

Spring nitrogen fertilization of perennial ryegrass: chlorophyll tester

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APPLIED PLANT RESEARCH
WAGENINGEN UR

Nitrogen needs of the crop and nitrogen supply

- Nitrogen supply by fertilizer and mineralization
- Mineralization depends on temperature and humidity
- Hard to forecast quantity of mineralized nitrogen
- Highest need of nitrogen during stem elongation
- Need of method to get a good estimate of nitrogen supply of the crop for decision about additional fertilizer

Suitability of chlorophyll tester

- Field trials in 2000-2003



Topics of research chlorophyll tester

- Relation nitrogen supply and chlorophyll value
- Effect of variety
- Relation chlorophyll value and seed yield
- Relation chlorophyll value and effect of additional nitrogen
- Effect of year and soil



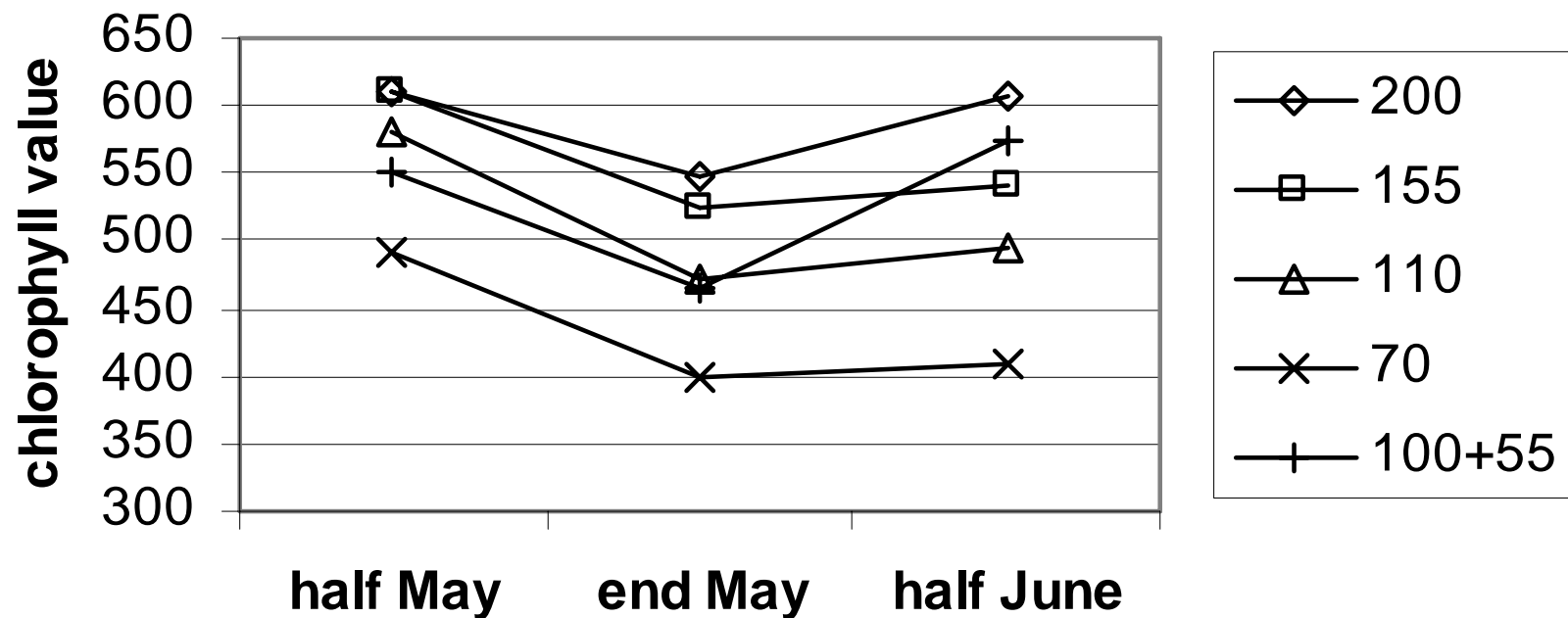
Chlorophyll tester



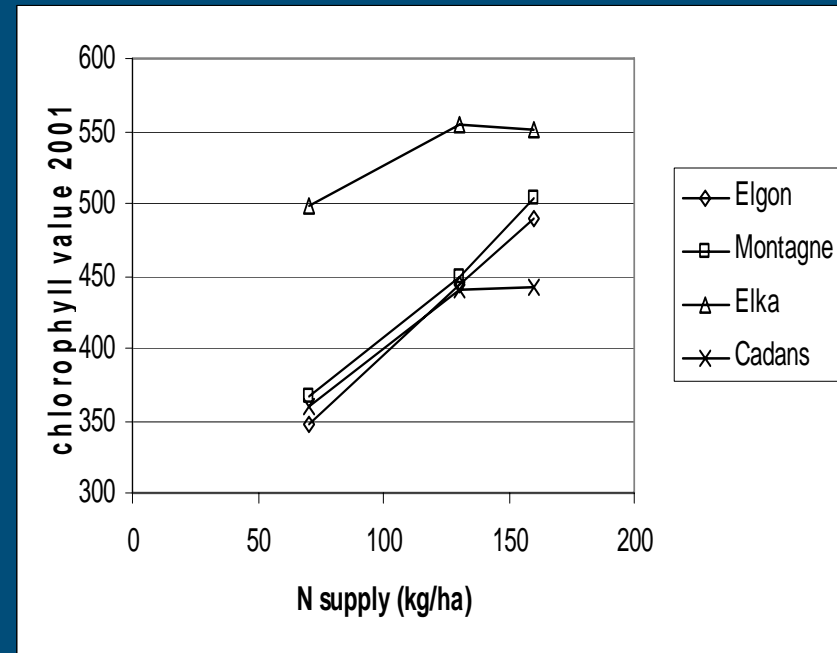
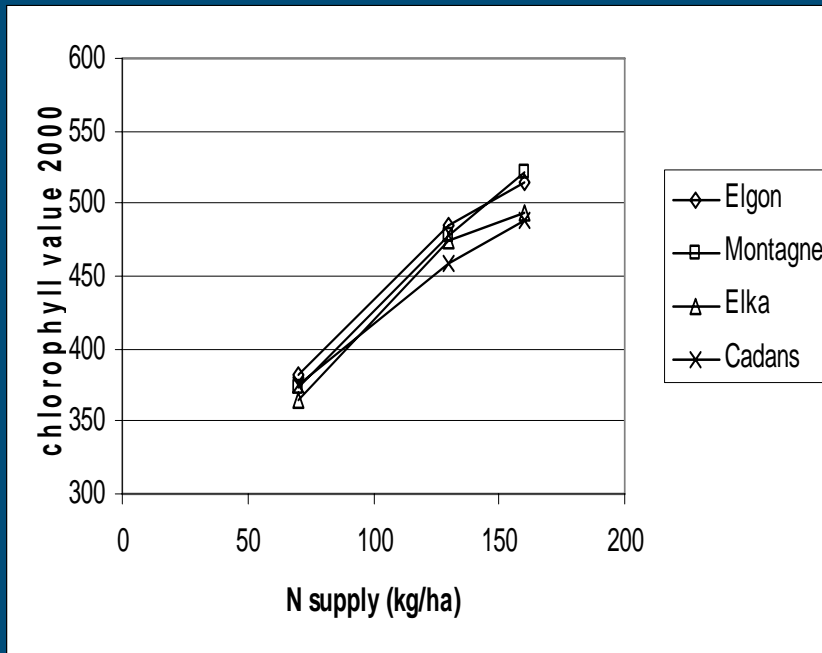
- Measurement of quantity of chlorophyll by absorption of red (650 nm) and infrared (940 nm) light
- 30 measurements per treatment: average, sed (5 minutes)



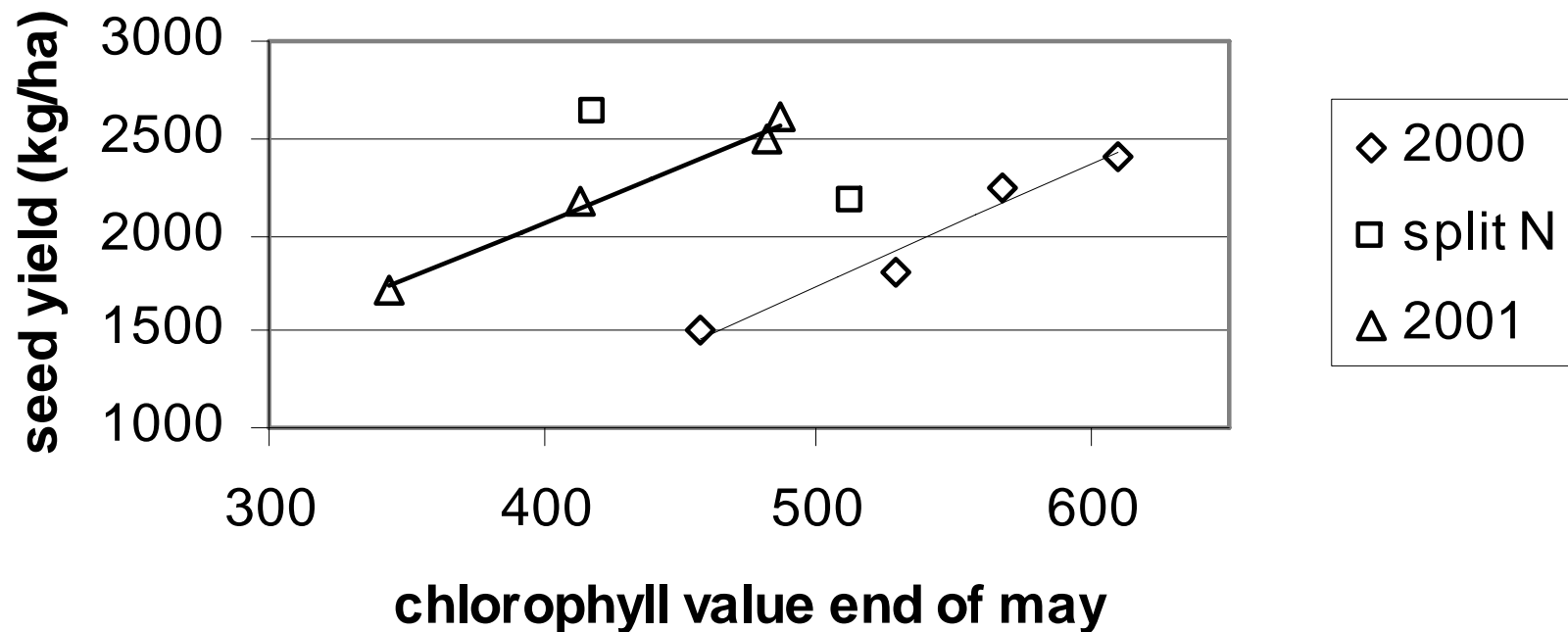
Relation nitrogen supply and development chlorophyll value (average 2000/2001), cv. Elgon



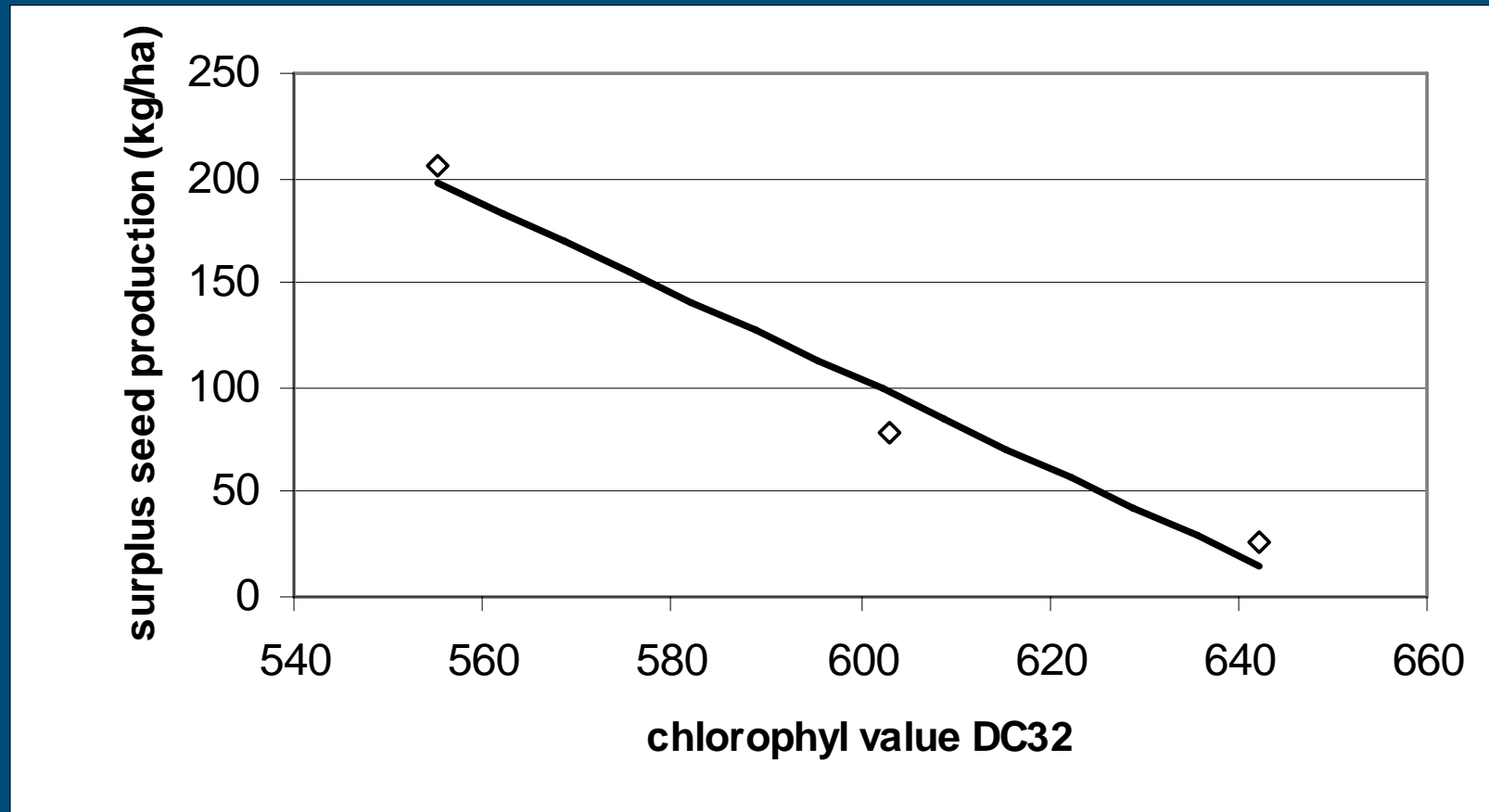
Relation nitrogen supply and chlorophyll value flag leaf of 4 varieties in 2000 and 2001



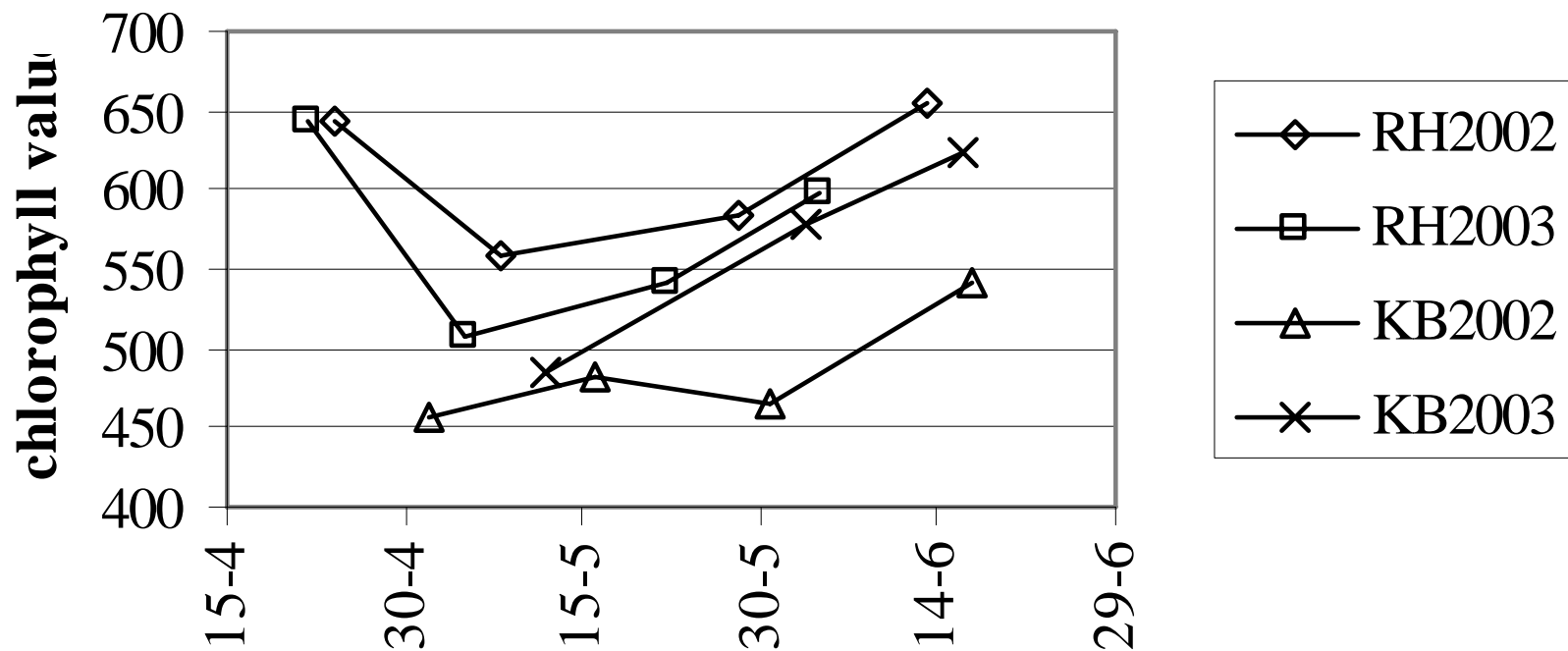
Relation chlorophyll value flag leaf and seed yield in 2000 and 2001, cv. Elgon



Effect of 30 kg N/ha on seed yield at different chlorophyll value at DC32 in 2002, cv. Elgon



Effect of type of soil and year on development of chlorophyll value cv. Elgon (RH=clay, KB=sand)



Conclusions

Result of chlorophyll tester is not only related to nitrogen supply but also to:

- year,
- development stage, date
- variety and
- soil type

Chlorophyll tester is (alas) not a useful tool to manage nitrogen supply of seed crops of perennial ryegrass

