O1. REPORT FROM THE CONTEXT ANALYSIS

Stakeholders' expectations for dairy farm development strategies from a Central-Eastern and Western European perspective

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Stakeholders' expectations for dairy farm development strategies from a Central-Eastern and Western European perspective

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Abstract in English

Development paths as chosen by farmers can be better interpreted when knowing the business context in which these farmers operate. This article provides a unique analysis of how stakeholders envisage the future of dairy farming in a period of drastic instrumental change and what barriers they foresee to their objectives. The opinions of stakeholders are highly affected by the country of origin, while only minor variations in opinions were observed between the 4 categories of stakeholders. It was shown that strategies, resources and O&T each directly affect future expectations, which was in agreement with the hypothetical model used.

Keywords: context analysis, stakeholders, dairy sector, development strategies, opportunities, Europe

1. Introduction

Support for agriculture in the EU through the Common Agricultural Policy (CAP) is gradually being reduced. In the dairy sector, the abolition of the milk quota system and the reduction in export subsidies are examples of this. Price structure is expected to reflect supply and demand, so market oriented business strategies will be increasingly important for the performance of farms and the wider sector (Knudson et al., 2004). Taking care of the environment, food quality and consumer perceptions are nowadays also major policy issues in agriculture. The business circumstances relate to the chain in which the farmers receive their inputs and services and have their raw products processed or directly sold to the consumer. Politics, ministries, NGOs, farmer unions, input and processing companies, and service organisations play a role in the functioning of the chain and bargaining in the chain. All these parties comprise the stakeholders in the particular product chain or sector. According to SWOT[1] analyses, businesses choose strategies that match their internal strengths and weaknesses with external opportunities and threats, because this improves their performance. In a farming context this means that strategic choices should exploit the farm's strengths taking advantage of opportunities and circumventing threats to the farmer's goals posed by the business environment. The strategies chosen by the sector representatives, i.e. the stakeholders, depend on many internal and external factors which then impact on their own businesses and on farmers' goals and decisions.

Studies on future farm development paths are usually based on farm and farmer's data (Darnhofer, 2010; Darnhofer and Strauss, 2014; Edwards-Jones, 2006; Farmar-Bowers, 2010). Also decision making is normally studied at farm level (Bergevoet *et al*., 2004, Christensen *et al.*, 2011; Defrancesco *et al.*, 2008; Gorton *et al.*, 2008; Lobley and Butler, 2010). Over-arching our study, the opinions and visions of a large group of dairy farmers (1028) towards farm development and farm strategies in three CEE countries (Poland, Slovenia and Lithuania) were studied by Verhees *et al*. (2016) and De Lauvere *et al*. (2014; 2016). The responses of a sub-set of these farmers were recorded through the years 2011 to 2016 together with a sample of farmers from the Netherlands (Klopcic *et al*. 2016). The development paths chosen by the farmers and the critical success factors noted can be better interpreted when knowing the sector and business context in which the farmers operate in these countries. Moreover, according to the theory of vertical coordination, interaction (integration) in the chain contributes to the strength of the chain (Cao and Zhank, 2011; Swinnen, 2005; Tsanos and Zografos, 2016). This raises questions such as a) do parties cooperate and is there a certain consensus concerning the future strategic route, b) is the consensus view of the farmers backed by the other chain actors and vice versa, and c) who or what are the driving forces in the sector?

In contrast to farmer studies, other stakeholder studies dealing with future farm strategies are scarce. Therefore, the main goal of this study was to examine the differences in stakeholders' opinions on

[1] Strengths, Weaknesses, Opportunities and Threats

development strategies, availability of resources, opportunities & threats (O&T), farmer skills and future expectations in the selected countries together with the relationships between these aspects. The expectations for the future were predicted from the opinions of stakeholders on choice of strategy, availability of resources, O&T and farmer skills. Some dairy oriented countries in Europe were chosen including one Western European country and three Central and Eastern European countries, which experienced relatively large structural changes since becoming member of the EU (Gorton et al., 2008; Rozstalnyy and Kuipers, 2014). The year of data collection (2015/16) was a historical year for the dairy sector because after 30 years the milk quota system was abolished and the sector theoretically returned to free, unlimited production.

2. Material and methods

a. Sample

The intention was to collect by questionnaire data on 40 dairy stakeholders per country in the Netherlands, Poland, Lithuania and Slovenia. The stakeholders were to come about equally from 8 categories of dairy chain partners: input suppliers; breeding and veterinary organisations; financial organisations; farmers unions; milk processing companies; experts from universities, research and extension; ministries, and finally NGOs. The questionnaires were collected mainly in 2015 with some additional questionnaires collected in Poland and Lithuania in the early months of 2016. In total 161 questionnaires were collected from stakeholders. These comprised 46 from the Netherlands, 45 from Slovenia, 40 from Lithuania and 30 from Poland. The stakeholders were leading persons in the dairy chain and included the president of a big dairy cooperative, a minister of agriculture, a president of a farmers union, a director of a large agricultural bank, representatives of NGOs, a researcher in farm management and chain expertise, and a professor in farming systems. In Poland a few stakeholder categories (input suppliers, NGOs, and financial organisations) were not represented in the sample.

b. Questionnaire

The questionnaire addressed the following aspects: “farm development paths/ strategies, including cooperation” (10 questions), “availability of resources” (11 questions), “opportunities and threats” (O&T; 22 questions), “required farmer skills” (6 questions) and “future expectations / performance” (5 questions). All questions had a Likert scale from 1 to 7. Besides these structured questions, three open questions were included. Each stakeholder was asked to briefly describe strong and weak points of the dairy sector in the country. The same questions were used in previous farmers’ studies.

To measure development paths, 10 potential strategies were listed. Respondents were asked to indicate how important they considered each strategy was for the dairy sector/farms' development in the next five years.. To measure availability of resources for farming purposes, a list of 11 resources was used. Respondents were asked to indicate how difficult they were to obtain in the field. To measure O&T, a list of 22 questions concerning the farm community external environment was used. Respondents were

asked to indicate whether they considered it a threat or an opportunity. To assess farmer skills, 6 farmer skills were listed. To measure future expectations, a list of 5 indicators for expectations was applied. Respondents were asked to indicate whether they agreed with the statements. The strong and weak points as described by the stakeholders on paper were classified qualitatively by counting similar remarks. For both the strong and weak points, 5 till 10 major issues (remarks) for each country were assessed. A 7-point Likert scale was applied in all questions.

c. Model

We used a framework which hypothesised the value of four elements (strategies, resources, O&T, farmer skills) in predicting future expectations (see Figure 1). This model was the result of the study of Verhees et al. (2016) that analysed the future expectations (performance) of farmers in the same countries in 2011/12. The hypothesis is that the relationship model for the farmers' opinions also fits the stakeholders' opinions. It predicts that country and stakeholder segments affect the choice of strategies, resources, O&T and farmer skills, while each of these four elements directly affects future expectations.

Figure 1. Relationship model

Source: KLOPČIČ et al. (2016); VERHEES et al. (2017)

d. Methods of Analysis

Principle Component Analyses (PCA): PCAs with the Varimax rotation Squared Euclidian method were conducted to see if the questionnaire results could be summarized. Separate PCAs were conducted for the variable groups of strategies, resources, O&T, farmer skills and future expectations. A scree plot (sharp increase in Eigen value going from last to the first component), Eigen values (should be above 1), and total variance accounted for (above 55%) were used as criteria. Some components (main factors) did not meet all the criteria, but considering the exploratory nature of the research, all main factors were used in the analyses. Average scores across the variables in each main factor were used in the subsequent analyses.

Characteristics of main factors: Strategies, resources, O&T, farmer skills and future expectations were considered as continuous variables based on the 7- point Likert scale values. Impressions on normality of the main factors were obtained on basis of the mean, standard deviation, skewness and kurtosis statistics (see Table 1). Almost all these factors approach normality. The factors "expansion" and "cooperation" are slightly skewed to the lower scores and "land" and "farmer skills" are slightly skewed to the higher scores. The scores on "skills" are somewhat peaked.

Table 1. Characteristics of main factors

Main factors and number of questions included between brackets	Overall mean	Standard deviation	Normality test	
			Skewness statistic/std. error	Kurtosis statistic/std. error
a.Development paths - scores 1 to 7				
Expansion/Intensification (3)	5.38	1.14	-6.1	3.3
Diversification/Organic (4)	3.80	1.20	0.1	-1.8
Wait&See (1)	3.58	1.56	0.5	-2.0
Cooperation (2)	5.30	1.32	-5.0	2.1
b.Resources - scores 1 to 7				
Knowhow/Advice (3)	5.20	1.10	-3.2	0.7
Subsidies/Credit (3)	4.25	1.05	-0.7	-1.1
Land (2)	2.54	1.11	5.7	3.2
Labour (2)	3.32	1.21	1.3	-0.2
c. Opportunities & Threats - scores -3 to +3				
Free market (2)	-0.23	1.73	0.7	-2.8
ICT/Tech (2)	1.80	0.87	-3.4	2.1
Regulations /Consumer concerns (4)	-0.18	1.03	2.1	0.1
Service (3)	0.89	0.89	-0.4	-0.1
Grazing/Greening (4)	0.04	0.97	-0.6	-0.8
Consumer orientation (3)	0.40	0.94	-1.6	2.3
Location/Legislation (2)	-0.23	1.05	0.5	-0.4
d. Farmer skills – scores 1 to 7 (5)	2.65	1.05	6.7	5.1
e. Expectations – scores 1 to 7 (5)	4.52	1.32	-0.2	-2.0

Countries and stakeholder categories: Stakeholder category and country are categorical (nominal) variables. Analyses of variance (ANOVA) were used to test whether countries and stakeholder categories had an effect on, respectively, strategies, resources, O&T, farmer skills and future expectations. Statistical differences between stakeholder categories and between countries were assessed using the Bonferroni test. The possibility of combining certain stakeholder categories was examined. This would increase the number of respondents per category. The original 8 stakeholder categories and 4 combined categories are presented in Table 2.

Table 2. Number of stakeholders by country and by stakeholder category

Country	Stakeholder category								
	Input suppliers	Breeding/ veterinary organisations	Financial organisations	Farmers unions	Milk processing companies	Experts from universities, research, extension	Ministries	NGO's	**Total**
Netherlands	5	6	5	5	5	7	8	5	46
Poland	0	2	0	3	4	15	6	0	30
Lithuania	5	6	2	5	7	7	5	4	40
Slovenia	5	5	2	7	4	11	6	5	45
Total	**15**	**19**	**9**	**20**	**20**	**39**	**25**	**14**	**161**
Stakeholder categories combined	**43**			**40**		**39**	**39**		
Names of combined categories	**Input suppliers**			**Farmer unions/ Dairy companies**		**Experts**	**Ministries/NGO's**		

The four combinations of stakeholder categories are based on the effect of each group separately and on the effect of the combined categories on the answers to the various questions. This is illustrated in Table 3. A One-Way ANOVA was used to signal significant effects (F-test), while the Bonferroni test was applied to separate the stakeholder categories between which differences existed.

Table 3. Questions that show significant differences in answers between the four and/or eight stakeholder categories (One-way ANOVA, F-test)

	Significant differences Bonferroni test (at P<0.05)[1]	
Questions	**for 8 stakeholder categories**	**for 4 stakeholder categories**
Strategy: Organic farming	NGOs > Dairy companies; Experts < Veterinary/breeding services, Ministries, NGOs	Ministries/NGO's > Farmer unions/Dairy companies Experts < Input suppliers, Ministries/NGO's
Availability: Land to buy	NGO's > Experts	Input suppliers > Experts
Availability: Direct payments	Input suppliers < Experts	Input suppliers < Experts, Ministries/NGO's
Availability: Qualified labour	NGO's > Farmer unions , Experts	Ministries/NGO's > Farmer unions/Dairy companies
Questions for which F-test is significant in case of 8 stakeholder categories		
Strategy: Expansion	Non-significant	
O&T: Regulations on animal welfare	NGOs > Farmer unions, Financial organisations	
O&T: Consumer concerns	NGOs > Ministries	
Questions for which F-test is significant in case of 4 stakeholder categories		
Availability: EU subsidies	Experts > Input suppliers (P=0,53)	
O&T: Greening the CAP	Ministries/NGO's > Input suppliers	

[1] > means significant higher score; < means significant lower score

The analysis of effects for the 4 categories of stakeholders (Table 3) shows substantial similarities to that for the 8 categories of stakeholders. Moreover, the 4 categories of stakeholders are nicely balanced, i.e. the number of stakeholders in each combined category group is between 39 and 43, while it varies from 9 stakeholders (Financial organisations) to 39 (Experts) for the original 8 categories. These larger categories are considered an advantage to the analysis.

Clusters: First, a hierarchical cluster analysis, i.e. Ward's method, was applied to the 17 main factors in Table 1 grouping the stakeholders together which are most closely associated with certain

combination of factors. Based on the agglomeration coefficient, 10 stakeholder segments were selected as a possible solution. After examination of the characteristics of these segments, four segments had characteristics in common and were combined to two segments, leaving 8 segments in the study. We call those segments "strategic groups".

Future expectations: To determine the relationship with future expectations, strategies, resources, O&T and farmer skills were regressed on future expectations. First, a stepwise regression procedure was performed entering all the main factors into the analysis. Next, F-tests were conducted to test the extent to which the four elements of the model (see Figure 1) explain the variation in future expectations. Countries and stakeholder categories were included as dummy variables to reduce the error term variance. The effects of country and stakeholder category as categorical variables were obtained by comparing each to one of the existing country or stakeholder categories. The proportion of the variation explained by the regression procedure is expressed by the coefficient of determination (R^2).

3. Results

a. Country effects

The choice of the development paths, i.e. strategies and the assessment of resources, O&T, farmer skills and future expectations of stakeholders are highly dependent on the country of origin (Table 4).

Table 4. Stakeholders' opinions expressed by main factor and by country; means and significant differences are listed

Elements of model and main factors	Means (Likert scale 1-7)[1] Stakeholders from				Significant differences at P<0,05	
	Netherlands (NL)	Slovenia (SI)	Lithuania (LT)	Poland (PL)	F-test	Bonferroni test
a. Development paths						
Expansion/Intensification	5.87	5.46	4.66	5.48	9.59	LT < NL, PL, SI[2]
Diversification/Organic	3.52	4.42	4.29	2.67	22.35	Pl < NL <SI, LT
Wait&See	3.57	3.67	3.75	3.10		
Cooperation	5.36	6.07	5.29	4.27	14.02	SI>NL,PL,LT and PL<NL,LT
b. Resources						
Knowhow/Advice	5.69	4.37	5.67	5.09	18.88	SI<NL,PL,LT and PL<NL
Subsidies/Credit	4.12	3.88	4.31	4.96	7.45	PL>NL,LT,SI
Land	2.39	2.55	2.49	2.82		
Labour	4.02	3.43	2.60	3.02	13.10	LT<NL,SI and PL<NL
c. Opportunities & Threats						
Free market	5.26	2.64	3.15	4.00	30.66	NL>PL,LT,SI and SI<PL
ICT/Tech	6.00	5.57	6.14	5.42	6.46	PL<NL,LT and SI<LT
Regulations/ Consumer concerns	4.23	3.80	3.47	3.67	4.45	NL>LT
Service organisations	5.09	4.56	5.21	4.68	5.43	SI<NL,LT
Grazing/Greening	4.45	4.32	3.89	3.53	8.38	PL<NL,SI
Consumer orientation	4.83	4.31	4.16	4.21	4.99	NL>PL,LT,SI
Location/Legislation	3.79	3.34	3.84	4.30	5.53	PL>SI
d. Farmer skills	3.11	2.41	2.29	2.79	6.04	NL>LT,SI
e. Future expectations	5.50	4.07	3.88	4.49	17.53	NL>PL,LT,SI

[1] For Opportunities and threats original scores have been increased by 4 to make them comparable with the other main factors
[2] LT < NL,PL,SI means that stakeholders in LT score significantly lower on this development path than stakeholders from NL and Pl and SI

Overall, the development paths of expansion/intensification, ICT/Tech, know-how/advice and cooperation, in this order, score highest as future strategies and/or opportunities. Netherlands and Polish stakeholders see expansion and /intensification of dairy production as the most important development strategy. Slovenian stakeholders also score high on expansion and intensification, but even higher on the merits of cooperation, while, conversely, Polish stakeholders are not really convinced of the value of cooperative actions for their sector. Lithuanian stakeholders have, relatively, the lowest focus to farm expansion and intensification, while they, together with the Slovenian stakeholders, are the most positive towards diversification and organic farming. Polish stakeholders are the most positive towards the availability of subsidies and credit. The Slovenian stakeholders express the lowest availability of know-how and advice (although it is still an above average score), while the Lithuanian stakeholders mention a lack of qualified labour. Generally all countries are rather pessimistic about the availability of land, which is indicated to be the scarcest resource.

Netherlands' stakeholders see an opportunity in the free market and in consumer orientation, whereas the Slovenian and Lithuanian stakeholders perceive the free market concept as a threat rather than an opportunity for development. The Polish stakeholders are positioned in between. The Polish stakeholders are also less interested in grazing and EU Greening practices than the stakeholders in Slovenia and the Netherlands. The opportunities of location and associated legislation are positively appreciated by the stakeholders in Poland, while the stakeholders in the other countries, especially in Slovenia, see this as a barrier for future development. Finally, the Netherlands stakeholders showed a higher score for farmer skills than those in Lithuania and Slovenia, and have higher future expectations than the stakeholders in the other three countries.

b. Stakeholder category effects

The four stakeholder categories do not differ substantially in their opinions on development paths, the assessment of resources, O&T, farmer skills and future expectations (see Table 5). The only significant differences found were for the development paths towards diversification/organic and cooperation, and for the availability of subsidies/credit. The stakeholders from the ministries/NGO's are more positive towards diversification and organic farming than the experts from the research and advisory organisations, while the cooperation strategy is more highly valued by the farmer unions/dairy companies than by experts. The input suppliers are less positive about the availability of subsidies and credit than the ministries/NGOs and the experts stakeholders' categories.

Table 5. Stakeholders' opinions expressed by factor and by stakeholder category; means, significant differences and interactions are listed

Elements of model and underlying main factors	Means (Likert scale 1-7)[1] Stakeholders from				Significant differences at P<0,05		
	Input suppliers (S)	Ministries /NGOs (M)	Expertise organisations (E)	Farmer Unions/ Dairy companies (D)	F-test	Bonferroni test	Interaction: stakeholder group x country
a. Development paths							
Expansion/Intensification	5.55	5.34	5.23	5.35			
Diversification/Organic	3.99	4.14	3.32	3.74	3.68	M > E	
Wait&See	3.53	3.15	3.82	3.80			
Cooperation	5.38	5.21	4.87	5.71	2.89	D > E	yes
b.Resources							
Knowhow/Advice	5.50	5.21	5.09	4.99			
Subsidies/Credit	3.92	4.54	4.65	3.95	5.82	S < M,E; E > D	
Land	2.67	2.76	2.29	2.43			
Labour	3.44	3.69	3.08	3.05	2.65		
c. Opportunities & Threats							
Free market	3.90	3.86	3.64	3.67			yes
ICT/ Tech	5.90	5.83	5.50	5.98			
Regulations/ Consumer concerns	3.68	4.09	3.85	3.67			
Service organisations	5.16	4.78	4.96	4.67			
Grazing/Greening	3.89	4.26	4.23	3.82			
Consumer orientation	4.34	4.68	4.43	4.18			
Location/Legislation	3.72	4.03	3.81	3.55			
d. Farmer skills	2.63	2.83	2.53	2.63			
e. Future expectations	4.50	4.55	4.60	4.41			yes

[1] For Opportunities and threats original scores have been increased by 4 to make them comparable with the other main factors

c. Stakeholder strategic groups

The results of the clustering procedure resulted in eight strategic stakeholder groups as shown in Table 6. The largest stakeholder strategic group (26.1%) is focussed on farm expansion with a perceived lack of know-how and service to handle the development of the sector in the best possible way (group 2, Table 6). This group is mainly situated in Slovenia and, to a lesser extent in Lithuania. The stakeholders that belong to this group are about equally spread over the four stakeholder categories. The second largest strategic group (22.4%) focuses on expansion and intensification in dairy farming, while perceiving a free market as an opportunity and expressing high future expectations (group 1, Table 6). This strategic group is dominant in the Netherlands, and is relatively the highest represented in the supplier services category. Specialisation in dairy farming, while emphasising the opportunities of localisation is chosen by almost 9% of the stakeholders, almost all from Poland (group 3, Table 6). The wait and see strategic group with focus on know-how and subsidies (14.9%) is composed of stakeholders from Lithuania and Poland (group 4, Table 6). The expert stakeholders in these countries especially prefer this development path. Around 10% of the stakeholders, mostly in Lithuania and Slovenia, belong to the ICT and services focussed strategic group (group 5, table 6). A positive perspective for diversification and organic farming is expressed in Slovenia by 11% of the stakeholders, belonging to the ministries/NGOs and suppliers' categories (group 7, Table 6). Trust in skills and the availability of subsidies and labour are more highly rated by Polish stakeholders (10%

versus 5% overall; group 7, Table 6). In Lithuania and Slovenia, 13% and 18%, respectively, of the stakeholders (overall 8%) have a pessimistic outlook on the future (group 8, Table 6). These stakeholders come mainly from the farmers' unions/dairy companies' category.

Table 6. Strategic groups by country and stakeholder category

	Clusters = strategic groups[1]								
Country	Focus on Expansion/ Intensification in dairy and Free market with positive Outlook on future 1	Expansion oriented with a perceived lack of Know-how and Service 2	Specialisation in dairy with positive opinion about Location 3	Wait & see, Know-how and Subsidy oriented 4	Focus on Cooperation, Service and Tech, with worry about Skills 5	Diversification/ Organic with focus on Land, Consumer and Grazing/greening 6	Trust in Skills, Subsidies and Labour input 7	Wait&See with pessimistic Outlook on the future 8	Total %
Netherlands	65.2	13	4.3	6.5	6.5	2.2	2.2	0	100%
Slovenia	4.4	48.9	0	0	13.3	11.1	4.4	17.8	100%
Lithuania	2.5	25.0	0	27.5	17.5	5.0	5.0	12.5	100%
Poland	3.3	13.3	40.0	33.3	0	0	10.0	0	100%
Category									
Suppliers	34.9	25.6	4.7	11.6	9.3	7.0	2.3	4.7	100%
Ministries + NGO's	17.9	33.3	10.3	7.7	10.3	10.3	7.7	2.6	100%
Experts	12.8	23.1	10.3	35.9	7.7	0	5.1	5.1	100%
Farmer unions + Dairy proc.	22.5	22.5	10.0	5.0	12.5	2.5	5.0	20.0	100%
Total %	**22.4%**	**26.1%**	**8.7%**	**14.9%**	**9.9%**	**5.0%**	**5.0%**	**8.1%**	100%

[1] Percentages of stakeholders per strategic group above 15% are underlined

d. Prediction of expectations

Expectations for the future were linked to the four elements in the model, i.e. expected development paths, availability of resources, O&T and farmer skills. A linear regression procedure was applied to these 4 elements, encompassing 16 main factors (Table 7), and future expectations. The coefficient of determination (R^2) was 0.54, indicating that over half of the variation in future expectations was explained by the model. The elements O&T, strategies and resources, in that order, contributed significantly to the model in explaining expectations. More specifically, four main factors explained most of the variation in the expectations of the stakeholders, namely expansion/intensification, free market, ICT/Tech and grazing/greening. The resources element contributed less to the solution than the O&T and strategies elements, while the skills element was not significant. Thus, other than for skills, the model fitted the data.

Table 7. Farming goals, resources, opportunities and threats, and skills regressed on future expectations[1]; b-coefficient expresses a unit change (+ or -) in future expectations per unit increase in the particular factor.

Elements of model and main factors	F-values	b-coefficient and significance[2]
Strategies	F=8.505; P=0.000	
ExpansionIntensification		0.315**
DiversificationOrganic		-0.090
WaitSee		0.014
Cooperation		-0.023
Resources	F=2.585; P=0.039	
KnowhowAdvice		0.036
SubsidiesCredit		-0.025
Land		0.047
Labour		-0.049
Opportunities & threats	F=13.017; P=0.000	
FreeMarket		0.398**
ICTTech		0.233*
Consumerconcerns Regulations		-0.010
Service		-0.069
GrazingGreening		0.237*
Consumerorientation		0.034
LocationLegislation		0.021
Skills	F=2.272; P=0.134	0.121

[1] countries and stakeholder categories are included as dummy variables
[2] * P<0.05 ** P<0.01

4. Discussion

a. Context of study

The over-arching study is rather unique in the fact that both opinions of farmers and stakeholders in the field are analysed. This publication deals with how stakeholders in agriculture envisage the future of the dairy sector and which barriers they foresee to that future. The ultimate intent is to mirror the opinions of stakeholders and farmers, i.e. do they have similar or different outlooks on internal and external factors affecting agriculture, and do they foresee similar or divergent strategic development routes? Because of the lack of such stakeholder studies, the outcomes of the present study cannot really be compared to other data. The so called national "Smart Specialisation Strategies" reports for the EU provide some information about future focus in agriculture and agro-business in each country but it is often not really clear which parties contributed to these reports. Moreover, these reports are written as global policy documents covering a wide field of EU relevant topics, not comparable to the focus on farm development and critical success factors in the present study.

b. Country and stakeholder effects

The opinions of stakeholders are very much affected by the country of origin, while the 4 categories of stakeholders cause only minor variations in opinions. Chaplin et al. (2004) and Gorton et al. (2008) described a production oriented mind set of the European farmers. In this study, the stakeholders in all four countries chose expansion in dairy as one of the most dominant strategies, with the Netherlands having the highest, and Lithuania having the lowest score. Polish stakeholders showed the most

specialised view on the dairy chain of all stakeholders studied, which is in line with the farmers' opinions expressed in the study of Malak-Rawlikowska et al. (2014). Participation in cooperatives became less popular after the communistic times in Eastern Europe (Milczarek-Andrzejewska *et al*, 2008; Pohar and Klopcic, 2013; Wilkin *et al*., 2007). Nevertheless, cooperation with colleagues and processors in the chain still has a favourable score in Slovenia, and to a lesser extent in Lithuania. Slovenia has 120 cooperatives dealing with the coordination of the sale of milk internally in the country to private processors and externally to Italy. Despite of the strong position of cooperative processors in Poland, cooperation is hardly appreciated as tool in this country. It would be interesting to examine these differences between countries to learn about the barriers in exploiting cooperation as instrument to organise farmers and to increase efficiency, for instance in machinery use, and to increase their bargaining power. Especially chain cooperation including the milk processing plant is scarce in most CEE countries. Development towards diversification and organic agriculture receive higher scores in Slovenia and Lithuania compared to the Netherlands and especially to Poland. Overall, the ministries/NGOs opt significantly more for diversification than the expert category of stakeholders. In Slovenia, most of the stakeholders from farmer unions/dairy companies also give a high score to diversification. In Slovenia with its specific natural conditions, diversification also includes agro-tourism and sale of special local products (Klopcic *et al*, 2010), while in Lithuania it relates to mixed farming of livestock and crops (Stalgiene *et al*, 2014). The stakeholders opt to continue this way of farming in this country (Krisciukaitiene *et al*, 2010). The stakeholders in the Western EU country – the Netherlands – appear to be very confident about dealing with the EU market policies after 2015; they see the milk market and abolition of milk quota as a big opportunity for development. This may be caused, among other factors, by the strong infrastructure for dairying in this country and the on average larger herd size than in the other countries. Verhees *et al*. (2011) indicated differences in farmers' proclivity between one Central and one Western European country, while Klopcic *et al.* (2016) found that Netherlands' farmers have more confidence in their achievements than the farmers from the CEE countries. It can be postulated that the same is true for the stakeholders. Although there are exceptions on the rule, for instance the Polish stakeholders expressed more confidence in acquiring subsidies and credits, which are surely very important resources for developing the sector.

These results largely coincide with the description of strong and weak points by the stakeholders. In the Netherlands, a high level of education, a well organised cooperative chain and a clear chain leader were frequently mentioned as strong points and high costs and lack of support from society as weak points. Confidence in the market was less frequently addressed as strong point compared to the relatively high score it received from the questionnaire outcome. In Lithuania, a good environment for farming and the tradition of farming were most frequently listed as strong points and a lack of organisation in the chain and a low milk price as weak points. These last issues obviously tempered

the expectations as also observed from the questionnaire results. In Poland, the growth potential of the sector was highlighted as strong point, which is in agreement with the high score for the local environment. Farm structure and cooperation between farmers was poorly evaluated, which coincides with the low score for cooperation in Poland. In Slovenia, the presence of a strong processing industry was mentioned, although foreign ownership was considered a rather weak point. Lack of interaction in the chain was most frequently mentioned as weak point. A weak farm structure and agricultural policy were also points of concern. Level of education was a few times listed as a strong point, while, in contrast, the questionnaire resulted in a relatively low score for farmer skills. The transfer of know-how was described as a point of concern in agreement with the modest questionnaire score for availability of know-how.

c. Stakeholder strategic groups

Eight strategic groups of stakeholders were defined. Farm expansion and specialisation, mostly in dairy, is the most expected development strategy in the near future (57% of stakeholders predicted this development path). Expansion and intensification combined with market freedom is the dominant strategic group in the Netherlands. However, whether there is a preference for specialisation versus diversification cannot exactly be derived from this study. Almost 9% of the stakeholders specifically emphasised specialisation in combination with favourable local circumstances related to the local situation. This group of stakeholders came from Poland, which has very favourable natural conditions for dairy production, with large availability of permanent grasslands and a high, unused potential for milk production. Diversification in combination with organic farming was chosen by 5% of the stakeholders, mostly Slovenian supplier organisations and ministries/NGOs. It is curious that the expert category did not choose this route to development. Experts seem to focus on the availability (or not) of know-how, services and subsidies. It is intriguing that almost one fourth of the stakeholders take a passive - wait and see – approach, 15% look for opportunities to activate at one moment in time know-how and/or subsidies, while overall 8% are pessimistic about the future, seeing many obstacles. Those groups of stakeholders are mostly situated in Lithuania (40% of all stakeholders); Poland (33%) and Slovenia (18%). Know-how transfer and subsidies obviously play a crucial role in the development of the sector. More insight in the critical success factors for diversification and organic farming and in the process of knowledge transfer would be helpful in more thoroughly explaining the outcomes. The perceived availability of resources is rather different between the countries so the reasons for this could also be explored to gain more insight in these findings.

d. Model exploring future expectations

Future expectations (performance) can be predicted by insight into the opinions of stakeholders regarding strategies, availability of resources, and O&T. Insight into farmer skills did not significantly

contribute to the prediction of future expectations. Therefore, the proposed model does apply with exception of the element Skills. Remarkably, a rather small number of statements had almost the same predicting power as the combined three elements in the model (Strategies, Resources and O&T). The attitude towards four main factors, i.e. expansion/intensification, the free market, ICTtech and grazing/greening explained almost the same proportion of variation as the three elements together in our model. This indicates that we may be able to do our assessments in the field by applying more simplified schemes. This should be further explored.

5. Conclusions

The opinions of stakeholders are significantly affected by the country of origin, while the four categories of stakeholders show only minor variations in opinions. Obviously, history, culture and natural circumstances affect the outlook of stakeholders. Eight strategic groups of stakeholders were defined. Farm expansion and specialisation, mostly in dairy, is the most expected development strategy in the near future (57% of stakeholders choose this development path). This group can be split into three sub-groups, i.e. expansion and intensification combined with market freedom, expansion with a perceived lack of service and know-how, and specialisation in dairy in combination with favourable local circumstances. Diversification in combination with organic farming was chosen by 5% of the stakeholders. Almost one fourth of the stakeholders take a wait and see attitude, 15% look for opportunities to activate at one moment in time, while 8% are overall pessimistic about the future, seeing many obstacles. About 10% of stakeholders focus on cooperation, service and high tech, and another 5% place their trust in skills, subsidies and labour. Specific outcomes for the countries are:

- Polish stakeholders have the most specialised view of dairy farming, although a substantial proportion adopts a passive strategy - wait and see.
- Lithuanian and Slovenian stakeholders look more towards diversification than stakeholders in the other two countries.
- Slovenian stakeholders are more cooperatively minded, while Polish stakeholders are least so; however, Slovenian stakeholders are concerned about availability of know-how
- In all four countries land is the most difficult resource to obtain.
- Polish stakeholders are more positive about availability of credit and subsidies, and about the local situation.
- Netherlands stakeholders are the most positive about the future e.g. they foresee expansion and market opportunities; conversely, a substantial group of stakeholders in Slovenia and Lithuania are pessimistic about the future.

In general, the significant differences found in this study in the composition of the strategic groups amongst countries are essential information for both EU policy makers and the chain partners. More insight into the critical success factors for the various development paths, for instance for

diversification and organic farming, and in the process of knowledge transfer and subsidies availability, would be helpful in explaining the outcomes more comprehensively. Know-how transfer and subsidies obviously play a crucial role in the development of the sector.

In brief this study shows that from the viewpoint of the stakeholders, significantly different outlooks exists on agriculture in the selected European countries. Stakeholder's opinions seem also mainly in line with the farmers' views presented in the other studies. However this impression requires further analyses. Tailor made measures and policies are required to deal with the diversity in opinions and outlook. It is likely that the detail of this would be easier constructed and implemented at the local level than at the EU central level.

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