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Dairy farmers' values and how their values affect their decision making

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Values affect humans' perception of situations and problems and guide our actions. The objective of this study was to explore the values of dairy farmers, and whether their values influenced their decisions to maintain dairy farming or to buy consultancy services. During late fall 2007 we visited and interviewed 90 farmers. First we did a qualitative analysis of the data and then we merged the interview data with the existing database of financial data from the year 2007 to do statistical analyses. We also checked whether the farmers still produced milk in 2013, six years after the interviews. Most farmers had terminal values like keeping up the tradition and to have an interesting work. Value combinations with instrumental values such as to earn money and to produce milk were common. Realizing that many farmers prioritize terminal values over instrumental values has important consequences for dairy companies, dairy consultants and politicians.

Key words: terminal values, instrumental values, consultancy services, maintain dairy farming

Introduction

The cooperative dairy company Tine SA is owned by the majority of dairy farmers in Norway. Tine SA buys and processes milk but also delivers consultancy services to the farmers. The personal values of the owners significantly influence decision making in the company, as well as Tines' goals. Therefore, it is important that the company as well as the government knows the values of the dairy farmers, because their values will influence how they respond to different agricultural policies. For example, if preventing migration from rural to urban areas is a policy objective, production support schemes might be effective for some groups, but less effective for groups with more lifestyle oriented values. Values affect perception of situations and problems and guide our actions (Harrison 1999). The objective of this study is to explore what farmers' values are, and how farmers' values affect their decision making. Particularly we are interested in whether farmers' values influence their use of consultancy services, and their decision to maintain dairy farming. To do this we selected a random sample of 100 farmers all over Norway and conducted 90 in-depth interviews during farm visits.

The farming literature often treats values and goals as two of the same. However, goals are usually less stable over time and more specifically targeted towards certain objects or behaviours than values. Because the farming literature often treats them as equivalent and sometimes hard to separate from one another, we will refer to studies which include both goals and values. The literatures from the disciplines of economics (Gasson and Errington 1993, Gomez-Limon and Riesgo 2004, Vogel 1996), psychology (Maybery et al. 2005) and sociology (Vanclay 2003) suggest that farmers' management responses to any new policy instrument will not be based solely on profit maximization. Instead, non-profit-maximizing factors derived from a more complex arrangement of values and attitudes influence their behavior (Kuehne and Björnlund 2006). In her seminal study Gasson (1973) found that farmers' values are primarily to be their own boss, to have a healthy work place (outdoor), to have meaningful work, to meet professional challenges, and to have a reasonable income. Farmers have a predominantly intrinsic orientation to work, valuing the way of life, independence, and performance of work tasks. Inner values are the most important (Gasson 1973). Second comes the feeling of doing a useful job. Next are economic values, and finally social values like being part of the farming community. According to Robinson et al. (2003) the most important sources of satisfaction are: pride of ownership, make a satisfactory income, self-respect by doing a worthwhile job, meeting a challenge, enjoyment of work tasks, and ensuring a future income. Low importance was attributed to: expand the business, continue the family tradition, and recognition or prestige (low to lowest). In a study of Swiss farmers Dobricki (2011) found that conservation, self-transcendence, self-enhancement and openness to change were the most important values. Barbieri and Mahoney (2009) found that the generation of additional income, the continuance of farming and quality of life were among the most important diversification goals in Texas. In a study of Dutch dairy farmers Bergevoet et al. (2004) found that enjoying farm work, working with animals and producing a good and safe product were ranked higher than the goal of achieving maximum income.

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Dairy farmers have several goals (Gasson 1973, Willock et al. 1999). The importance awarded to each specific goal may depend on factors such as age, life-style, and the stage of development of the business (Brazendale et al. 1993). The goals are intertwined between the business enterprise and the household in subtle and complex ways (Fairweather and Keating 1994, McGregor et al. 1996). McGregor et al. (1996) found that farmers have many different goals, and Scottish farmers rank taking care of the property, environmental aspects, and lifestyle higher than the traditional economic goals.

Farmers exhibit complex, multiple and sometimes contradictory values related to farming (Duesberg et al. 2013). Maybery et al. (2005) identified three different groups of values; economic, conservation, and lifestyle farming values. The economic factor had a weak correlation with the conservation and lifestyle factors and the latter were moderately correlated. Similarly, Lynne (2006) reported that there is a trade-off between economic profitability and conservation as farmers make management decisions. Slovic (2000) supported this simultaneous presence of economic and conservation values. In a similar vein Vandermersch and Mathijs (2002) concluded that only one third of the farmers have profit maximization as a primary objective. Finally, Duesberg et al. (2013) showed that values regarding profit can be divided into maximizing profit and making a satisfying profit, each of which leads to different decisions.

It is well known that farmers have a low income per working hour compared to many other occupations. Thus, people who are primarily occupied with external values like money and profit maximization, will probably seek other sources of income. We agree with Nuthall (2010, p. 177) that "*objectives are very much part of the human side of farming and these involve considerably more than the simple material outputs including cash profit. The classical assumption of maximizing profit is a total misnomer except, perhaps, where the owners of the business are totally divorced from the physical location and operational management of the farm.*" Further, farmers' behaviour is caused partly by their very strong feelings towards keeping their farm and selling a farm can even be perceived as a signal of personal failure (Kuehne 2013).

Farmers' values affect their decision-making (Lunneryd and Öhlmér 2009, Willock et al. 1999). The values affect how farmers process data, pay attention to information, and forecast consequences, which all precede and successively direct their choices (Lunneryd and Öhlmér 2009). Values related to high profitability have a positive effect on data collection (Lunneryd and Öhlmér 2009) and also affect their processing of data. The more farmers emphaszise profitability-oriented values , the more they consider the collected information in their decision making (Lunneryd and Öhlmér 2009). Öhlmér et al. (1997) found that farmers' values affect their problem detection, and Öhlmér (1998) found that values affect searching for options. Values influence how farmers run their farms. Thompson et al. (2014) found two separate competing psychological frames among American farmers. One frame represented a stewardship view of the environment and the other frame the farm as a business (or profit maximization). Similarly, Duesberg et al. (2014) showed that while profit goals did not significantly influence the decision-making with regard to farm afforestation, farmers' attitudes played a vital role. Similarly, Lund et al. (2002) found differences in values between the pioneers who converted to organic farming, and those converting later, and Darnhofer et al. (2005) identified clusters of 'pragmatic' and 'committed' organic farmers, in seeking to understand decision-making in relation to organic conversion in Austria. However, in a study of focus groups Padel (2008) found very few differences between established and converting producers' motives and discussed values. Busck (2002) concluded that farmers' values affect their practices for taking care of the landscape. Eckert and Bell (2005) emphasized that farmers have mental models of farming that are influenced by their values, knowledge, and experiences. These models play a predominant role in their learning, problem-solving, and decision making. Examples of such different mental models are becoming a "top dairy" farmer, maintaining commitment to quality family life, and economic and environmental sustainability. Farmers' goals and values influence how they value biodiversity. Thus Schmitzberger et al. (2005) report that farmers who were highly production oriented supported the lowest nature values of their land; both traditionally oriented and innovative farm businesses carried a higher potential to farm in concordance with the biodiversity of their landscape. Finally there is evidence that farmers' values influence their strategic problem solving such as to give up farming (Bergfjord et al. 2011) or to further develop dairy production (Hansson and Ferguson 2011). In a survey Bergfjord et al. (2011) found that farmers who primarily have financial objectives were less likely to stay on their farm than farmers who have more lifestyle oriented objectives. Farmers with primarily financial objectives were more likely to migrate to urban areas.

Farmers have different values which are often combined in complex and subtle ways. To have a satisfactory income is only one of several values, and the notion 'to earn sufficient money' is mentioned more often than to earn the maximum amount of money. Farmers' values can vary from country to country or from region to region. While

we know that different values can affect strategic decisions, we do not know whether the number of values influence these decisions. We have limited knowledge of whether farmers' values differ from those of other business managers. Finally it is evident that we have little knowledge about the relationship between farmers' values and their use of consultancy services. In this study we aim at classifying the farmers' values into a conceptual framework which we think can bring new insights to the field.

Theory

A simple definition of values is that values are rules of right and wrong. More formally, "a value is an enduring belief that a specific mode of conduct or end-state of existence is personally or socially preferable to an opposite or converse mode of conduct or end-state of existence" (Rokeach 1973, p.5). Values represent what is valuable to us and our basic principles. They are abstract ideals which do not refer to specific persons or objects. According to Rokeach (1973) values have four different functions: First, values are standards or road maps for our actions, they constitute a foundation for judgments of our attitudes. Second, they function as a plan for decision making and conflict handling. Third, they motivate us and represent a driving force. Fourth, values help us to keep up our self-esteem.

Values emerge because people must make choices among mutually exclusive alternatives of action. An important point is that values help decision makers to make judgments according to their own standards, and thus they are associated with what role humans fulfill or want to fulfill in society. Contrary to attitudes, values are non-specific, stable and future oriented (Harrison 1999). Our main concerns are to explore the job values of the farmers and how different values affect farm performance.

There are numerous ways to classify values. Schwartz (1992) proposed that value structure is based on the two dimensions self-enhancement versus self-transcendence and openness to change versus conservatism. Rokeach (1973) developed a classification by differentiating between instrumental values and terminal values. The latter term refers to desirable states of existence; the former to designated desirable modes of conduct. Instrumental values can be defined as specific methods of behavior. Instrumental values are not an end goal, but rather provide the means by which an end goal is accomplished (Rokeach 1973). Bahm (1974) uses the terms "instrumental values" and "means value" interchangeably. The end states that we strive to achieve and are most important to us are known as terminal values. Terminal values may be further subdivided into personal values and social values. Examples of personal values are freedom and peace of mind, while brotherhood and true friendship are examples of social values. Similarly, instrumental values may be differentiated into moral values and competence values. *"Moral values refer to certain kinds of instrumental values which, when violated, arouse pangs of conscience or feelings of guilt for wrongdoing"* (Rokeach 1973, p. 7–8). Competence values relate to self-actualization of the individual, and *"their violation leads to feelings of shame about personal inadequacy rather than feelings of guilt about personal wrongdoing"* (Rokeach 1973, p. 7–8).

We will argue that Rokeach's (1973) classification is a useful tool to analyze values and will apply it in our analysis. The main reason is that it adds a new perspective to the field by dividing between the actual states farmers are in, and their desirable future states. This division is important, because it draws attention to the future, not only to the present state. It can clarify whether people really are in the state they want to be in in the future, or if they use their work and their income as a means to get there.

For farmers the borders between the household and the business enterprise are diffuse, and assessing values must involve the whole family. Each family will be unique in its makeup, values and objectives, and a successful family will consider each member's wants and needs (Nuthall 2010). From the literature review it is evident that farmers have both instrumental competence values such as to earn money or being open to change, and terminal personal values such as self-enhancement. Taken together there is reason to believe that farmers' values cover all four categories of Rokeach's (1973) classification. Therefore, we assume that farmers' values are a mix of instrumental competence values, instrumental moral values, terminal personal values, and terminal social values. We will test this assumption in the results section.

We think that the more values farmers report, the greater the possibility that they have many intrinsic values. Research has shown that intrinsically oriented individuals report greater personal well-being on a host of measures, in comparison to those who are only extrinsically oriented (for a review see Kasser 2002). The more values, the more thorough the decision they have made to take over and run the farm, and the more they have reflected on

the pros and cons of running a farm compared to having other occupations. Thus, value combinations can be a way of coping with the future which can be compared to spreading risk in a stock portfolio. Farmers who have other values besides profit are less likely to be disappointed if economic outcomes do not meet their expectations. In practice these farmers have more terminal values. Therefore, we hypothesize a positive relationship between the number of values farmers have and how likely they are to maintain dairy farming. To explore this relationship we will check whether the farmers still produced milk six years after the interviews, i.e. in 2013.

Hypothesis 1: The more terminal values farmers have, the longer they will continue dairy farming.

Values affect the perception of situations and problems, and the perception of individual achievement and success (Harrison 1999). Further, values influence interpersonal relations, and thus the transfer of knowledge from consultants to clients (Ko et al. 2005). Ko et al. (2005, p. 62) define knowledge transfer as "communication of knowledge from a source, so that it is learned and applied by a recipient." Nelson and Cooprider (1996) posit the importance of shared understanding between the consultant and the client to enhance knowledge transfer, or the degree to which the work values and problem solving approaches of a dyad are similar. Without such shared understanding there is a tendency for the parties to disagree what they should be doing and why, leading to poor outcomes (Bennett 1996, Gerwin and Moffat 1997). Tine SA dairy company sells consultancy services to farmers. Farm consultants are mainly concerned with issues related to farm production and economy. Thus, most of the services are within fields such as feeding, breeding, milk quality, animal health and farm economics. We think farmers who are concerned with values related to production and economy will be more focused on services to help them improve their practices, as compared to farmers who have merely other values. Therefore, we expect them to buy more consultancy services. However, as we expect value combinations to be frequent, we will compare farmers who have merely other values than production and economy with those who have only such values, or combine them with other values.

Hypothesis 2: Farmers who have instrumental competence values related to production and economy will buy more consultancy services than those who have other values.

Material and methods

In this section we describe the respondents, sampling procedures and choice of variables and statistical methods. Finally, we comment on the validity and reliability of the study.

Research design

To test the hypotheses the context and research situation should be close to the real world context to ensure both internal and external validity. Thus the farmers were allowed to speak about their values in their own words. It was obvious that they highly appreciated the possibility to talk about their farming in a natural setting. Several of them commented that it was both more satisfying and more interesting to be interviewed compared to filling in a questionnaire. One of them stated: *"Well that's one of the problems with all these questionnaires that pop up, it's quite difficult to answer, … sometimes it is impossible, because the questions require more than one cross, you know…"* The dialogue with the researchers gave the farmers the possibility to ask control questions to check their understanding of the questions. Similarly, for us as researchers it was useful to be able to ask follow up questions to make sure we had understood and interpreted the farmers correctly. The interview situation gave us the possibility to tailor the interviews to each farmer and their specific context.

Methodological choices

We used a largely unstructured interview to capture the respondents' thought processes and the frame of reference. The critical incident technique is a qualitative interview procedure. It facilitates the investigation of significant occurrences (events, incidents, processes or issues) which the respondent identifies and manages (Chell 2004). Next, we wanted to investigate the particular effects of the different values we collected through the interviews. We wanted to study the different job values and how they affect decision making related to buying consultancy services. This was possible because we had financial data from the farms we visited. After coding the interview data we merged the codes from the interviews with the farm financial data, and ended up with a dataset that could be analyzed quantitatively.

Respondents and sampling

The aim is to generalize the patterns we found among the respondents to all Norwegian dairy farmers, i.e. across the population in various settings as e.g. geographical area and time. To ensure validity across geographical areas in the study we included farmers from each of five dairy regions in Norway, from Rogaland down south to Nordland up north. In each region we picked a geographical area that was manageable for the researchers to visit without spending too much time travelling. At the same time it should be representative for the region with respect to farm size and farming conditions. Within these geographical areas we selected respondents randomly among members of Tine Efficiency Analysis (TEA). TEA is an extension service based on the farm accountancy and aimed at analyzing the efficiency and productivity of dairy farms. We drew a number that corresponded to the whole regions' fraction of the total number of dairy farmers in Norway. We visited and interviewed altogether 90 dairy farmers on-farm, 9 from Østfold, 12 from Lillehammer/Øyer, Nord-Trøndelag and 12 from Bodø/Salten. We conducted all interviews from September until December 2007. Only five farmers who were asked refused to participate in the study. The reasons they gave varied from lack of time to skepticism towards the study. Comparing the dependent and independent variables in the sample with population data we found that the measures fit well with their population counterparts, none of the variables from the farm databases deviated more than 2% between sample and population. The sampling procedure produced a representative sample of the TEA participants. In Table 1 we present some summary statistics for the farmers.

Table 1. Summary statistics for the 90 farmers we interviewed

	Number	Mean age	Years of tenure	Mean no. of cows
Eastern-Norway	21	46	15	19.9
Rogaland	14	46	15	25.6
Sunnmøre	20	49	21	23.5
Nord-Trøndelag	23	41	12	23.4
Northern Norway	12	48	19	17.0
Total/ average	90	46	16	22.4

We interviewed 85 male and 5 female farmers. Some of the male farmers' spouses took part in the interview, particularly if they participated in the farm work. The farmers in Sunnmøre are significantly older and have longer experience than those in Nord-Trøndelag. Most of the farmers worked full time on the farm, while most spouses or partners had a job outside the farm.

Variables and statistical methods

After coding the interview data, we transferred the codes to a data sheet. Then we added two other datasets, one from the National Herd Recording System and one from TEA. We merged the three datasets in a SAS-JMP database. Before analyzing, we checked the database for obvious erroneous recordings, which were deleted. First we explored the hypotheses in a preliminary analysis. The goal in this first step was to get to know the variables and how they are related.

The main independent variables are the farmers' values. Based on the interviews we have divided the farmers' values in eight categories. We emphasize that the values in the following are the farmers' values related to farming. They may have other values beyond those reported here.

Value 1. Keep the farm and the tradition alive.

Many farmers think it is important to keep up the family tradition in farming, which reflects a deep respect for the inheritance from their ancestors. A male farmer in his forties told us:

"This is an ancestral farm, and…to follow up the farm and the traditions is of course also important to me…. It's important to keep up the tradition."

Another farmer in his thirties said: *"And this farm has been in the family, that also counts".* A male farmer in his fifties told us:

"Yes, I feel a certain obligation to those who have run the farm before me…. But the most important is perhaps that I try to improve the farm a little."

A male farmer in his forties gave us a deeper insight into how this obligation to keep up farming traditions comes about:

"It's a kind of pressure you know... You get a feeling what is expected from you, even if you want it or not, or perhaps it is just you who place the expectation yourself. "

Value 2. Earn money and produce milk.

Only two farmers reported to earn money as their only farming value, and none mentioned high quality products as their only value. Therefore, we decided to merge values related to economy, production, and product quality. Compared to the other values these are clearly external values related to the outcomes of production. A male farmer in his thirties said: *"What is important to me is to make a living from the farm and to keep up the production".* Another male farmer in his thirties who had recently taken over the farm expressed: *"Well,…It is the added value and the hourly wage, that's what I focus on".* A male farmer in his forties who reported only one value answered: *"What's important to me is of course to have a bottom line, that is to make a living."*

Some farmers obviously took pride in producing high quality products. A male farmer in his forties expressed: *"The achievements in this occupation really enjoy me, …to produce good quality products".* Another male farmer in his sixties was also very much occupied with product quality:

"We have had premium milk quality for 10 to15 years now. We go for 100 percent quality in everything we deliver from the farm. That's our goal."

None of the farmers mentioned profit maximization when we talked about values. Instead their typical comment on the economy was the following: "*And of course it is important to earn enough money to cover the running expenses".* Thus the farmers are more concerned with sufficient cash flow to keep the business running, than to maximize profit.

Value 3. Enjoy lifestyle and to be independent.

Many farmers highly appreciate the autonomy farming offers. To some of them it just felt natural to become a farmer, and they never considered other options. A male farmer in his thirties said: *"You are your own boss, you decide the work day yourself".* A female farmer in her forties who has invested in a new cowshed after the interview told us:

"What was important to me was to run a farm. That was my goal in life. And I have never regretted, it has been a tremendous joy. I like very much to work with animals…and I enjoy the huge freedom in my work…Actually I appreciate the whole picture. I'm not able to point out anything in particular."

Value 4. Enjoy farm work and to have a good work place.

Many farmers think the most important is to have a work they enjoy. A male farmer in his thirties said: *"But what is important is that you enjoy what you are engaged in". Similarly,* a male farmer in his forties told us: *"The most important to me is to have a work I enjoy."*

Value 5. Take care of the environment and the cultural landscape.

An important goal in Norwegian agricultural policy is to maintain the cultural landscape and to avoid damage to the environment. The farmers are also concerned with these issues. A female farmer in her forties told us:

"There is a lot of pasture on this farm, so we need to keep it up, to keep the cultural landscape open, that's important. It's so nice with an open landscape that is kept in order, it's so beautiful and we have a responsibility to manage it you know."

A male farmer in his fifties who runs his farm organically was much engaged in environmental issues:

"Well right now I am very much concerned with the use of resources and the environment, energy use and climate. I think that agriculture plays an important role when it comes to environmental and resource issues in the society."

Value 6. A meaningful task to produce food.

Some of the farmers are very much concerned with the importance of producing food.

According to a male farmer in his forties:

"If you look at the food production on a global scale today…there is too little milk and beef. There is growing scarcity for food both globally and in Europe. "

A male farmer in his fifties expressed: *"I think when we started the important thing for us was to produce food, and it still is".*

Value 7. Have a good and safe residence for the family.

A farm is more than a production site, it is also a highly appreciated place to live for the whole family. A male farmer in his forties:

"And I notice, and from my own experience I think that a farm is a good place for kids to grow up, that's really valuable. It is good for them to have contact with animals. And then you have the contact between the grandparents and the children. I think that is a really good heritage for them later in life. "

A female farmer in her forties who had just moved from a town nearby to take over the family farm expressed: *"The farm should be a safe place to stay for both adults and children".*

Value 8. Personal achievement and self enhancement

Some farmers highly value the personal reward that comes from meeting challenges and reaching goals in production. A male farmer in his thirties said:

"You see the farming results, and if you work hard you can improve them. That's really an interesting part of farming."

A male farmer in his fifties told us:

"To achieve good results and to get immediate feedback on your work...Milk production is quite interesting in that respect, the feedback comes immediately. The tank lorry brings reports on the cell count, protein and fat content in the milk twice a month. Then you feel that you have succeeded with the feeding. It's about seeing the results of what you are engaged in."

Many of our farmers have several values. To illustrate how complex their value system can be we quote a female farmer in her early forties:

"An important thing is to pass on the farm in a better state than it was when I took over… And it should be a safe residence for both adults and children. It isn't just a workplace you know, it is a place to live… To keep the farm houses and the fields in a good condition and take care of the cultural landscape…. we have a responsibility to manage it."

A male farmer in his thirties who had recently bought the farm commented in a similar way:

"Well, first of all to take care of the animals and to reach the goals you have in the dairy production… And a farm is a good place to live, to put it that way. Product quality is of course also important. If you're used to having premium quality it is really a defeat to lose it. And then of course, you don't take over a farm because you want to put it in a bad condition."

In general the farmers found it very difficult to rank their values. A female farmer who had several values told us:

"Everything I mentioned is important in its' respective area…But what is most important to me…. well I really don't know."

On average the farmers report approximately two values, but the variation is large. The distribution of the values is given in Table 2.

Table 2. Number of values per farmer

	Median	Mean	SD	Lower 95 % mean	Upper 95% mean
No of values	2.00	1.82	0.87	1.64	2.00

Typically our farmers reported different combinations of values. Altogether 54 farmers, or approximately 60 percent reported more than one value, and 21 percent reported more than two values. In total 54 of our farmers report 32 different combinations of values. The decidedly most frequent value combination is between keeping the tradition and the farm alive, and to earn money and to produce good quality products. Thus a combination of a terminal and an instrumental value is the most common. The second most common combination is between keeping the tradition and the farm alive and to have farming as a lifestyle and to be independent. These are both terminal values.

One of the dependent variables is how much money farmers spent on consultancy services from Tine SAin 2007. The distribution is given in Table 3.

Table 3. Amount spent on dairy consultancy services from Tine SA in 2007

Dependent variable	Mean	SD	Lower 95% confidence interval	Upper 95% confidence interval
Amount spent on consultancy services, NOK per farm	2775.73	1776.25	2403.70	3147.76

Finally, we used the number of farmers that had quitted dairy farming from 2007 to 2013, six years after the interview, as dependent variable. During this period altogether 23 farmers, or 25.5 percent, had quit dairy farming. We used farmers' age, region of residence and farm size as control variables.

We start with descriptive statistics to investigate the distribution of our dependent and in-dependent variables. For continuous variables we performed correlation analysis, analysis of variance, t-tests and multiple regression analysis. To ensure that the causal models make sense we used our detailed knowledge of the business. We also tested interaction terms and added second degree polynomials to test for non-linear effects.

Validity and reliability

First, we aim to understand the meanings, reasons, purpose, values and behaviours of farmers from their perspective. Next, we present models of cause and effect for the whole group of farmers. Therefore, we use triangulation, and combine qualitative and quantitative methods. To ensure reliability we conducted the first 13 interviews together. We started with some small talk on matters outside the interview guide, sometimes related to farming and sometimes not. Gradually, the conversation turned over to the themes in the interview guide, and the interview started almost without the farmer noticing it. During the conversation we noticed that confidence increased, and at the end of the interview the farmers typically said *"Well this was useful for me too."*

We collected all the transcribed interviews in one file and analyzed them with the qualitative software HyperResearch. To ensure reliability we coded some interviews together while discussing both the coding and the interpretation of the respondents' statements, then each of us coded a number of respondents and the other checked

the coding. We adjusted the coding as our knowledge of the different subjects in the interview data got deeper, and resolved possible differences in coding. In this way we secured inter-coder reliability.

The archival data we use as dependent variables are collected independently of this study. They are included in the annual recordings in the Norwegian herd recording system. This ensures that we as researchers have no influence over them, and therefore, we can exclude common method variance.

Results

Norwegian dairy farmers have values in all four categories, and they have more terminal values than instrumental values (Table 4). Of the values farmers reported 30% are instrumental and 70% terminal (see Tables 4 and 5). More than half of the values reported, or 59.9 percent, are terminal and personal values. Only 23.8 percent are instrumental competence values, and only two farmers reported only financial values. Value combinations are common, and 60 percent of the farmers report more than one value. By far the most common value combination is between keeping the farm and the tradition alive and to earn money and produce milk (Table 5). The findings in this section support our assumptions of value distributions. In Table 4 we have categorized the farmers' values according to Rokeach's framework and in Table 5 we report the frequency of the different values.

Table 4. Farmers' values according to Rokeach's (1973) framework

Instrumental values	Terminal values
Competence To earn money and to produce milk	Personal Personal achievement and self enhancement Enjoy lifestyle and to be independent To enjoy work and to have a good workplace To keep the farm and the tradition alive
Moral To take care of the environment and the cultural landscape	Social To have a good and safe residence for the family A meaningful task to produce food

Table 5. Number of times the farmers report the different values

	No	Percent
Keep the farm and the tradition alive	61	35.5
Earn money and produce milk	41	23.8
Enjoy lifestyle and being independent	24	14.0
Enjoy farm work, prosperity, good work place	13	7.6
Take care of the environment and the cultural landscape	11	6.4
Important task to produce food	9	5.2
Have a good and safe residence for the family	8	4.7
Personal achievement and self enhancement	5	2.8
Total number of times values are reported	172	100

Farmers who have many values keep up their farming longer than farmers who have few values (Table 6).

Table 6. The effect of number of values on maintaining dairy farming until 2013, Student's t-test, n=90

Category of farmers	Mean no. of values	SE	95 % confidence interval		Difference vs. kept up farming	*p*-value difference
Maintained dairy farming	1.918	0.106	1.706	2.130		
Quitted dairy farming	1.412	0.123	1.171	1.653	-0.506	0.0307

The farmers who maintained dairy farming in 2013, six years after the interviews, have approximately 0.5 more values than farmers who quit dairy farming in the same period (Table 6). The finding supports hypothesis 1, that the more terminal values the farmers have, the longer they will maintain dairy farming.

Farmers who have values related to economy and production, or combine these values with other values, spend significantly more money on services than farmers who do not mention economy or production when we ask them about values (Table 7).

Table 7. Student's t-test of the relationship between how much money farmers spend on consultancy services and whether their values include earning money and producing milk or not, n=89.

Farmers' values	Mean NOK per year	Std. error mean	95 % confidence interval		Difference	*p*-value difference
Values include to earn money and produce milk	3243	291.9	2654	3831		
Values do not include to earn money and produce milk	2329	220.8	1885	2774	- 1057	0.01

The finding supports hypothesis 2, that farmers who have instrumental competence values related to production and economy will buy more consultancy services than those who have other values.

We did not find any relationship between farmers' values and their farm size, age, region of residence or involvement from the rest of the family. Because we interviewed only five female farmers we could not explore possible differences in values between genders.

Discussion

Farmers' values cover all four categories in Rokeach's (1973) classification. Terminal values dominate, and personal terminal values are by far the most frequent. To the best of our knowledge farmers' values have not been classified according to this framework before, and we think this classification provide some new insights. The predominance of terminal or end values means that most farmers' values are self-contained in the sense that they are not required to serve any other value in order for it to be a value. It reflects that most farmers are conscious about what state they want to be in in the future, and the production is just one way to get there. More important, the dominance of terminal values means that many farmers are very much in a state where they prefer to be. These findings can explain why farmers pay less attention to profit maximization than one might expect. Similarly, the finding can explain why farmers with primary financial goals are more likely to give up production and migrate to urban areas, as reported by Bergfjord et al. (2011). The reason is simply that these farmers view farming mainly as a means to reach other states of existence. Farming life has limited value in itself, and they might as well run another business to meet their financial needs.

These findings have important consequences for both politicians and advisors. When designing and introducing new political means politicians should address how the means will affect the farmers' desired end states. For example they could focus on how new means will contribute to farmers' self-enhancement, or how they will fit with keeping the farm and the tradition alive. Similarly, the policy implications of this paper suggest that to encourage farmers to stay in the countryside, both policies directed at improving the general living conditions in the local community and production support schemes are important. For dairy consultants it is important to get to know the farmers values. To be able to help the farmers the advisers need to know where the farmers want to be in the future, or what their end states are. In line with the findings of Duesberg et al. (2013) we find that many farmers value making a satisfying profit rather than profit maximization. The fact that many do not mention profit when they talk about values, underlines this point of view. This influences their decision to buy consultancy services, and therefore, consultants need to talk with farmers about values to understand better what services farmers might be interested in buying in the future. Today most consultancy services are directed towards instrumental competence values, and the selling points likewise. Competence values will be important in the future, but in addition consultants could broaden the provision of services to fit better to terminal personal values. According to the findings reported here a better fit between farmers' values and the services consultants offer could increase the total sales of services.

The results show that inner job values like keeping up the tradition, to be independent and to enjoy work, to take care of the environment and to produce food are more frequent than external job values like earning money and product quality. The finding that farmers have many different values are in line with the findings of Gasson (1973), McGregor et al. (1996), Willock et al. (1999), Bergevoet et al. 2004 and Nuthall (2010). Many of the findings like enjoyment of work tasks, doing a worthwhile job, meeting a challenge and make a satisfactory income are similar to the values reported by Robinson et al., (2003). Further, the finding that dairy farmers value self-enhancement is in line with the findings of Dobricki (2011). We notice that the most frequent value is to keep the farm and the tradition alive. These findings suggest that many farmers feel a duty to take over the farm and pass it on to the next generation in a better condition than it was when they took over the farm. Here our findings are in line with the findings of Kuehne (2013). An interesting avenue for future research could be to explore how strong the obligation to take over the family farm is among dairy farmers or their potential successors. Taken together the findings have much in common with the findings from a wide range of studies from different countries.

Unlike previous studies we show that the number of values farmers have influence how long they maintain dairy farming. Thus the findings reported here elaborate on the findings of Bergfjord et al. (2011) and Hansson and Ferguson (2011) by suggesting that not only the types of values are important in strategic decisions. A high number of values signal that farmers have made a deliberate choice to produce milk and that they enjoy the lifestyle of dairy farming. They appreciate several aspects of farming and therefore they are less likely to be disappointed if their expectations don't meet their needs in one particular area. Future research could explore the relationship between farmers' values and different measures of well-being further.

Although we encouraged the farmers to rank their values they did not manage to do so. Thus we could not reveal a distinct value-hierarchy. This is a thought provoking finding, given that many studies of farmers' values use questionnaires, where the respondents are asked to rank ready-made value alternatives. Further, it is our experience that farmers like to speak about values in their own words. Therefore, we claim that using questionnaires to explore farmers' values may not always give an accurate picture.

A potential weakness of this study is that we interviewed members of TEA. There is a possibility that dairy farmers who are members of TEA have slightly different values than other farmers, although they did not differ regarding the production data. Another potential weakness is that although we asked the farmers what was important to them in running their farm, categorizing their responses requires some interpretation and judgment from the researchers. Therefore there is a possibility that other researchers might draw slightly different conclusions.

In conclusion, classifying dairy farmers' values according to Rokeach's (1973) provides new insights into their values and how these values affect behaviour. Realizing that many farmers prioritize terminal values over instrumental values has important consequences for dairy companies, dairy consultants and politicians. It can explain farmers' interest in buying consultancy services and what types of services that should be offered and their interest in keeping up farming. Similarly, it can increase politicians' knowledge of how farmers will react to new political measures.

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