

Embedded competence: A study of farmers' relation to competence and knowledge

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Background and theme

- ❖ Modern farming is complex. Local, tacit knowledge and skills meets with agricultural knowledge and formal, technological knowledge.
- ❖ New perspectives on knowledge and innovation in agriculture emphasize that farmers' competence rests not only with the farmers and their practice, but the whole knowledge and innovation system in agriculture.
- ❖ But farmers connect differently to their knowledge systems
- ❖ This paper *explore* the diversity of farmers knowledge and connection to the knowledge system



Approach, method, data

- ❖ We develop a typology of farmers' knowledge orientations.
- ❖ We explore the relationships between variables describing the farmers, their farms, the farm activities and various knowledge-related issues.
- ❖ The method
 1. a principal component analysis (PCA) of Norwegian farmers, using data from survey, and
 2. a qualitative interpretation of the PCA, based on our knowledge of Norwegian agricultural practice and context.
- ❖ Data
 - ✓ «Trends in Norwegian agriculture» a survey in 2016.
 - ✓ 1 868 farmers (40% response rate)



Table 3 Principal Component Analysis – rotated component matrix

	Component					
	1	2	3	4	5	6
Age	-,082	-,075	,871			-,058
Years of experience		,074	,864	-,078		-,112
Milk quota	,052	,798	-,133		-,100	
Agricultural land	,171	,514	-,141		,573	
Share of family income from farming	,194	,868	,127	,111		-,117
General education		-,186	-,213			,800
Agricultural education	,205	,309	,082		,094	,830
Grain production area	,058	-,091			,885	,084
Debt		,244	-,588		,107	
Importance as knowledge source: other local farmers		-,085	-,360	,589	,093	-,179
Satisfaction with professional environment	,151	,082	-,091	,703	-,081	
Satisfaction with local agricultural administration	-,089		,258	,582	-,052	,094
Importance as knowledge source: advisors in NLR	-,057	,279	-,100	,459	,338	
Need for professional knowledge is covered	,333	,311	,093	,397	,177	,127
Plant production competence	,827	,183	,117	,126	,229	
Husbandry competence	,549	,270	-,107		-,240	-,143
Technology competence	,899	,074	-,092		,073	-,212
Economic competence	,722		,057			,221
Market competence	,658	-,074				,288
I buy advisory services		,828	-,179	,109	,104	,138

Rotated Component Matrix (Rotation converged in 6 iterations) Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization.



Findings

❖ We identify 6 different knowledge types that differ along various dimensions:

- 1) The self-confident farmer
- 2) The knowledge-seeking farmer
- 3) The experienced farmer
- 4) The collective-knowledge farmer
- 5) The knowledge-purchasing farmer
- 6) The well-educated farmer



Farmer types in a generalized knowledge typology

Knowledge types	Individual	Collective
Explicit (codified)	The well-educated farmer (6) The knowledge purchasing farmer (5)	The knowledge-seeking farmer (2)
Tacit	The self-confident farmer (1) The experienced farmer (3)	The collective-knowledge farmer (4)



Conclusions and implications

- ❖ Farmers knowledge and competence is embedded
 - ❖ in the broader Agricultural Knowledge and Innovation System (AKIS) and
 - ❖ in their production environment, the daily household activities, as well as in the socio-economic networks of the farmers.
- ❖ Advisory services and policy makers should take the diversity of farmers' knowledge profiles into consideration in planning and managing extension services and policy measures.



Thank you for the attention!



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Theme

- ✓ Farmers' knowledge is highly diverse in terms of formal education, experience, sources of information, and connections to the wider knowledge systems and extension services. This paper explores this diversity and its consequences.

Approach

- ✓ We approach farmers' "knowledge diversity" through the development of a typology of farmers' knowledge orientations. We explore the relationships between variables describing the farmers, the farm activities and various knowledge-related issues.
- ✓ The method is a combination of 1) a principal component analysis (PCA) of Norwegian farmers, using data from a large survey, and 2) a qualitative interpretation of the PCA, based on our knowledge of Norwegian agricultural practice and context.

Findings

- ✓ We identify 6 different knowledge types that differ along various dimensions:
 - 1) The self-confident farmer
 - 2) The knowledge-seeking farmer
 - 3) The experienced farmer
 - 4) The collective-knowledge farmer
 - 5) The knowledge-purchasing farmer
 - 6) The well-educated farmer
- ✓ The farmers' competence and knowledge are embedded in the production environment, the daily household activities, as well as in the socio-economic networks of the farmers.

Implications

- ✓ Advisory services and policy makers should take the diversity of farmers' knowledge profiles into consideration in planning and managing extension services and policy measures.

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