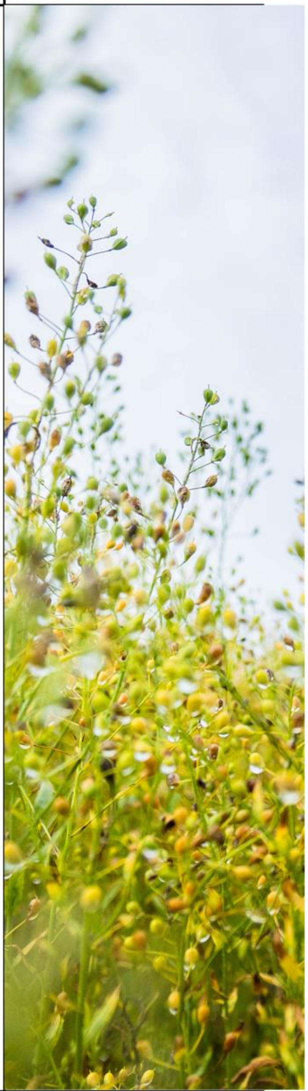
National Roadmaps for Scaling Camelina and Carinata Value Chains

France

France is identified as having comparatively more consolidated value chain (VC) conditions due to its strong oilseed sector, established cooperative systems, existing storage and crushing infrastructure, and comparatively mature agricultural advisory networks. However, despite these structural advantages, camelina and carinata remain marginal crops whose large-scale deployment is still constrained by economic uncertainty, fragmented market development, regulatory ambiguity, and limited agronomic consolidation. The French roadmap focuses on strengthening the coordination, diversification, and long-term viability of emerging VCs. Emphasis is placed on territorial organization, cooperative-based aggregation, non-fuel bio-based applications, and the progressive integration of camelina and carinata into broader agricultural and bioeconomy strategies.



Short-term actions (0-2years)

Reducing Uncertainty: Advisory Services and Practical Knowledge Transfer

Structuring Early Coordination: Cooperative-Based Markets and Territorial Coordination

Medium-term actions (2-5 years)

Diversification of Bio-Based Applications

Territorial Consolidation: Infrastructure Adaptation and Proximity-Based Systems

Long term development (5+ years)

Integration into the National Bioeconomy Strategy

Carina

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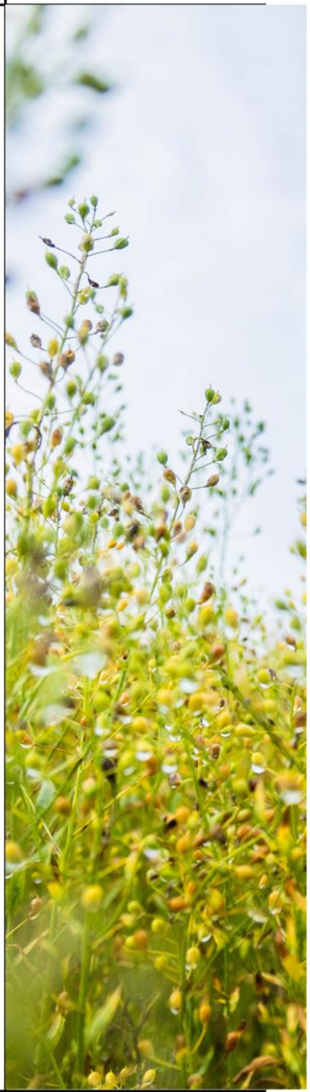
National Roadmaps for Scaling Camelina and Carinata Value Chains

Spain



Spain is identified as having comparatively more consolidated VCs (value chains) conditions due to its strong cooperative networks, existing oilseed processing capacity, and the established development of camelina value chains since 2010 across several Spanish regions. Camelina has progressively moved from an emerging crop towards a more structured VCs. Conversely, carinata remains at an earlier stage of development in Spain, with more limited cultivation experience and greater uncertainty regarding agronomic performance and market integration. The Spanish roadmap focuses on consolidating the existing camelina VCs while identifying enabling conditions for the potential future development of carinata-based systems. Existing industrial infrastructure, logistical know-how, and successful contractual experiences demonstrate significant scaling potential.

Short-term actions (0-2 years)

Stabilizing Adoption Conditions: Agronomic Adaptation and Regional Suitability

Stabilizing Adoption Conditions: Reducing Market and Regulatory Uncertainty

Medium-term actions (2-5 years)

Mobilizing Existing Infrastructure and Expanding Bio-Based Applications

Territorial Value Chain Development: Strengthening Cooperatives and Coordination

Long term development (5+ years)

Developing Diversified Market and Territorial Integration

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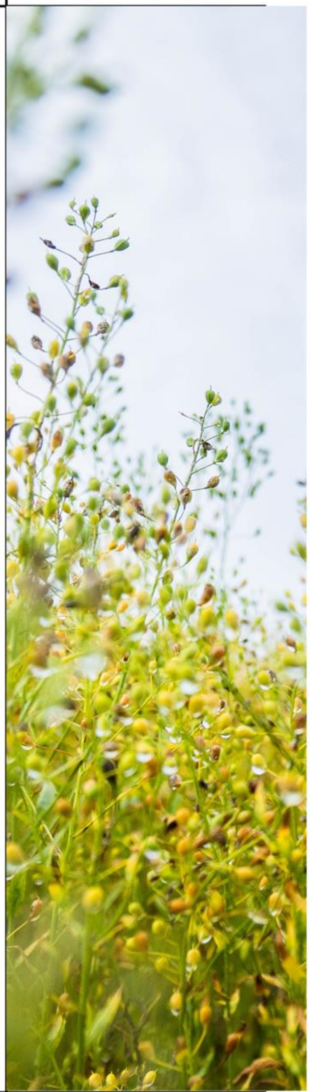
National Roadmaps for Scaling Camelina and Carinata Value Chains



Italy

Italy shows established industrial processing capacity, active experimentation on crop integration, and growing interest in bio-based applications linked to agricultural diversification and sustainable input substitution. Deployment remains fragmented, however, constrained by economic uncertainty at farm level, limited market consolidation, and practical bottlenecks around storage, aggregation, certified seeds, and downstream valorization. The Italian roadmap focuses on reducing these structural bottlenecks while progressively strengthening integration into diversified farming systems and emerging bio-based VCs (value chains), with emphasis on low-input systems, crop diversification, protein feed opportunities, and non-fuel industrial applications – recognizing the strong territorial variability across Italian agriculture.

Short-term actions (0-2 years)

Farmer Support, Advisory Services, and Knowledge Transfer

Market Scoping and Proximity-Based Value Chains

Medium-term actions (2-5 years)

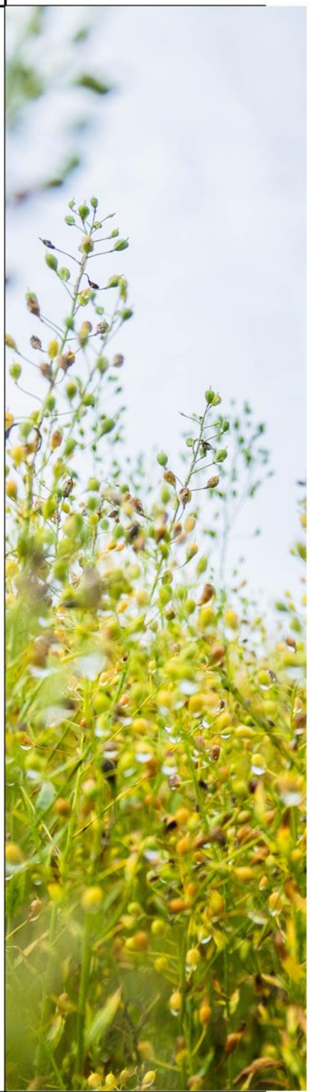
Cooperative-Based Supply Chain Coordination and Infrastructure Alignment

Risk-Sharing and Economic Stabilization Mechanisms

Long term development (5+ years)

Strategic Integration and Industrial Consolidation

National Roadmaps for Scaling Camelina and Carinata Value Chains



Germany

Germany shows relatively limited VC (value chain) development and significant agronomic constraints, particularly for carinata cultivation. Camelina already exists as a niche crop linked to small industrial applications and potential organic markets, but deployment remains marginal due to fragmented demand, regulatory complexity, and limited economic incentives compared to dominant crops such as rapeseed and winter wheat. The German roadmap therefore focuses less on rapid scaling and more on identifying realistic pathways for selective integration of camelina into diversified farming systems and niche bio-based applications, with emphasis on regulatory adaptation, actor coordination, and reducing structural barriers to experimentation and market development.

Short-term actions (0-2 years)

Clarification of Agronomic Viability and Regional Suitability

Regulatory Flexibility and CAP (Common Agricultural Policy) Alignment

Medium-term actions (2-5 years)

Market Coordination, Cooperative Networks, and Niche Development

Building Selective Niche Value Chains: Diversification of End Uses

Long term development (5+ years)

Conditional Integration and Innovation Monitoring

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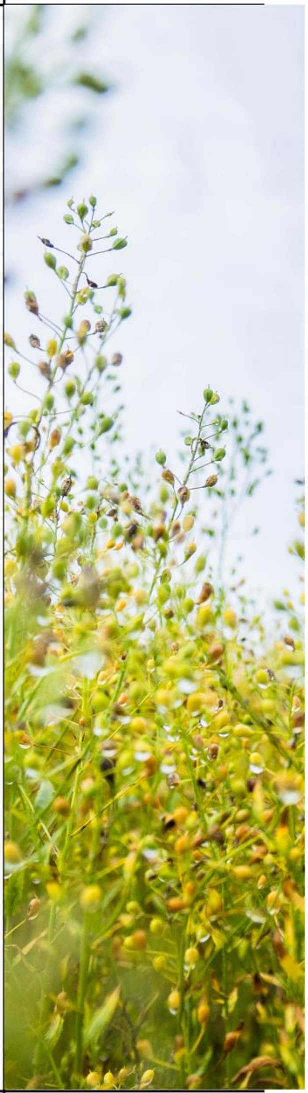
National Roadmaps for Scaling Camelina and Carinata Value Chains



Poland

Poland occupies an intermediate position within the CARINA context, characterized by a strong existing oilseed sector centered on rapeseed. And while camelina already exists as a niche crop linked mainly to cold-pressed edible oil markets (out of scope for the CARINA project) , value chains remain fragmented and highly dependent on small-scale initiatives. The Polish roadmap focuses on gradually diversifying the oilseed sector through the integration of lower-input crops capable of contributing to sustainability objectives, soil diversification, and future bio-based applications. Attention is placed on reducing market uncertainty and creating realistic pathways for gradual adoption rather than rapid substitution of established crops.

Short-term actions (0-2 years)

Building Initial Confidence: Farmer Awareness and Demonstration Activities

Building on Market Signals: Early Market Structuring and Niche Development

Medium-term actions (2-5 years)

Cooperative Development and Territorial Coordination Building

Diversification Beyond Traditional Oil Markets

Long term development (5+ years)

Integration into Diversified Oilseed Strategies

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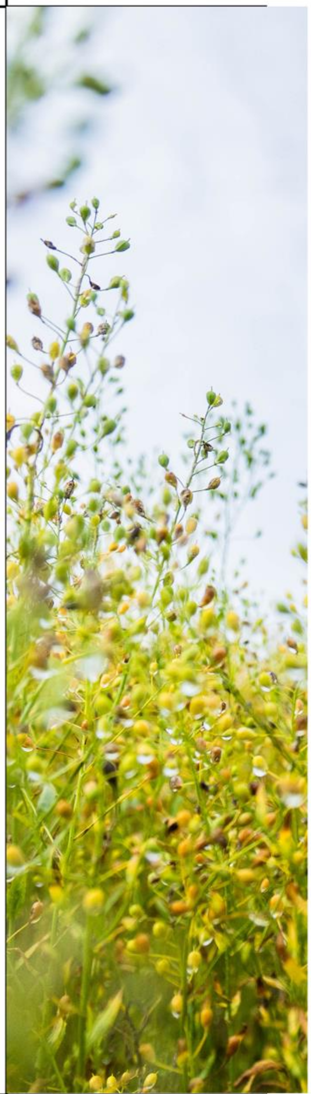
National Roadmaps for Scaling Camelina and Carinata Value Chains



Bulgaria

Bulgaria historically relies on oilseed production, and its national sector remains dominated by sunflower cultivation, while rapeseed production has recently declined due to climatic instability and changing profitability conditions. Within this context, camelina and carinata are still largely absent from commercial supply chains and remain at an exploratory stage. The Bulgarian roadmap reflects on the one hand, that the country faces limited market demand and a lack of dedicated policy support, and on the other hand a need for crop diversification, and alignment with broader EU sustainability objectives, creating both challenges and opportunities for camelina and carinata integration into more resilient agricultural systems.

Short-term actions (0-2 years)

Strengthening Agronomic Knowledge and Research Capacity

Raising Awareness and Creating Initial Market Interest, informed by findings from the Bulgarian PIL (Participatory Innovation Lab – CARINA's stakeholder engagement process)

Medium-term actions (2-5 years)

Supporting Emerging Value Chains

Long term development (5+ years)

Diversification and Climate Resilience

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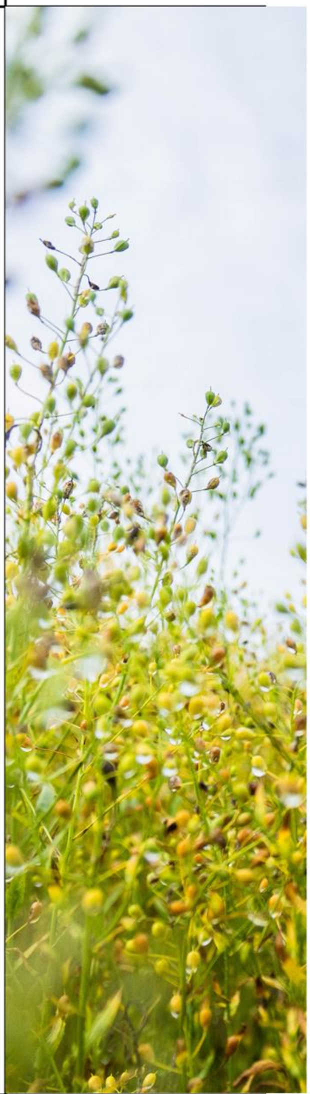
National Roadmaps for Scaling Camelina and Carinata Value Chains



Morocco

Morocco represents a structurally import-dependent oilseed market with significant exposure to international price fluctuations and food security concerns. Existing national strategies support sunflower and rapeseed production through contractual systems and public price-support mechanisms, while camelina and carinata currently remain outside formal policy frameworks. Concurrently, Morocco presents conditions favorable to the gradual development of camelina-based systems, such as extensive marginal and drought-prone lands, increasing pressure on cereal-based systems, established cooperative experience in cosmetic and essential oil production, and good agronomic performance of camelina under low-input dryland conditions. The Moroccan roadmap therefore reflects a combination of substantial institutional and market barriers, alongside emerging opportunities offered by camelina for decentralized, cooperative-based, and climate-resilient value chains focused on higher-value niche applications.

Short-term actions (0-2 years)

Supporting Pilot Cooperative Systems

Improving Institutional Recognition

Medium-term actions (2-5 years)

Strengthening Cooperative Structures and Market Integration

Strengthening Climate-Resilient Agricultural Systems

Long term development (5+ years)

Niche Value Chains and Rural Resilience

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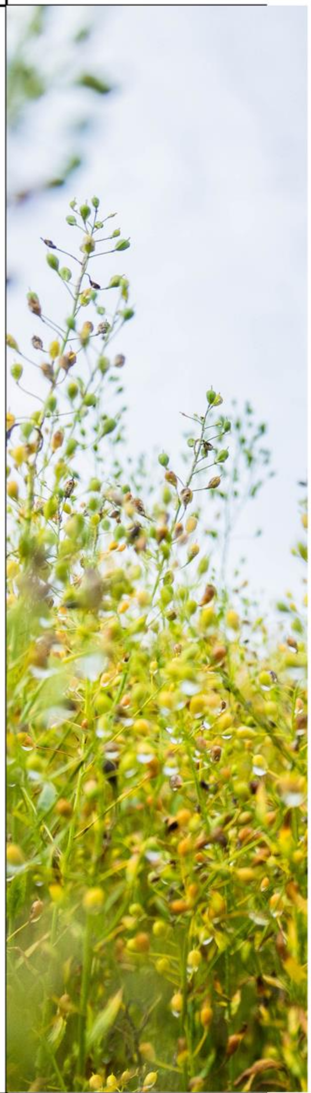
National Roadmaps for Scaling Camelina and Carinata Value Chains



Serbia

Serbia possesses a strong agricultural tradition in oilseed production, with sunflower, soybean, and rapeseed already integrated into national farming systems and agro-industrial markets. However, camelina and carinata remain largely absent from commercial deployment, despite growing recognition of the need to diversify oilseed systems and reduce dependence on dominant crops. The Serbian roadmap focuses on the institutional, market, and coordination conditions needed to gradually diversify toward alternative low-input oilseeds.

Short-term actions (0-2 years)

Building technical capacity is recommended to be the priority for Serbia in the short term.. Limited practical experience with camelina and carinata currently constrains farmer confidence and market interest. Actions should prioritise evaluating crop performance under Serbian pedoclimatic conditions. Particular attention should be paid to low-input management systems, crop rotation compatibility, and adaptation to different production environments.

Medium Term (2-5 Years) and Long Term (5+ Years)

For Serbia, medium- and long-term country specific development pathways are not definable at this stage, as the VC remains in an early formation phase with limited downstream integration and emerging organisational capacity. Instead, guidance should be drawn from the overarching framework presented in Section 4.2, where the general objectives, challenges, and action pathways remain relevant, particularly regarding the need to first consolidate enabling conditions before more tailored scaling interventions can be meaningfully specified.

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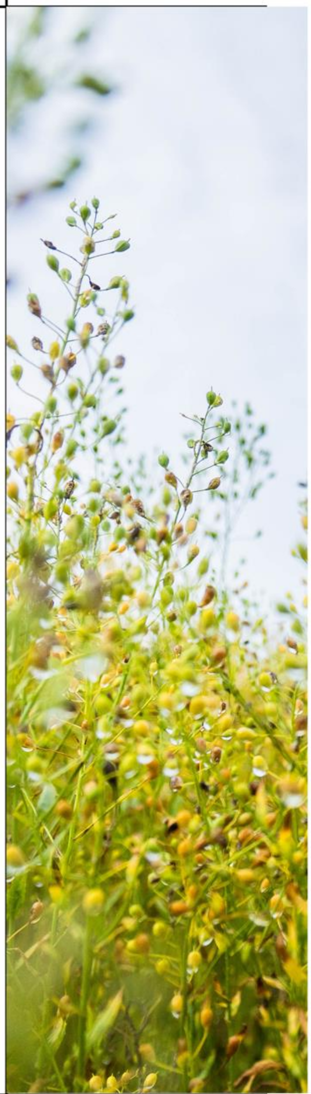
National Roadmaps for Scaling Camelina and Carinata Value Chains



Tunisia

Tunisia's oilseed sector remains heavily dependent on imports despite recent progress in domestic canola production supported through coordinated public-private initiatives. Camelina and carinata remain at a very early stage of development, constrained by limited technical knowledge, uncertain policy support, fragmented farming systems, and concentrated purchasing structures. The Tunisian roadmap aims to gradually build the technical, organisational, and institutional conditions necessary for diversification of the oilseed sector, while improving resilience under increasingly climate-constrained conditions.

Short-term actions (0-2 years)

Reducing Farmer Uncertainty and Spreading Market Concentration

Strengthening Policy Visibility and Diversification Strategies

Medium-term actions (2-5 years)

Coordinating Emerging Territorial Value Chains

Long term development (5+ years)

Building Resilient Diversification and Rural Pathways

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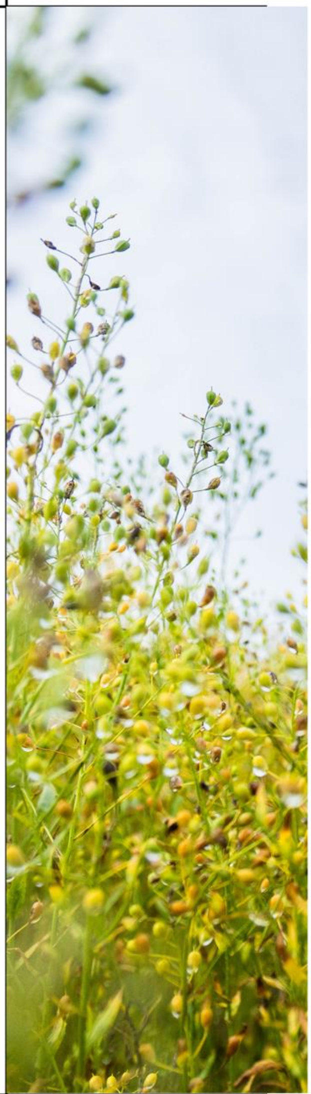
National Roadmaps for Scaling Camelina and Carinata Value Chains



Greece

Greece presents comparatively favourable conditions for the development of camelina and carinata due to growing interest in conservation agriculture, increasing pressure on conventional oilseed systems, and the emergence of dedicated support mechanisms for alternative crops. However, deployment remains uneven and strongly dependent on seed availability, market diversification, and the long-term stability of support schemes. The Greek roadmap therefore focuses on consolidating current momentum while progressively expanding market opportunities and strengthening territorial coordination.

Short-term actions (0-2 years)

Integrating Alternative Oilseeds in Conservation Agriculture

Medium-term actions (2-5 years)

Diversifying Territorial Value Chains

Long term development (5+ years)

Consolidation within Sustainable Agricultural Transitions

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