Swedish organic lentils

Cultivation strategies for production of an attractive food crop

Final report to SLU Ekoforsk, December 2021

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Summary

We have performed field experiments to investigate the possibilities of increasing Swedish organic production of lentil; a food legume perceived by many consumers as healthy, tasty, and easy to cook. The aim of the study was to generate more knowledge for improved yield and yield stability of organic lentil production in Swedish conditions, thereby making it possible for more farmers to benefit from the increasing consumer demand for local and organic grain legumes. We measured crop performance in terms of shoot biomass and grain yields and weed abundance in different lentil cultivars grown as sole crops (SC) and as intercrops (IC) with oat, lupin or as a three-species intercrop (lentil+lupin+oat). The experiments were performed at two locations: at the SITES Lönnstorp field research station, SLU Alnarp and at the farm Havgård (both locations are in Skåne, southern Sweden), during the three seasons in 2017, 2018 and 2019. The shoot biomass, grain yields and weed abundance showed strong differences between the sites and years. Lentil yields (in both SC and IC) were consistently higher in Havgård, where weed biomass was also consistently lower than in Alnarp. Intercropping with 20% oat resulted in improved lentil and total crop shoot biomass and grain yields in Alnarp. The Swedish lentil cultivar Gotlandslins often expressed higher productivity than the French cultivar Anicia, both in SC and IC with oat at both sites. The project results provide evidence that intercropping can reduce weed abundance and increase the land use efficiency of organic lentil cultivation. In addition, the promising results of the Swedish lentil landrace Gotlandslins indicate that there is potential for wider reintroduction of this crop, based on its value as a food source as well as its performance when grown as an IC with oat. But the project has also shown that more research is needed to develop cultivation strategies that ensure sufficient productivity and yield stability of lentils in Swedish agriculture.

Key words: grain legume, lentil, intercropping, yield stability, weed control, organic production.