

Scouting

May | 2022



Factsheet about integrated weed management



Introduction

Like for most pests and diseases, scouting activities help to find the most effective moment and methods to control weeds. Besides competition for limited resources, weeds may serve as alternate hosts for various diseases and pests. Weed scouting provides valuable information to tailor actions with the greatest potential impact on weeds and their related pests and diseases.

Applicability and efficacy

Scouting can be done in the simplest way or with high-tech solutions such as sensing technologies and in combination with decision support systems (DSS). As soon as the weed plants are visible, scouting plans can be used either on their own or together with a DSS, to plan the weed management and adjust it to the actual weed situation.

However, manual scouting is highly time consuming and requires skills to identify the weed species in very early developmental stages.

The scouting task can be taken over by machine vision and image analysis through machine learning, however, this is still under development with either airborne remote sensing or ground-based¹.

Costs

Scouting is either time consuming (manual scouting) or expensive when using high-tech sensing technologies. Nevertheless, done manually at low level, scouting can already make a difference.

Equipment

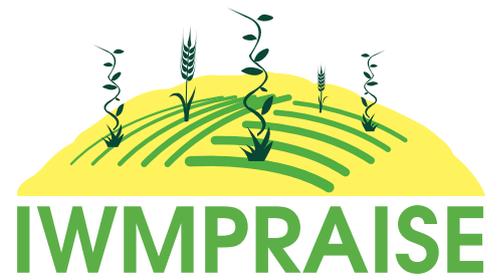
A handbook for local flora can be used to identify the weed species, as well as apps on the mobile phone that use algorithms to identify weeds. However, the latter is not reliable for weeds at young developmental stages. See the factsheets about sensing technology, monitoring and evaluation and decision support system for more information about the equipment that can be used.



Figure 1| Scouting through identification with algorithms combined with spot spraying to terminate weeds.

1| Riemens, M., Sanderskov, M., Moonen, A., Storkey, J. and Kudsk, P., 2022. An Integrated Weed Management framework: A pan-European perspective. *European Journal of Agronomy*, 133, p.126443.

2| Robinson, B.L., Moffitt, J.M., Wilkerson, G.G., Jordan, D.L., 2007. Economics and effectiveness of alternative weed scouting methods in peanut. *Weed Technol.* 21 (1), 88–96. <https://doi.org/10.1614/WT-05-190.1>.



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Core results

Scouting strategies influence the efficiency and are important, as shown in peanut fields²¹.

Extra information

See <https://iwmpraise.eu/publications/> for all crop diversification strategies and their definitions, and for more information on integrated weed management.

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Figure 2| Manual scouting using a frame to estimate the abundance of all or specific weed species.

1| Riemens, M., Sanderskov, M., Moonen, A., Storkey, J. and Kudsk, P., 2022. An Integrated Weed Management framework: A pan-European perspective. *European Journal of Agronomy*, 133, p.126443.
 2| Robinson, B.L., Moffitt, J.M., Wilkerson, G.G., Jordan, D.L., 2007. Economics and effectiveness of alternative weed scouting methods in peanut. *Weed Technol.* 21 (1), 88-96. <https://doi.org/10.1614/WT-05-190.1>.