MOTIVATING DAIRY FARMERS TO CHANGE FROM CONVENTIONAL TO MORE ENVIRONMENTALLY FRIENDLY FARMING: THE ROLE OF THE COOPERATIVE

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Abstract

According to van Stralen, Strategic Program Manager at FrieslandCampina, the demand for conventional dairy is going down in the future and more environmentally friendly dairy will be the new standard. If the statement of Van Stralen is correct, the whole dairy sector has to produce more environmentally friendly in the future. For farmers this means that they have to convert from conventional to more environmentally friendly farming. This study aims to answer which role the cooperative can play in this situation, based on change management models. The main research question of this study therefor is: 'How can a cooperative motivate its member dairy to change from conventional to more environmentally friendly farming based on change management models?' To answer this main question a literature study has been done. Literature about cooperatives, change management models and reasons for farmers not to convert has been identified. Furthermore, an analysis of the current actions cooperatives have introduced to motivate farmers to produce more environmentally friendly is made.
The main reasons for farmers not to change were feasibility, not feeling the need to change, the influence of the social peers and risks and uncertainties. Based on different management models this research gives different possibilities how cooperatives can reduce these reasons not to change to more environmentally friendly farming.

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Introduction

Problem statement & research objective

In an article of *de Veldpost,* Van Stralen, the Strategic Program Manager at FrieslandCampina, mentioned that milk from grazing cows is the new standard and the demand for conventional milk is going down (De Vries, 2019). He also added that this standard in the future will shift to PlanetProof milk. On the way to PlanetProof is an independent quality label that is used in the dairy, vegetable, fruit, egg, flower, plant, tree and flower bulb market (PlanetProof, n.d.). The label stands for products produced in such a way that it is better for environment, climate and animals. If the trend is really that there is a decreasing demand for regular dairy and an increasing demand for environmentally friendly dairy, it could be that dairy cooperatives and their member farmers have to change their strategy to a more environmentally friendly strategy to keep up sales in the dairy market.

In this paper, the focus will be on a marketing cooperative, which is a cooperative focused on cooperatively selling products and paying its members for the input delivered (Chaddad & Cook, 2004). One characteristic of a cooperative is that it is member-based. Members joined an autonomous association voluntarily to meet common economic, social and cultural needs and aspirations through a jointly-owned and democratically-controlled enterprise (Novkovic, 2008). If the prediction of Van Stralen is correct the members of the cooperative may have to change their production methods. Hereby, it is needed for farmers (and thus the members) to change to more environmentally friendly production. According to Beckhard and Harris, founders of the change equation, resistance to change is normal and can be expected in any change effort (Cameron & Green, 2015). They mentioned that change managers have to analyze the type of resistance in order to work with it, reduce it and secure commitment from the people who on first hand disagreed. Conventional farmers often find it difficult to change their existing production process to a more environmentally friendly production process (Beedell & Rehman, 2000). This has to do with financial problems, but also the social environment and uncertainty play a role (Xu et al., 2018).

This is a problem for a cooperative. It is not easy for a cooperative to motivate farmers to change their production process, but they have to if demand is changing. The task for a cooperative is to motivate farmers in such a way that together they can change to the production of more environmentally friendly dairy to comply with consumer demand. To tackle this challenge, this study will take a look at different change management models. Different models are known in the literature to manage change (Hayes, 2018). Change management models that can be used to tackle the challenges of a cooperative will be identified. To see which model fits the structure and the culture of a cooperative best it is important to get a

good understanding of this specific structure and culture. Hereby, this study will look into the structure and culture of a cooperative and gather specific characteristics of a cooperative. Furthermore, information will be gathered about the reasons why farmers are not able to convert to more environmentally friendly farming through a literature review. It is important to know what the current reasons are for farmers to not convert to know how to change it. This information combined with the information about cooperatives and change management models will try to give a guide to the cooperative on how to motivate farmers. This will also be inspired by the current sustainability strategies of cooperatives.

Research questions

From the problem statement the following research question can be formulated:

- How can a cooperative motivate its member dairy farmers to change from conventional to more environmentally friendly farming based on change management models?

To answer this main question the following sub-questions are formulated:

1. What are characteristics of a cooperative?
2. Which change management models can be found in the literature and are they usable for the marketing cooperative?
3. Which reasons, farmers have, not to convert to more environmentally friendly production can be found in the literature?
4. How can the cooperative support its members to reduce the reasons not to change?

Definitions and basic concepts

In this part definitions and basic concepts will be explained to get a clear understanding of the topics of this study. These definitions and basic concepts will make the coming parts in this study clear and understandable.

Many different ways of defining organizational change can be found in the literature. One way is: organizational change is the movement from the old and known situation to a new and unknown situation (Hussain et al., 2018). Because the future of change is uncertain people often do not support change because it is against the status quo. This is why these people need to get motivated to change their behavior and mindset. Different change management models can help with this movement. Theories of change are often used by organizations to modify their strategies, processes or structures. Furthermore, organizational change can be classified into internal and external change (Tainio, 1999). Internal change focusses on improving staff's attitude and behavior and upgrading organizational culture. External change focusses on achieving goals, steady growth and better performance.

As shown before, the change management models should be applied to the structure of a cooperative. It is thus important to understand what a cooperative is. the International Cooperative Alliance (ICA) in 2005 defined a cooperative as “an autonomous association of persons united voluntarily to meet their common economic, social and cultural needs and aspirations through a jointly-owned and democratically-controlled enterprise” (Novkovic, 2008). In the first chapter the cooperative will be more deeply explained.

A definition of dairy according to EU regulation is a collective term for milk, milk products and composite products (Baltussen et al. 2014). Cooperatives sell the dairy products to their customers. FrieslandCampina, for example, sells dairy-based products to producers and consumers worldwide (FrieslandCampina, n.d.). These dairy-based products are produced with the milk collected from their 18,261 member dairy farmers. This makes FrieslandCampina one of the biggest dairy companies in the world.

Methods

In this study, a literature review and an analysis of existing theories will take place. This literature review will be based on the way Blumberg, Cooper and Schindler (2011) describe a literature review. Blumberg and colleagues state that a literature review has five steps.

1. Define the dilemma
2. Identify the key terms relevant to the dilemma
3. Apply these key terms in searching indexes to identify sources
4. Locate and review those sources for relevance
5. Evaluate the value of each source and its content.

These steps will be followed to find literature that will answer the main and sub-question.

To start the literature review the dilemma should be defined. This dilemma you can find in the problem statement, research objective and main and sub-questions. Some of the terms relevant to the dilemma are described in the definitions and basic concepts parts, but there are more key terms. To find literature for the first sub-question the terms (agricultural/dairy) cooperative and characteristics will be used. For the second sub-question books about organizational change and change models will be used to identify different models. The most important and relevant models will be used as search term to get more information about the models. The identified models will be compared with a list of characteristics of a cooperative. This will be done to review if a model is usable for the marketing cooperative. In the third sub-question the key terms will be farmers, limitations, conversion, environmentally friendly farming or sustainable farming. In the last sub-question the sustainability strategy of different dairy cooperatives is analyzed. These strategies will be retrieved from the website of the cooperative.

The literature will be searched in two databases: Scopus and Google Scholar. Scopus will be the main database used because it has a wide and complete selection. Google Scholar is less complete but can give relevant and up to date papers. This database will be used to get some relevant information especially for the second and third sub-question when the fundament of the chapter has been written. During the fourth step, the relevance of these papers will be decided. The question asked here is: what is the information given and is it new information about the topic. When a paper is relevant Blumberg and colleagues add that you can also look at which papers the written paper cited. Also here the question should be asked if the paper is relevant. That is: the cited paper is older, so should be relevant at the current time and should add new information about the topic. In the last step, the sources should be evaluated. The information gathered has to contribute to answering the main and sub-question. If a source passes the steps it will be used. Furthermore, it should be decided if more sources are needed to answer the sub-question or that, with the information found, the sub-question can be answered. Eventually, all information gathered and used in the three sub-questions should lead to the conclusion and the answer of the main question.

Chapter 1 – The cooperative

In the literature the framework of a cooperative is identified through different theories, there is not one clear definition for a cooperative. This could mean that there is just not one clear cut cooperative, but that differences can be found between cooperatives or that it is hard to identify the structure of a cooperative with just words.

At the beginning of the study of cooperatives, cooperatives were seen as a form of vertical integration by farmers (an extension of the member firms) (Staatz, 1987). Now the literature shifts more towards a cooperative being a hybrid organization. Cooperatives are different when it comes to markets and hierarchies, neither markets nor hierarchies can define the characteristics of a cooperative (Ménard, 2007). In other words, a cooperative is placed between markets and hierarchies. This means that they blend market-like mechanisms with hierarchy-like instruments (Chaddad, 2009). You can find that cooperatives often use market-like mechanisms like separated ownership and high-powered incentives with hierarchy-like instruments like administrative controls, authority and common staff in a central structure. Because of this principle, a cooperative is often referred to as a hybrid organization.

The underlying characteristic of a hybrid organization is that farmers maintain autonomous property rights and their associated decision rights on most assets but they also share some strategic resources (Ménard, 2007). This means that hybrids have to have tight coordination which goes beyond normal market arrangements. There is often a balance between autonomy and interdependence. This balance results in the three pillars of hybrids: they pool resources, they coordinate through contracts, and they combine competition with cooperation. You can find differences in the structure of a cooperative, but most cooperatives do comply with the three pillars. First, farmers pool some resources at the processing level and are more autonomous at farm level. Second, most cooperatives have some sort of contract to coordinate the actions of its members. Third, a cooperative often gives its members some sort of autonomy of decisions. The dangerous part about the third pillar is that the reputation of the whole cooperative can be at stake through this autonomy. This means that as a member you have to trust that your fellow members stick to the rules to keep up the reputation of the cooperative. If there is no trust between the cooperative and its members and between members, a cooperative could be less successful

In 2005 the International Cooperative Alliance (ICA) defined a cooperative as “an autonomous association of persons united voluntarily to meet their common economic, social and cultural needs and aspirations through a jointly-owned and democratically-controlled enterprise” (Novkovic, 2008). Seven principles are recognized worldwide which describe the structure of a

cooperative: voluntary and open membership, democratic member control, member economic participation, autonomy and independence, provision of education, training and information, cooperation among cooperatives, and concerns for the community. From which the first three are mostly recognized by cooperatives.

Dunn (1988) stated that the unique character of a cooperative and the biggest difference with other businesses is the relationship between users and owners and control interests. In a cooperative the status of user, owner and control can all be within the same person. Based on this Dunn created the three principles of a cooperative.

- The User-Owner Principle: The people who own and finance the cooperative also use the cooperative
- The User-Control Principle: The people who control the cooperative are the people who use the cooperative
- The User-Benefits Principle: The cooperative's sole purpose is to deliver benefits to its users

The principles are interrelated which means that every principle must be seen as a part of an integrated whole. From these principles Dunn formed a simple definition: "A cooperative is a user-owned and controlled business from which benefits are derived and distributed on the basis of use". Besides the principles Dunn comes with several important concepts for a cooperative: voluntarily joined members, the understanding of members to mutually achieve the cooperative's goals, the cooperative should serve the expressed needs of the users and the control should be effective and active.

Another common approach used to identify the cooperative is the transaction cost approach. The transaction cost approach looks at the actual cost of outsourcing the production and tries to minimize the production and handling costs (Staatz, 1987). When using the transaction cost approach as basis Staatz came to the following three characteristics of a cooperative: the farmers are the major users of the firm's services, the benefits a farmer receives from committing capital should mostly be financially based, and the organization is democratically controlled. Nilsson et al. (2012) continued on the work of Staatz. He states that the three principles stated above are indeed the characteristics of a cooperative and that literature who add different characteristics, when defining a cooperative, often have a specific type of cooperative in mind. Initially, the cooperative was designed to reduce people's transaction costs which makes the transaction cost approach a good base, according to Nilsson. Hereby, it is important for members to trust each other to make a cooperative work.

According to Valentinov (2004), you can look at a cooperative through the social capital theory. This theory can be seen as the norms, values, and trust intertwined in a specific structure (in

this case the cooperative). He mentions that social capital performs the same organizational role for cooperatives as price and authority relations play a role for markets and hierarchies respectively. Valentinov also mentions that social capital is the basis of every cooperative. Nilsson et al. (2012) also find social capital the foundation of a cooperative. They add that the social capital theory can explain why for example cooperatives are failing. Most large and complex cooperatives are losing social capital which results in less mutual benefits, less collaboration, and less trust in the cooperative by its members. When expanding as a cooperative it is thus possible to lose social capital.

When summarizing the different articles a few elements come back:

- Member-based organization
- Members are autonomous at farm level
- Members share resources at processing level
- Members have a voice and vote in decision making
- The cooperative coordinates the actions of its members

Answer to the sub-question

This chapter tries to find the specific characteristics of a cooperative. Comparing the different articles you can conclude that cooperatives have members who voluntarily joined and who have their own property at farm level and shared resources at the processing level. Members also have a voice and vote in the decision making of the cooperative. Furthermore, the cooperative blends market-like mechanisms with hierarchy-like instruments, which makes it possible to specify a cooperative as a hybrid organization. Specially more recent literature focusses on the role social capital plays in a cooperative. These articles state that social capital is the basis of a good working cooperative because it results in trust and collaboration. Fellow members have to stick to the rules to keep up the reputation of the cooperative, which makes trust an important factor. The cooperative has to check that members stick to these rules. The elements summarized at the end of the chapter give a view of the structure and culture of a cooperative. These elements will be used in the second chapter to see is the models are usable for the specific structure of a cooperative.

Chapter 2 – Change Management Models

In the literature, multiple change models can be recognized. Change models help motivate change successfully in an organization (Hayes, 2018). The models help to identify issues that need to be changed or it helps raise questions that can be used as reflection. Any change process should start with the awareness of the need for change (Brisson-Bank, 2010). To start the change process a complete assessment of the current situation is needed. This assessment should include an overview of what initiated the need for change and an overview of which question should be answered to determine the best course of action to follow. This should lead to a change model that best fits an organization. Several well-known change models will be described in this part. After the change models are described a discussion will be made if the models are applicable to the structure and culture of the cooperative. To do so the characteristics of the models and the characteristics of the cooperative summarized in chapter one will be used.

Lewin's Three-Step Model

Lewin in 1947 developed one of the first and most famous change models (Bridgman, Brown & Cummings, 2016). This model is called the 3-Step Model. The model consists of three steps: unfreeze, change and refreeze. It is the most classic approach to manage change.

In the unfreezing stage, you unfreeze or unlock the existing level of behavior (Hayes, 2018). To do so, existing behavior and attitudes have to be recognized (Brisson-Banks, 2010). Furthermore, this step also focusses on which threats exist for people and how to motivate those affected by threats to change. As a change manager, you have to overcome individual resistance and restraints from group conformity. When a clear overview of the situation within a company is given the second stage will be reached. The second stage is the changing stage. In this stage, you develop new responses based on new information (Brisson-Banks, 2010). Put simply: you move to a new level (Hayes, 2018). During the change process, employee involvement could play a big role (Hussain et al., 2016). Employee involvement tries to increase the input of members into decisions that affect the performance of the organization and its employees' wellbeing. Rewards, power, information, knowledge and skills can promote employee involvement. Leader's transparency could also play a big role in a change process. It gives employees trust and gives them the feeling that they should take control during change. An active role given to employees makes them embrace change more easily. Besides the role of employees, the right leadership also plays a role in a change process. Key activities are: motivating change, creating a vision, developing political support, managing transition and sustaining momentum during implementation and refreezing. The resistance of employees or the openness to change should influence the way leadership should be in an organization.

In the third and last stage, the refreezing process starts. When the new level is reached you refreeze the new behavior (Hayes, 2018). A new stable has to be found where people accept the new culture and work with the new methods to reach goals (Brisson-Banks, 2009). Hereby, feedback and incentives which reward changed behavior could be important (Hayes, 2018). It is likely that change is short-lived and that employees will go back to their old behavior when feedback and incentives are not given. Also, a celebration of the new organization could be held to make everyone feel appreciated for their part in the change and to keep employees interested in sticking to the change (Brisson-Banks, 2009).

Over the last years, organizational change has become harder through global competitive markets, exponential technological escalation, environmental downturn and uncertain consumer confidence (McAleese, Creed & Zutshi, 2013). This also results in the pace of change being faster than ever before. Criticism for the three-step model of Lewin is that the refreezing stage is not as relevant as it was before, it is more often seen as out-of-date. Instead of refreezing, a continuous open learning system should be created.

Lippitt's seven-step model

In 1958 Lippitt, Watson and Westley continued on the work of Lewin's Three-Step Change Theory (Hayes, 2018). They changed the three-step theory into a seven-step theory with the focus on the role and responsibility of the change agent (Szabla, 2017). Change agents are chosen to overcome resistance of other members and encourage them to adopt new practices (Battilana & Casciaro, 2012). The seven steps are (Szabla, 2017):

1. Develop a need for change (unfreezing)
2. Establishment of a change relationship & Assess the resources and motivation of the change agent
3. Diagnosis of the problem (moving)
4. Establishing goals and intentions of action (moving)
5. Initiation of change efforts (moving)
6. Generalization and stabilization of change (freezing)
7. Achieving a terminal relationship and let go of the change agent

The seven steps of Lippitt et al. are pretty straightforward. However, some steps might need some extra explanation. Step two requires the willingness and motivation to change to be accessed. The change agent in this step has to look at its resources and motivation to lead to change. In step three, four and five the real moving starts. In the third step the change should be diagnosed, in the fourth step the change should be started, in the fifth step this change should be spread. This leads to the sixth step and the refreezing part where the change should

be maintained. In the last step the change has become part of the organizational culture. This means that the change agent should part with the organization. Critics say that Lewin's change model is over-simplifying the process (Cummings, Bridgeman & Brown, 2016). Lippitt et al., therefore, created a more extensive model to help an organization lead change.

Kotter's Eight-Step Model

In 1996 Kotter invented the eight-step model which became one of the most popular models at that time and is still widely used by managers (Appelbaum et al., 2012). According to Kotter leaders who transform a business successfully do eight things right and in the right order (Brisson-Banks, 2009). He also states that the biggest mistake managers make is that they are trying to change an organization without sharing the urgency to other managers and employees. People will not change if they do not see the need to change (Appelbaum et al., 2012). The eight steps are:

1. Establish a sense of urgency by managers and employees
2. Form a powerful guiding coalition
3. Create a clear vision
4. Create strategies to achieve the created vision
5. Share the vision with managers and employees and empower people to act on the vision
6. Focus on short term wins
7. Intensify the wins to produce more change
8. Maintaining the change

A few things are important to keep in mind when using this model. No person is capable of leading and managing a change on its own, the right people should be put together to lead the change (Appelbaum et al., 2012). A guiding coalition is created to do so. This group should be formed out of people with enough power to lead the change and they should be encouraged to work together. In this group, expertise, creditability and leadership are important components. During the fifth stage, when the vision is shared, communication is important. Appelbaum et al. state that communication reduces uncertainty and can affect the type of response from negative to positive. When empowering people to act on the vision obstacles should be getting rid of, systems or structures which undermine the vision should be changed and risk-taking should be encouraged. During the sixth and seventh step people should be aware to not declare victory too soon because of the short term wins. Eventually, long-term wins are needed to reach goals. After people start getting used to the change and showed new behavior it is important to make sure the change stays. Most important is to anchor the new approaches in the culture. To do so, employees should reflect on their new attitudes and behavior and how it helped the change. The next generation should see the changed situation as the status quo.

One limitation of Kotter's eight-step model is that it is mostly applicable to situations where fundamental changes are needed because of changes in the market environment (Appelbaum et al., 2012). It might thus not be useful for every change situation within an organization. Furthermore, the approach is quite static. Kotter argues that the steps should be followed in sequence. By this, he means that the second step will not be successful if the first step is not handled well. However, some steps might not be applicable to a situation or companies feel like the step does not fit well within the culture of the company. This might result in organizations skipping a step, while Kotter stated that skipping a step will give a negative influence on the result.

Grandori and Furnani's organizational design

Grandori and Furnani (2008) designed an approach that sees any organization as different building blocks that can be combined in different ways to come to different results. This is to make to an organization more flexible. Four types of organizational elements can be recognized: Market-like elements, bureaucratic elements, communitarian elements, and democratic elements. Normally, these elements are used to identify the organizational design of an organization. In this part, the approach of Grandori and Furnani will be used to see how these elements can help with motivating change in a cooperative. Especially the democratic elements make this framework suitable for a cooperative because cooperatives are often member-based with a democratically governed organization (Cechin et al., 2012). Table 1 gives an overview of the model.

One way for a cooperative to motivate its members to change is through market-like elements. Market elements focus on highly powered incentives with minimal communication used (Grandori and Furnani, 2008). You can classify it as pay for performance. Pay for performance gives workers rewards based on their efficiency and should increase workers' productivity, efforts and earnings (Cornelissen et al., 2011). You can also motivate change in a cooperative through bureaucratic elements. Bureaucratic elements focus on creating predictability, transparency and accountability (Grandori and Furnani, 2008). The focus is more on authority. Another way to motivate change is through communitarian elements. This focusses on team-work and knowledge sharing. A community consists of different people who are coordinated by norms which developed over the years (Kandori, 1992). These norms coordinate the actions of the people in the community. Here it is important for community building to homogenize judgments and interest through identity building and knowledge-sharing practices (Cechin et al., 2012). The last way to motivate the change to environmentally friendly production is through democratic elements. Democratic elements are all about equality (Grandori and

Furnani, 2008). Most important are equally distributed property and decision rights. Also voice giving is an important part of democracy.

Type of element	**Type of motivation**
Market-like elements	- Highly powered incentives - Minimal communication used
Bureaucratic elements	- Predictability - Transparency - Accountability
Communitarian elements	- Team-work - Knowledge sharing
Democratic elements	- Equally distributed property rights - Equally distributed decision rights - Voice giving

Table 1. Overview of Grandori and Furnani's organizational design model

The Nudge Theory

In 2008 Richard Thaler and Cass Sunstein wrote a book about the nudge theory. In this book, Thaler and Sunstein discuss how government agencies and private organizations can direct individuals towards a certain action (Hausman and Welch, 2010). A nudge is a way to influence people to change behavior without forbidding anything or changing people's economic incentives. Over the years the nudging theory has also been linked to organizational change. When trying to change, managers can use the nudge to influence the decision making of people so that they make better choices for the organization without forcing them to do so (Hall-Ellis, 2015). This will make people more satisfied and involved with the organization. A good nudge can eventually change the behavior of an individual. In short, a nudge triggers people to change. This can start small but eventually widens out over the whole organization. Hereby it is important to let go of any bureaucratic decision-making because people have to make choices on their own and should not be forced to do anything.

Nudging is not an easy way to change behavior in an organization. It will take time and careful planning to come up with a good nudge and you are limited in options (John, 2018). You do not know how people are going to react to the nudge and you cannot force them to change because of the concept of a nudge. This is why the nudge theory can bring uncertainty. Furthermore, you have no influence on who will take the nudge, it could be that if more people started to fall for the nudge that others also follow because it becomes the norm (Nagatsu, 2015). This is, however, not always the case. It can take a long time before the changed behavior becomes the norm. It can also be difficult to keep the behavior because nudges are known to sometimes only have a temporary effect (John, 2018).

Applicability of the models

The different models described above are focused on internal change, change that management and its employees have to make. This research focusses on cooperatives, thus the changes management and its members have to make. This is a different relationship than the management-employee relationship. The difference is that members are owners of the cooperative and they have voice and vote in the decision making, the status of user, owner and control can all be within the same person (Dunn, 1988). This principle makes it hard for the cooperative to force members to change.

In this part, a link will be made between the different models and the specific organizational characteristics of cooperatives. To see if the models are suitable they will be analyzed based on the specific characteristics of the models described above. Furthermore, the models should not interfere with the specific characteristics of a cooperative described in chapter one. These characteristics are:

- Member-based organization
- Members are autonomous at farm level
- Members share resources at processing level
- Members have a voice and vote in decision making
- The cooperative coordinates the actions of its members

Lewin's Three-Step Model could be applicable to the case of a cooperative. Lewin's model was never meant to be used specifically for organizational change. It was developed to analyze and promote change at different group, organization and societal levels (Burnes, 2004). This makes the model more flexible and applicable for different situations, thus also for the cooperative. Besides that, the model does not show any characteristics which could interfere with the characteristics of the cooperative. This model does give you steps to follow (unfreezing, changing, refreezing) but keeps it more in the middle of how to fulfill these steps. This can give the cooperative more options to bring change. Difficult about this model is that it is not easy to just unfreeze, change and refreeze the behavior of members (Cummings, et al. 2015). Critics say that the model may be over-simplifying the change process. Here lies the big challenge for the cooperative. In this case, the members are farmers who often have reasons not to convert to more environmentally friendly farming (Beedell & Rehman, 2000). Unfreezing their behavior might be hard. The second step will not be any easier, because then the real change has to happen. Here again, the reasons farmers have to not convert will not help when trying to change. If the cooperative succeeds in declining those reasons, it will have a better possibility of motivating farmers to change. During the refreezing stage, the cooperative should make sure that feedback is given to keep the change (Hayes, 2018).

The extension of Lippitt and colleagues seem to be less relevant for this case. Lippitt and colleagues assume that there is a problem in the first step of the model. You cannot (yet) speak of a real problem in this case. However, if the statement of van Stralen is correct and in the future only environmentally friendly production will be consumed a problem might arise.
In this case, the model does not seem to interfere with the characteristics of a cooperative. The change agent could actually be useful in a cooperative. It could be someone that is trusted by the members and helps guiding the change. This could be an expert from the outside or a team of respected member farmers within the cooperative who want to lead the change.
If you have one person or a group of persons who understands the farmers and knows how to unfreeze their behavior, you could set a step in the right direction when trying to reach the made goals.

Kotter's Eight-Step model is less basic than Lewin's model. As said before, Kotter's model is seen as static which might make it harder to change it to a different situation. Kotter stated that every step has to be followed in sequence to come to the best result (Appelbaum et al., 2012). It might be that in the case of a cooperative not every step is as useful. Furthermore, out of all models, this model is focused most on the manager-employee relationship. While the focus in this case will be on the relationship between the members and the cooperative as organization. Even though the model is described as static, the steps seem easy to adjust to the case of a cooperative. A change agent (in this model called a guiding coalition) can be useful as described in Lippitt's theory, visions can be created for employees as well as for members and short term wins are also creatable. An example of a short term win is convincing some (out of all) farmers to change. FrieslandCampina, for example, convinced some farmers to produce more environmentally friendly by giving them a higher price for their input (FrieslandCampina, n.d.). With a couple of modifications the model could be useful.

Grandori and Furnani's theory is flexible because of the four different elements. The elements can be used in such a way that it fits any organization, so also a cooperative. The elements are seen as building blocks for an organization. You can use them in such a way that it is possible to focus for example on members. Because of the building blocks and flexibility, the model does not have to interfere with the characteristics of the cooperative. The market-like elements focus, among other things, on incentives. For a cooperative, this could mean that they motivate its members through incentives, like pay for performance. For example, give a higher price to farmers who produce more environmentally friendly. The bureaucratic elements focus more on authority. For a cooperative this could mean forcing farmers to change to more environmentally friendly production. As a cooperative, you could ask members to change or leave, but this could go against the nature of a cooperative. This element could be interfering with the characteristic 'members have a voice and vote in decision making'. The third element

is communitarian elements, which focusses on norms and the community. In a cooperative this community consists partly of members. This means that in a cooperative norms should arise which leads members behavior. The problem with this is that you cannot decide that something is the norm, these norms often arise over time. Especially if members do not agree with environmentally friendly production it is hard to make something the new norm. The last element is the democratic element. This element focusses on equality and equal decision rights. Cechin et al. (2012) state that the difference between the cooperative and its members is that members often want to sell their products to the cooperative no matter the quality. The cooperative, however, prefers strict quality controls to comply with the requirements of the buyers. Democratic decision making might be difficult because of the differences between the cooperative and its members. Especially in the case where members do not want to or cannot make the conversion to more environmentally friendly farming.

The last theory that can be used in the nudge theory. This theory is not a classical change theory which makes it more flexible to use in any situation. However, it might also be hard to really change the strategy of the cooperative by just using the nudge theory. As John (2018) said, you are limited in options. Nagatsu (2015) added that you are not sure of who will take the nudge. For example; Friesland Campina uses a nudge by giving a different price to members who already produce more environmentally friendly or use outdoor grazing (FrieslandCampina, n.d.). In 2016 sixty dairy farmers decided to change to more environmentally friendly production in the Netherlands, so the biggest group has not decided to change to more environmentally friendly production (Skal, 2016). This fits the statement Nagatsu made, you never know who will take the nudge. Only using the nudge might thus take a really long time to convince everyone to produce environmentally friendly. Other nudges could be introduced to speed the process or might maybe be more successful. But in line with John's statement, you are limited in your nudges and it is not easy to come up with a good one. Positive about the nudge theory is that you can use it in any situation and that it does not conflict with the characteristics of a cooperative.

In table two the models are summarized. The cooperative can decide which one is the best fit for their organization and their type of change. The first thing that will be shown is if they interfere with the five characteristics of a cooperative described in chapter 1. Because the cooperative has different characteristics than other organizations the models sometimes need small modifications. Therefore, it will be shown if a model is flexible or static. That is; will it be easy or hard to modify. Last, will be shown if the models are specific or basic. Some models are widely interpretable, you have more options to bring change. Other models are more specific and show how to bring change step by step. Lewis model is an exception because it gives you steps to follow, but leaves out specific information on how to fulfill these steps.

Does it interfere with:		Lewin's 3 step model	Lippitt's 7 step model	Kotter's 8 step model	Grandori and Furnani's theory	Nudge theory
	Being a member bases organization	No	No	Focus on employee-manager relationship. Modification might be needed.	No	No
	Members being autonomous at farm level	No	No	No	No	No
	Members sharing resources at processing level	No	No	No	No	No
	Members having a voice and vote in decision making	No	No	No	If the bureaucratic element is used to much: then yes	No
	The cooperative coordinating member's actions	No	No	No	No	No
Flexible/static		Flexible	Static	Static	Flexible	Flexible
Specific/basic		Basic/specific	Specific	Specific	Basic	Basic

Table 2. Comparison of change management models

Answer to the sub-question

This chapter discussed multiple change management models that can be found in the literature and tried to answer if they are usable for the marketing cooperative. The models discussed are Lewin's 3 step model, Lippitt's 7 step model, Kotter's 8 step model, Grandori and Furnani's theory and the nudge theory. Important for the models is that they do not interfere with the specific characteristics of a cooperative. Most models do not show any problems. However, Grandori and Furnani's theory could interfere with the freedom of vote and voice of members when the bureaucratic element is used too much. Besides the interference is discussed if the elements are easy to modify. Lewin's 3 step model, Grandori and Furnani's theory and the nudge theory are more flexible. Lippitt's 7 step model and Kotter's 8 step model are more

static. Last is discussed if the model is basic (Grandori and Furnani's theory and the nudge theory) or that the model is specific and has certain steps to follow (Lippitt's 7 step model and Kotter's 8 step model). Here Lewin's 3 step model is an exception because it gives you three steps to follow but the model still keeps it basic in how to fulfill these steps. In the next two chapters is discussed which reasons farmers have to not make the conversion and what cooperatives already do to support farmers to change. Eventually will be discussed how the change management models can help to reduce those reasons and motivate farmers to change.

Chapter 3 – Reasons not to convert for farmers

As stated in the introduction if the predication of Van Stralen is correct the members of the cooperative may have to change their production method. However, some farmers find it difficult to change their existing production process to a more environmentally friendly production process (Beedell & Rehman, 2000). There are multiple reasons available in the literature which show why farmers cannot or do not want to make the conversion. These reasons will be discussed in this chapter.

Locke (2006) identified why farmers do not produce more environmentally friendly. A survey was conducted, which was filled in by 95 conventional and ecological farmers in Australia. Striking about this research is that it includes samples of both organic and conventional farmers. This makes it a good research to find out why farmers do not choose for more environmentally friendly production. Locke found that that there are three types of conventional farmers: philosophically opposed, practically opposed and pragmatic opposed.

The philosophically opposed farmers do not believe in the presuppositions of organic farming (Locke, 2006). This means that they do not really believe in Environmentally friendly or sustainable farming or that it is proven to better. The confirmation bias could play a role. The confirmation bias means that you look at or agree with information that suits your thoughts and ignore conflicting information (Charness & Dave, 2017). The practically opposed farmers see that ecological production is more environmentally friendly but do not switch because they do not see the financial benefit. They feel like they are not able to make more money either by increased yield or price per unit of product. Locke sees money as both an elimination as a motivational factor. It is an elimination factor because farmers do not switch if their earnings do not increase. However, farmers would be more motivated to switch to more environmentally friendly production if their earnings would increase. Pragmatic opposed farmers do not see any limitations to change to more environmentally friendly production but are actually motivated to do so. However, constraints are stopping them to change. These constraints are seen as structural factors that cannot be overcome, such as biological, economic or topographical barriers.

Darnhofer et al. (2005) studied the underlying motives why farmers do or do not convert to organic farming. Based on interviews with 65 farmers in Austria. Darnhofer et al. distinguished five types of farmers: committed conventional farmers, pragmatic conventional farmers, environment-conscious but not organic farmers, pragmatic organic and committed organic farmers. Committed conventional farmers do not consider a conversion to organic farming. They do not find organic farming more environmentally friendly than conventional production

methods. Besides that, they find minimizing production costs and maximizing output per hectare the best way of farming. Pragmatic conventional farmers are not against organic farming but do think the conversion to more environmentally friendly farming brings high risks. Uncertainty of price and market development plays a big role. They want to see a tangible benefit before they make the change. Environment-conscious but not organic farmers do commit to some environmentally friendly farming practices but do not receive payment for organic farming. They like to keep the flexibility and find it less risky than organic farming. Pragmatic organic farmers do not farm more environmentally friendly because they are worried about the environment but do see it as an option to secure their income. They find the compensatory payments an important incentive for conversion. Committed organic farmers find closed nutrient cycles and improved soil health among the important reasons to change to more environmentally friendly production. For these farmers economic considerations are secondary.

Burton et al., 2008 did a cross-cultural study in Germany and Scotland. The two countries were used to get a better understanding of the wider variety of behavior. 13 Scottish and 12 German farmers were interviewed. The interviews showed that the way of farming contributes to the social position of the farmer. The like-minded farmers group together. These are farmers who share an understanding of the skills required to produce agricultural goods. Mzoughi (2011) continued on the social concerns and also looked at moral concerns when converting to more environmentally friendly production. He found through a survey of 243 French farmers that social and moral concerns do matter along with economic ones. When you look at morality most farmers find that they have to do the right thing but also want to reduce risks and cut production costs. Moral concerned driven farmers often choose organic production. Social concerns shape the behavior of individuals based on his/her reference group. These social concerns also influence why farmers do or do not convert to more environmentally friendly production because farmers look at the status of other farmers. So, farmers who have social concerns base their choice for organic or conventional farming on their social peers. Farmers who have economic concerns are less likely to choose organic farming.

Xu et al. (2018) found that satisfaction plays a big role in why farmers do or do not convert to more environmentally friendly production. Converting depends on how satisfied a farmer is with its current strategy and the potential satisfaction under an alternative strategy. They do not feel like the conversion will give them a substantially better strategy. Also here the social environment plays a role. Satisfaction is partly based on the practices of other farmers towards which the farmers lend credibility. If the social peers feel negative about organic farming the chances are small that the farmer will change. However, if a farmer or the social peers feel like a conversion will be better later on in time, change can still happen. How large a farm is also

influences the satisfaction. Smaller farms are often more burdened with production pressure which makes them more sensitive for external events. This makes them more likely to be dissatisfied with a situation and will give them a higher chance of conversion. External events (for example price collapse due to climate shocks) also influence satisfaction and can influence conversion.

Besides satisfaction, uncertainty plays also a role for farmers according to Xu and his colleagues. Farmers have concerns, because of the uncertainty, how the future will be if they make the conversion. The role uncertainty plays when deciding to convert has gotten bigger over time. Farmers have to deal with economic and political uncertainties (Huet et al., 2018). When deciding to change, farmers want to try to reduce these uncertainties. They will look for sources they feel confident about and simple options for example. Berentsen and van Asseldonk (2016) added that there is also uncertainty in market conditions. You do not know what supply and demand are going to be. Berendsen and Van Asseldonk also think that uncertainty brings risks and that these risks could be a reason not to change to organic farming.

In another research Berentsen et al. (2012) researched which role risk plays when converting to organic farming. They analyzed 348 Dutch farms on why they did or did not convert to organic dairy. To do so risks for conventional and organic farming were compared with respect to gross margin and the underlying price and production variables. They found that risks included in the gross margin per cow were much higher for organic farmers. This can be explained by the fact that price and production risks are higher. Berentsen and colleagues found for example that the price for organic milk fluctuates more than the price for conventional milk. Furthermore, organic concentrate prices also fluctuate more than 'normal' concentrate prices. This makes the input price risk also higher for organic farmers. Production risks are higher for organic farms because milk yield per cow is harder to control. Berentsen and colleagues state that three factors (milk price, concentrate price and milk yield per cow) contribute to the higher risks in organic farming. These risks could be a reason why farmers keep farming conventionally.

Some farmers even change back from organic to conventional farming. Harris et al. (2008) interviewed 22 organic farmers from which 18 went back to conventional farming in the United Kingdom. Four main reasons for the conversion back could be found. The first reason are financial reasons like lack of market demand and low prices for organic products. Most of the interviewed farmers had financial motivations when changing to organic farming, they wanted to increase income. However, a key problem for these farmers was that they were unable to find a market for their organic products. They also thought that changes to organic farming would be small. The expensive changes combined with the low return made organic farming less feasible. The second reason was the negative experiences with certification and inspection.

Most farmers referred to the certification body negatively. They were seen as too bureaucratic and the costs of certification fees were too high. The third reason was problems with the organic system on the farm. Farmers did not account for the amount of change that had to happen and that risks would increase under organic farming. Most farmers admitted that they underestimated the work and money it requires to change to organic production. The last reason are other (sometimes unfortunate) reasons like; diseases, staff problems and distance to processors. Those problems were only partly related to organic farming.

Answer to sub-question

This chapter tried to answer the question which reasons farmers have to not convert to more environmentally friendly farming. When comparing the articles several observations can be made. The first observation is the financial situation. Not only do farmers expect a lower production when they produce more environmentally friendly, but they also do not find it feasible because market prices are too low, demand is too low and/or the changes that have to be made are too expensive. Another reason not to convert is that farmers do not believe that it is better for the environment, because they feel like it is not proven to them. The social environment of a farmer can influence if a farmer beliefs more environmentally friendly farming is better. Studies show that if the social environment does not farm more environmentally friendly, the farmer itself is also likely to not do so. Risks and uncertainties are another important reason. Some farmers just do not like to take risks (risk-averse) or be in an uncertain situation. Other farmers do not have the financial means to take risks. Sometimes farmers feel like the future is too uncertain which also increases risks according to them. In the last chapter will be discussed how cooperatives try to influence farmers to make the conversion. This will show options the cooperatives have to try to reduce the reasons not to convert to more environmentally friendly farming.

Chapter 4 – How the cooperative can support farmers

In the literature, not many options are given to reduce the reasons why farmers do not want to convert to more environmentally friendly farming. One of the most mentioned options is to increase the income of farmers, may it be through economic incentives or higher milk prices (Uematsu & Mishra, 2012). However, organizations do not have much influence on market prices, especially when there is no shortage of supply (Frank & Cartwright, 2016). It is important to mention the focus in this research is on the marketing cooperative as mentioned in the introduction. A marketing cooperative is focused on cooperatively selling products and paying its members for the input delivered (Chaddad & Cook, 2004). The distinction from the supply cooperative is good to know. Supply cooperatives have the option to make their own products more environmentally friendly. An example is AgriFirm. Agrifirm is a Dutch producer of animal feed. In 2018 they introduced the CSR report to improve sustainable production (Agrifrim, 2018). Agrifirm started to use more sustainable raw materials in their feed. Farmers, by using this feed, are indirectly producing more environmentally friendly. However, as a marketing cooperative does not supply the farmer with products this is not an option they have. In this chapter, different marketing cooperatives and their plans to support farmers to produce more environmentally friendly will be discussed. This chapter will show the options cooperatives do have to support farmers. The goal of these plans is to influence farmers to produce more environmentally friendly.

Dmk Group is the first cooperative that will be discussed. Dmk Group is a German cooperative with 6,900 active member dairy farmers (Dmk Group, 2018). In 2018 they published the Dmk Group sustainability strategy. The goal of this strategy is to make the chain more sustainable from farm to retailer, with a focus on animal health and environmental protection while protecting the farmers' business. Hereby the farmers should invest in its feedstuffs, machinery, cowsheds and other operating equipment. The cooperative supports its farmers to increase animal welfare and environmental protection through the Milkmaster program. This program consists of a monitoring, confirmation and advisory system plus a bonus system. They give a premium price to farmers who perform outstandingly on cow comfort, animal health, feed cultivation, feeding and milk quality. Points are given on the five areas, which determines the bonus a farmer gets. Besides that, the information is given on how to improve the five areas. Every year the farmers receive an analysis of their performance. This way the farmer can try to improve its production to make it more environmentally friendly. Besides the program, Dmk Group pays an above average milk price, which can help farmers to make improvements in the five areas.

Milcobel, Belgium's largest dairy cooperative with 2,600 dairy farmers came up with a sustainability vision (Milcobel, n.d.). This vision focusses on four pillars: Socio-economic, climate and environment, animal welfare and health & nutrition. Milcobel is quite short on how they support farmers to produce more environmentally friendly. They educate their farmers to use circular agriculture. They like farmers to produce their own feed, recycle by-products, use alternative water sources and produce their own electricity. So far 91% of the dairy farmers produce their own feed, 77% recycle by-products from the food industry, 62% use alternative water sources and 40% produce their own electricity. Besides that, they work together with partners, like the Flanders Research Institute for agriculture, fisheries and food, on how to significantly reduce total greenhouse gas emissions of the dairy cattle. To increase animal welfare the cooperative supports its members to increase good health, good housing, good feed and normal behavior. Normal behavior is about providing a good environment for animals, like cow brushes and outdoor grazing time.

Fonterra is a cooperative from New Zealand with around 10,000 member farmers (Fonterra, 2019). They published a sustainability report in 2019 based on the Sustainable Development Goals of the United Nations. Fonterra encourages farmers to continuously improve profitability, environmental efficiency and resilience. They have a set of policies and standards that support sustainable dairy farming. These policies and standards should set expectations for farmers when it comes to people, the environment, animal health and welfare, biosecurity, and food safety and quality. The Raw Milk Standard sets out the minimum requirements that all farmers must meet. This handbook consists of requirements about waterway management, nitrogen management, animal health management and more (Fonterra, 2016). Through own staff and third parties is assessed if farmers stick to these requirements (Fonterra, 2019). When a farmer does not meet the requirements it will work together with Sustainable Dairying Advisors to develop an action plan. This action plan includes target dates for completion. When Fonterra is not satisfied with the minimum requirement it can even give a milk collection suspension. Fonterra also mentioned that there will be a bigger recognition for farmers who go beyond the minimum requirements in the future.

Arla, a Scandinavian dairy cooperative with around 9,900 members, mostly focusses on the reduction of CO2 emissions (Arla[1], 2019). Arla wants to reduce CO2 emission three times as fast. They set up a new climate ambition towards 2050 called carbon net zero. The target is to reduce greenhouse gas emissions by 30% per kilo of milk. To do so, they set up a climate check. In this climate check, a farmer and external advisor identify the farmer's total CO2 footprint. The climate check gives options a farmer can take to reduce its CO2 footprint. Some of these options are based on animals like changing the feed composition to one which makes the cow less gassy and providing better animal welfare which improves cow's milk yield and life-span

(Arla[2], 2019.). Another option they give is to use renewable energy. Besides that, small and easy options are given which every farmer can apply. That is, using less fuel, plant trees and other plants or having a more efficient feed production whit just the right amount of nutrients to grow the crops. Furthermore, the farmer can use the climate check to compare its progress with the progress of other farmers (Arla[1], 2019). This way farmers can motivate each other to produce more environmentally friendly.

The last cooperative that will be discussed is FrieslandCampina. FrieslandCampina is a Dutch cooperative with 18,261 member dairy farmers based in the Netherlands, Germany and Belgium (FrieslandCampina[1], n.d.). FrieslandCampina, like Fonterra, bases its sustainability goals on the Sustainable Development Goals and actively contribute to eleven of the seventeen goals (FrieslandCampina[2], n.d.). FrieslandCampina offers multiple options for farmers. One of these options is sustainable meadow milk (FrieslandCampina[3], n.d.). FrieslandCampina supports farmers to put their cows in the meadow for an addition of €1,50 per 100 kilos of milk. This is to improve animal welfare. They also have a higher milk price for farmers who produce organic food. Another program is the Foqus planet program. This program focusses on increasing biodiversity in farming on the hand of a financial incentive. In the introduction On the way to PlanetProof is shortly discussed. This is yet another program FrieslandCampina works with to support farmers to farm more environmentally friendly (FrieslandCampina[2], n.d.). On the way to PlanetProof focusses on improving nature, environment, climate and animal welfare. Farmers who farm according to the requirements of On the way to PlanetProof also receive a higher milk price. Besides all the financial incentives FrieslandCampina also has other options to support farmers to increase environmentally friendly production. FrieslandCampina works together with different organizations to increase the usage of renewable energy. An example is the cooperation of FrieslandCampina with Groenleven, a Dutch company that focusses on solar energy. In this cooperation they want to stimulate farmers to place solar panels on their roof (GroenLeven, n.d.). FrieslandCampina is also the founder of the Jumpstart cooperative (FrieslandCampina[3], n.d.). It focusses on getting green energy from manure and results in less greenhouse gas emissions. With this organization it becomes more attractive for farmers to operate a manure monofermentation installation on their farm.

Answer to the sub-question

In this chapter, an answer was given on how cooperatives support farmers to produce more environmentally friendly. A few differences are noticeable between the cooperatives. Some cooperatives focus more on education and communication, while others focus on price incentives or make a combination between the two. Some cooperatives created specific sustainable programs, while other cooperatives keep it more basic. Also noticeable is that some cooperatives are quite strict to farmers on the changes they should make and provide

requirements while others give farmers the freedom to make changes if they want to. The five cooperatives discussed are Dmk Group, Milcobel, Fonterra, Arla and FrieslandCampina. Dmkgroup makes a combination between education, communication and price incentives. They try to bring change through the specific Milkmaster program, where farmers are given bonuses on how good they perform. Milcobel does not have a specific program to change, they have four pillars in which they like farmers to improve, but give farmers space to do this in their own way and pace. Fonterra is most strict about their program. They give farmers a handbook with requirements a farmer should comply with. When a farmer does not comply it works together with a Sustainable Dairying Advisors to make changes. If a farmer still does not comply a milk collection suspension can even arise. Arla mostly focusses on education and communication. With the climate check they give farmers options to bring change and to reflect on this change with an expert. Arla gives its farmers freedom to choose the most suitable options for their farm. FrieslandCampina has a big focus on price incentives. They have multiple programs farmers can follow (ecologic, PlanetProof, Foqusplanet). Besides price incentives, they help farmers make their farm more environmentally friendly with solar panels and manure monofermentation installations. The plans discussed should reduce the reasons why farmers do not make the conversion to more environmentally friendly production. In the discussion will be shown how cooperatives can use the change management models together with ways cooperatives can support farmers to reduce reasons for farmers not to change. This should lead to ways cooperatives can motivate farmers to make changes.

Discussion

In this part will be discussed how cooperatives can motivate farmers to change to more environmentally friendly production based on change management models. During this research parts of this question have been answered in the different chapters. In this part the chapters will be combined to answer the main question. Important to motivate farmers to change is to reduce the reasons not to change. There are a couple of reasons discussed in chapter three. The first reason is that farmers do not think it is feasible. Farmers expect lower production and market prices are too low to compensate for this lower production. Farmers do not always belief more environmentally friendly production is better. Their social peers also influence these farmers' beliefs. Some farmers do not have the financial means to change. The reasons discussed also influence how uncertain farmers feel and how risky they find the conversion. To come to solutions the five change management models and the last chapter, the ways cooperatives support farmers, will be used as inspiration.

The first reason not to change is that farmers do not feel it is feasible. One of the easiest ways to make farmers feel like it is feasible is to use the nudge theory. The cooperative can give price incentives to farmers who produce more environmentally friendly. FrieslandCampina sets this example. They have different programs in which they give different price incentives (Ecologic production, PlanetProof production, Foqus planet). Grandori and Furnani's theory can also be used when you focus more on market-like elements. One way to motivate farmers is to use pay for performance. Dmk Group kind of uses a pay for performance theory. They give farmers the freedom to make changes in certain areas and only pay bonuses if farmers perform better in these certain areas. In both options you have some kind of freedom. You can either take the nudge or not or use the pay for performance scheme or not. However, in FrieslandCampina's case, you have to stick to all the requirements to get the price incentive. In Dmk Group's case, you can decide to just stick to some requirements and ignore others and you still get partly awarded.

Another reason stopping farmers from making the conversion is because they do not feel it is better for the environment. The social peers of the farmers also play a role in this. If the social peers believe that more environmentally friendly farming is not better, farmers are also less likely to make any conversions. Lewin's 3 step model is the first model that can be used in this situation. In this case, it is important to unfreeze, change and refreeze the behavior of farmers. An option to unfreeze behavior is through education. Farmers can use information programs and experts to inform on why change is needed and what is possible. After the behavior of farmers is unfrozen and changed, the cooperative has to refreeze the behavior. This can happen through feedback. A good example of this is Arla and its climate check program. They

show farmers their total CO2 footprint to unfreeze their behavior. Besides that, farmers discuss with an expert which changes can be made. Afterward farmers discuss with the expert the influence of those changes to keep the change. There is even a role for the social peers. Arla wants farmers to compare the changes they made with other farmers to influence behavior and to give feedback to each other. Lippitt's 7 step model closely follows on Lewin's model and can be used when a cooperative wants more guidance. This is because Lippitt gives seven steps that should be followed. However, as stated before, Lippitt's model assumes that there is a problem. In this case you cannot speak of a real problem. This makes Lippitt's model less useful for this case. Grandori and Furnani's model can be used when focusing more on the communitarian elements. This element focusses, among other things, on changing the norm. The cooperative has to change the norm of farmers and their social peers to a norm were more environmentally friendly farming is accepted. This can also happen through education and communication. Changing a norm is hard, but by writing handbooks (like Fonterra), educating and giving feedback by experts and farmers new norms can arise over time.

Some farmers do not have the financial means to change to more environmentally friendly production. A way to tackle this problem is through Kotter's Eight-Step Model. This model focusses on short term wins. As a cooperative you can motivate farmers to start with 'short term wins' or just small changes. Arla, for example, advises farmers to plant more trees and plants or to use less fuel. These are easy changes every farmer can make. Starting with small changes can give a farmer time to eventually make bigger changes. Kotter's Eight-Step model also focusses on creating a clear vision. This is something Milcobel did for their farmers. Milcobel hopes to educate farmers on their vision and what they can do to reach this vision. To come back to feasibility, when more environmentally friendly farming is more feasible it will also be easier for farmers to make an investment. This is why the options discussed in the feasibility part can also be used to reduce this reason not to change.

When more environmentally friendly production is more feasible and farmers and their social peers are better educated about the possibilities, you may assume that they feel less uncertain and find the conversion less risky. This is why using the change management models to reduce the other reasons might indirectly influence the last reason not to change. However, in this situation also Lewin's three-step model can be used. Some farmers are for example risk-averse. Here it is important to unfreeze this feeling, bring change to it and refreeze it. Education and/or a clear program can help a farmer to feel less uncertain. It may, for example, make a farmer feel less uncertain to get solar panels through a program of FrieslandCampina and Groenleven. In this program, they can see examples and get feedback from other farmers who are enrolled in the program.

Last, Grandori and Furnani's theory can also be used to force farmers to change when focusing on the bureaucratic elements. However, as said before, this can interfere with the characteristic that farmers have a voice and vote in decision making. Still, Fonterra kind of uses this option. They give farmers a handbook which they have to comply with. When farmers do not comply they are given the chance to make changes together with a Sustainable Dairying Advisor. Does the farmer still not comply with the standards of the handbook, Fonterra decides to give a milk collection suspension to the farmer. This means that the farmer has to make changes if it wants to deliver its milk and receive its money.

This discussion shows that a cooperative has multiple options to motivate farmers to change to more environmentally friendly farming. Multiple change management models can be used and also in different ways or for different reasons not to change. A cooperative has to decide which option they feel is the best fit for their organization and which will motivate most farmers to make the change to more environmentally friendly farming.

Limitations

This research tries to give an insight into which role the cooperative can take when a farmer has to change to more environmentally friendly farming. The research is based on a literature review. The conclusion drawn from this research could contribute to research about the role of the cooperative during a conversion. Some of the literature used is already from a longer time ago, which gives the risk of the literature getting outdated. In the future, researchers might conduct new interviews with farmers to make sure the discussed reasons not to change are all still relevant. New in this research is the connection between change management models and the structure of a cooperative. More research might be needed to understand which models might be most useful. Also noticeable is a gap in the literature about ways to motivate farmers to make the conversion to more environmentally friendly farming. Much information (some older as stated above) is given about the reasons farmers have to not convert to more environmentally friendly farming. However, how to reduce those reasons is discussed in few literature. In the future this information can be expanded. Hereby, the link can be made with what the cooperative can do to reduce those reasons.

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