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Yield formation of spring rye at high latitudes with reference to seeding rate and plant growth regulation

Keywords crop yield, lodging, precipitation, sowing rates, Secale cereale, stems, tillering, yield components,

Abstract

Aspects of crop physiology and agronomy of spring rye were evaluated at Viikki Experimental Farm, University of Helsinki in 199 baseline information on its potential as a novel cereal crop in southern Finland.The German spring rye cultivar Ovid was ferti N ha-1. Seeding rates were 300,500 and 700 viable seeds m-2. Chlormequat chloride (CCC)was sprayed at the two-node stage of the its effects on lodging and yield formation were studied. Various traits were assessed that characterised tiller and main shoot productivity, growth duration and plant stand structure.Spring rye responded differently over years and among CCC treatments. C grain yield by about 200 kg ha -1 compared with the control.Spring rye has long straw (130-140 cm)and tended to lodge under hea rainfall.Thus,grain yield was maximum (ca. 5200 kg ha -1 in 1997)when rainfall was minimum.Partly because high seeding rates en lodging,no seeding rate effects on grain yield were recorded.At 300 seeds m-2, yield formation of both main shoot and tillers w compensate for the reduced number of main shoots m-2. Ripening was not delayed at low seeding rates.Grain and hectolitre weight affected by seeding rate. Thus,spring rye is a potential crop for Finland if low seeding rates are used.

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[Full text] (PDF 55 kt)

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