PRACTICAL GUIDE

ÖMKi

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Európai Mezőgazdasági Vidékfejlesztési Alap
A VIDÉKI TÉRSÉGEKBE BERUHÁZÓ EURÓPA

WEED CONTROL IN ORGANIC SOY CULTIVATION

INTRODUCTION

Picture 1: inter-row cultivator

Thanks to subsidies, the total area under soybean cultivation has increased in recent years in Hungary, and today covers approximately 60,000 ha. In addition, the area under organic soybean cultivation has almost doubled, to around 1,800 ha. However, due to poor harvests and a lack of experience, yield averages have fluctuated (between 1.8-2.9 t/ha). Yields are mostly limited by drought and the tendency of crops to be overrun by weeds. As changes in environmental regulations also affect conventional soybean production areas, effective weed control without herbicide use is important for conventional soybean growers as well. In this article, we present the weed-control methods that we have assembled on farm sites run by our ÖMKi on-farm experimental partners, based on several years of soy-growing experience.

AGROTECHNICAL METHODS FOR SUCCESSFUL WEED CONTROL

Weed control is a critical technological element, and the use of conventional cultivators is rarely sufficient. In organic farming, early weed control is of much greater importance, and can include methods such as blind cultivation usually with a weed harrow, on the fourth day after sowing, and crop management after the cotyledon stage. However, efficient use of the weeding harrow requires good tool quality, even sowing and germination, and the right soil condition.

Site selection and soil preparation

Mechanical weed control devices can work efficiently in a field with an even soil surface that is free of perennial weeds, so from a weed-control perspective, it is worth growing soybeans in areas which conform to these characteristics. Soil should be prepared with a rotating harrow before sowing, giving a seedbed with an even depth of 10-12 cm.

Sowing

The proven sowing time is early to mid May, meaning that the seeds should land in warm, moist soil and germinate in as little as 4-5 days. Rapid initial development also provides an excellent defence against weeds. The quality of sowing is also key. With the Accord Optima pneumatic precision seed drill seven-row seed drill, for instance, good sowing quality can be achieved by increasing the load of the seed drills on the ground and setting the exact number of seedlings (550-600,000 plants per ha). Only metal-sealed seeds should be used, as using farm-saved seed or seed left over from the previous year can result in a failure rate of 30-40%, leading to increased weeding.

Variety Selection

Despite the later sowing time, very early (00) cultivars with shorter growing seasons can be harvested in mid to late September, before the autumn rains, which can allow weeds to gain strength. There are varieties with rapid initial development (Bettina) and greater foliage cover (Aires) which shade the soil more quickly and are thus more effective against weeds.

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Early weed control

Three to four days after sowing, but before germination, and at the four-leaf stage, blind harrowing can be effective. This is usually done with a tine harrow, and the most effective option is a tineharrow with adjustable tines (e.g. Treffler). Given that the soil is often clumped, cultivating the entire surface with a rotary harrow has proved effective at several locations, allowing developing weeds to be significantly reduced even among more developed crops. These methods can also be used for soy sown at cereal spacing, which can be used for second sowings, or when a denser row spacing is chosen for technological reasons.

Picture 2: weed harrow

Inter-row cultivation

Camera-controlled cultivators are the most efficient option for inter-row cultivation. In one farm with efficient weed control, a Schmotzer row cultivator is used at the six-leaf stage, supplemented by a finger weeder, which can also reduce developing weeds in the immediate vicinity of the rows.

FURTHER INFORMATION

Internet sources

- https://biokutatas.hu/hu/page/show/az-okologiai-szojatermesztes-hangsulyos-feladata-a-gyomszabalyozas
- https://biokutatas.hu/hu/webshop/item/96/szoja-fajta-es-termesztes-technologiai-tesztek-okologiai-gazdasagokban-2019
- https://biokutatas.hu/hu/webshop/item/34/okologiai-szojatermesztes-europaban
- https://youtu.be/fkhLNBvZD5I

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