# On Farm Integrated Weed Management:

## a systematic approach for better understanding farmers' decision making

Marleen Riemens[1], Anna-Camilla Moonen[2], Chloe Cantuel[3], Marjolein Elings[1], Jose Luis Gonzalez Andujar[4], Richard Hull [5] , RobertLeskovsek [6], Mathilde Nicolleau[3] , Veronica Pedraza Jimenez [4] , Burret Schurer[1], Mette Sonderskov[7]

[1]Wageningen University & Research, [2]Scuola Superiore Sant'Anna Pisa, [3]Invivo Agrosolutions, [4] Consejo Superior de Investigaciones Scientificas, [5] Rothamsted Research, [6]Kmetijski inštitut Slovenije, [7] Aarhus University

### Background

Integrated Weed Management (IWM) typically involves complex risk management decisions. It comprises preventive and control measures that require decisions on crop choice and sequence, cover cropping, fertilisation, cultivation type and frequency. IWM can therefore not be considered a set of weed control tactics alone, it is a complex system approach in which many different risks and benefits need to be considered. Many farmers have not embraced IWM practices despite proven to mitigate weed problems and increasing the sustainability of weed management.

### Objective

The project IWMPRAISE aims to support and promote IWM in Europe. Weed management in Europe will become more environmental friendly if the concept of integrated weed management takes better hold on European farms. In this workpackage we investigate the decision making process of farmers with respect to integrated weed management in order to better target the research to the farmers needs and provide them with tailored results fitting their weed management decision making. Research steps are: 1. identify principles of IWM, 2. develop IWM framework, 3. interview experts and farmers.

### Principles of Integrated Weed Management

Integrated Weed Management focuses on the management of weed populations at a time scale *extending the current growth season* by impacting weeds during several parts of the weed life cycle, either through:

- Reduction of seed rain;
- Prevent establishment of weed seedlings;
- Prevent seedlings to mature.

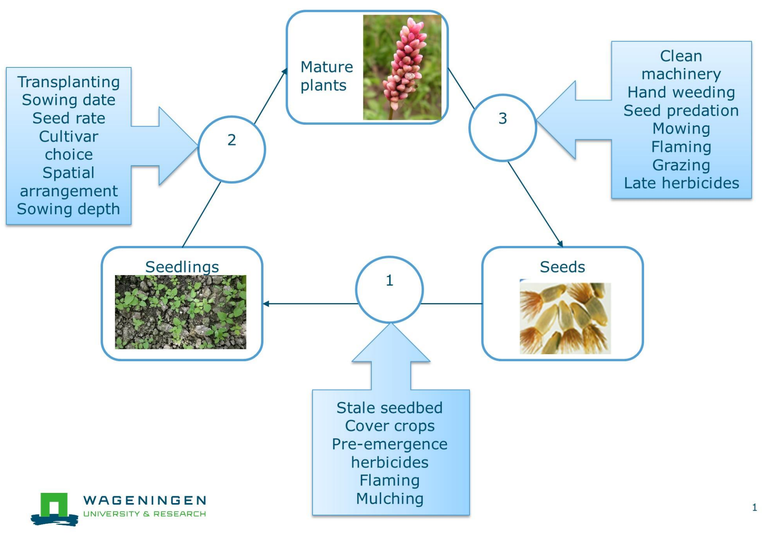


**Figure 1.** IWM principles

The above diagram and control tactics focus on the weeds' life cycle. Integrated Weed Management systems impacting the weed's life cycle, ideally combine several of the control tactics. The choice for farmers is which tactics to combine in order to get an efficient weed management system in place.

### IWM Framework

We defined a framework for IWM applicable in several cropping systems. Five different classes or pillars are distinguished for integrated weed management, which are important to make an informed decision on what tactics to combine into a weed management strategy that manages weed populations at a time scale covering the current growth season. The framework was based on a literature survey. Weed management experts from the Netherlands, Denmark, UK, France, Slovenia, Italy and Spain were interviewed to add expert based knowledge to the IWM framework. Succesfull IWM strategies wil combine tactics from all or most of these 5 classes. The tactics from figure 1 can each be attributed to these 5 classes.

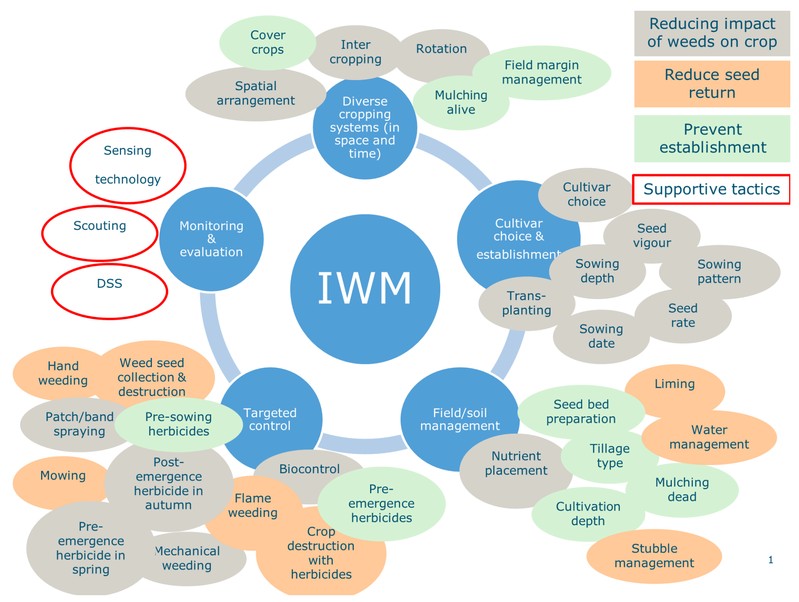


**Figure 2.** IWM framework

### Farmers

Farmers from the Netherlands, Denmark, UK, France, Slovenia, Italy and Spain were interviewed to identify the farmer's knowledge, thinking and decision process regarding IWM strategies and tactics covering different cropping systems.

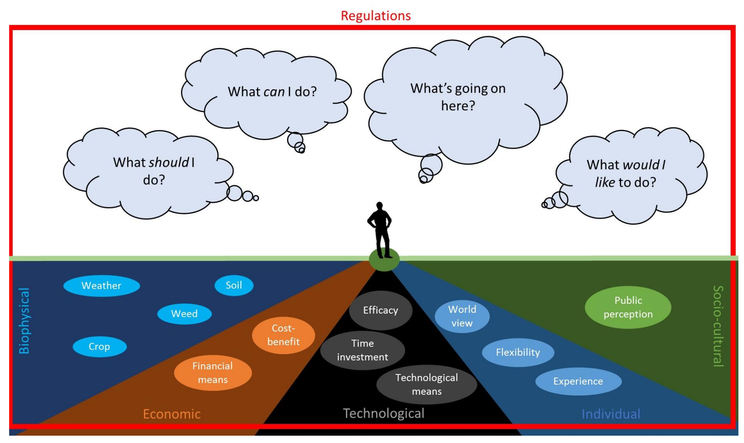


**Figure 3.** Factors affecting farmers perception of weeds and iwm.

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Wageningen University & Research
P.O. Box 123, 6700 AB Wageningen
Contact: marleen.riemens@wur.nl
T + 31 (0)317 480 499
www.wur.nl/iwmpraise
www.iwmpraise.eu