

Cover Crops in MAPs Example



« COCOSOL »

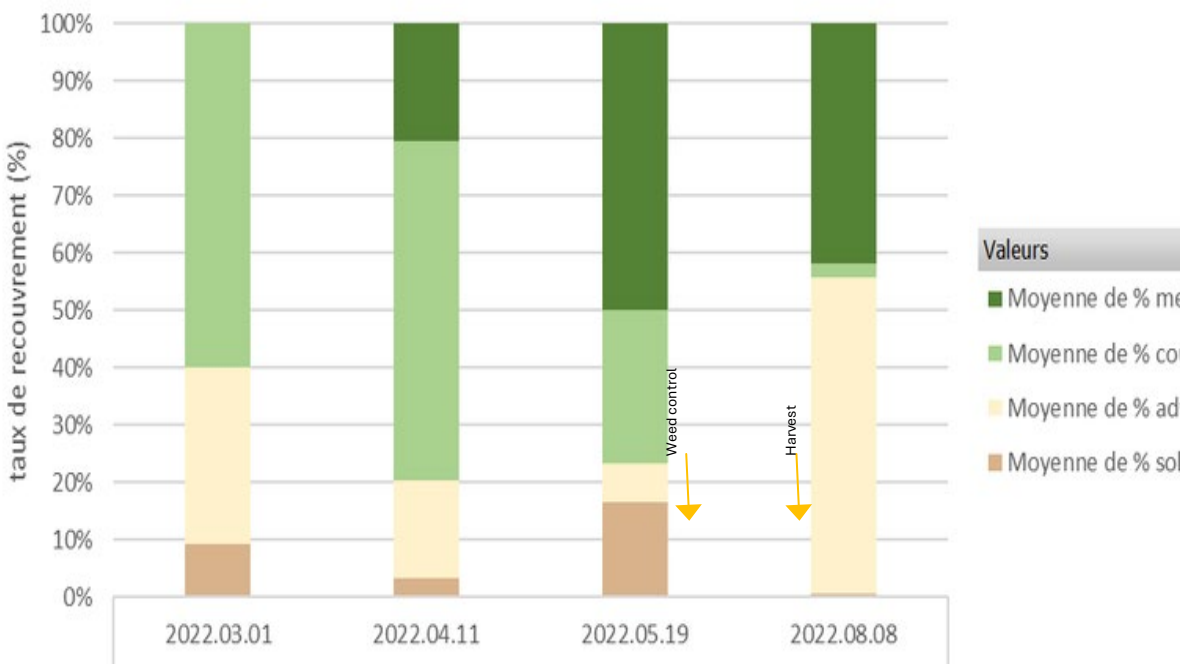
Weed control using cover crops in inter -sectoral applications



Main results

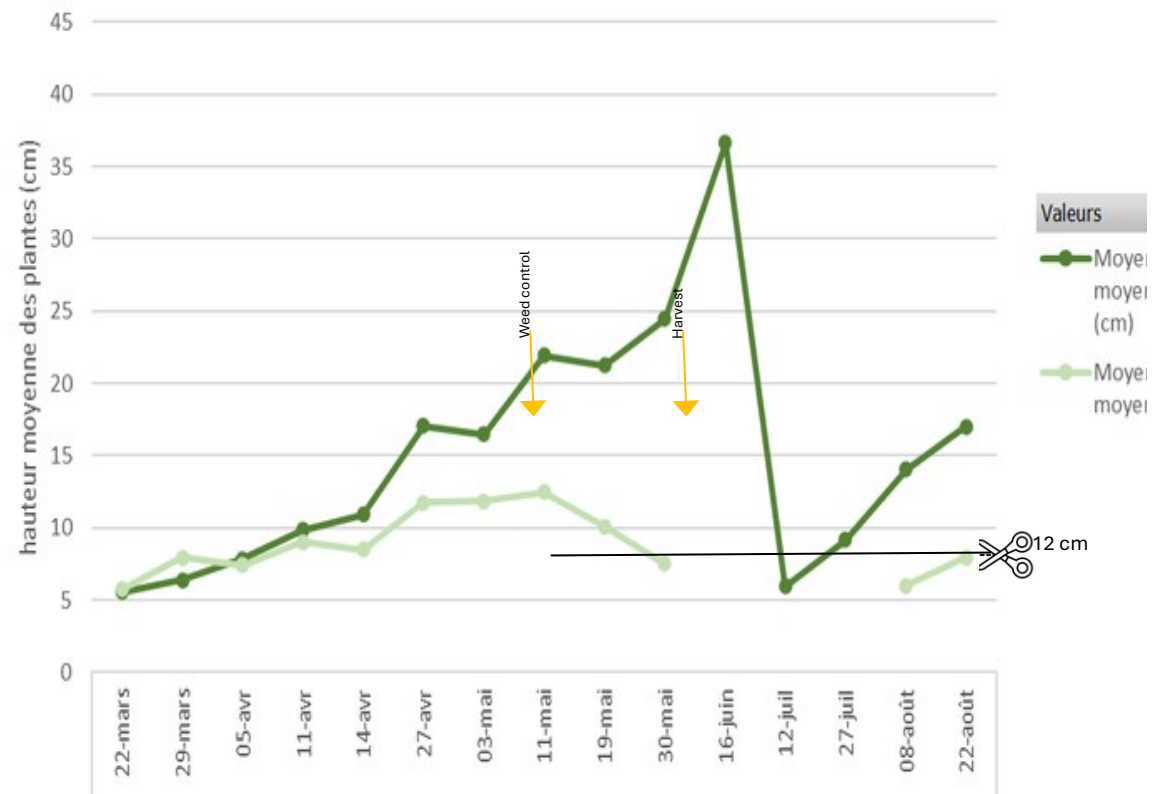
Underground clover

Recouvrement du sol dans une culture de menthe sous un couvert végétal de trèfle souterrain



- The underground clover covers the ground well and then disappears, giving way to mint.
- Weeds return after the first harvest because the underground clover has disappeared and no longer acts as a cover crop.
- We'll see what happens in the second harvest.

Courbes de croissance de la menthe et du couvert de trèfle souterrain



- The subterranean clover grows alongside the mint until spring.
- Then, it gradually disappears, giving way to mint.
- The mint reaches a height of ~35cm
- This explains the good yields obtained with this cover crop during the first harvest.



March 1, 2022

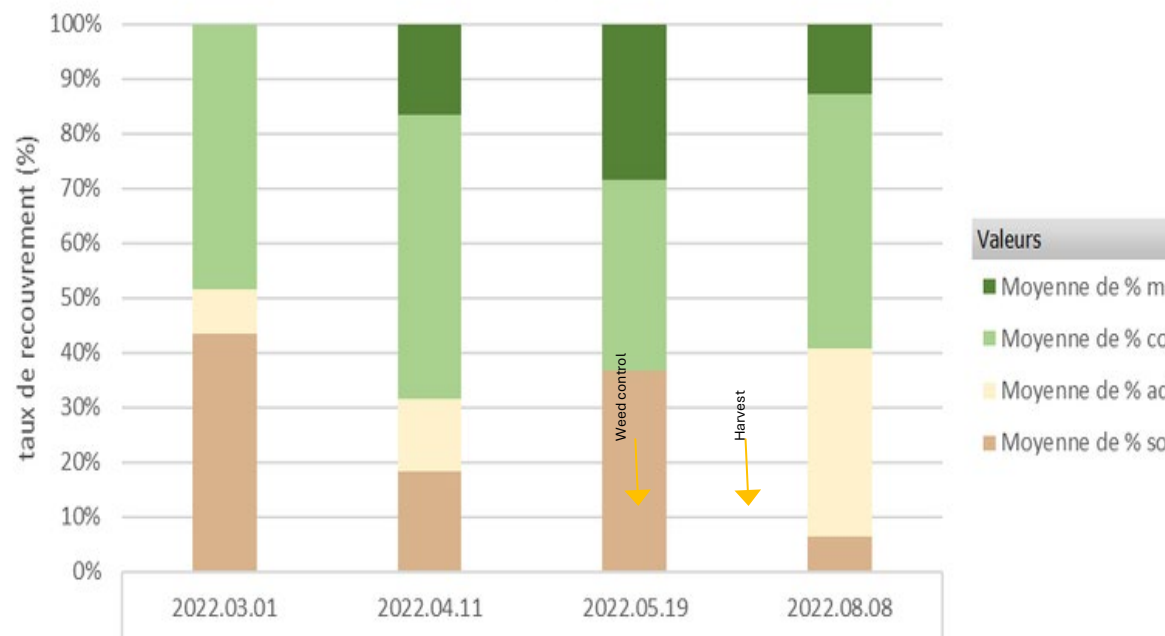


May 30, 2022

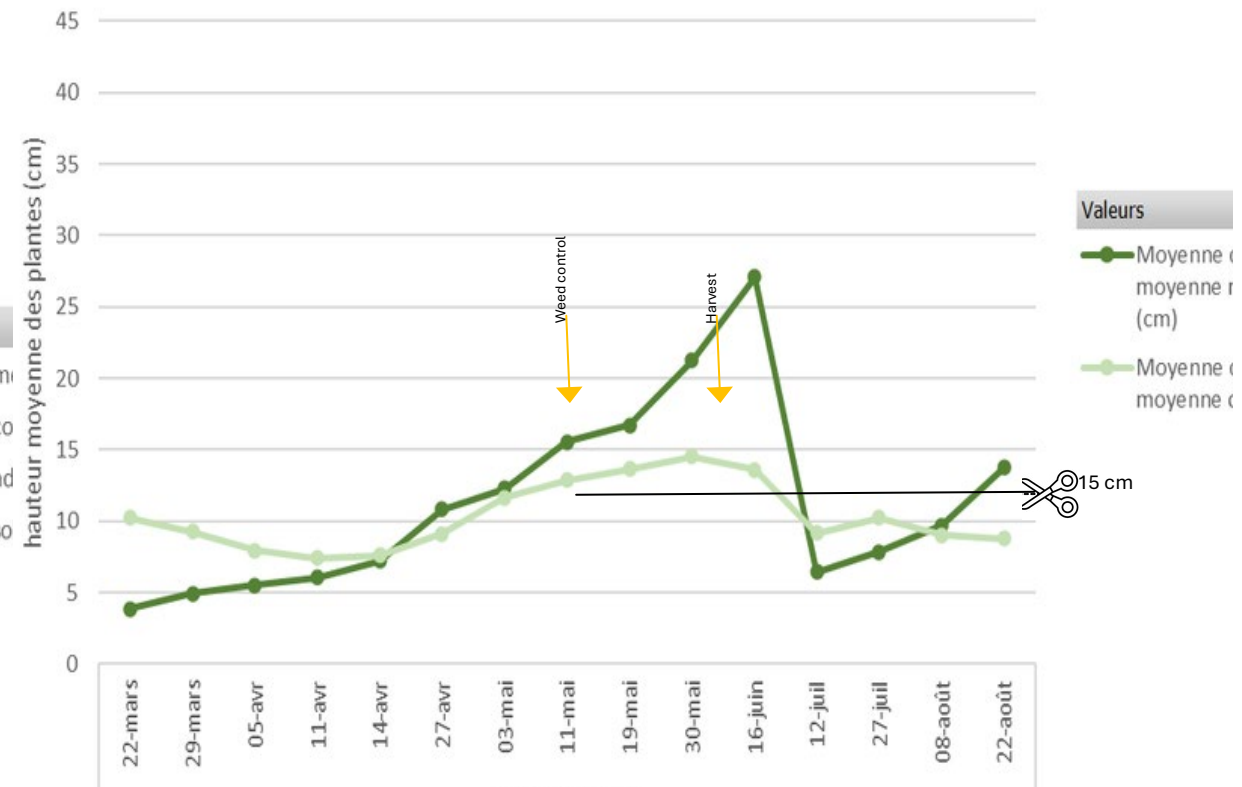
Main results

English ryegrass

Recouvrement du sol dans une culture de menthe sous un couvert végétal de ray grass anglais



Courbes de croissance de la menthe et du couvert de ray grass anglais



March 1, 2022



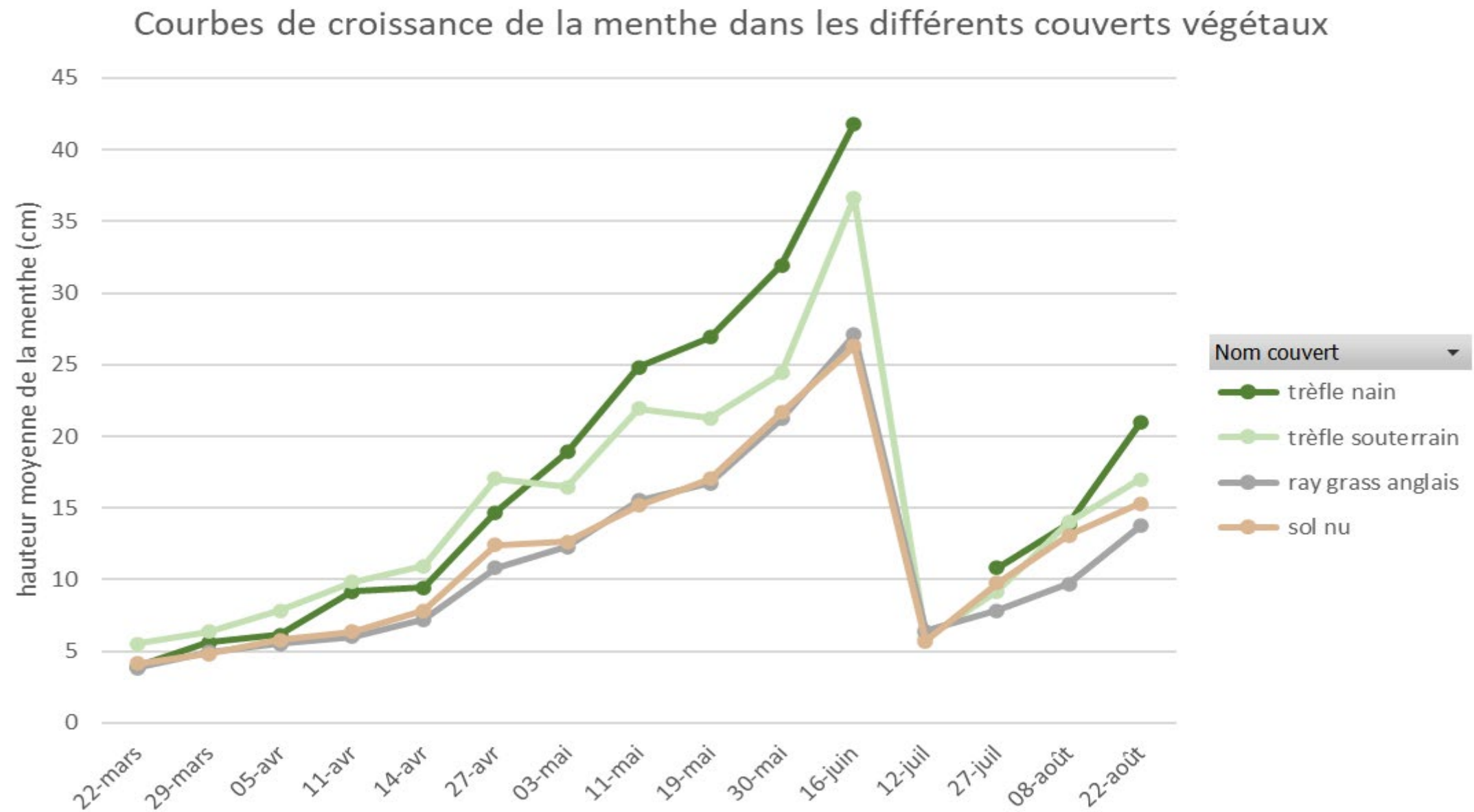
May 30, 2022

- Ryegrass only partially covers the ground:
 - *Unlike the two clovers, it does not form a carpet but small, scattered tufts.*
 - *Mint and other weeds grow between these clumps.*
- Perennial ryegrass is not fulfilling its role as cover crop

- Ryegrass follows the same growth curve as mint and reaches a height of ~15 cm
- The height of the mint remains less than 30cm
- This explains the low yields obtained with this cover crop during the first harvest.

Main results

Comparison of mint heights in different plant canopies

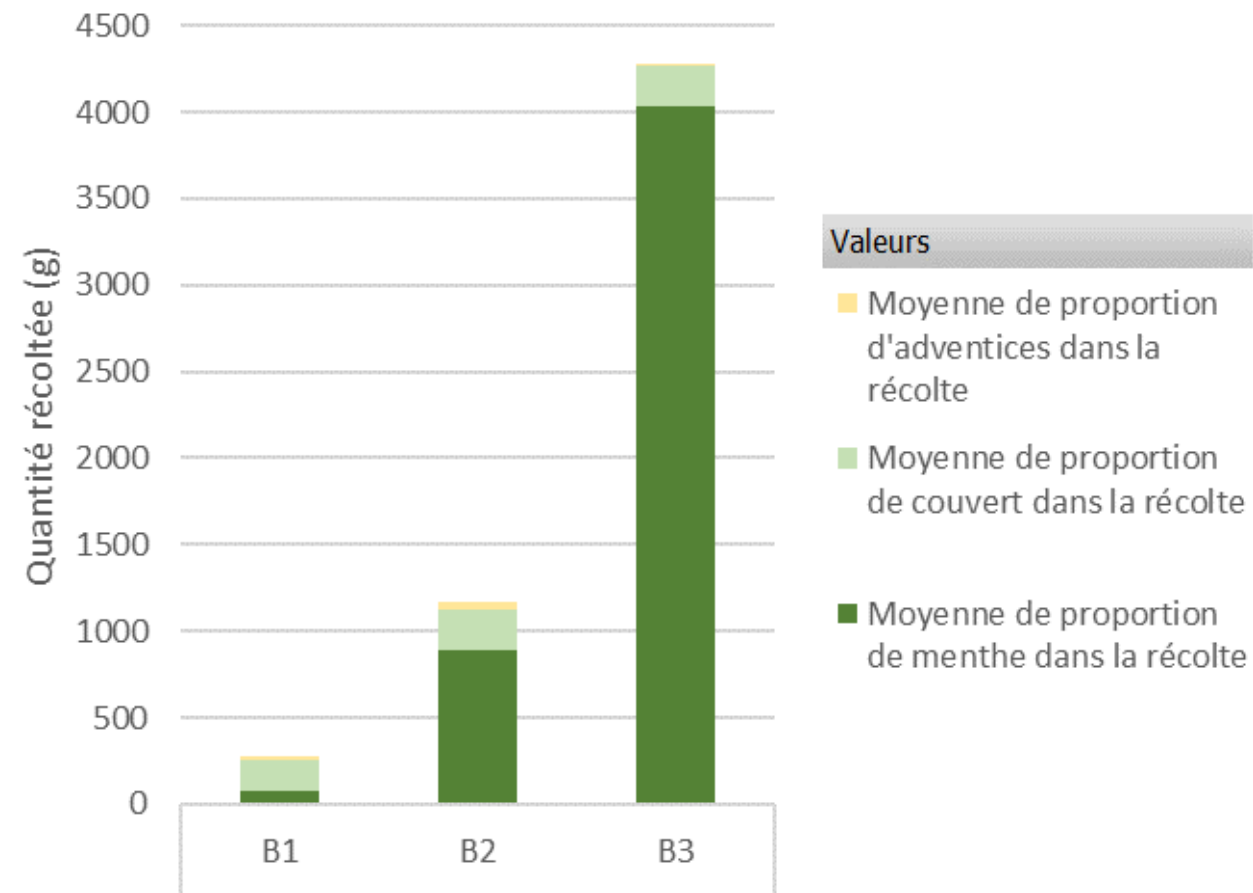


- Dwarf clover offers a lower average yield but a greater height of mint than subterranean clover

Main results

Heterogeneity of dwarf clover

Rendement de la menthe cultivée sous un couvert de **trèfle nain** en fonction du bloc



March 1,
2022

Dwarf
Clover
Block 1

Dwarf
Clover
Block 2

Dwarf
Clover
Block 3



May 30,
2022

- The dwarf clover exhibits significant differences between the blocks
- Block 3 offers a yield comparable to underground clover

"COUVIR" project



Control of Living Cover Crops in Inter-Row Plant Crops

Objective: to test the cultivation of aromatic and medicinal plants with a permanent legume cover
-> interest in weed management and fertilization

Project presentation



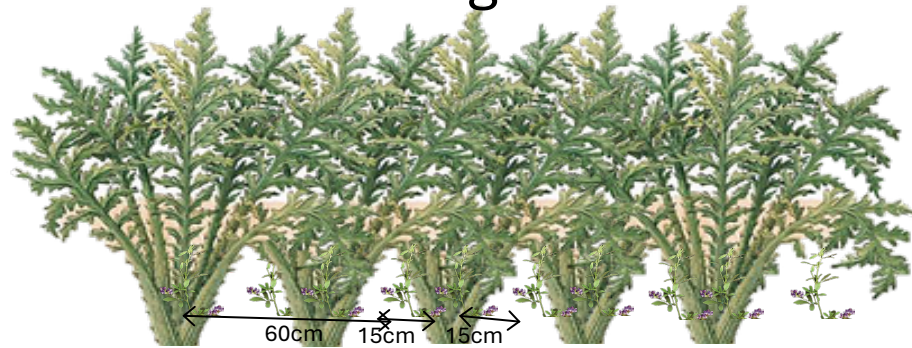
Test different aromatic and medicinal plant (MAP) crops in association with the chosen cover crop species as inter-row cover.



Device

Cultures tested

Cardon 'Rouge d'Alger'
6 Kg/ha



Sisymbre
5 Kg/ha



Coriander
15 Kg/ha

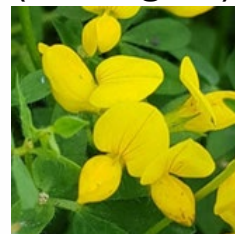


Covered meals (Terms and conditions)

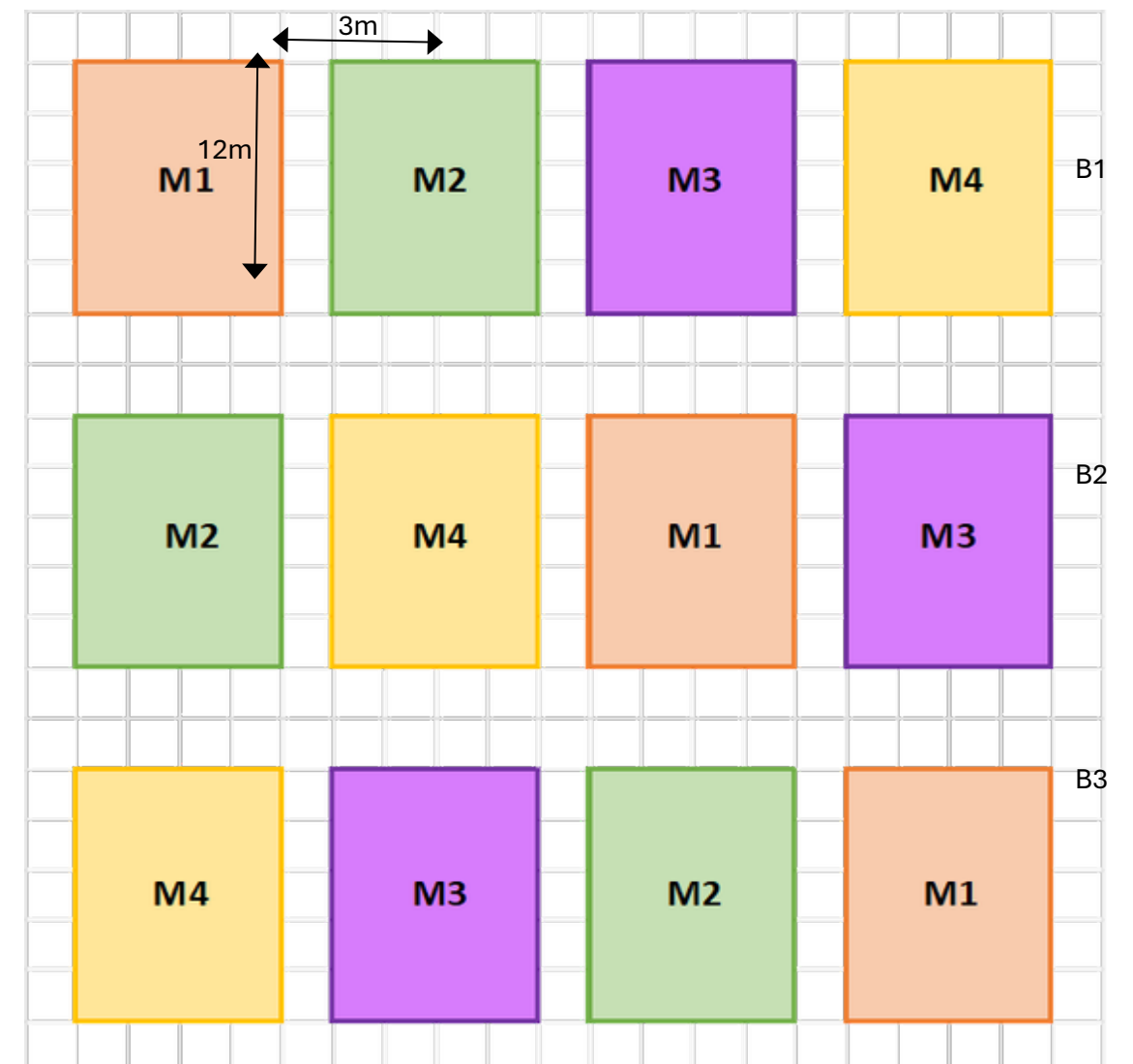
Purple clover
'Kindia' (12.5 kg/ha)

Lucerne
'Marshal' (20 Kg/ha)

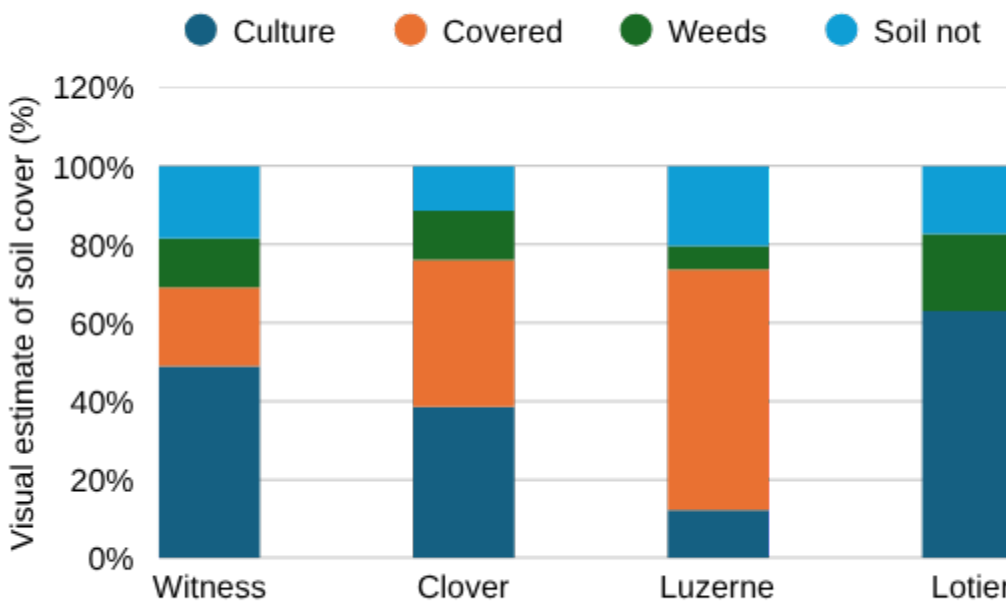
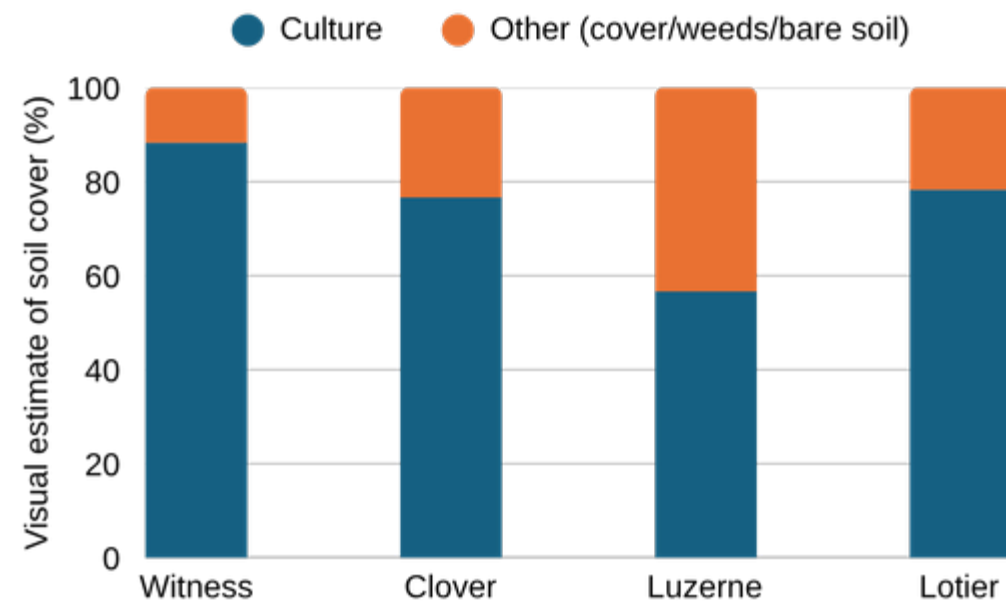
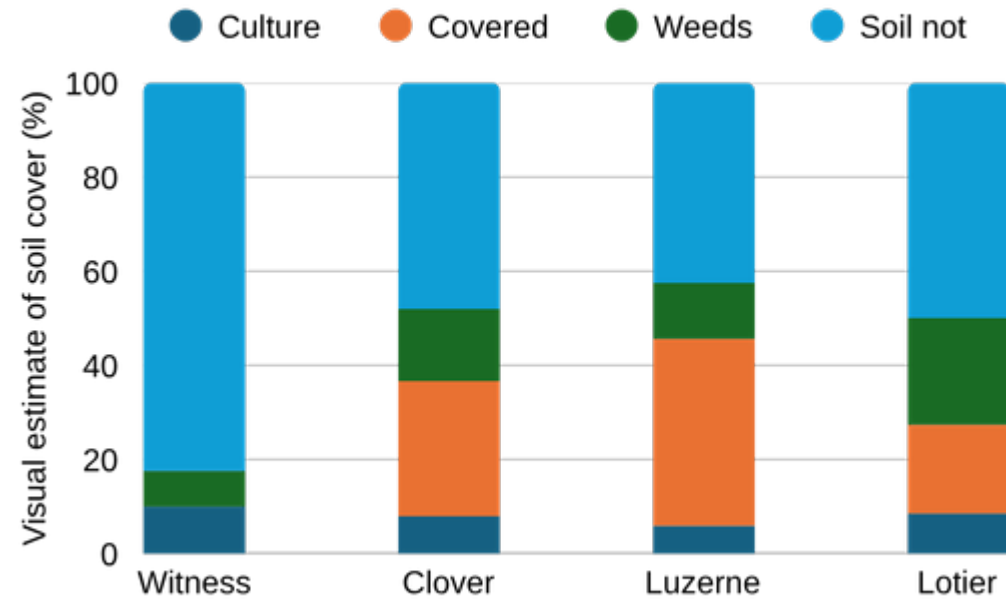
Lotier
'Norton' (11,9 Kg/ha)



- Similar system for all crops
- Fisher blocks, 3 repetitions
- Semis : 12/08/21



Cardoon— Evolution of the recovery



47 days after sowing

- Well-established cover crops
- Difference in development between alfalfa (++) and birdsfoot trefoil (-)
- Homogeneous clover
- Presence of weeds in all modalities
- Less so in the control plots than in the plots with cover, particularly in the lot.



201 days after sowing

- Culture appears more "abundant" in the witnesses
- Visible difference in cardoon size between the control plots and the alfalfa plots



(425 days after sowing)
153 days after the first cut

- Good crop recovery in the control plots, weaker in the plots with cover crops (alfalfa in particular).
- Good recovery of cover crops, strong growth (alfalfa, birdsfoot trefoil)

Cardoon— Evolution of culture

24/11

06/05

21/06

11/10

03/11

Control



Clover



Alfalfa



trefoil

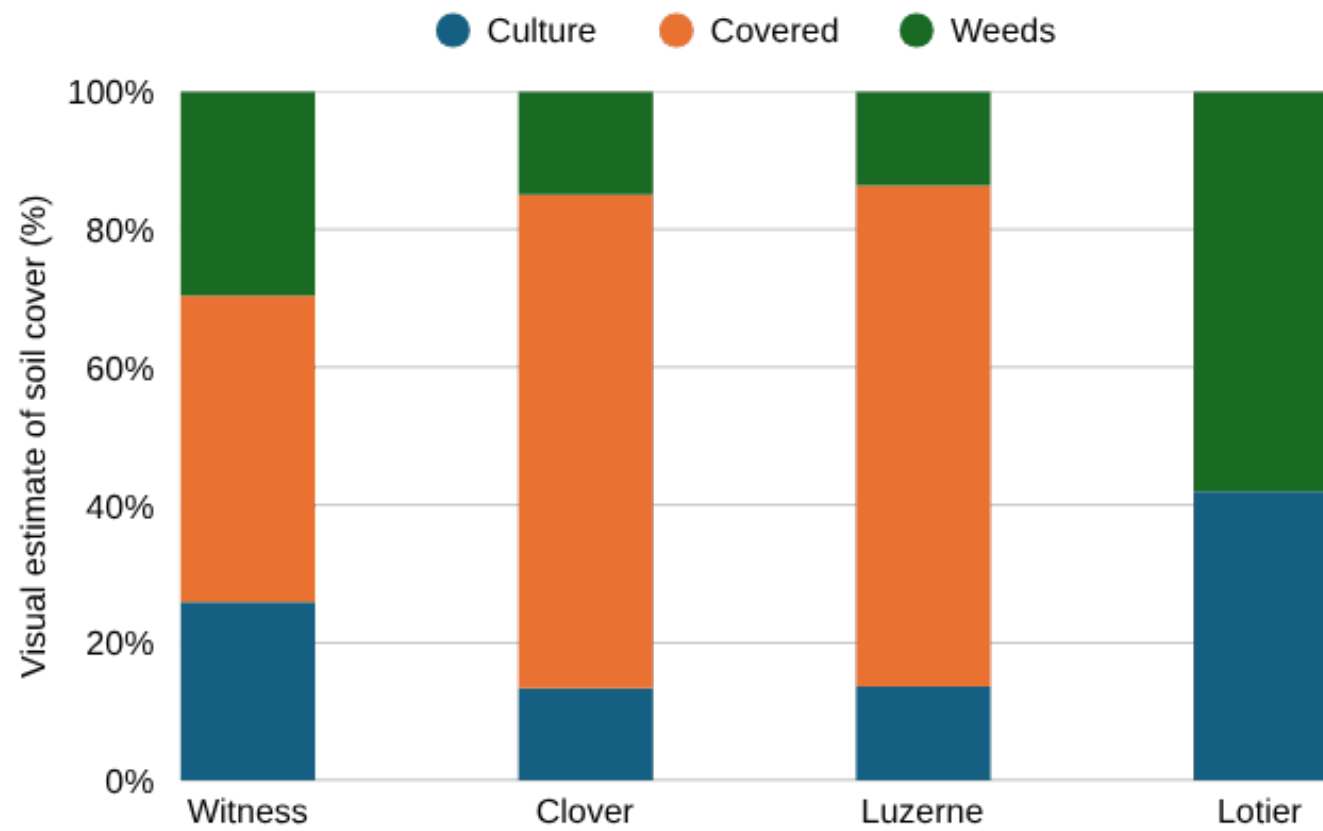


Perspectives– Conclusion– Cardoon and permanent cover

- The benefit of cultivating cardoon with a cover crop is to limit weed growth and nitrogen input. Results vary depending on the species chosen.
- Alfalfa competes with cardoon in the first year -> maintenance needs improvement? Variety? Similar behavior in subsequent years?
- Birdsfoot trefoil is slow to establish (beware of weeds at the beginning of cultivation). Competition is slightly less pronounced than alfalfa.
- Clover = compromise? Little impact on yield, faster and more reliable establishment than birdsfoot trefoil, but slightly more sparse regrowth after cutting (sensitivity to soil and climate conditions...?). Shorter lifespan than the crop?

Sisymbra- Recovery

28/03/22



- Very high presence of cutlery, little competition from hedge mustard
- Bird's-foot trefoil is shorter than clover and alfalfa, making hedge mustard easier to distinguish.



Control



Clover



Alfalfa



trefoil

Sisymbra

Evolution of culture

28/03/22

15/04/22

05/05/22

Control



Clover



Alfalfa



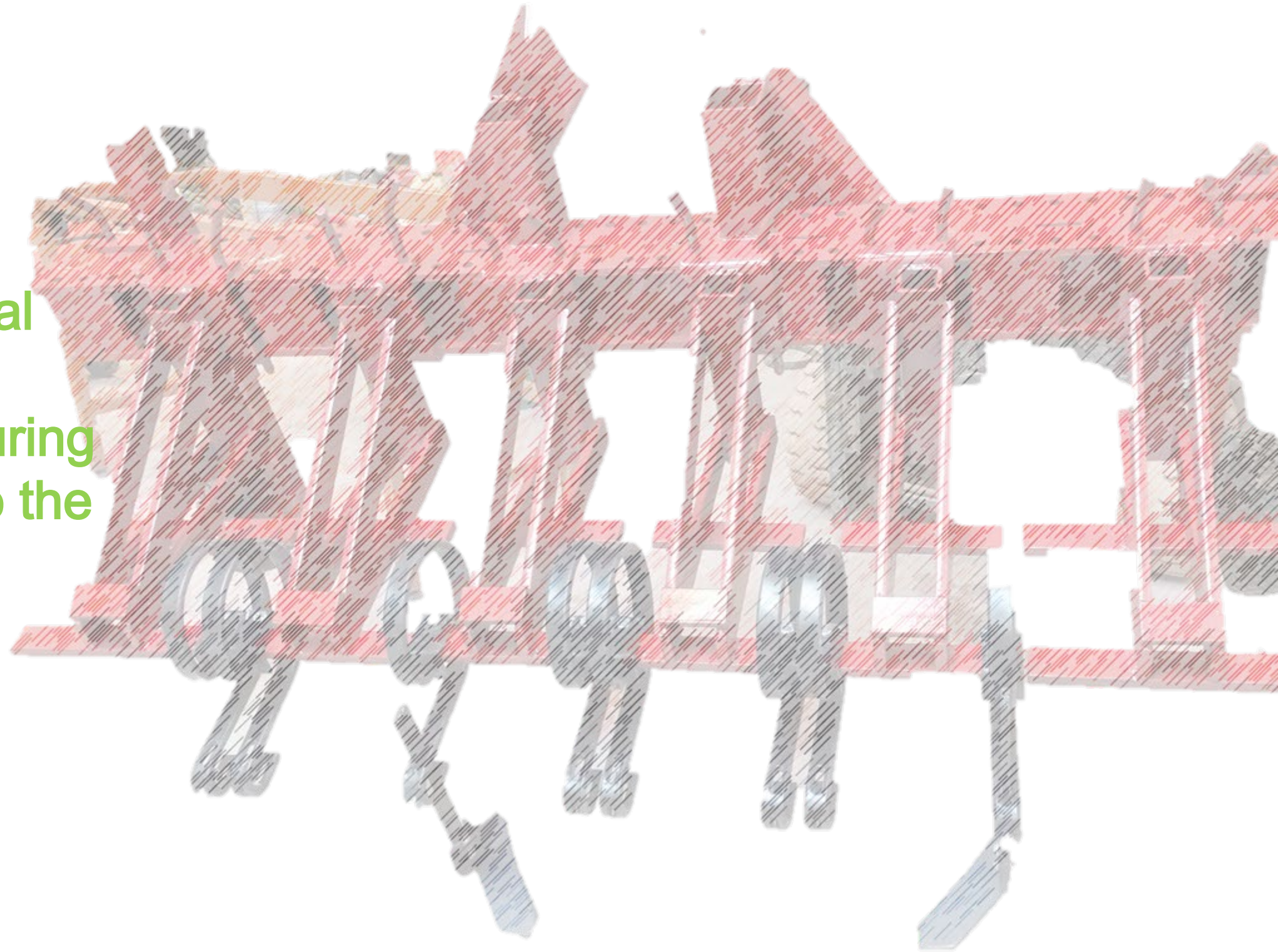
trefoil



Perspectives– Conclusion– Sisymbra and permanent cover

- Few differences were observed between the treatments (between control plots and plots with cover crops), but also little distinction between the cover crops. No/little impact on hedge mustard.
- The benefits of cover crops include nitrogen input, reduced hoeing (limiting weed emergence), and other services provided by cover crops not measured in this study (soil structure and life, etc.).
- Observation of the effect of cover crops on crop rotation (establishment of a new crop after hedge mustard)

Optimize mechanical
intervention by
adapting/manufacturing
equipment suited to the
new route



Optimize the maintenance of cover crops and crops

Material :

- Buy ?
- Adapter ?
- To manufacture?

Budget = 6000€

Examples of tools



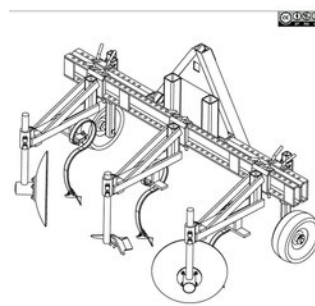
<https://www.eco-mulch.com/copie-de-combi-crop>

- Gaia tool carrier developed by Ecomulch and Arvalis

<https://www.eco-mulch.com/copie-de-combi-crop>

- Tool holder bar (BPO): DIY kit -> plans, construction kit, and possibly workshop-based manufacturing offered by the farmer's workshop

<https://www.latelierpaysan.org/>

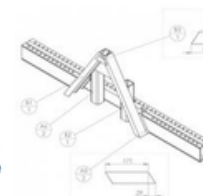


BARRE-PORTE-OUTILS (BPO)

Maralchage - PPAM - Grandes cultures - Viticulture - Plantes à Parfum, Aromatiques et Médicinales - Métal - BPO - Barre porte-outils - Porte-outils

Page mise à jour le 19/01/2023

Il s'agit d'un outil très simple et polyvalent : deux tôles pliées en U soudées dos à dos et percées à intervalles réguliers (entraxe 45mm). C'est un support pour de nombreux accessoires, montables et démontables très facilement grâce à des broches. Il permet de s'équiper de nombreux outils indispensables à moindre coût (éléments de binage, de buttage, etc...).

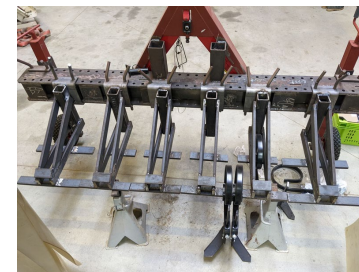
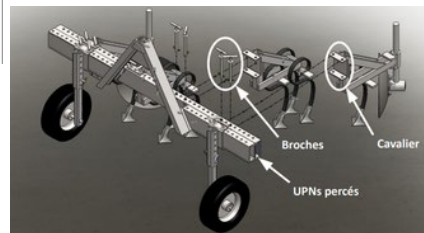
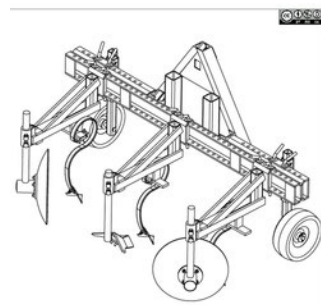
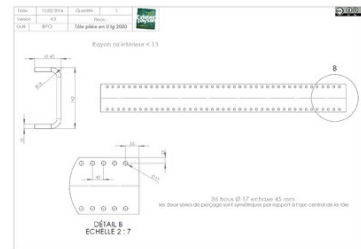


Optimize the maintenance of cover crops and crops

Making a tool holder bar (BPO of the peasant workshop)

👍 Well-made plans (open source) and kit

Current cost: approx. €4000



FEEDBACK FROM EXPERIMENTATION

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- Y
- V
- S
- C
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