

## Deliverable 1.5: AWM repository (version 1)

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**Classification:** Public

**Associated Work Package(s)**

WP1 WP2 WP3 WP4 WP5 WP6 WP7 WP8

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### Version History

Version number	Implemented by	Notes
1.0	USC	Supported by UC

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Abbreviation	Full title
AWMN	Agroecological Weed Management Network
AWM	Agroecological Weed Management
LL	Living Lab

## Introduction

The GOOD website is the main hub to share knowledge and disseminate the activities of the project with stakeholders. The url is: <https://www.goodhorizon.eu/>. The layout of the website is described in D7.2. A second page will be developed in due time to become the Platform of GOOD and serve as the free “One-Stop-Shop” for agroecology and Agroecological Weed Management (AWM). As described in D7.2, it will host the (i) e-learning module, (ii) the forum for the Agroecological Weed Management Network (AWMN) and a dynamic Living Labs page and gallery, (iii) the decision support system of GOOD, the AWM Toolbox, and (iv) the AWM repository.

GOOD will periodically update the content of the dynamic AWM repository, while all pages of the repository will be transferred to the Platform (second website) once it is launched. Two important milestones are depicted in the following Table.

*Table 1: Milestones related to the project’s AWM repository*

Content	Due date	Deliverable
First version of the AWM repository (in the GOOD website)	<b>M12 (April 2024)</b>	<b>D1.5</b>
Second and final version of the AWM repository (in the GOOD Platform website)	<b>M36 (April 2026)</b>	<b>D1.9</b>

The updated layout of GOOD’s **PLATFORM** (including the AWM repository) is described in Table 2.

*Table 2: Layout of GOOD's platform, home page, footers, main and sub-sections*

Home page of the PLATFORM						
Main sections	ABOUT	AWM repository	E-LEARNING MODULE	AWM TOOLBOX	NETWORK	CONTACT
Sub-sections (content)	Information about the technical details of the AWM Toolbox (guidelines methodology etc.)	Information and educational content on current and agroecological weed management practices	Webinars, podcasts, peer-to-peer learning	It is a Decision Support System for cover crops sowing and implementation of combinations of AWM solutions. The users need to select options from drop-down lists, and they will receive specific recommendations depending on pre-fixed algorithms/guidelines	Forum (pre-fixed threads or forms of contact)	
			Best Practices		Living Labs (interactive map)	
Content on the main page						
<ul style="list-style-type: none"><li>• Main sections and subsections</li><li>• <i>Slogan</i> (e.g., An Agroecological Weed Management Network for the promotion of the adoption of sustainable weed management strategies) and <i>Return to the main GOOD website</i> button</li><li>• Teaser video for the Living Labs</li><li>• Footer</li></ul>						

## What is the AWM repository?

*“A repository for current and agroecological weed management practices and herbicide use”*

The project is committed to provide the AWM repository of current weed management practices to raise farmers’ awareness of the options available to help them improve their decision-making and increase their confidence to adopt new AWM practices.

The repository brings together various agri-food value chain actors and identifies the real needs of the AWM sector. Specifically, GOOD targets to provide a robust AWM repository to farmers, advisors and consultants, industry, research and academia.

The exploitation of the AWM repository by the different stakeholder groups remains a primary focus.

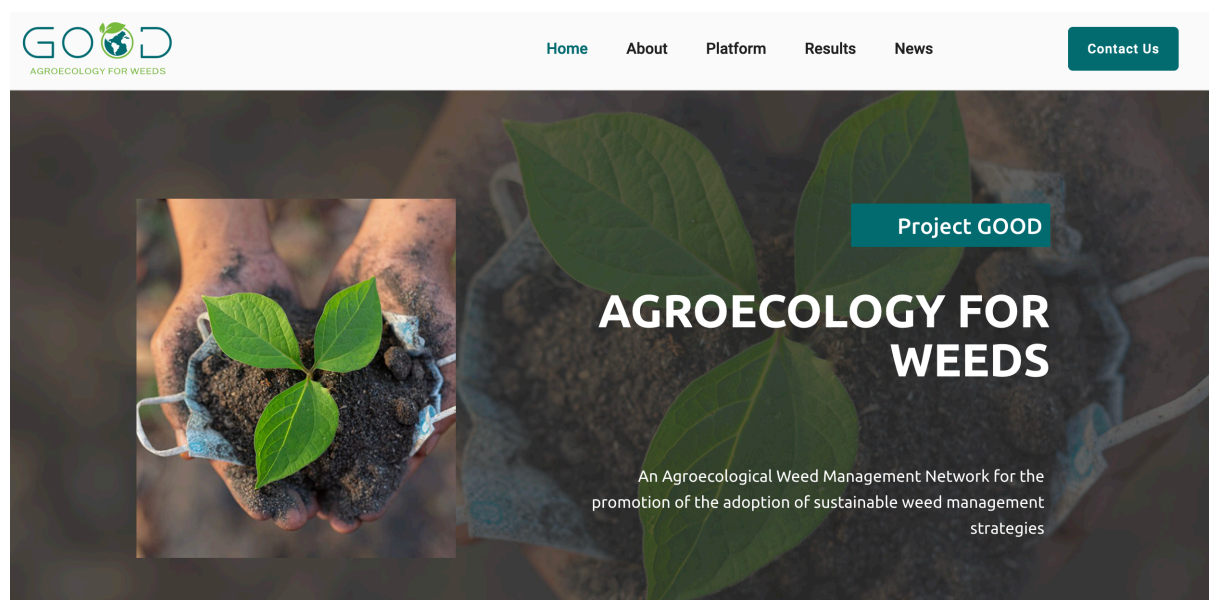
**Farmers:** exploitation of the know-how about the current AWM

**Advisors:** exploitation of knowledge for better farm advice

**Industry:** identification of new business opportunities

**Research & Academia:** Exploitation of the scientific knowledge under new research projects and for educational/training purposes

WP1 aims to co-create knowledge on current weed management practices and AWM in agro-ecosystems of EU and Associated countries. In this context, literature review, interviews, questionnaires and workshops with all AWMN actors have already started to be deployed to construct the knowledge base for the AWM repository and identify the critical grassroots needs, barriers, gaps of EU farming systems, also including drivers that affect the farmers’ perception and adoption rate of AWM strategies.



*Figure 1: Home page of GOOD's website*

## AWM repository design

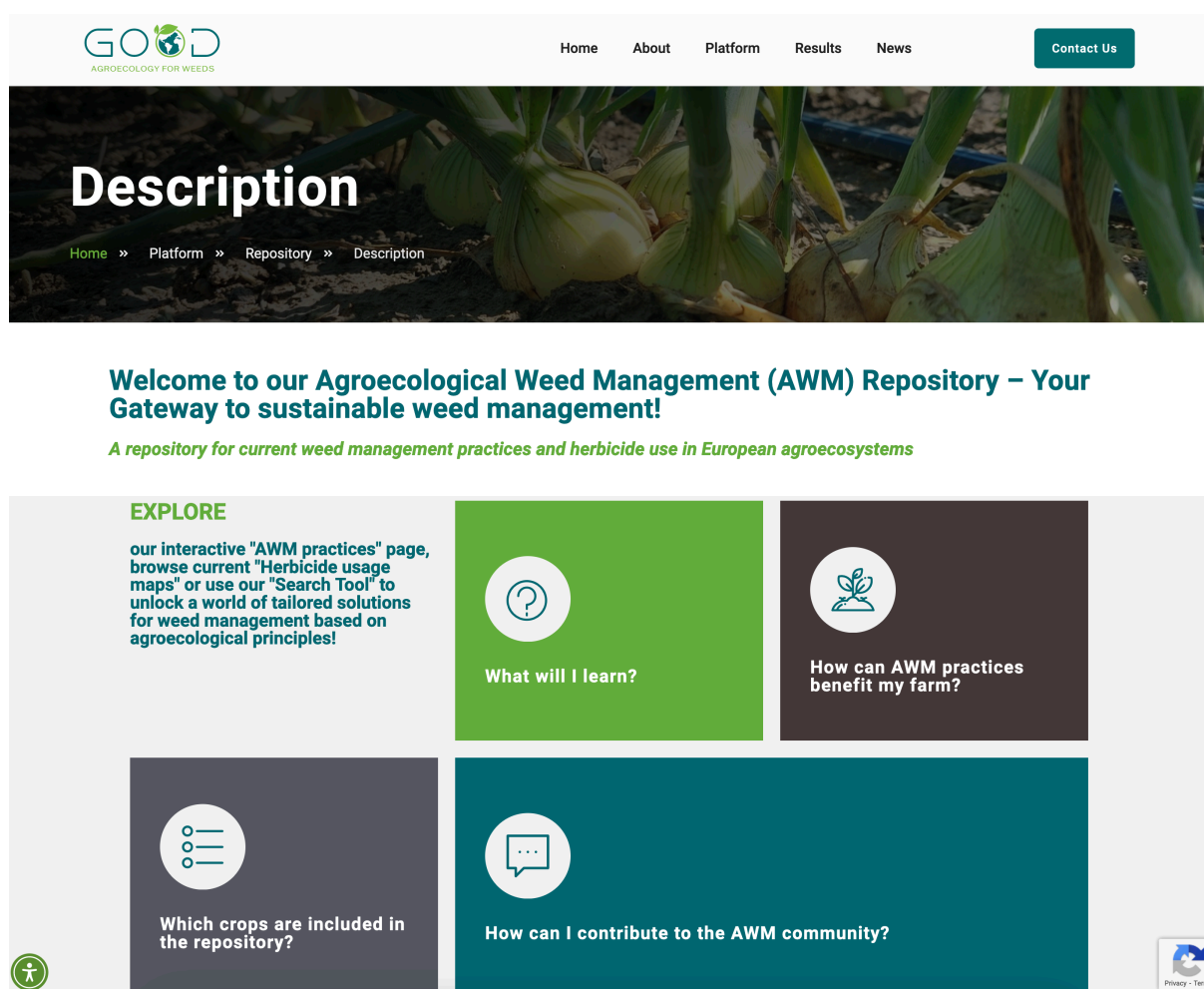
The AWM repository has to date 4 pages which are described in the following Table.

*Table 2: Milestones related to the project's AWM repository*

Page	Url
Description	<a href="https://www.goodhorizon.eu/platform/description/">https://www.goodhorizon.eu/platform/description/</a>
Herbicide usage maps	<a href="https://www.goodhorizon.eu/platform/herbicide-usage-maps/">https://www.goodhorizon.eu/platform/herbicide-usage-maps/</a>
AWM practices	<a href="https://www.goodhorizon.eu/platform/awm-practices/">https://www.goodhorizon.eu/platform/awm-practices/</a>
Search tool	<a href="https://www.goodhorizon.eu/platform/search-tool/">https://www.goodhorizon.eu/platform/search-tool/</a>

## Description

The introductory page of the AWM repository aims to attract users to stay on the website and explore the opportunities and content of the repository. They will get informed on what they may learn, how could AWM practices benefit their farms, which are the included crops, and how they can contribute to the AWMN and the GOOD community.

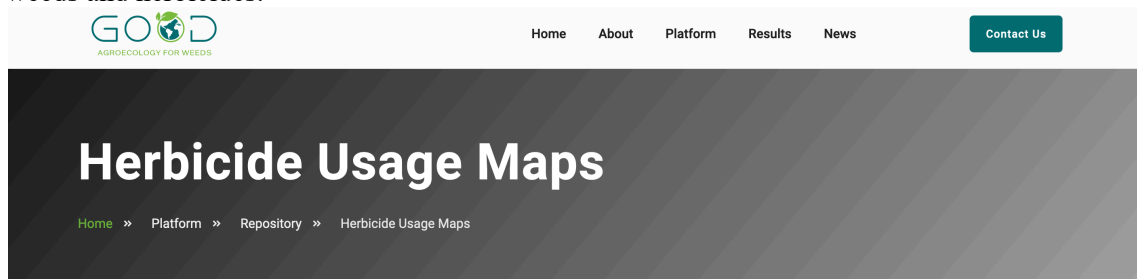


*Figure 2: Home page of the “Description” page of the AWM repository*



## Herbicide usage maps

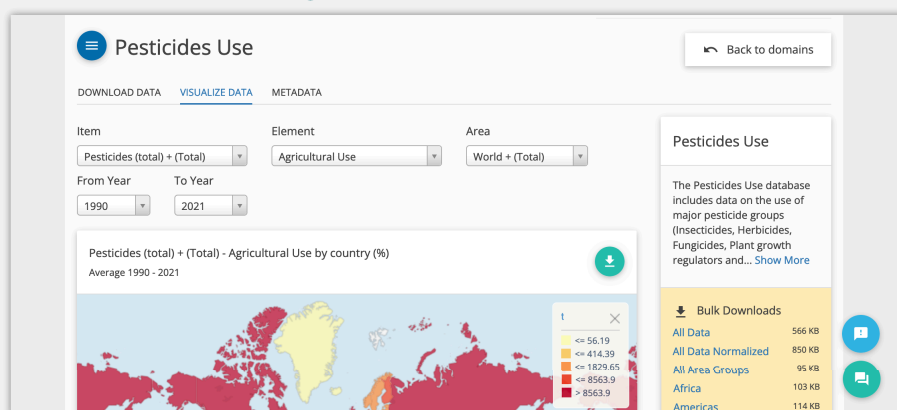
The herbicide usage maps aim to show the current (and past) data about herbicide use and sales in Europe. For that reason, the relevant websites of FAOSTAT and EUROSTAT were embedded into this page to link directly to official data. According to previous agreement with the sister projects (AGROSUS and CONSERWA) and based on our common intention to avoid duplications, a link will link directly to their repositories once these are ready. AGROSUS will work intensively on a database of weeds and herbicides.



**On this page you can find data on the use and sale of herbicides in Europe through official data from FAOSTAT and EUROSTAT. Browse their pages below to learn more and see the trends in herbicides.**

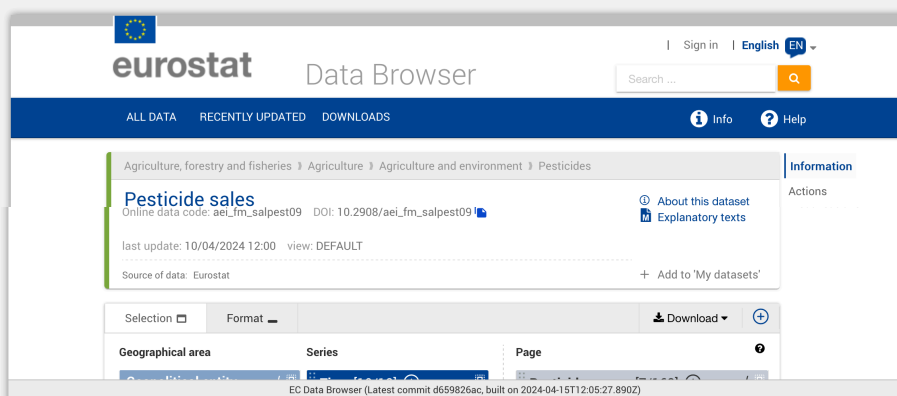
*You can also browse our sister project's database (url) which contains a rich database of weeds and herbicides.*

### FAOSTAT Herbicide Usage



Please note that by accessing the embedded content from FAOSTAT, you must read the privacy policy, cookies and legal notice available on the external site. We accept no responsibility with regard to any information, errors or omissions on the external site. For more information on privacy policies and terms of use, please refer to the FAOSTAT website.

### EUROSTAT Herbicide Sales



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**Figure 3: Home page of the “Herbicide usage maps” page of the AWM repository**

## AWM practices

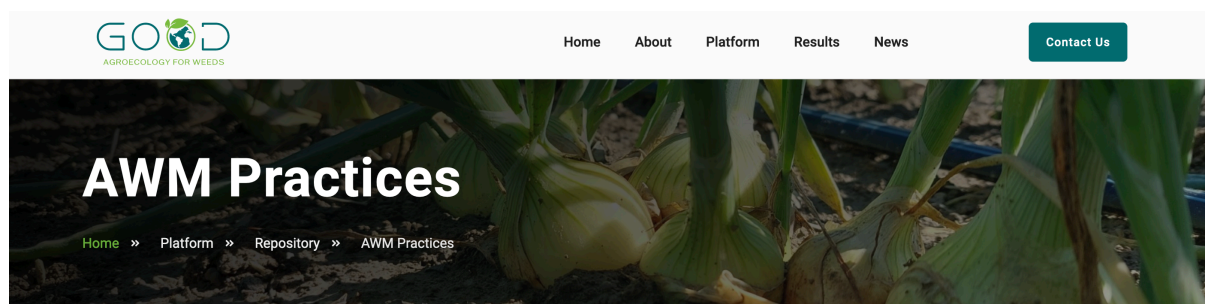
In the current version of the AWM repository there are 23 weed management practices. The final version will include 40 practices and combinations for sustainable weed management based on agroecological principles.

The user can hover over the cards which are flipped, and a short description appears. A *pdf* click button directs to a brief 2-page pdf that contains a description and benefits of the AWM practice, strengths-weaknesses-opportunities-threats of the practice, tips, a liability disclaimer and the funding disclaimer.

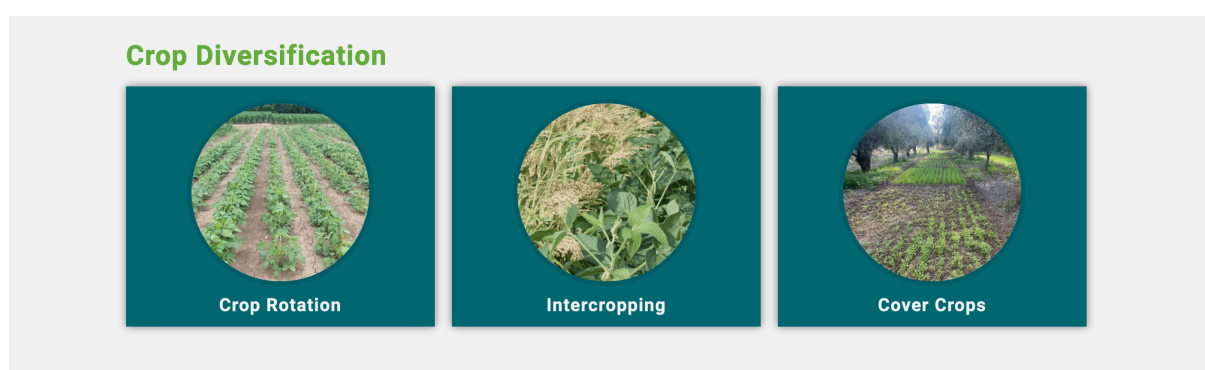
The practices that are now available to the public are shown in the following Table.

*Table 3: Agroecological Weed Management practices*

Type of weed management	Practice			
Crop diversification	Crop rotation	Intercropping	Cover crops	
Cultural	False seedbed	Sowing pattern	Hand weeding	
	Mulching		Row spacing	
Mechanical	Mowing		Mechanical control	
Natural solution	Bioherbicides	Grazing	Biological agents	
Novel	Harvest weed seed control		Inoculation of cover crops with AMF	
Technological-Precision	Decision Support Systems	Drones	Robots (automatic)	Hot foam
	Laser weeding	Flaming	Electric weeding	Site-specific spraying



### Here you can find out about AWM Practices



*Figure 4: Home page of the “AWM practices” page of the AWM repository*

## Crop Diversification

### Crop Rotation

Sequential cultivation of different crops in a specific order to disrupt weed life cycles.

[PDF](#)


Intercropping



Cover Crops

Figure 5: Cards of AWM practices



**AGROECOLOGICAL WEED MANAGEMENT REPOSITORY**

The Agroecological Weed Management (AWM) Repository ([www.goodhorizon.eu/platform/repository/description](http://www.goodhorizon.eu/platform/repository/description)) is a virtual space where you can freely and openly find information and educational material on current and agroecological weed management practices in the European Union. You can browse and learn about several weed management practices and crops.

#@Agroecology is GOOD

in   

Version 1.0 – April 2024



## 01 CROP ROTATION

**DESCRIPTION & BENEFITS**

Crop rotation is a traditional agricultural practice involving the sequential planting of different crops in the same field over successive seasons or years to:

- **promote and improve soil health indicators, biodiversity and pest-weed management**
- **disrupt weed life cycles** by creating favorable conditions for their germination and dominance
- **reduce the dependence on monocultures**, thus, increasing the resilience of the farming system
- **reduce reliance on synthetic herbicides** as crop rotation can be combined with several agroecological weed management practices
- **restore ecosystem services** at the farm and landscape level
- **provide economic diversification** due to the production of multiple crops in the same growing season

**STRENGTHS** 

- Reduction of pressure from specific noxious weeds that could not be managed in monoculture systems
- Disruption of weed life cycle, reducing weed populations over time
- Improvement of soil health and fertility due to diversification and nutrient cycling

**WEAKNESSES** 

- Requires knowledge of crop interactions to avoid potential allelopathic effects or pest outbreaks
- Potential reduction of short-term yields for certain cash crops if rotational options are limited
- Challenging to implement in areas with limited land availability or where specific crops are traditionally selected by farmers

**OPPORTUNITIES** 

- Incorporation of leguminous crops, which fix nitrogen and reduce the need for synthetic fertilizers
- Economic benefits through improved crop yields and reduced input costs over the long term
- Enhances pest, weed and disease management by breaking their life cycles, reducing the need for synthetic pesticides

**THREATS** 

- Risk of decreased soil fertility or erosion if crop rotations are not properly planned or if soil health is not adequately monitored
- Vulnerability to market fluctuations or crop failures due to climate change
- Potential dominance of new weed species or herbicide-resistant weed biotypes if rotations are not diverse enough

**TIPS** 

- **select crop sequences** that effectively break weed life cycles and reduce weed pressure. Consider factors such as crop species, growth patterns, nutrient needs, competition with weeds, and susceptibility to pests and diseases
- **diversify crop rotations** with cover crops, legumes, and cash crops to enhance weed suppression through competition and allelopathy
- **manage properly the crop residues** by incorporating or removing them timely
- **plan the crop rotations** in a way that will help you to reduce weed emergence and soil seed bank replenishment
- **combine crop rotations** with effective agroecological weed management practices between crop cycles, such as mechanical control, mulching, bioherbicides and if needed only, site-specific herbicide applications
- **regularly monitor the weed populations and crops performance and growth** to assess the effectiveness of crop rotation and make adjustments to optimize weed management over time

**LIABILITY DISCLAIMER**

This is the first version of AWM repository released in April 2024. While every effort has been made to ensure the accuracy and reliability of the information provided in this factsheet, we make no representations or warranties of any kind, express or implied, about the completeness, accuracy, reliability, suitability, or availability of the information contained herein for any purpose. Any reliance you place on such information is therefore strictly at your own risk. In no event will we be liable for any loss or damage, including without limitation, indirect or consequential loss or damage, or any loss or damage whatsoever arising from loss of data or profits arising out of, or in connection with, the use of this factsheet.

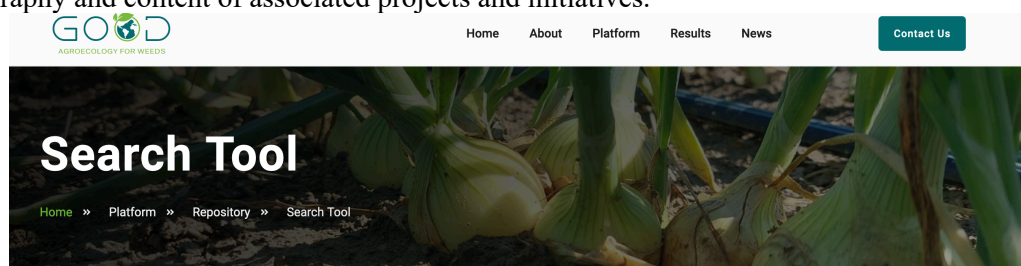
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Figure 6: Brief description of the AWM practice in downloadable format (pdf)

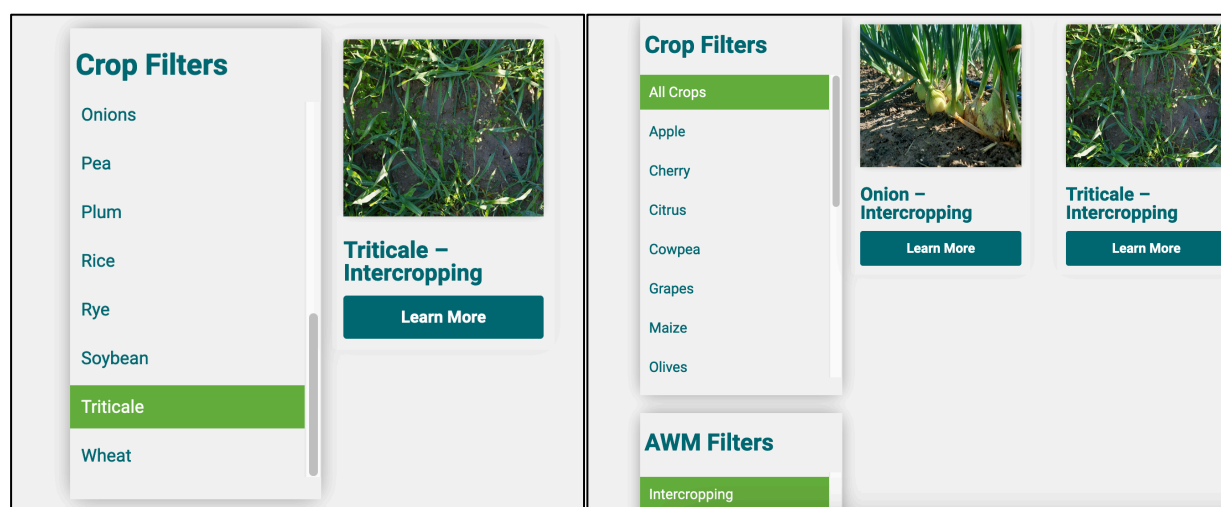
## Search tool

The “Search tool” is the dynamic and interactive tool of the AWM repository where users can explore different combinations of crops and AWM practices and read benefits, risks, and tips. It will be a valuable educational and instructive tool to guide sustainable weed management giving practical knowledge that will facilitate decision-making on weed management. As a dynamic tool, the content will be continuously updated and there will not be patch releases. Data from the experimentation in the Living Labs will informally validate the content that is embedded into the Search tool combinations. A future addition in the specific combinations of crop-AWM practice includes a box for “success-stories” to inspire farmers and other stakeholders to adopt the relevant AWM practice in their farming system and another box “Learn more” with links to the e-learning module of GOOD, international open access bibliography and content of associated projects and initiatives.

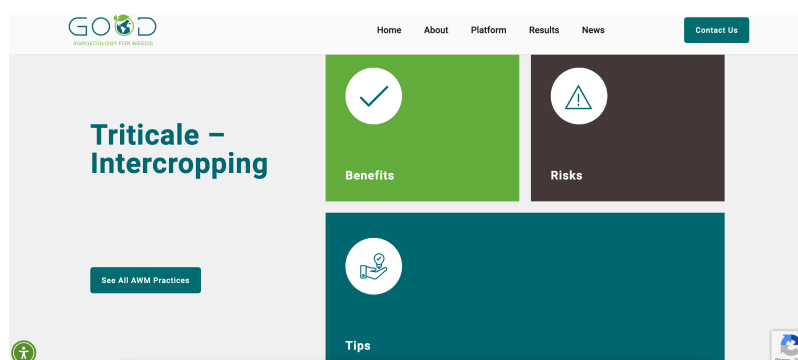


## AWM Practices Search Tool

*Figure 7: Home page of the “Search tool” page of the AWM repository*



*Figure 8: Example in the “Search tool” using crop filters only to see all possible AWM practices (left) and AWM filters to see all crops with the same AWM practice (right)*



*Figure 9: Example of a crop-AWM practice combination in the “Search tool”*