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### **Mixtures of varieties of spring cereals for weed suppression in organic crop production**

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The suppression of weeds exerted by the crop plays a significant role for weed management in organic crop production. Crop species have different competitive abilities against weeds but also crop varieties vary in their suppression of weeds. Previous studies with varieties of spring cereals have demonstrated marked differences in the suppression of weeds caused by different attributes, such as stem height and leaf area index. However, little is known when different varieties of the same cereal species are mixed in different compositions both in terms of the number of varieties included and the seed rates at which they are established. Some studies have focused on yield and disease aspects but this study aimed to identify and select blends of cultivars of spring cereals having a potential for effective weed suppression.

The study is part of the PRODIVA project (<http://coreorganicplus.org/research-projects/prodiva>) which looks at crop diversification as a measure to manage weeds in organic farming.

Here, we present results from field experiments to produce ‘ready-to-use’ information on variety traits and optimal variety blends providing weed suppression conducted in Latvia and Poland.

The experiments were carried out as strict field trials. Ten barley and six oat varieties, based on available knowledge of breeders and scientists, were selected and sown as a sole crop and in mixtures. The selection was mainly based on the earliness, prostrate habit and height of varieties, but also their popularity and suitability for cultivation in a given region of the country and the yield potential were taken into account. The potential of variety mixtures for weed suppression was considered together with other parameters, such as grain yield, grain quality, LAI and tillering ability.

Results show that variety mixtures can improve the competitive ability of both barley and oat as compared to the growing of a single variety. Some of the tested varieties (barley ‘Abava’, ‘Maali’, oat ‘Kalle’) were particular suppressive when combined in blends.

**Keywords:** spring cereals, mixtures, weed suppression, organic production