LRCAF

LITHUANIAN RESEARCH CENTRE FOR AGRICULTURE AND FORESTRY

The Effect of Different Organic Fertilizers on Grain Maize Under Cool Climate

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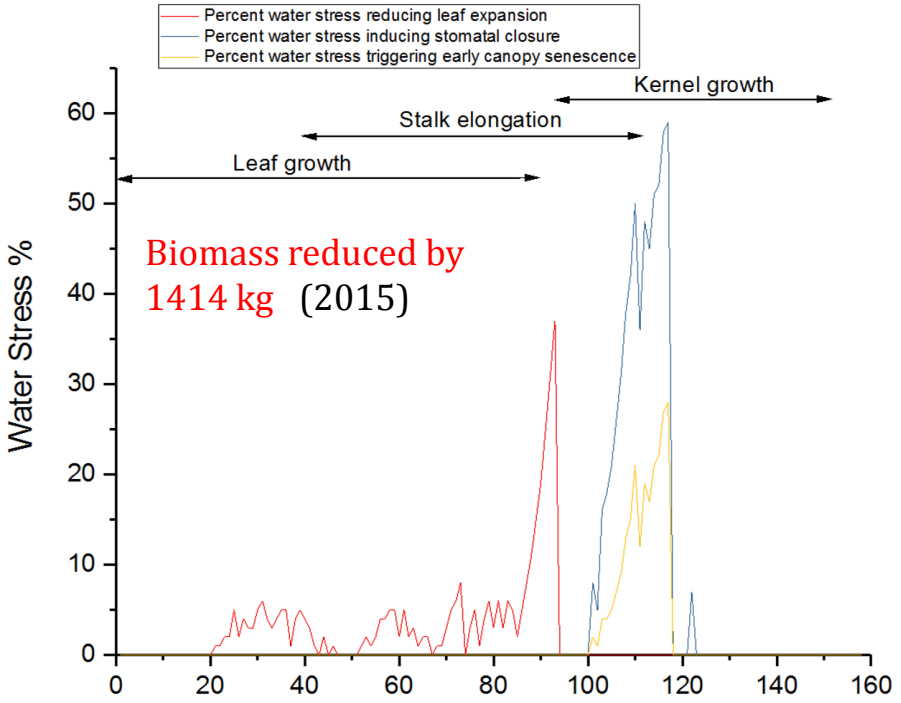
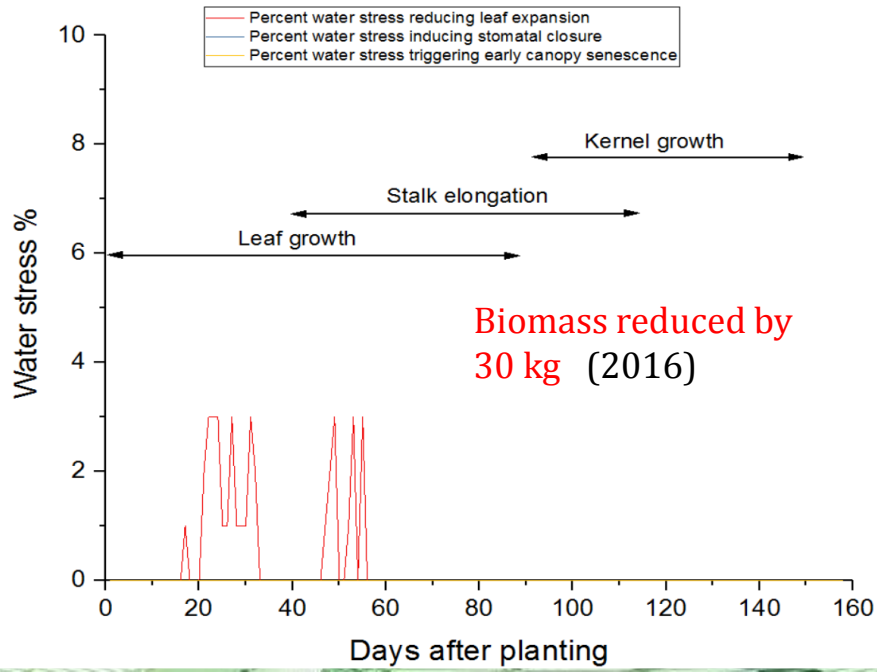
THE AIM OF THIS STUDY

Study was aimed to evaluate the effect of mineral and organic fertilizers on (i) grain maize biomass and grain yield; (ii) crop N status in contrasting conditions of two years Pelletised poultry, cattle manure and green waste compost (N170) were compared with amonium nitrate fertilizers.

RESULTS

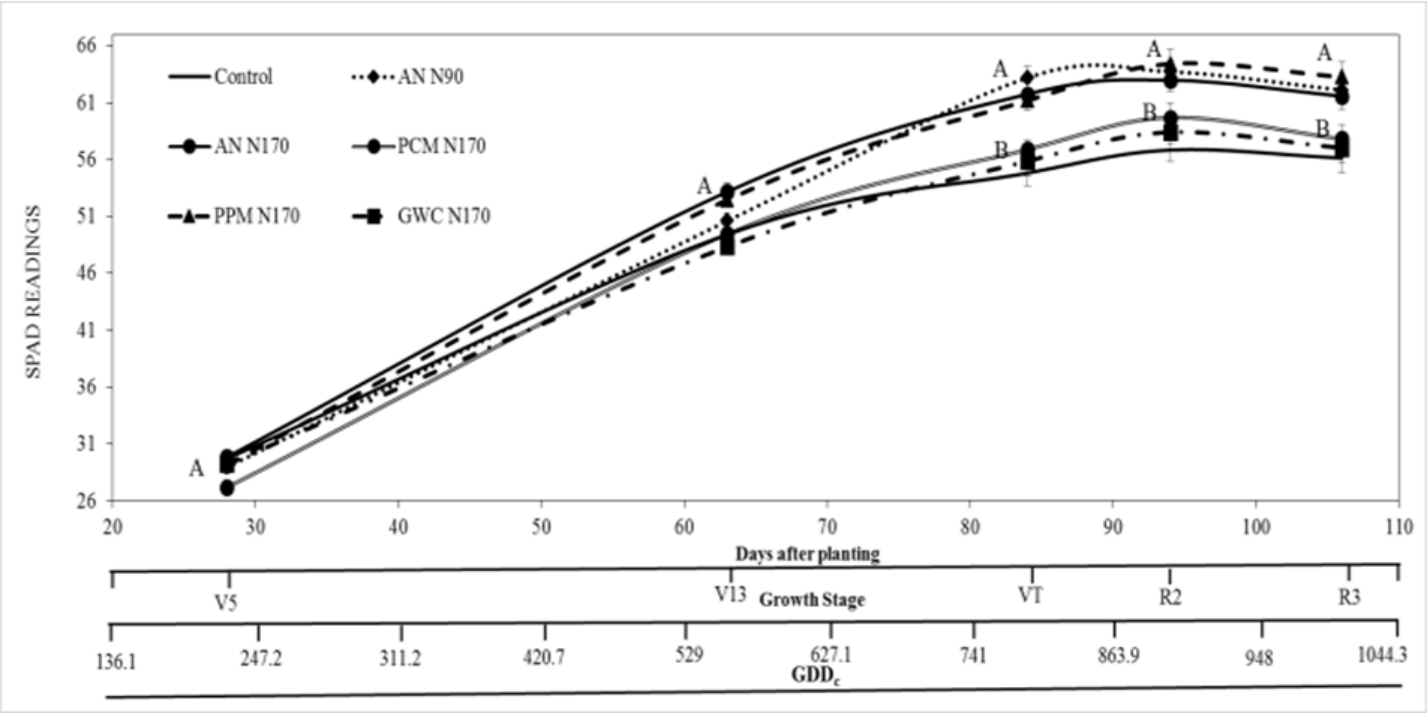
- Aquacrop model indicated that water stress reduced the potential yield by 16% in 2015 and <2% in 2016.





RESULTS (2)

- Maize N status (SPAD, NNI) between plots applied with organic and mineral fertilizers started to differ at the end of July - before Tasseling.



- Maize grain yield was higher in plots with pelletised poultry manure and lower - in cattle manure and green waste compost,
- Effect of organic fertilizers on crop and soil N status was different, but lower than that of commercial NPK fertilizers.

Conclusions

- Pelletised poultry manure (N170) provided close to-optimal maize N nutrition and can be used as solely source of N for grain maize;
- Direct first year effect of pelletised cattle manure and green waste compost on maize is limited, thus combination with mineral fertilizers should be cosidered.
- Relative high amounts on mineral nitrogen in soil at harvest in plots which received 170 kg ha^{-1} of N as AN
- Drought, which periodically occurs in Lithuania, can limit capacity of maize to use efficiently high amounts of N.