

[Back](#)

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β-Glucan contents of groats of different oat cultivars in official variety, in organic cultivation, and in nitrogen fertilization trials in Finland

Keywords β-glucan, oats, *Avena sativa*, groat, organic farming, nitrogen fertilization, cultivars,

### Abstract

β-Glucan is a beneficial chemical compound in the diet of humans by decreasing the levels of serum cholesterol and blood glucose. The β-glucan contents of oat groats were studied in official variety trials (1997-1999), nitrogen fertilization trials (1997-1999) and organic variety trials (1997-1998) in Finland. Eight cultivars were studied in the organic variety trials. Two of them, cultivars Puhti and Veli, were cultivated also with a conventional method at the same fields. The years 1997 and 1999 were very warm and dry and 1998 very cool and rainy. The effects of year and cultivar on β-glucan content were significant in all three trial series. The Kolbu oat cultivar had a significantly lower β-glucan content than other cultivars in all trials. N fertilization did not increase the β-glucan contents of oats in Finland. The effect of cultivation method (traditional vs organic cultivation) had no significant effect on the β-glucan content. The year x cultivar interaction significantly affected the β-glucan contents of oat groats in N fertilization trials. The reaction of different cultivars to weather conditions was different. Kolbu oat cultivar had significantly lower β-glucan contents in 1998 than in warm years in all three trial series.

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