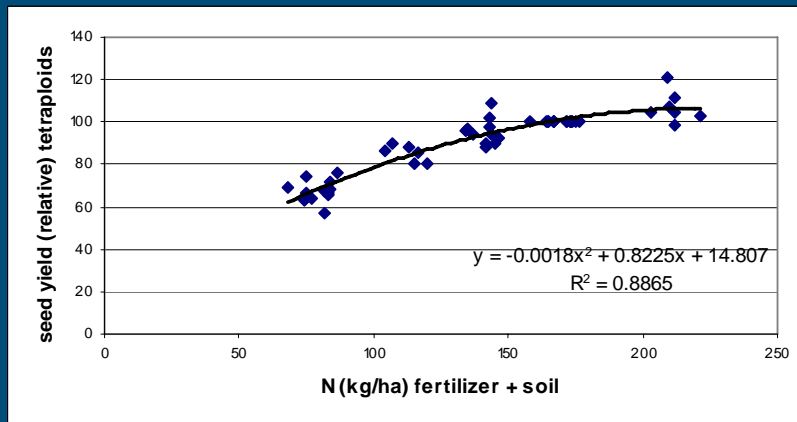
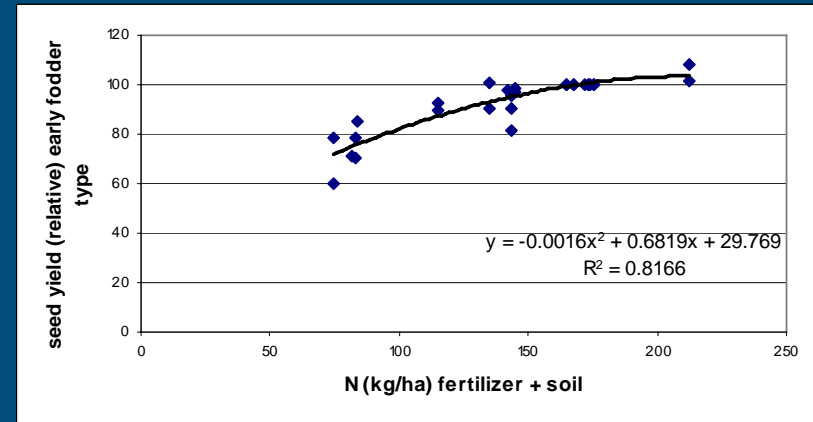
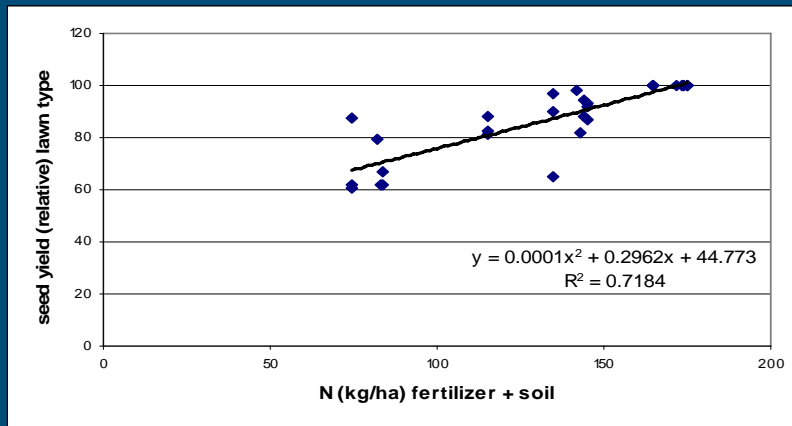


Effect of decrease of nitrogen fertilization on seed yield of different types of perennial ryegrass (5 trials).

type	number of varieties	variety x trial	seed yield decrease (kg/ha) (advice – 30)
lawn	5	10	165
diploid early fodder	3	8	97
tetraploid	2	8	89
diploid late fodder type	2	5	-8



Effect of nitrogen supply (fertilization+soil N) on seed yield different types of perennial ryegrass (14 trials).



New advice spring nitrogen application seed crops perennial ryegrass (first harvest year)

- Lawn type: 220-soil mineral N
- Early fodder type: 190-soil mineral N
- Late fodder type: 180-soil mineral N
- Tetraploids: 205-soil mineral N

Average: 195-soil mineral N

Old advice: $165 - 0.6^*(\text{soil mineral N})$



Reasons difference between old and new advice

- Change in varieties (**lawn**, late and tetraploid types are dominant now)
- Change in cropping system (open land drilling very dominant now)
- Lower soil mineral N in spring (warmer, wetter winters) 60 kg N/ha in 1978-1983, 25 kg N/ha in 1999-2004)
- Growth regulator Moddus available (tool to prevent early lodging)

