

Mechanical Weed Control in Organic Farming

Zillger, C.¹, Dehe, M.², Postweiler³, K., & Tschöpe, B.⁴

Abstract

Based on trials made in 2005, on farm research with fennel and soybeans was carried out in 2006 and 2007 to investigate the efficiency of various hoeing implements. The hoeing techniques torsion hoe, finger hoe, rotary hoe, and "UNI-Hacke" were compared with the standard techniques of using a goosefoot hoe and field cultivator.

As shown, it is possible to grow seed crops like fennel without manual weeding, if thermal and mechanical weed control measures are optimally combined. Hoeing measures in the rows only partly resulted in better weed reduction compared to the standard technique that works between the rows. In the second year, all hoeing implements working in the rows resulted in better yields compared to the standard technique.

Soybeans can be cultivated without mechanical weed control in the rows, provided it is possible to carry out successful pre-emergence measures and well-timed hoeing measures between the rows with implements that ridge up the crop. The rotation hoe is suitable for pre-emergence measures. If in a crop only the rotation hoe is used to control weed, it is necessary to establish a modified hoeing scheme.

In 2006 and 2007, the hoeing implements finger hoe and torsion hoe were also used in the plant crops cauliflower and lettuce. However, it was shown that a combination of the implements working in and between the rows results in a significantly better weed reduction if used at optimal conditions. In this case, the space of time when the implements working inside the row can be used without harming the plants is very limited.

Time and money exceeding assignment of manual weeding in special crops can be avoided by a combination of thermal and mechanical measures operated at an optimal point in time. The trial will be carried on in the year 2008 within the crops fennel, cauliflower, and chicory.

¹ Dienstleistungszentrum Ländlicher Raum (DLR) Rheinhessen-Nahe-Hunsrück, Kompetenzzentrum ökologischer Landbau (KÖL) Rheinland-Pfalz, Rüdeshheimer Str., 55545 Bad Kreuznach, Germany, e-mail: christine.zillger@dlr.rlp.de, Internet: www.oekolandbau.rlp.de

² DLR Rheinpfalz, Gartenbaubearbeitung Ahrweiler, Walporzheimer Str., 53474 Bad Neuenahr-Ahrweiler, Germany, e-mail: margit.dehe@dlr.rlp.de

³ DLR Rheinpfalz, Lehr- und Versuchsbetrieb Schifferstadt, Queckbrunnerhof, 67105 Schifferstadt, Germany, e-mail: karin.postweiler@dlr.rlp.de,

⁴ As ¹, e-mail: beate.tschoepe@dlr.rlp.de