



Weed control in organic chickpea production

Problem

Management of spontaneously emerging natural flora and invasive plant species (also known as 'weeds') is generally a main challenge in plant production and it is even more important under organic farming systems. The pressure from these plants causes significant yield losses, directly affecting the profitability of farming. Therefore, it is crucial to highlight effective strategies and methodologies of weed control. We present here how this was done for organic chickpea production in Hungary.

Solution

Besides selecting the right variety, the foundation for successful chickpea production lies in choosing the optimal sowing date, and implementing thoughtful management of spontaneously emerging flora and invasive species. These methodologies have been tested in Hungary in certified organic farms under real on-farm conditions.

Benefits

Chickpea is a very valuable crop. It has a very good effect on soil fertility, can grow under relatively dry conditions and is an excellent source of protein for human consumption. Effective weed control in chickpea production increases crop safety and the profitability of the harvest.



Figure 1 (to the left): Organic chickpea field at a Living Lab Legumes Hungary farmer near Hódmezővásárhely. (Photo: Júlia Horváth, Agri Kulti Nonprofit Ltd.)

Figure 2 (to the right): Organic chickpeas. (Photo: Mária Dani, ÖMKI)



Applicability box

Theme

Weed control in organic chickpea production

Reference conditions

Methods were tested in certified organic farms in various weather conditions and on varying soil types.

Application time

The vegetation period of chickpea (middle April-end of July/middle of August). Depending on the variety and the year.

Required time

The whole vegetation period, at least 70 days.

Period of impact

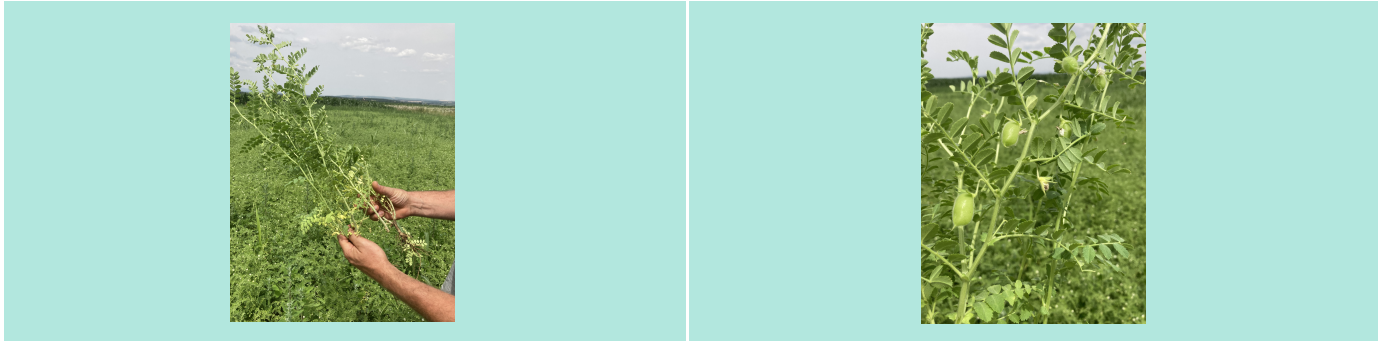
The effect is visible in the first year, but 2-3 seasons are needed for a mature technology.

Equipment

Soil cultivation machinery, seed drill, row cultivator, combine harvester.

Best in

In organic areas where there is no heavy weed infestation, and the available machinery is suitable for carrying out the necessary operations. Relevant for peas also.



Figures 3 and 4: Chickpea from an LL LegHung farm in Baranya county, Hungary (Photo: Júlia Horváth, Agri Kulti)

Practical recommendation

Ensure that the soil temperature reaches at least 10-12°C before planting, as recent cold springs have often been too frosty. Exposure to cold can inhibit seed germination.

It is crucial to assess the predominant weed species in the selected sowing area. In fields heavily infested with perennial plants (e.g., creeping thistle, bitter dock, convulvulus species), organic chickpea production should be reconsidered or potentially avoided.

Pre-crops with strong weed suppression effects can significantly aid in weed control. Although crop rotation is often challenging to plan due to seasonal variability, cereals (e.g., winter wheat) are essential, and cover crops can also be beneficial.

The choice of row spacing and planting density should be adapted to the available row-cropping tools. Soil cultivation should be done carefully, considering the soil conditions and the drying effect of mechanical control.

In irrigated areas, a false seedbed can be prepared to promote weed emergence, followed by a single mechanical weed control using a harrow. Excessive soil disturbance can lead to compaction and drying, so it should be minimised.

Weed control strategies may also include mixed sowings (e.g., flax/wheat/mustard/chickpea) or planting chickpea in mulch (direct sowing of chickpea after rolling rye).

Further information

Weblinks

Chickpea as a species facilitating climate adaptation - <https://ltz.landwirtschaft-bw.de/,Len/Arbeitsfelder/adaptation>

Intercropping chickpea with flax increases yield stability - <https://www.topcropmanager.com/intercropping-chickpea-with-flax/>

About this practice abstract and DIVINFOOD

Publisher:

Agri Kulti Nonprofit Ltd.

Ökológiai Mezőgazdasági Kutatóintézet

Authors:

Mária Dani (ÖMKI)

Zsófia Veér (Agri Kulti)

Attila Králl (Agri Kulti)

Júlia Horváth (Agri Kulti)

Permalink: [10.5281/zenodo.13998671](https://zenodo.org/record/13998671)

This practice abstract was elaborated in the DIVINFOOD project, based on the EIP AGRI practice abstract format.

DIVINFOOD - Co-constructing interactive short and mid-tier food chains to value agrobioDiversity IN healthy plant-based FOOD, is running from **March 2022** to **Feb 2027**.

The overall goal of DIVINFOOD (a multi-actor, participatory project) is to facilitate the use and increase the value of Neglected and Underutilised Crops (NUCs) in food chains to foster healthier diets and more sustainable food systems.

Project website: www.divinfood.eu

© 2024

