

# PANACEA Roadmap for PORTUGAL

PANACEA



LIBBIO project, Andean Lupin

Cardoon  
Photo credit: ETIP Bioenergy



Eucalyptus Forest, Madeira, Portugal  
Photo credit: Alamy.com

Sunflower field, near Beja, Portugal  
Photo credit: Flickr

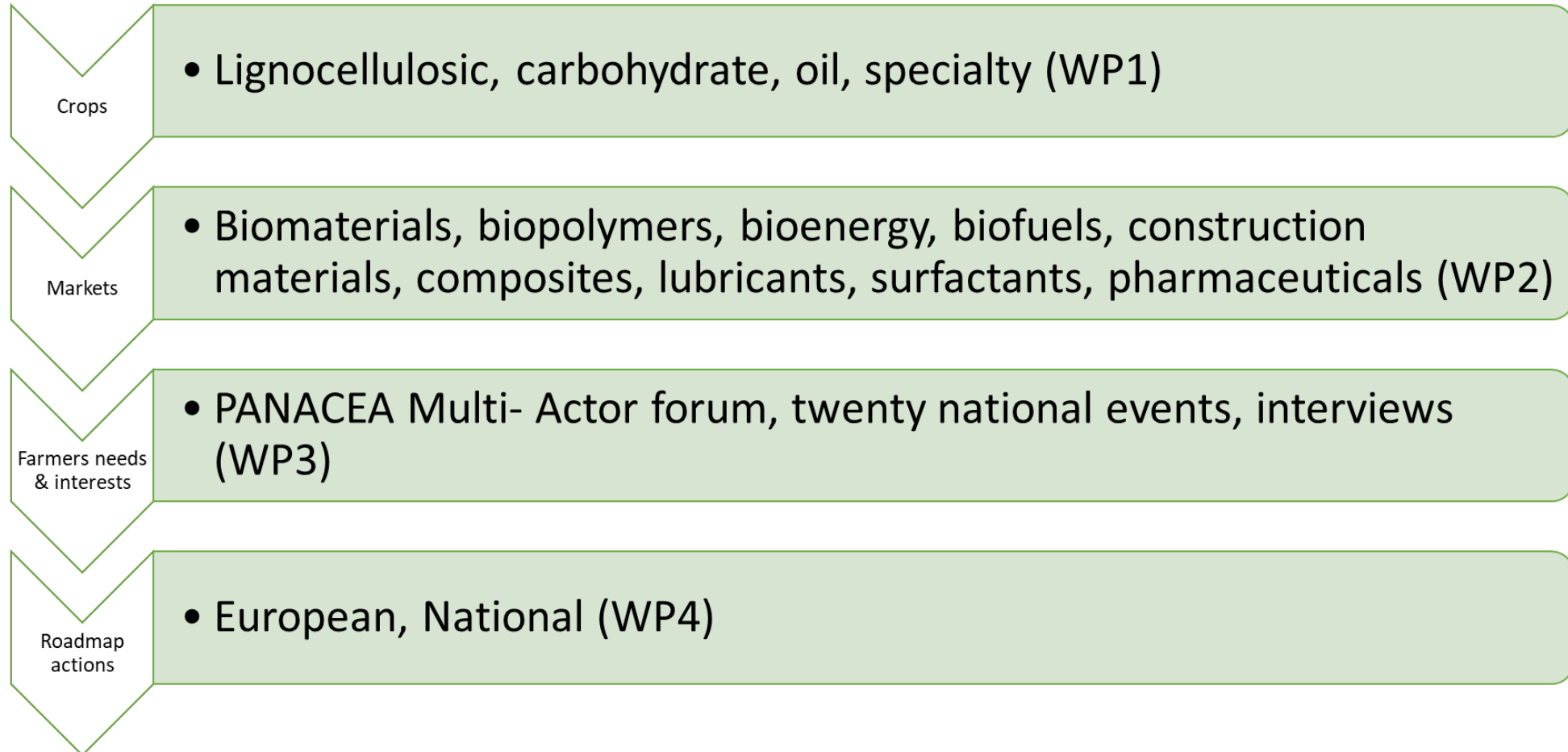


Peppermint in Portugal  
Photo credit: Quinta Aroma das Faias



# Approach & Links to PANACEA Work Packages

PANACEA





LIBBIO project, Andean Lupin

Markets


Pharmaceuticals


Polymers

Lubricants, surfactants

Drivers



Productivity & ability to be grown in large scale using existing machinery 

Familiarity with ability to produce feedstocks for multiple end-uses 

Profitability 

Sustainability 

Barriers











Lack of cultivation technology know-how  
The mechanical harvest of the crop is not well organised.

Low consumer awareness small market and high competition with other oil crops

Low revenue due to low yields

Low experience of growing in marginal land

TRL>7			a) industrial production already available at commercial scale b) used at commercial scale for multiple end-uses c) high
TRL5-7			a) production available at demo scale b) recognized for its multiple end-uses c) medium
TRL3-5			a) research to production development b) recognized end-use but still at the research level c) low
TRL<3			a) basic research data available b) no recognized end-use c) very low

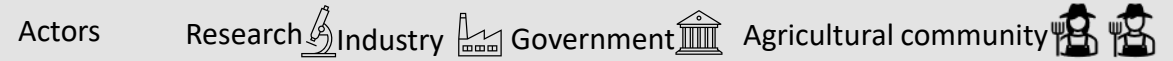
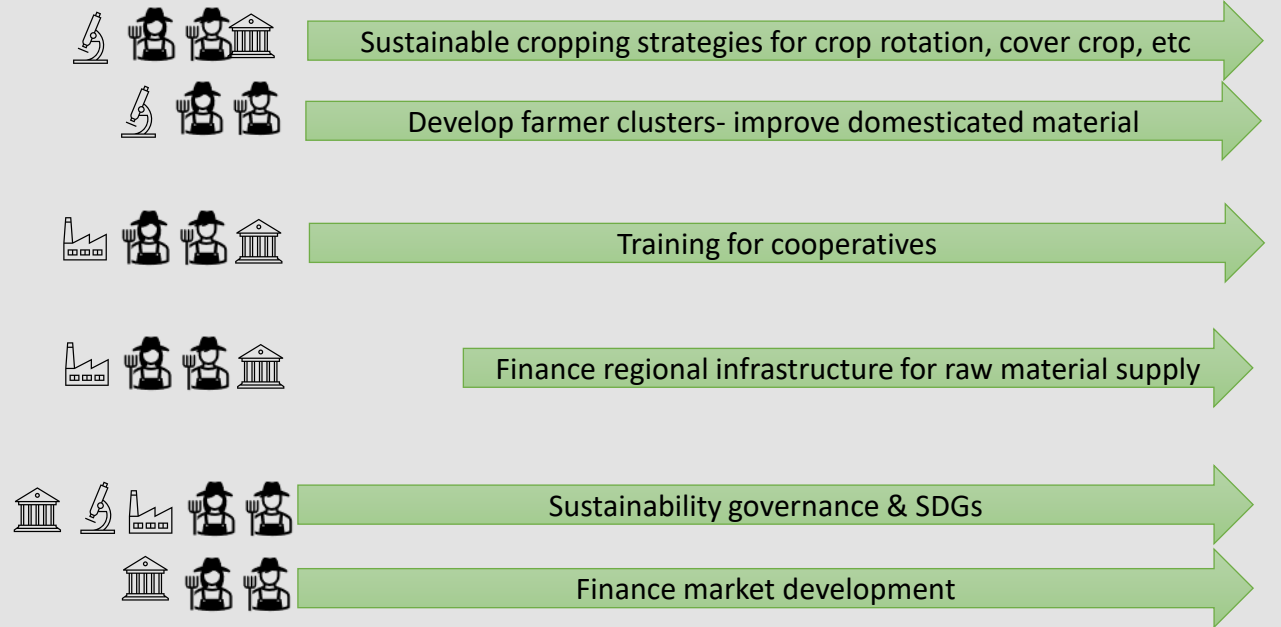
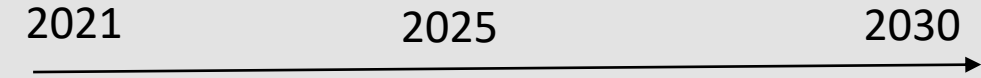
Roadmap actions to overcome the barriers



LIBBIO project, Andean Lupin

**Barriers** 

- Lack of cultivation & harvesting technology know-how
- Low consumer awareness small market and high competition with other oil crops
- Low revenue due to low yields
- Low experience of growing in marginal land





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### Markets


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### Barriers











Produced in small scale  
Limited availability of seeds  
Harvesting requires improvements

Lab and pilot scale only  
Current supply is not sufficient to support multi industrial supply chains

Low net profit margin for farmers.  
The current market price is very variable.

Avoid monoculture

TRL>7			a) industrial production already available at commercial scale b) used at commercial scale for multiple end-uses c) high
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### Barriers



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Avoid monoculture

2021

2025

2030



Sustainable cropping strategies: crop rotation, low tillage



Develop farmer clusters- improve domesticated material



Training for cooperatives



Finance regional infrastructure for raw material supply



Sustainability governance & SDGs



Finance market development

Actors

Research Industry Government Agricultural community







Eucalyptus Forest, Madeira, Portugal  
Photo credit: Alamy.com

### Markets

- Construction materials
- Composites
- Bioenergy

### Drivers











- Productivity & ability to be grown in large scale using existing machinery 
- Familiarity with ability to produce feedstocks for multiple end-uses 
- Profitability 
- Sustainability 

### Barriers




- Much lower yields In low quality soils
- Little-known and expensive technology for the production of second-generation biofuels
- Low market development for bioactive compounds
- Biodiversity and soil carbon  
Fire risks

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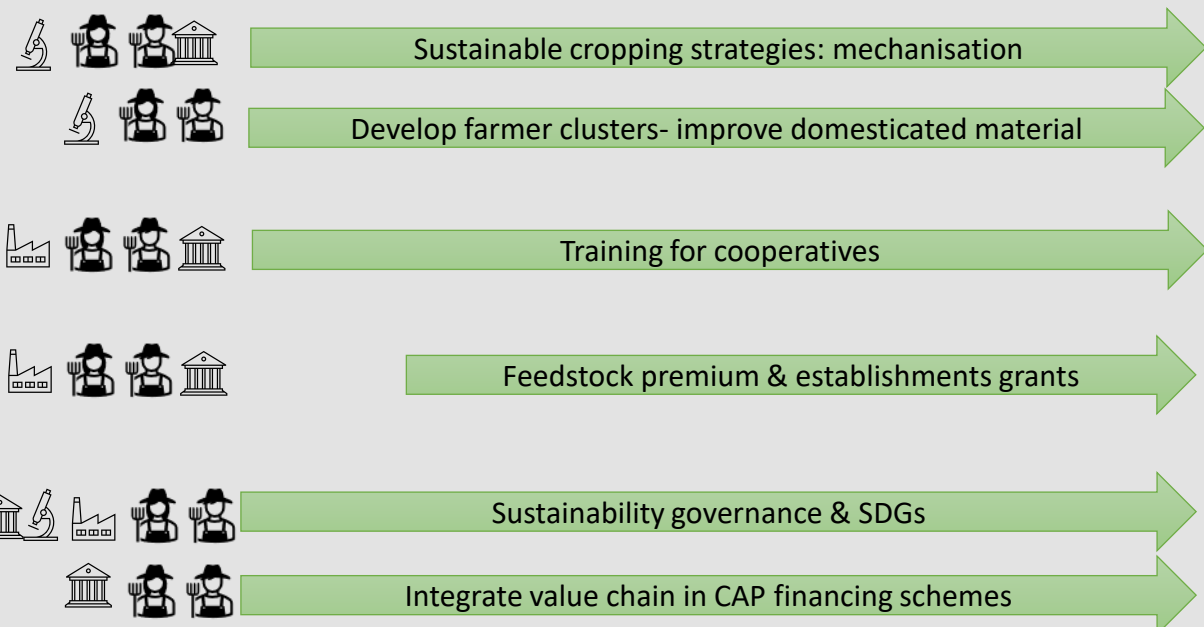







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**Barriers** 

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2021 2025 2030



Actors    Research  Industry  Government  Agricultural community  





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


Low yields  
Varieties with low water use efficiency

Few bio-diesel production factories

Low revenue due to low yields

Competition with food and feed industry

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# Sunflower

## Roadmap actions to overcome the barriers

PANACEA



Sunflower field, near Beja, Portugal  
Photo credit: Flickr



### Barriers



Low yields  
Varieties with low water use efficiency

Few bio-diesel production factories

Low revenue due to low yields

Competition with food and feed industry

2021

2025

2030



Sustainable cropping strategies for crop rotation, cover crop, etc.



Develop farmer clusters- improve domesticated material



Training for cooperatives



Finance regional infrastructure for raw material supply



Sustainability governance & SDGs



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## Markets, drivers and barriers

Peppermint in Portugal  
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Cultivated in small farms  
Lack of knowledge for crop management

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