Root texture and storage losses of sugar beet varieties as affected by N application and irrigation

This project ran as part of the COBRI* collaboration during 2018 and 2019. The final report from this project was published as a scientific article in Sugar Industry with the title *Root texture and storage losses of sugar beet varieties as affected by N application and irrigation*.

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Project website: https://www.meran.se/biophd/sugar-beet-texture-irrigation-and-nitrogen/

Description of project design

- 3 Countries. Belgium, the Netherlands, Sweden.
- 2 Years. 2018 and 2019.
    - 6 Trial sites. 1 per country and year.

- 2 Factors. Variety and key agronomic practice
    - 1 set of 3 Varieties.
        - One of each of E-, N-, and Z- type, but not chosen to represent these types.
    - 2 sets of 3 levels of a key agronomic practice. Available N (BE and NL), Available H_2O (SE)
        - N (application in spring):
            - 0 $kg.ha^{-1}$ additional N
            - ca. 120 $kg.ha^{-1}$
            - ca. 200 $kg.ha^{-1}$
        - H_2O (further details on application rates on next page):
            - no irrigation
            - optimal irrigation
            - heavy irrigation during the last month of growth.

- 6 replicates per trial site.
- 54 plots per trial (3 varieties x 3 agronomic practice levels x 6 replicates)

- Split plot designs were employed at all trial sites, with the agronomic practice constituting the main plots.

Water applied during the growing seasons in SE was recorded as:

- 2018:
    - 152mm rainfall
    - 152mm rainfall + 135mm irrigation (5 passes)
    - 152mm rainfall + 60mm irrigation (2 passes)
- 2019:
    - 359mm rainfall
    - 359mm rainfall + 118mm irrigation (4 passes)
    - 359mm rainfall + 35mm irrigation (1 passes)

* COBRI is the COordination Beet Research International. It consists of four national sugar beet research institutes, representing five sugar beet growing nations: IRS in the Netherlands, IRBAB in Belgium, IfZ in Germany, and NBR in Sweden and Denmark. These institutes work together through the collaboration on projects that have agro-ecological, management, policy, or other relevance to the sugar beet industries in the partner countries.

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