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**Tillage systems for the benefit of
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Book of abstracts**

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No-till cultivation suppresses broad-leaved weeds but favours grasses

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When changing to no-till cultivation there will be new possibilities for weeds. However, the changes in weed population are more dependent on the characteristics of the field than on cultivation method.

We had two field trials (Jokioinen and Mietoinen) on heavy clay for four years (2001–2004). The main treatment was direct sowing or conventional sowing after autumn ploughing combined with spring rotary hoeing. The sub plot treatment was spring cereal species: two-row barley, six-row barley, oats and wheat each grown in monoculture. We counted weeds in every spring before the herbicide treatment.

In Jokioinen, the main weed was *Galium spurium*. The emergence of *Galium* seeds declined over the years in direct-seeded plots. In ploughed areas the weed emergence was more dependent on the weather. The density of *Chenopodium album* was much lower than that of *Galium* but it reacted similarly. In contrast, *Lapsana communis* became more abundant with direct-seeding.

In Mietoinen, *Chenopodium* was more prevalent in no-till plots in contrast to Jokioinen. There was a higher proliferation of *Lamium purpureum* in no-till plots than in ploughed plots.

The control of overwintering weeds like *Tripleurospermum inodorum* required herbicide treatment, but with right selection of active ingredient there should not be any difficulty with broad-leaved weeds in no-till cultivation.

The experimental fields were not infested with *Elymus repens*, but other grasses like *Phleum pratense*, *Alopecurus* spp. *Poa* spp. and *Festuca* spp. become present and had to be controlled after three no-till years with glyphosate treatment in the autumn.