



Selecting the right sowing time in arable cultivation of cowpea (*vigna unguiculata*)

Problem

Cowpea tolerates heat and extreme drought well. However, it is highly intolerant of competition, with any significant emergence of natural flora leading to a noticeable yield reduction. Post-sowing cold spells or insufficient soil temperatures can cause delayed germination and reduced seedling emergence. While cowpea can tolerate some thinning, excessive gaps in plant coverage — especially due to delayed germination — can give weeds a competitive edge, negatively impacting the entire cultivation cycle.

Solution

Achieving uniform plant coverage is essential, and the key to this lies in selecting the right sowing time with optimal soil temperatures. Ideal germination occurs when soil temperatures are at least 15-18°C. However, sowing later rather than earlier is recommended to avoid the risks associated with cool soil conditions. Effective weed control measures are also crucial for a successful yield.

Benefits

The cowpea (*Vigna unguiculata*) is experiencing a resurgence in Hungary. Originally from Africa, and cultivated for millennia in semi-arid regions worldwide, this versatile forage and food crop was once widely grown in Hungary. However, over time, it was replaced by *Phaseolus* beans and leguminous forage crops, like alfalfa, sainfoin and clovers. Due to its drought resistance and heat tolerance, cowpea is once again attracting attention as a crop that is well-suited to climate change adaptation and sustainable farming.



Figure 1 (left): Sowing of cowpea at a farming location of Legumes Hungary Living Lab, 2023, photo: Júlia Horváth, Agri Kulti

Figure 2 (right): Flowering cowpea at a farming location of legumes Hungary Living Lab, 2023, photo: Júlia Horváth, Agri Kulti

Applicability box

Theme

Importance of selecting the right sowing time in the arable cultivation of cowpea

Reference conditions

Regenerative farming, Hungary

Application time

Sowing in late May to early June to ensure optimal soil temperatures and avoid cold spells

Required time

Regular monitoring for soil temperature, weed control post-sowing, and inter-row cultivation during the growing period

Period of impact

Germination to early crop establishment (approximately 2-3 weeks post-sowing) and throughout the growing cycle for weed management

Equipment

Irrigation systems for pre-sowing moisture; tools for controlling the spontaneous emergence of natural flora; mechanical tools for shallow tillage and inter-row cultivation

Best in

Organic, regenerative and conventional farming systems, especially in regions affected by increasing drought conditions due to climate change





Figure 3 and 4: Cowpea culture near Kiskunmajsa, Hungary 2024 (Photo credit: Zoltán Szabó, farmer-researcher, co-author)

Practical recommendation

Delay sowing until late May or early June, when soil temperature is as high as 20°C. This will ensure moist seedbeds, or applying irrigation to promote germination can result in an explosive emergence. In conventional farming systems, a single post-emergent herbicide treatment can help maintain a relatively weed-free crop. In organic farming, shallow tillage is crucial for spontaneous flora management. This latter practice preserves moisture in the soil while removing emerging weeds from the top layer without bringing up new weed seeds. Additionally, two rounds of inter-row cultivation can keep the field largely weed-free. Any significant weed presence will result in a marked reduction in yield.

Further information

Further readings (in Hungarian)

- Antal, József (2008): *Növénytermesztés 2. - Gyökér- és gumónövények, hüvelyesek, olaj- és ipari növények, takarmánynövények*. Mezőgazda lap- és könyvkiadó kft.

Weblinks (in Hungarian)

- *Tehénborsó (Vigna unguiculata L.) tájfajták és a klímaváltozás*. http://epa.niif.hu/03400/03465/00002/pdf/EPA03465_ostermelo_2017_2_70-73.pdf
- *Tehénborsó*. <https://tereless.hu/tiszaorveny/zoldseg/tehenbab.html>
- *Tehénborsó*. <https://www.takaronovenyek.hu/tudasbazis/tehenborso/>
- *Egy aszálytűrő zöldtrágyanövény: a homoki bab*. <https://mezohir.hu/2022/10/25/agrar-homoki-bab-aszalyturo-zoldtragyanoveny-novenytermesztes-mezogazdasag/>

About this practice abstract and DIVINFOOD

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Permalink: 10.5281/zenodo.13998657

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

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