

Towards a Water and Nutrient Efficient Forages Production in Pakistan



Background and Objective

- Agriculture sector has key importance in Pakistan's economy, accounting for more than 20 % of national GDP and share of livestock in agriculture value added is 55%.
- Sustainable availability of green forage is critical to livestock farmers as it is the most valued and economic source of feedstock.
- Keeping in view the constrains, the major objectives of the study were i) to evaluate effects of cropping system, fertilizer type and irrigation level on total annual yield and irrigation water use efficiency. ii) to investigate relationships between chlorophyll content and crop yield as a basis for a simple sensor-based prediction of crop yield.

Materials and Methods

- An experiment was conducted to evaluate different forage types for water and nutrient efficiency at University of Agriculture Faisalabad during 2010-12 with three factorial completely randomized design
- Three fertilizer levels (control, farm yard manure and mineral fertilizer), two irrigation levels (recommended irrigation and half than recommended irrigation) and two cropping systems i.e. Common cropping system (CCS= Egyptian clover followed by Corn) and drought adopted cropping system (DACS= Oat followed by Sudan grass) were used in the experiment
- Data were collected for yield and chlorophyll contents (SPAD value)
- Data obtained for different yield and quality traits were analyzed by using statistical software MStat-C

Acknowledgements

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Conclusion

- By growing DACS we can get higher yields even in limited resources of water and fertilizer to fulfill the needs of the livestock.
- Positive linear relationships, found between chlorophyll content and yield for all crops, suggest this technique as a fairly accurate approach to predict yields of crops in vegetative growth stage

Results

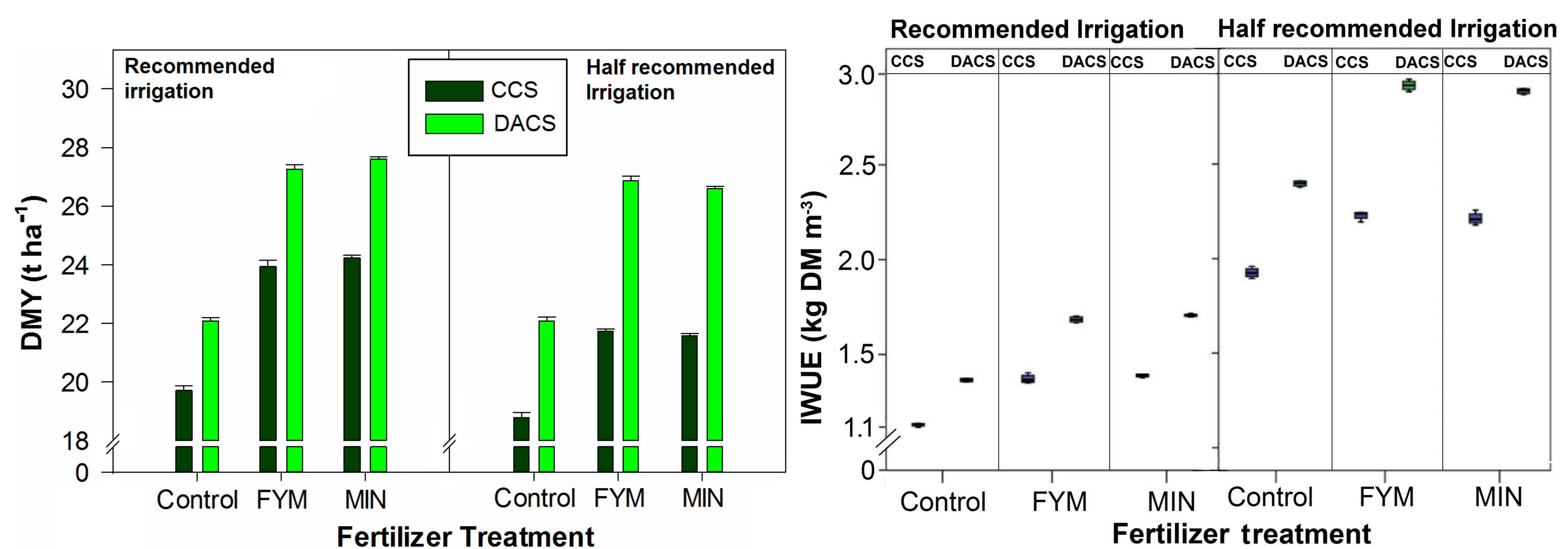


Fig. 1 Dry matter yield and irrigation water use efficiency as affected by fertilizer and irrigation treatments

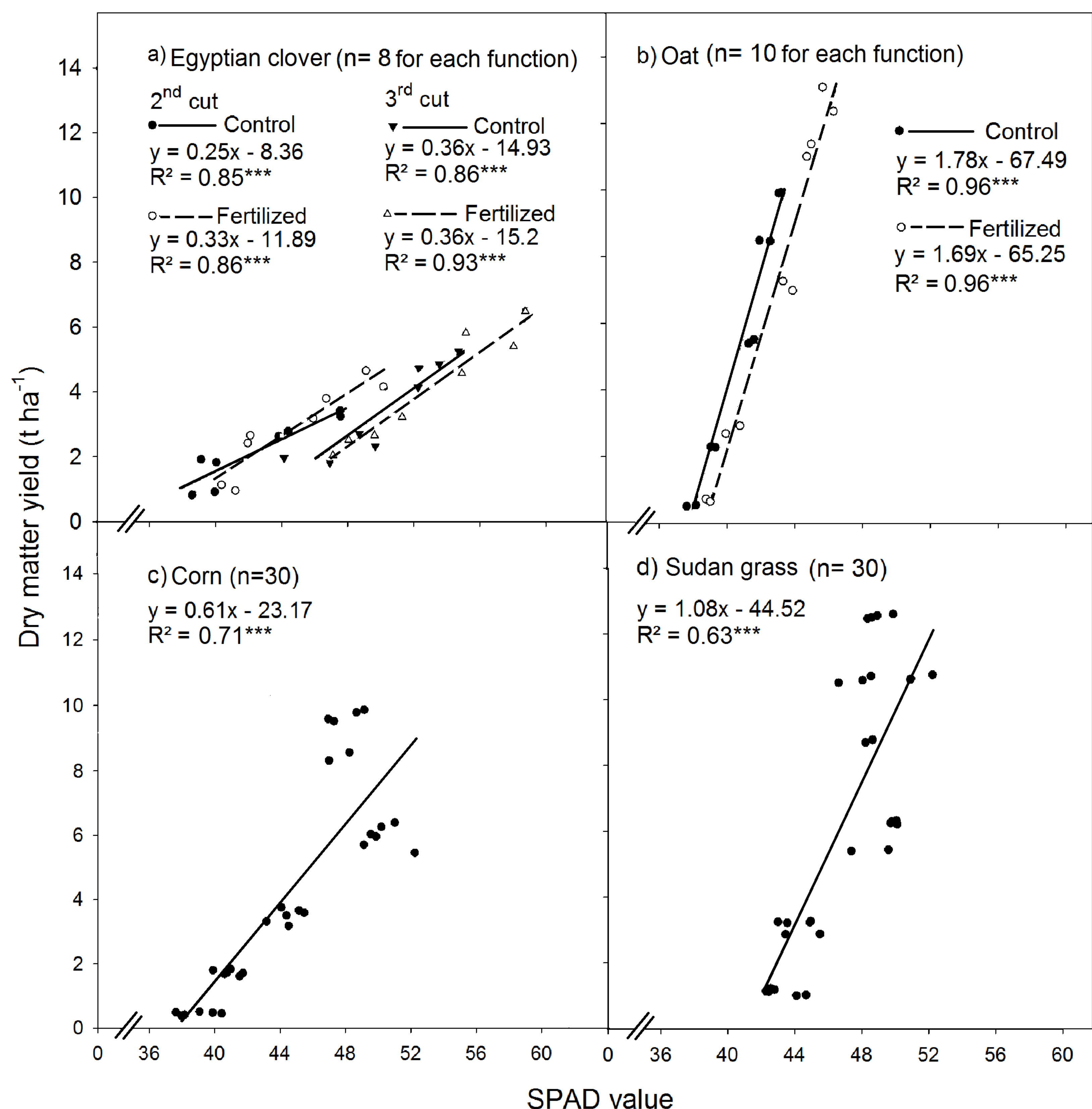


Fig. 2 Relationship between dry matter yield and chlorophyll contents (SPAD value)