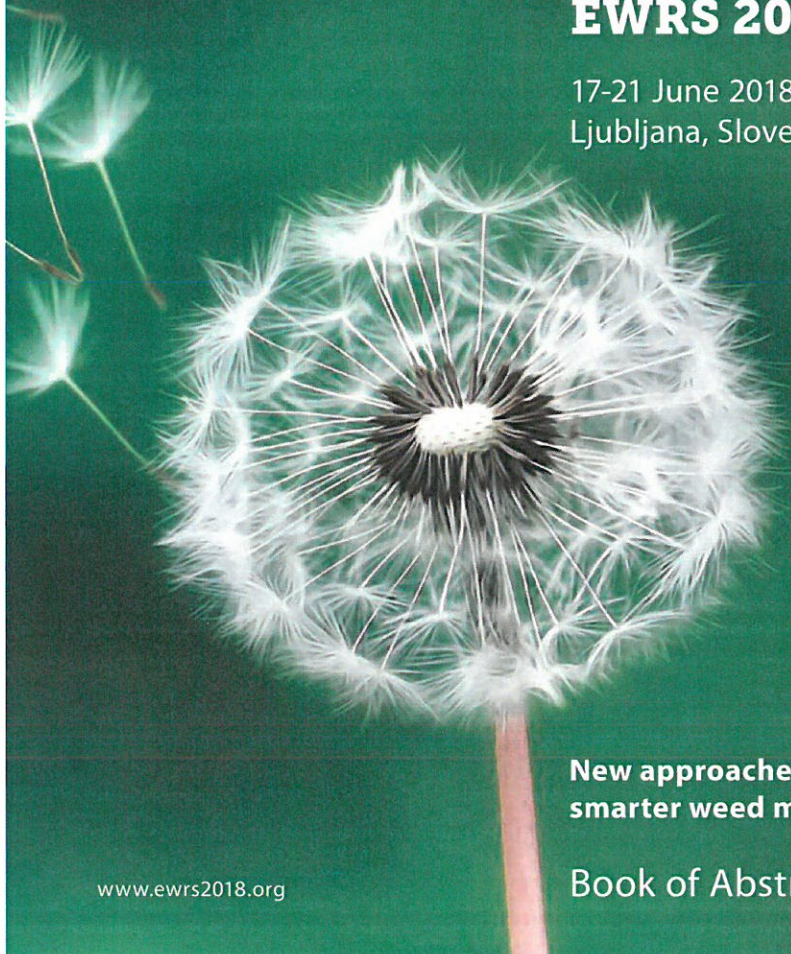




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Inter-row hoeing for weed control in organic spring cerealsBo Melander¹, Liubava Znova², Ole Green²¹Aarhus University, SLAGELSE, Denmark²AgroIntelli, AARHUS, Denmark

New camera technology capable of detecting crop rows now makes it possible to employ selective weed control in spring cereals. Cereals are normally grown at 125 mm inter-row spacing but even moderate extension of the spacing can make enough room for automatically steered inter-row hoeing; the technology is being employed on an increasing number of organic farms. However, intra-row weeds, i.e. those growing in the crop lines, are not controlled and increasing the inter-row spacing to ≥ 250 mm may cause a yield penalty. The aim of this study was to investigate the interaction between inter-row cultivation, inter-row spacing and nitrogen rate on weed and crop growth. Results encompass four years field experimentation with spring barley and spring wheat including studies on optimal hoe blade configurations for hoeing at narrow inter-row spacing. Weeding effectiveness was generally greater in barley than in wheat but with minor differences between the inter-row spacing studied (125-150-200-250-300 mm). Maintaining the seed rate when increasing inter-row spacing was important for preserving crop yields and in most cases wide inter-row spacing (300 mm) did not yield less than the other spacing. Nitrogen rate only affected crop yields. The traditional 'Ducksfoot' blade was not optimal for inter-row hoeing at small row spacing due to excessive side wards soil movement covering the crop leaves. Two new hoe blade designs performed better in this regard and especially the one design was very stable during operation. Inter-row hoeing for spring cereals is particular promising for weed control at high weed infestation levels, and where many erect and tap-rooted weed species are present.