



ÖMKi

Ökológiai Mezőgazdasági Kutatóintézet

Research Institute of Organic Agriculture | Forschungsinstitut für biologischen Landbau



Success and failure factors of crop diversification across Europe

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DiverIMPACTS project

- **Diversification through Rotation, Intercropping, Multiple Cropping, Promoted with Actors and value-Chains towards Sustainability**
- Horizon 2020 research project (RUR-06-2016)
- 2016-2021
- 34 partners across Europe, coordinated by Antoine Messéan, INRA



Documenting Crop Diversification Experiences

- Survey was conducted with local experts (advisors, researchers, farmers, etc.) between **Januar-April 2018** to document CDEs
- **Rotation, Intercropping, Multiple Cropping** in arable production

Aims of analyses:

- a) List of success and failure factors of experiences**
- b) Understanding connections between these factors and the main characteristics of Crop Diversification Experiences**



About the survey

- Lime Survey tool was used
- Survey had 3 sections, 72 questions and subquestions:
 - a) Section A: **Description** of CDE (34 questions)
 - b) Section B: **Evaluation** of CDE (24 questions)
 - c) Section C: **Dynamics** of CDE (14 questions)

Lot of conditional questions, only few open-end questions.

Documenting crop diversification experiences across Europe - DiverIMPACTS Survey

0% 100%

3. Dynamics of your diversification initiative

3.4 Did the diversification initiative encounter any drawbacks or enablers during its lifetime? Please rate the following potential drawbacks/enablers on both scales.

	Drawbacks				Enablers				No answer
	slightly relevant	moderately relevant	very relevant	overwhelmingly relevant	slightly relevant	moderately relevant	very relevant	overwhelmingly relevant	
Agronomic (e.g. water availability)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
Economic (e.g. product price)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
Public policy (e.g. regulations)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
Personal interactions (e.g. team work)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>

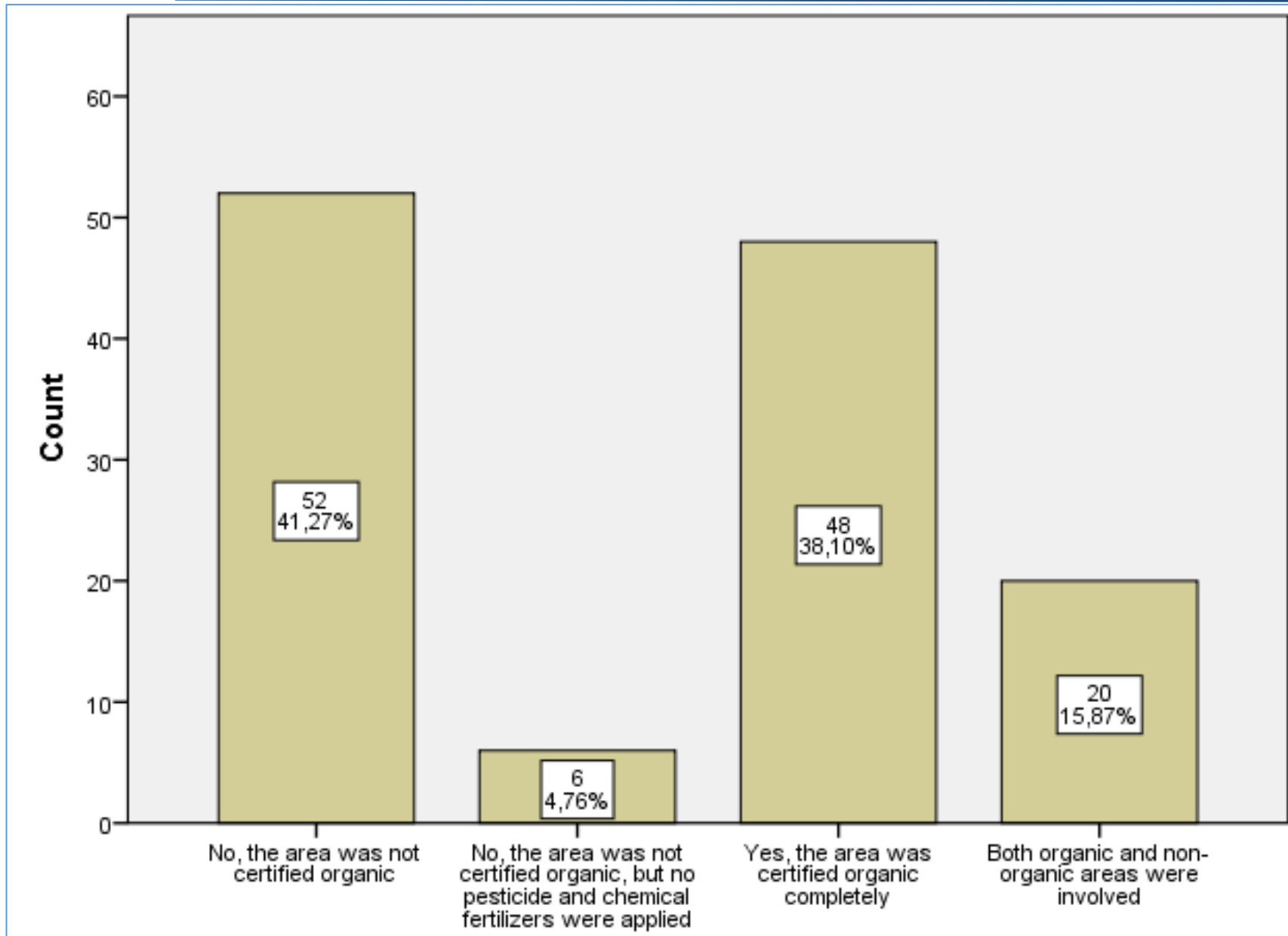


Results & Statistics

- **129 valid responses** were received from **15 European countries:** Belgium, France, Germany, Hungary, Italy, the Netherlands, Poland, Romania, Sweden, Switzerland, and UK, but also from Denmark, Finland, Luxemburg and Spain
- Statistics were performed with SPSS Version 22
 - a) Spearman's Correlations (relations between variables)
 - b) Kruskal Wallis H test (differences between variable groups)
 - c) Two-step cluster analysis (grouping of dataset according to factors)

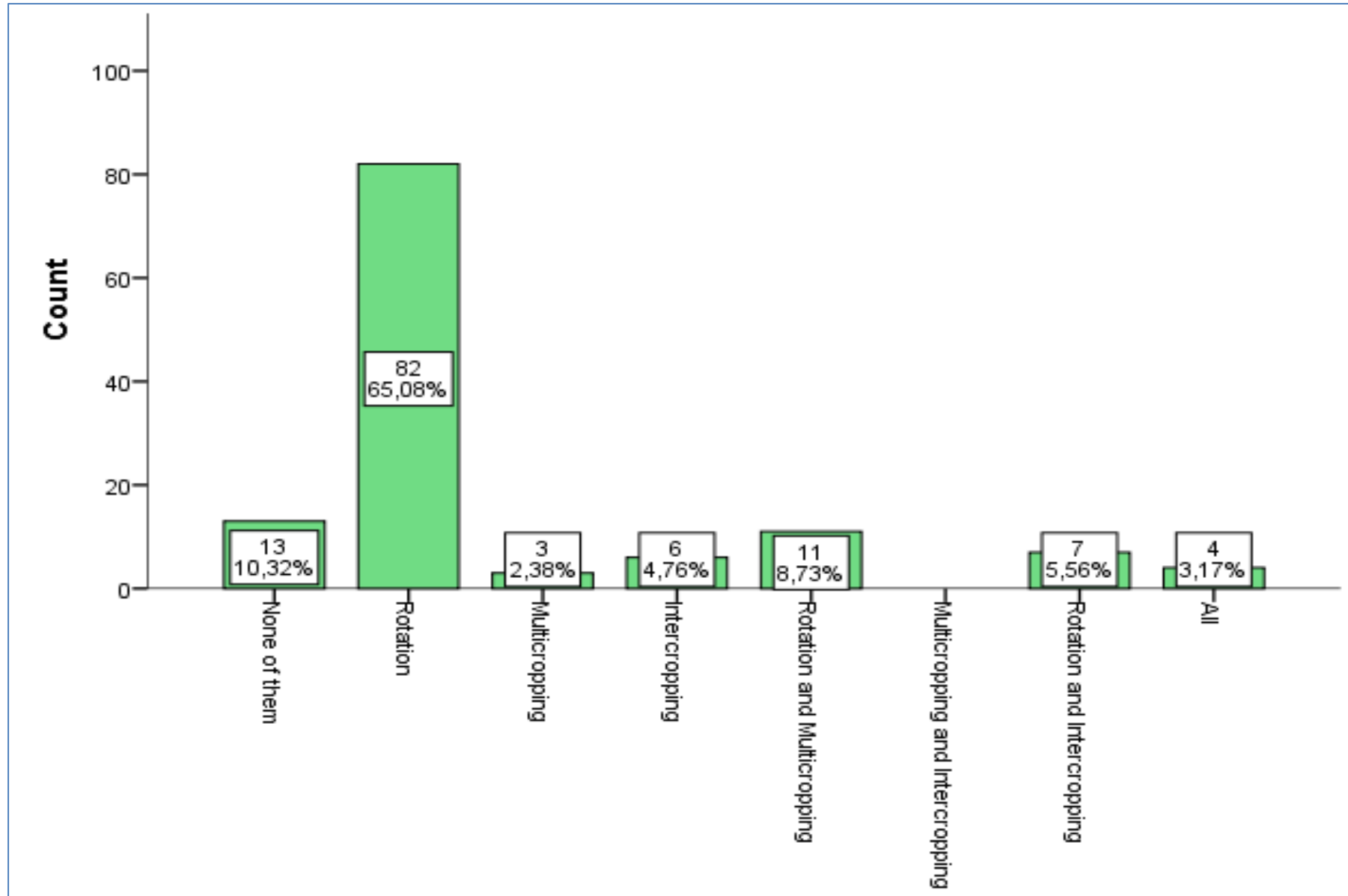


Certification status of CDE areas



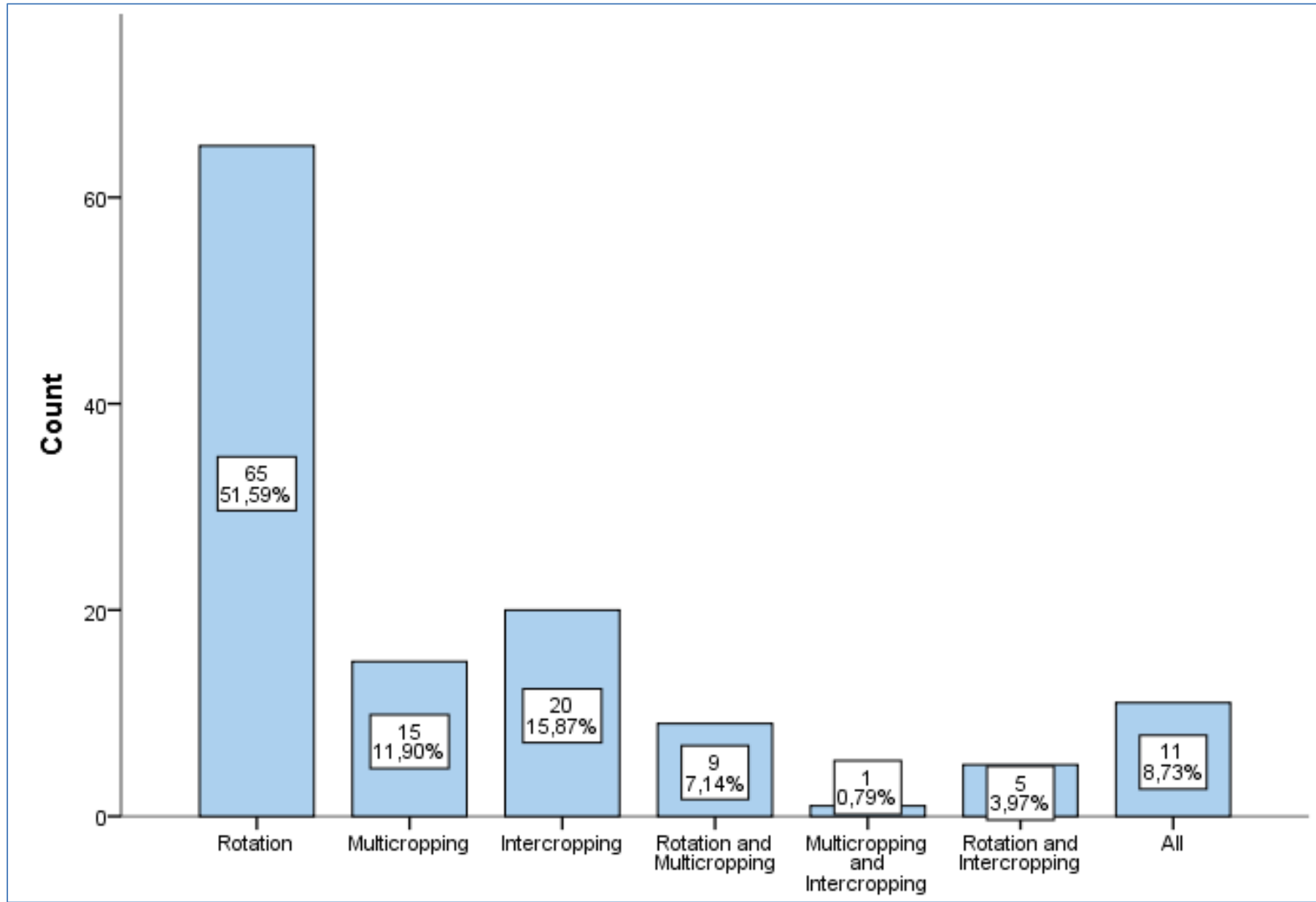


Diversification status before the reported crop diversification initiative





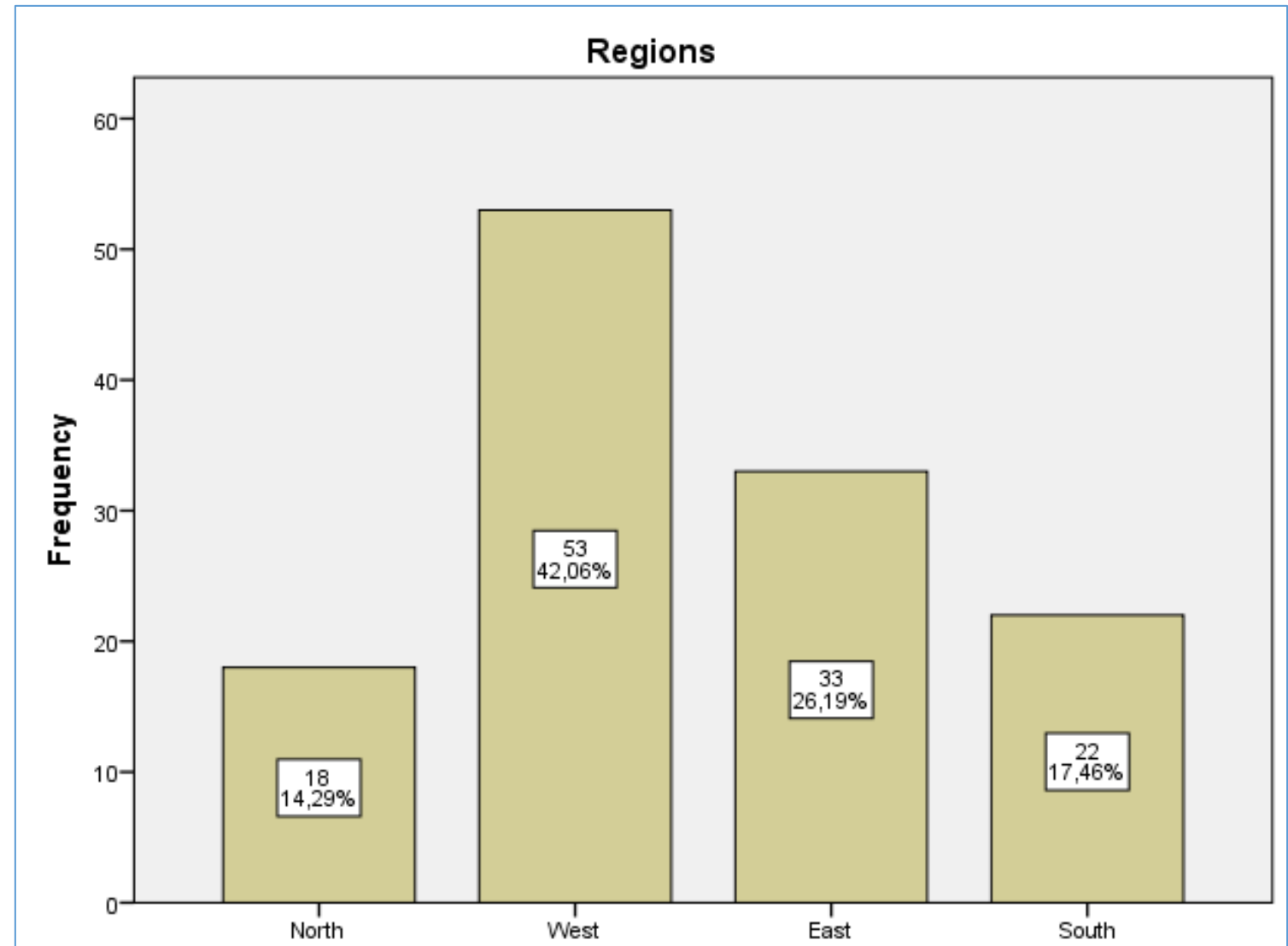
Introduced types of diversification



Regional distribution of CDEs

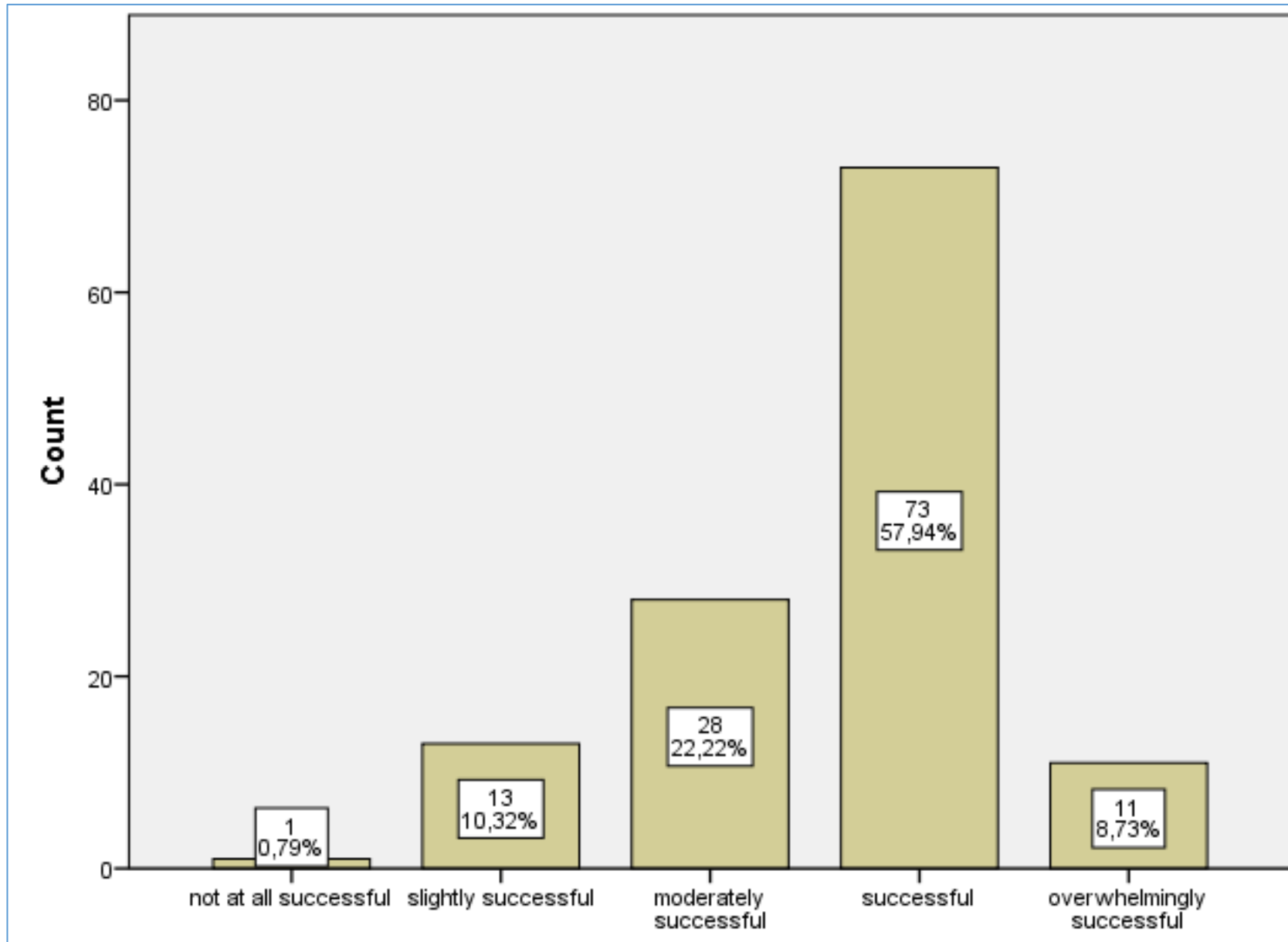


Regions of Europe according to the UN (source: Wikimedia)





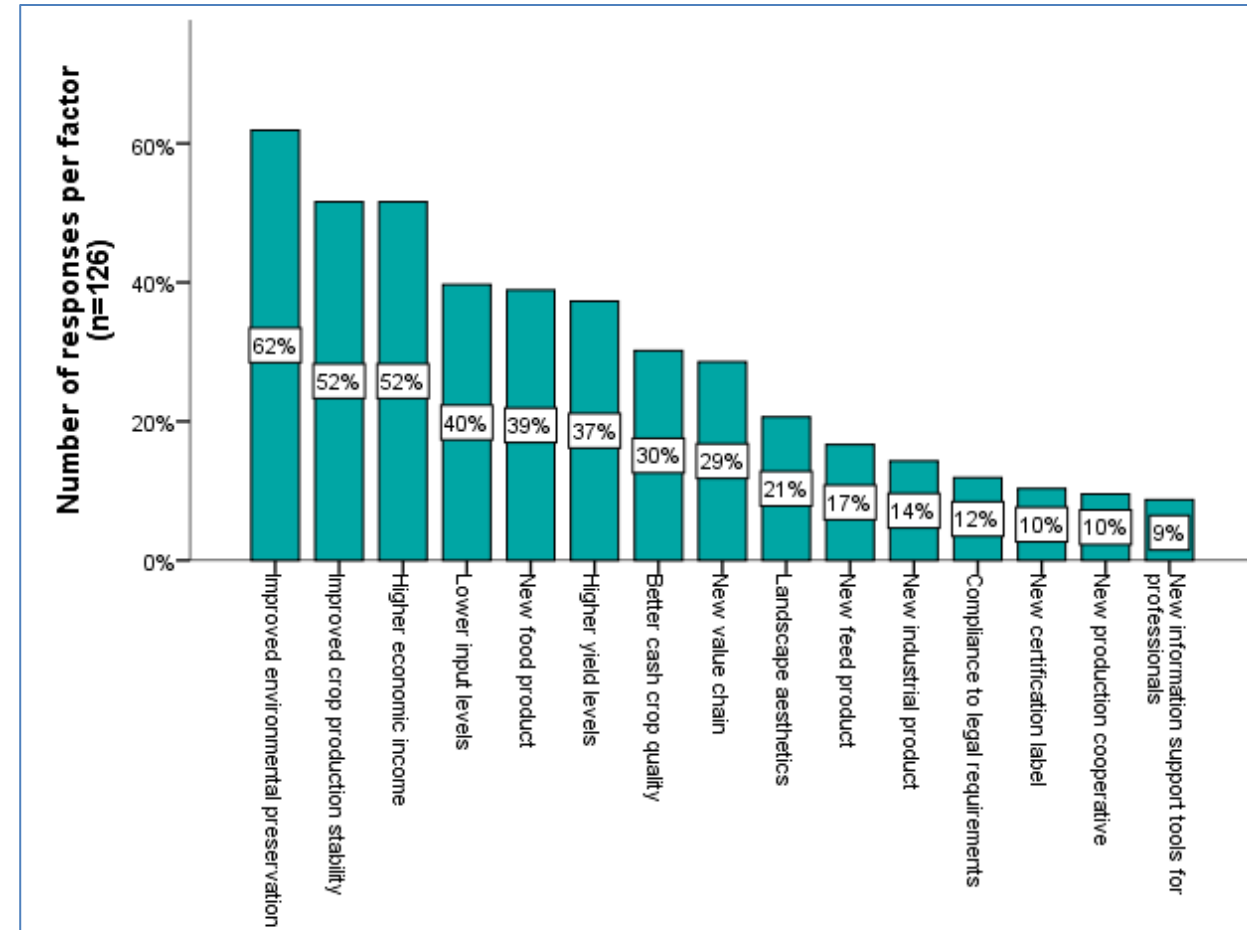
Was the CDE successful? Self evaluation





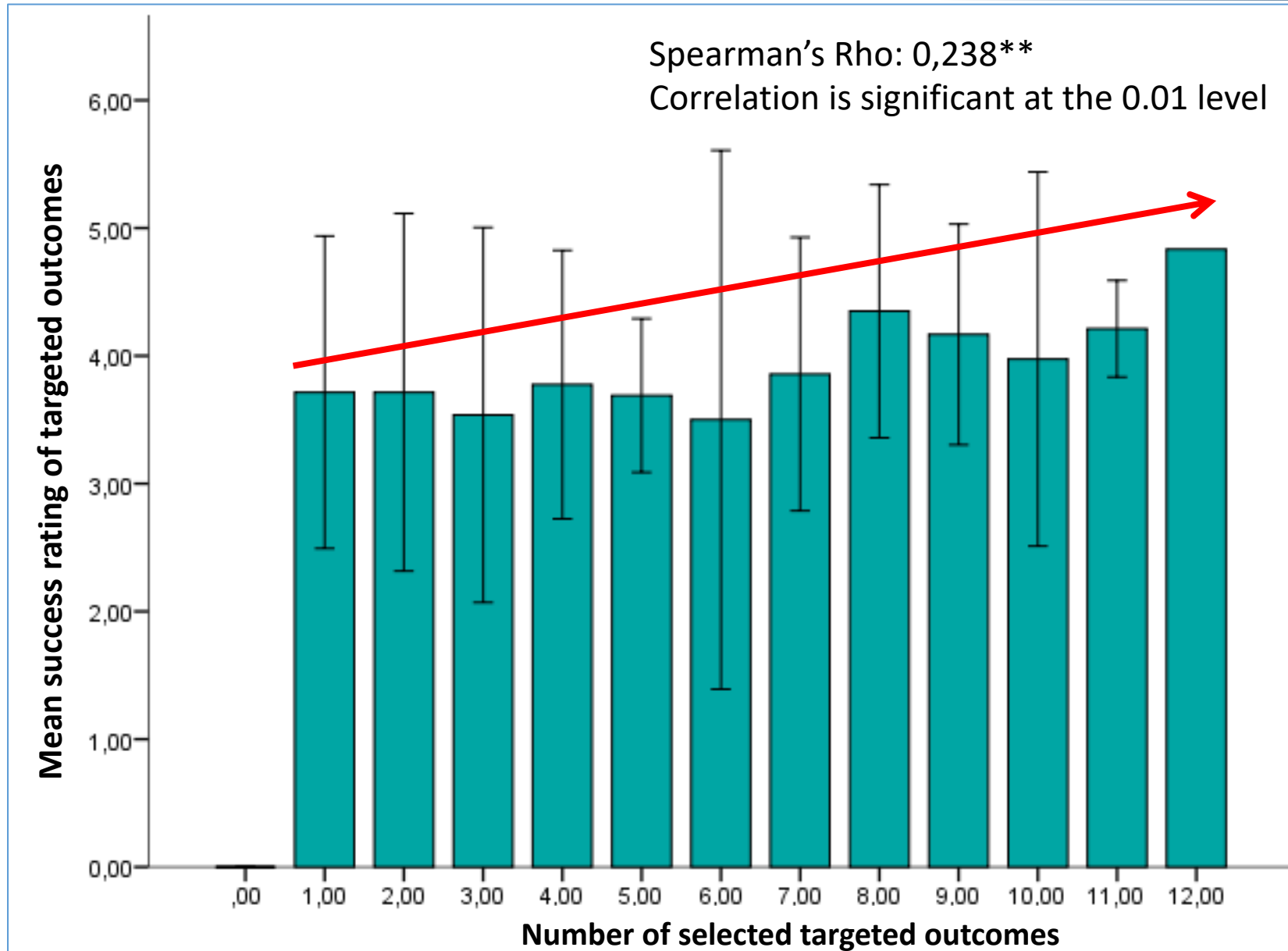
Most frequent targeted outcomes of CDEs

- 1. Environmental preservation**
(62% of CDEs)
- 2. Improved crop production stability** (52% of CDEs)
- 3. Higher economic income**
(52% of CDEs)

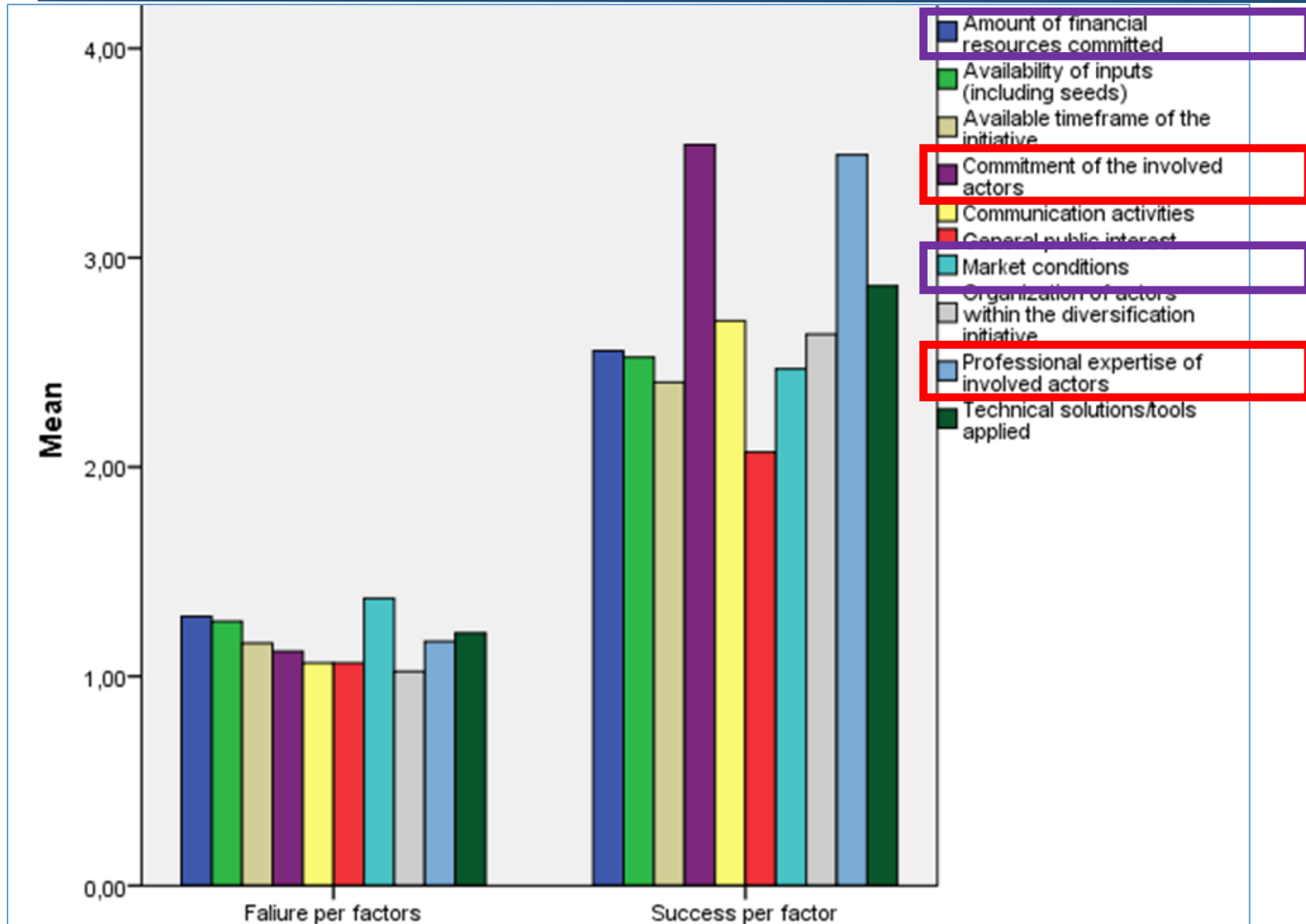




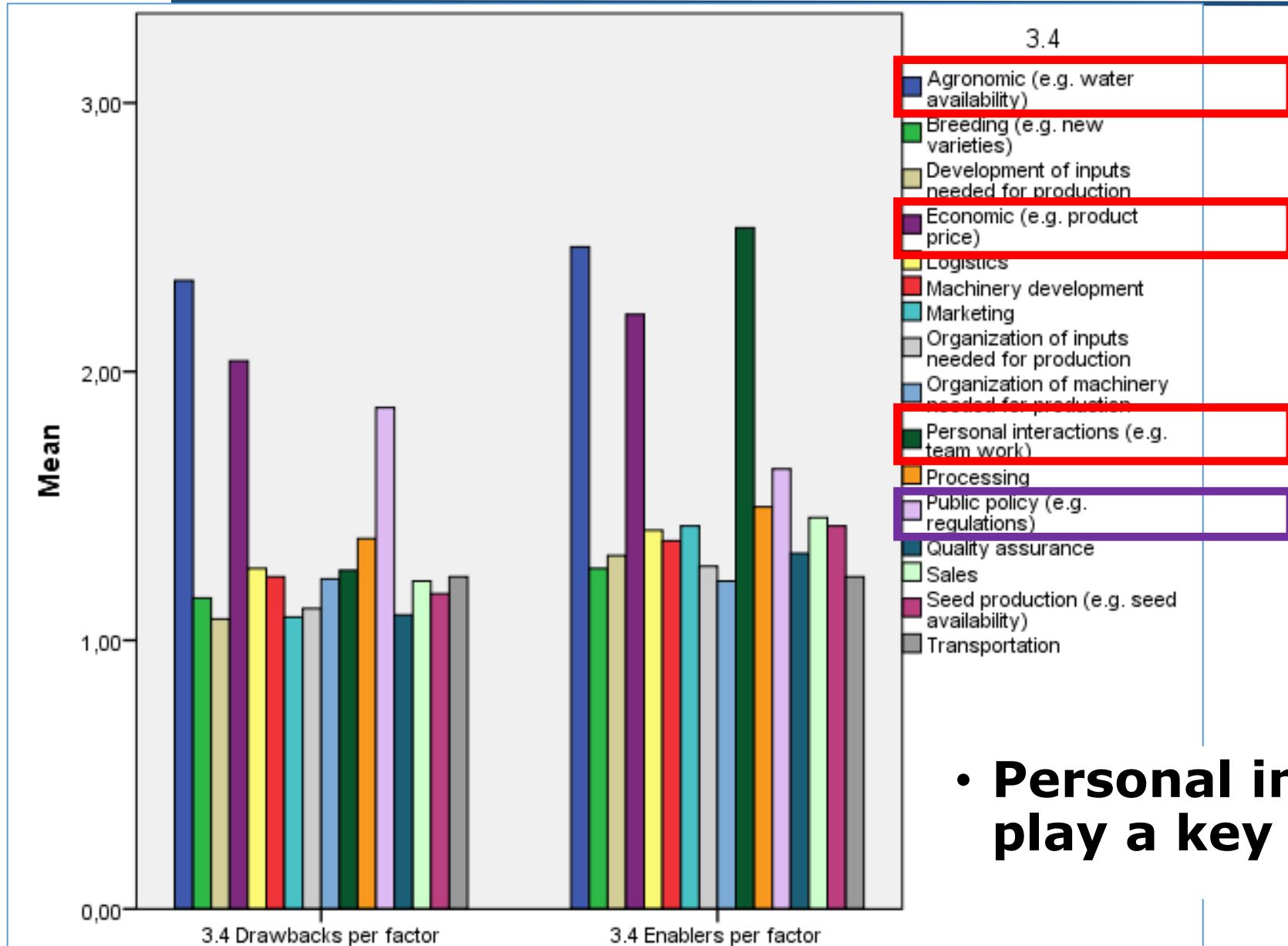
More targeted outcomes, higher success



Factors of failure and success



Experienced drawbacks and enablers



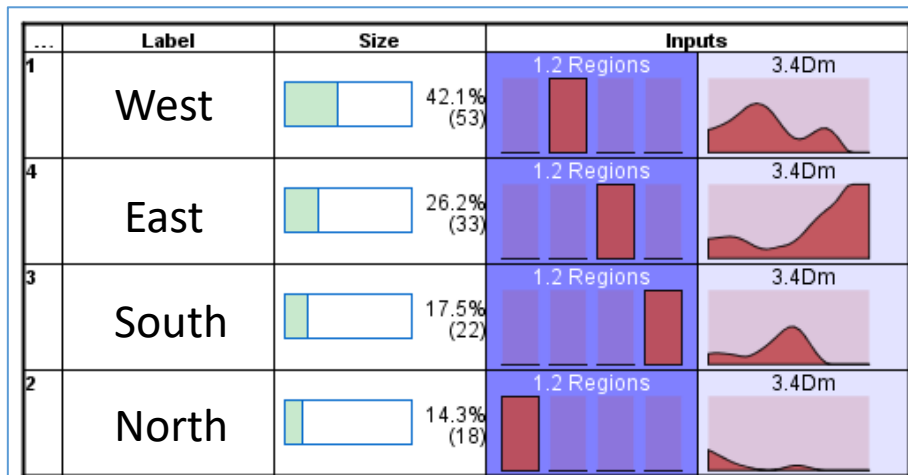
- **Personal interactions play a key role!**



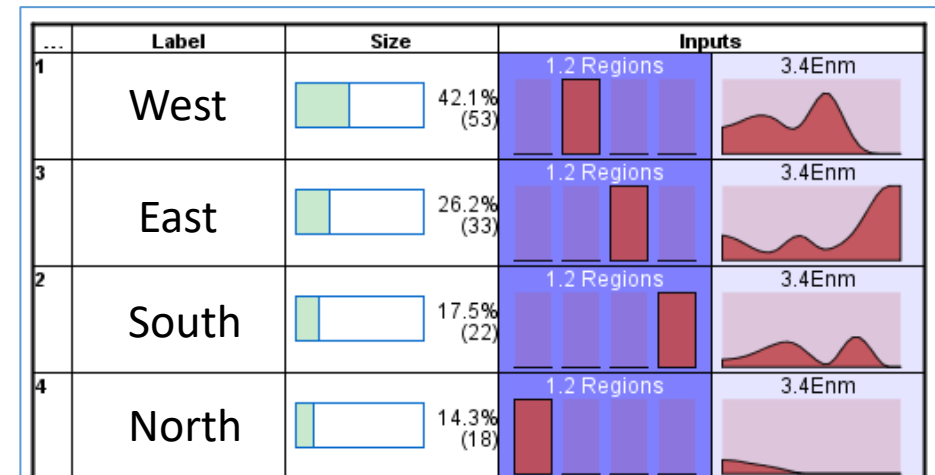
Relevance of drawbacks and enablers I

- **Western European** CDEs: drawbacks moderately relevant, enablers very to slightly relevant.
- **Eastern European** CDEs: drawback and enablers both overwhelmingly relevant
- **Northern European** CDEs: drawback and enablers both lowest relevance
- **Southern European** CDEs: drawbacks and enablers mostly considerably relevant.

Drawbacks



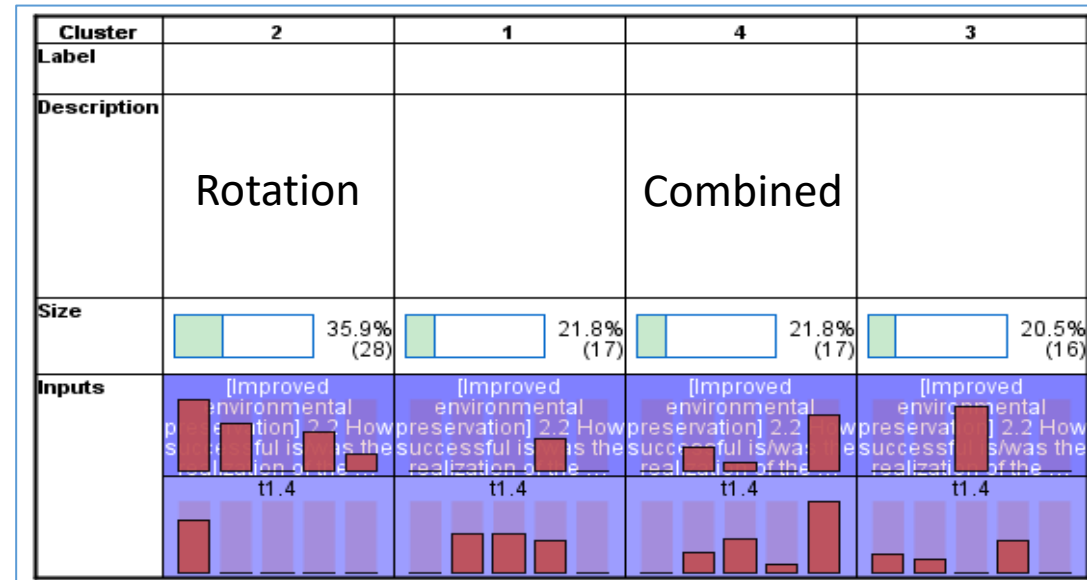
Enablers





Environmental preservation – target reached?

- Vast majority of **rotation-only initiatives show the lowest improved environmental preservation**
- CDEs that **combined all three diversification types**, rotation, multicropping and intercropping, have the **highest value** for improvement of environmental preservation
- Rotation-only type was more common in **non-organic** CDEs





Conclusions I

- **The more targeted outcomes, the higher success evaluation,** and the better distribution of results to practice
- **People are the most important success factors** – Professional knowledge, engagement, cooperation
- **The more types of actors involved, the better dissemination to practice** (initiatives from Western Europe were the most successful in up-scaling)



Conclusions II

- The most important **drawbacks** are **economic, market** and **policy** related
- **East European initiatives** have evaluated enablers and drawbacks as very important factors. **North Europeans** have evaluated both as not so important.
- **Rotation-only** initiatives show the lowest improved environmental preservation CDEs that **combined all three diversification types** show the highest



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Thank you for your attention!

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