Nitrogen use efficiency of Modern and Old Spring Barley cultivars in Finnish growing conditions. (C02muurinen062004-Poster)

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Abstract:

Nitrogen is one of the most important nutrients in crop production even though crops can make use of only 30 - 50% of the applied nitrogen fertilizer. The loss of nitrogen cause environmental pollution as well as economic losses. Therefore, cereal cultivars with more efficient nitrogen use are of special interest in Finland as cereal production covers som 50% of the cultivated area. The objective of this study was to determine genotypic differences for traits characterizing nitrogen use efficiency (NUE). Three spring barley cultivars (landrace and two modern varieties) were studied in MTT, Jokioinen in clay soil without (N0) and with 90 kg/ha (N90) N fertilizer. The plant samples were collected at four growth stages during the growing period and samples were divided to main shoots and tillers. The nitrogen content was analyzed with Leco and calculations of NUE were made based on differences in fertilizers treatments (N90-N0). According to our results from the year characterized by exceptionally cool and wet spring, the cultivars differed in N content. Particularly, the modern cultivars had better uptake and utilization efficiencies than the landrace. However, the landrace had higher nitrogen harvest index.

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