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# **PERSONALITY ATTRIBUTES INFLUENCE ON OWNERS AND/OR MANAGEMENT SUCCESS OF DAIRY FARMS IN LATVIA**

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**Personality Attributes Influence on Owners and/or  
Management Success of Dairy Farms in Latvia**

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May 2024  
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## *Abstract*

Ministry of Agriculture Republic of Latvia (2023) evaluates industry development only by statistical, quantitative and financial influencing factors and results including dairy farming sector. However, for purposes beyond overall statistics, different traits associated with an individual's personality can predict more than 40% of farm productivity (Bewley, 2010)(O'Leary, 2017). Therefore, the purpose of this research is to examine how the personality attributes of owners and management influence the success of dairy farms in Latvia.

Execution of research starts with designation of the database of largest top 40 dairy farms in Latvia by volume of milk produced (Agricultural Data Center in Latvia, 2022), analysis of their annual statements over the past decade to assess the success of dairy farms. Followed by development of qualitative interview questions in areas covering biography, psychology, interpersonal aptitudes and management practices (O'Leary, 2017). Continued by semi structured interview execution and finally the summary of results.

From 12 interview results authors conclude that personality attributes such as **willingness to gain knowledge, implement new technologies/practices** (openness and growth mindset), and **self centric farm performance outcome control** (internal locus of control) are two most important of seven aspects contributing to a successful dairy farm outcome. Other factors also identified as important for dairy farm success are **Adaptability, Communication, Emotional intelligence, Leadership and Financial literacy**. Successful dairy farm management have combinations of mentioned ones, contributing on investment strategies, decision making processes on organizational practices by resulting in increased owners' satisfaction of wellbeing and emotional contentment. Mentioned attributes ought to be applied in dairy farm management practices or when deciding for new management involvement in the team, or framing heritage plans as part of farm growth and development strategy in the long term. Growth and development of dairy farms will make a direct impact on total agriculture industry output in the domestic and export context.

## ***1. Introduction***

Food production is one of the industries and sectors which have been transformed by globalization. Growing trade relations and globalization allows nations to be dependent on importing instead of producing commodities domestically. This helps to overcome limitations of production in unfavorable regions while rationalizing global resources through the implementation of more efficient production in other countries/continents (Kinnunen et al., 2020). Trading also ensured the opportunity to provide a nutritious and varied food source, and thus increase resilience to different regional disturbances, as well as product availability shortages (Kearney, 2010) (Seekell et al., 2017).

Europe and Latvia are among those parts of the world where agricultural land is available and well developed for production, to ensure a sufficient volume of food for its own population. Large agricultural production surplus in Latvia allows export up to 50% of products, stated by the Ministry of Agriculture Republic of Latvia (2023). According to this institution's reports the dairy industry in Latvia contributes around 20-30% of the total agriculture production output and 1/2 of production output is exported.

After a change of the political regime in Eastern Europe in early 90s, it was challenging for business and its management to adapt to the nature of the market economy (Coufalova et al., 2023). To ground the best possible living in a market economy it is important to build stable and appropriate businesses and farms that can adapt to any market conditions, right business owners and management should be in place. Dairy farming is a multifaceted system encompassing various aspects such as animal breeding, husbandry, nutrition, and technology. Primarily dairy farms are managed by families or individuals, often with a single person as the main decision maker, to produce milk and related products for raw material inputs such as crops and silage as stated Aarts et al. (1992) Spilke and Fahr (2003) Bewley (2010) and Groenewald (1987).

Quantitative research shows that traits associated with an individual's personality can predict over 40% of agricultural productivity as stated by O'Leary (2017), while managerial competence to explain result variations has frequently been likened to factors such as the manager's age and education (Hansson, 2008). Instead of the personality traits which could affect those outcomes, the Ministry of Agriculture

Republic of Latvia (2023) in the report on Latvia's agricultural and rural development indicates only statistical, quantitative, financial and industry outputs to describe agriculture development.

Therefore, Authors' aim is to examine the dependency of personal attributes of dairy farm management in Latvia with farm results, to find out how those personality attributes beyond age and education affect the farms operation, especially financial outcomes by answering the following research question - **How do the personality attributes of owners and management influence the success of dairy farms in Latvia?** Research on milk producer or dairy farm success in Latvia is conducted through individual interviews selected from the 40 largest milk producers in the country. To be eligible for interviews and data analysis, authors set a boundary for the research sample by applying the requirement that farm income should be >50% of total income generated from sold milk to producers. Furthermore, to identify success of dairy farms in terms of financial results, Free cash flow is used as an indicator to determine successfully performing farms and less successfully performing farms (Setiany et al., 2021)(Bailey, 2003). Twelve interviews are uncovering elements that play a role in the success or failure of milk producers.

This research explores the personality attributes of the owners and/or management that influence the success. While "success" has a widely accepted definition, limited research exists within the dairy industry of Latvia. The analysis is accomplished by a comprehensive literature review on dairy farm operations, personal characteristics associated with farm profitability, personality traits linked to business success, and an analysis of financial data from the largest Latvian dairy farms over the past decade. To gain deeper insights into the attributes driving success, the research employs a qualitative data collection method through interviews with selected dairy farm owners or management in Latvia. Owners or management must be understood as a whole, except the cases where authors particularly refer to specific owners or management indicating practices, benefits and heritage.

## ***2. Literature review***

### **2.1. Definition and scope of dairy farm**

Depending on the different literature sources large variations of dairy farm definitions exist. As a profit oriented enterprise it can be expressed as general business in specific industry, however, from a complex point of view, it is not only business but a more complicated system consisting of knowledge of such as catling, and manure, even including operations related to the input of raw materials such as growing of crops and other ingredients to feed the herd and output which primarily is cow milk and other related products such as manure and calfs (Aarts, et al., 1992). According to the Spilke and Fahr (2003) and Bewley (2010), dairy farming is a multidisciplinary unit combining animal breeding, animal husbandry, animal nutrition with informatics, biostatistics, ethology, economics and even genetic engineering.

From global to local, particularly Europe's perspective, the various products of dairy farming consist of 12% of total agricultural output by delivering 157 million tonnes of milk in 2016 in the European Union (Augère-Granier, 2018). While milk is produced in dairy farms the products such as cheese, butter and other milk products are produced in milk processing factories.

European milk production shows high diversity, ranging from free-range Alpine farms to large, specialized ones in the north-west and center of Europe (Augère-Granier, 2018). By means of this complexity and diversity the dairy farms as profit oriented enterprises usually are not large corporations, yet part of fragmented industry with enterprises managed or owned by families with dairy farm operations, or individuals who made the decision to produce milk (USDA, 2023). Even more, opinion exists that a single person is the main decision maker in the dairy farm (Groenewald, 1987).

Dairy farms on their operations, not only produce milk, generate revenues and provide for the family wealthfare, but also play a fundamental role in countries economics, environment, and culture (O'Leary, 2017).



## **2.2. Management and Dairy Farm Management**

### **2.2.1. Management**

According to Joan Magretta (2002) management is a process where organizations are working for a common goal to accomplish a mission, where primary focus and purpose by all means is value creation for customers by establishing a productive system within the organization (Drucker, 1974). Even this is one of the ways how to express management, purpose and value creation are not the only factors that determine management. Management objectives can be described as the purpose to use less resources in a more effective way for getting things done (Koontz, 1969)(Hellriegel et al., 1996). Organization objectives can be achieved by integration and coordination of resources in an effective and efficient way. Any organization to exist and operate needs to have management (Mintzberg 1983, p.25).

Only thing that distinguishes less efficient management from efficient management is understanding how good or well an organization's operations are. The valuation of its quality can be measured by looking at the organization's achievements, particularly by identifying profit and sales growth in a particular time period which can even be analyzed in decades or more (Resnick et al., 2008).

According to Peter Drucker (1980 p. 176) to determine that an organization has good management, indicates that in turbulent times it can require the ability to adapt in a completely different way than previous practice experienced.

### **2.2.2. Dairy farm management**

By emphasizing consolidated twentieth-century definitions of farm management in the specific contest of dairy farming, essential differences compared to general management characteristics are considerably related to family owned businesses and management structure (Food and Agriculture Organization of the United Nations n.d.).

Farming is also associated as a relatively stable organization (Khatri, 2000, p. 56-86) while even every business in general can be affected by uncertain conditions. Uncertainty in dairy farming is related with not controllable conditions, such as weather conditions, diseases etc. as a result it is also affecting farm management heavily.

From industry perspective farming is capital intensive with a relatively small number of staff in the farm, therefore farmers and farm owners are associated as

“managers” rather than “leaders” who are motivating and leading followers through the changes (O’Leary, 2017, p.7)

Furthermore, characteristics and definition of farm management can be described in many ways. According to Kay and Edwards (1994, p.9) dairy farm management decision-making is a continual process where labor, and capital are limiting the decision making ability. Such decision making requests the ability to identify best achievable goals and distribute them among available resources.

According to Dexter and Barber (1960), farm management is about strategically using a farm’s resources, including land, labor, capital and most importantly, the farmer’s own skills and abilities.

Professional agriculture management company located in British Indian Ocean Territory Pasture.io Pty Ltd. (2024) states that farm and dairy farm management is the process of managing a farm as a business. Managers are making decisions about land use, types of crops to manage and how to sustainably care for the animals. Management also includes ability to control finances, deal with marketing and manage employees. Additionally farm management requires a noticeable understanding of development in efficiency tools e.g. agricultural science, business principles and legislation/rules.

In summary, as the Food and Agriculture Organization of the United Nations points out, if the word “farm” is excluded from farm management then the general management definition would be the precise definition of any enterprise management.

### **2.3. Definition of success**

Success can be measured in very different ways, for example being in TOP 40 entrepreneurs under 40 years in accordance with John B. Miner (1997) also can be such. It is hard to define success, as success can be interpreted from different perspectives, financial, personal perceptions on what success means in general, however in the business world success can be measured by financials, particularly profitability stated by Mäkinen (2013). By profitability it is understood as providing for owners living and building equity within the company lifetime according to Bailey (2003).

According to the Kamarubahrin et.al. (2018) despite the profitability as a success factor, other factors can be identified, those can be divided into two broader segments - statistical and descriptive factors, indicating success in a more detailed manner. Both mentioned particularly in the dairy farm industry indicate how

organizational approach, technology and information affects farms, while resilience, growth and efficiency of dairy farms can be measured. Those six are critical success factors in the dairy industry.

The profitability and efficiency particularly as Free Cash Flow indicates the money which can be both invested in farms future development or as source for dividends used for providing on owners` personal interests, lifestyle and wellbeing as per Bailey (2003).

At the same time, technological achievements are consequences of well planned investment strategies, which lead to higher productivity of farms. Data outputs allow the owner or manager to track the productivity and consider organizational decisions and how managerial tools can be used for further company development. Data tracking also allows to measure company success on a larger scale by comparing with other dairy farms and adjusting possible farm operational strategies, for example, investment in technologies or considering the organizational structure of a dairy farm. Mostly the success factors are related to investment and managerial strategies made by the owner or manager, which later are indicated on tangible and measurable dairy farm outcomes according to Kamarubahrin et.al. (2018).

#### **2.4. Personality attributes associated with performance/success**

Many different factors associated with business performance and success exist, even coincidence, such as luck or being in the right moment in the right place, with the right people can provide groundbreaking business success stories according to Kahneman (2011 p.199). While luck can help to achieve a result, more tangible factors in this regard are persons behaviors and emotions that define an individual's unique response to challenges, called personality and its cognitive abilities as per American Psychological Association (n.d.). Gottfredson (1997) established the definition of general cognitive ability stating factors such as reasoning, problem solving, planning, abstract thinking, complex idea comprehension, and learning from experience. Personality and cognitive factors play a crucial role on performance and have already been recognized as significant factors impacting performance in completing many tasks and performing jobs according to O'Boyle et al. (2011).

To establish structure on the factors related to success O'Leary (2017) came out with an approach, where four areas of personality attributes are distinguished,

particularly attributes determining farm industries results and performances. From a general perspective understanding of those factors are scattered thru very different studies and their influence on success have been showing very different results. As shown in Figure 1., each dairy farm consists of farms itself with its management who has its own unique attributes. The biography, psychology, emotional and social intelligence, interpersonal aptitudes, and management practices are broader attribute domains, each consisting of attributes influencing business and determining business owners, management success, infinitely interacting farm decisions.

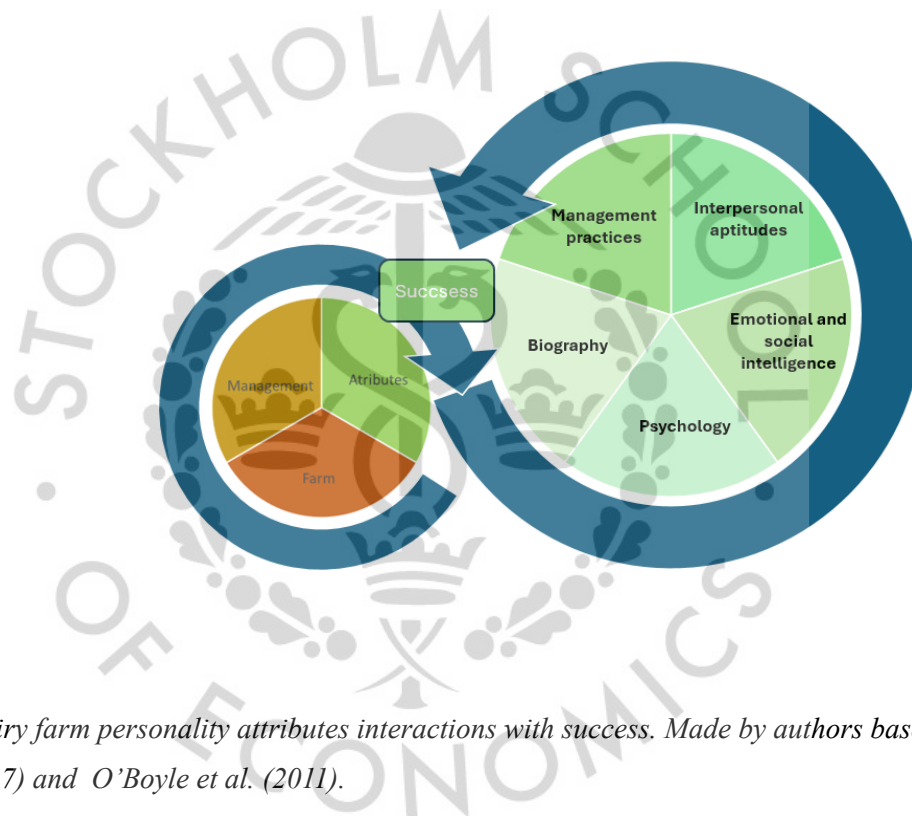


Figure 1. Dairy farm personality attributes interactions with success. Made by authors based on O'Leary (2017) and O'Boyle et al. (2011).

#### 2.4.1. Biography

Research on dairy farm management by Betts (2020, p. 25) frequently explores three core biographical attributes: age, education, and experience. Out of all mentioned, only education or constant learning has medium correlation with the ability to have better financial standings and show more profitable results. The age or a year's of experience has a weaker interlink with performance (O'Leary, 2017, p. 18).

Education, experience and age has very limited correlation with success and success is more related to the implementation of managerial practices within specific contexts in certain time period (Daneluz, 2022), still taking into account that several

studies approves that becoming good also in specific fields, can raise overvalued self-esteem leading to reduction of initiatives according to O'Leary (2017, p. 16) or maintain only stable performance.

*“Once an acceptable level has been reached, they need only to maintain a stable performance, and often do so with minimal effort for years and even decades. For reasons such as these, the length of experience has been frequently found to be a weak correlation of job performance beyond the first two years”* (O'Leary, 2017, p. 16) (Ericsson, 2006).

In this regard certain time periods first of all can vary from two and more years, while longer periods also can negatively affect performance.

Specific abilities related to the farming industry, such as heifers, dairy herd, crops and soils, employees, financial reporting, and strategic planning also are more related to industry success, instead of education and experience, still should be trained over time according to Nuthall (2010).

Therefore, biographical information about farm management is partially incorporated in qualitative research.

In this research education, particularly abilities, are viewed in light of general cognitive ability as agreeableness, openness and a person's mindset, while managerial skill adoption is reviewed in the management practices section. This decision aligns with the research aim to investigate broader attributes influencing farm-level financial success across the personality traits in further paragraphs.

#### **2.4.2. Psychology**

The psychology and attitude of dairy farmers covers a very wide range and complex collaboration of many individual attributes, general cognitive processes, and emotional behavior. Understanding farmers' psychology aspects also provides personal insights into general intelligence, mental capability, decision making, emotional intelligence, intuition, stress management, and overall behavioral ultimately impacting the success of dairy farmers. While psychology and its assessment tools are widespread in staff selection and training, it also gives insight into managers' motives and owners' behavior in changing environments (Adler et al., 2019).

*“To understand decision capability requires rather more than a study of the decision processes used. It must be clear how humans observe information, how*

*information is stored and retrieved, how it is processed and so on. The study of learning and thinking processes (cognitive psychology) is relevant and related to managerial ability” (Nuthall 2001)*

According to O'Leary (2017) general cognitive ability of managers is an important aspect and can predict firms performance. However, the precise size of the effect is limited. Therefore, general cognitive ability affects a comprehensive mental capability like ability to learn, skills to solve problems, and the updatability to various situations.

Nuthall (2001) states that general cognitive intelligence is described in binary way: fluid and crystallized intelligence. Fluid or non-verbal intelligence is often considered to be predominantly influenced by genetics, impacting one's problem-solving abilities, making conclusions and capacity of memory. Crystallized or verbal intelligence relates to cultural and social skills, (mechanical, numerical, verbal and social ability).

#### **2.4.3. Emotional and social intelligence**

As per the Bar-On (1988) model, emotional intelligence comprises a collection of interconnected competencies in social and emotional aspects. Those determine how we are perceiving and understanding others and how we are interacting with others, by coping with different challenges and demands. This understanding at same time is related to interpersonal expressions and understandings (Furnham, 2001). Furthermore, intelligence does not consist only of emotional and social aspects, but also psychometric and biological factors such as genetics, biochemistry and cultural factors, upbringing, socioeconomic status, and also education. For this reason, it is doubted that emotional intelligence is real intelligence, instead of social intelligence. Cognitive ability is more likely to be predicting a person's social intelligence as real intelligence is expressed in complex interactions between emotional, social, psychometric and biological factors (Eysenck, 1998). To explain the set of interrelated competences in emotional and social aspects and increase understanding of their application in business world, those can be described in persons abilities to: perceive accurately, appraise, and express emotion; access and/or generate feelings when they facilitate thought; understand emotion and emotional knowledge; and regulate emotions to promote emotional and intellectual growth (Mayer, 2004) (O'Leary, 2017). Relating on that, Boyatzis (2006) already found

that in 13 of 14 companies' gross margins were 10% higher as long management showed higher psychometric intelligence measurements.

From the predominant personality (Five-factor-model) components perspective, described by Bahcekapili (2020) the openness and agreeableness are important during the learning process while conscientiousness and emotional stability have been discovered as important capability indicators in various industries. The extraversion still can be very important depending on the context.

Widely applied in psychology is also a person's locus of control, consisting of two, interpersonal and environmental factors, in other words, factors which can be or cannot be controlled or influenced by a person and affects the person's perceptions of life affecting circumstances, both described as internal or external locus of control. Internal orientation suggests that an individual believes in their ability to influence outcomes, whereas external orientation implies that the person thinks that outcomes are largely beyond their control and are influenced by one or many external forces (Hiroto, 1974)(Rotter, 1966). As a psychometric measure employed in many studies, it has consistently shown positive associations with farm business results. For instance, showing an internal locus of control could predict up to 10% of the variability in farm profitability, according to the Nuthall (2010).

Surprisingly, even experienced farmers still can rely on intuition, while less experienced farmers should rely on more analytical approaches. Year by year, becoming proficient enough they can achieve similar results as experienced farmers, by applying intuition in the decision making process states Salas et al. (2009). Analytical decision-making does not exhibit a positive correlation with success, and even more so can give a negative effect in unstable environments, especially in the farming industry which is a rapidly changing environment. Conversely, it is impossible to find a significant difference if intuitive managers are observed in unstable environments, such as farming, or analytic managers are observed in stable environments, according to the study of Khatari and Ng (2000).

Despite intuition as a factor of decision making process in a cohort of experienced farmers, the longitude performance in the farming industry provides not only intuition capabilities, but also managerial skill improvement. Managing people more commonly instead of working with the cows directly, improves decision making

processes regarding profitability and resilience of business. Such a decision making process requires discipline stated by Young et al. (2002).

Farmer or any other manager adaptability and improvements over the time can be related to cognitive abilities determined by classification of Myers Briggs-Type Indicator. According to this indicator, a person's cognitive style is classified in 16 "types". Jose et al. (1993) discovered that farm owners who are more "thinking", as opposed to farm owners who are more "feeling", had larger assets and "extroverted" farm owners carried a larger financial burden than introverted farm owners.

#### ***2.4.4. Interpersonal aptitudes***

According to O'Leary (2017) predictions of farm performance are related to the management attitudes, their beliefs, overall objectives and ethics of farmers in the form of values. Attitude represents a positive or negative stance towards a person, place, activity, or occurrence, which can be modified. A belief refers to a mental state in which an individual regards a particular true or false proposition. As attitudes and beliefs are interconnected concepts, therefore can be expressed as attitudes. Values refer to an individual's perception of an idealized state of being. Given the correlation between values and objectives, they jointly are understood as objectives. By giving the priority of four mentioned, the largest associations with farm performance are related to the attitudes and objectives and are closely associated with managerial thinking. Future development of the farms' are related to the strategic thinking as part of overall persons objectives. Objectives such as risk reduction and self-rating also predict farm profitability.

Person's mindsets as an attitude can be growth oriented or fixed and is associated with the ability to change, develop over time in a growth oriented manner, while a person's incapability to change over time means a fixed mindset. Farm business profitability is related to the profit-oriented attitude associated with a growth mindset. Growth mindset also includes the ability to provide feedback and feedback to employees was linked to enhanced milk quality in a study of Rosenberg et al. (1990).

#### ***2.4.5. Management practices***

Management practices can not be detached from other personality aspects, at same time they are interlinked to the way businesses are done. The set of choices and



practices which can predict farm performance have been found. Constantly seeking to improve and adapt, taking steps to mitigate potential risks, setting stretch goals with clear roadmaps, identifying skills gaps and development opportunities, making data-driven adjustments and improvements and other factors are those who should be considered by any farm owner or management (O'Leary, 2017).

Study found that decision-making, management behaviors related to the farm performance exists and mostly those behaviors are related to the motivation for taking decisions on economical factors, while decisions on non-economic bases can improve relations thru the emotional attachments with employees. The road to better farm performance starts with self-reflection. When farmers recognize the impact of their decision-making, they can embark on a journey to improve their processes, leading to ultimately more successful farms (Taramuel-Taramuel et al., 2023).

Memory also plays a crucial role in managerial competence. Similar to a computer's processor needing data, a manager's ability to access and utilize both short-term and long-term memories is critical for effective decision-making, learning from past experiences, and building strong relationships (Nuthall, 2000).

According to O'Leary (2017) benchmarking can give advantages on other same industry competitors by providing sufficient benefits on farm growth, improvements of farm performance and return on investments. Additionally, the benefit of the cooperation is buying raw materials in joint procurements and establishing cooperatives or trade unions to lower raw material costs or increase sales per unit value.

## **2.5. Literature review summary**

The literature review includes several key aspects related to dairy farm management, success measurement, and personality attributes associated with performance and success. The definition of dairy farming determines that farming is a multidisciplinary unit, involving various aspects such as cattle management, animal nutrition, and genetics, contributing significantly to agricultural output (Aarts et al., 1992)(Augère-Granier, 2018). Effective dairy farm management consists of persons capabilities like strategic decision-making, adaptability to uncertainties, and the integration of various persons knowledge such as economics and psychology (Drucker, 1974)(Food and Agriculture Organization of the United Nations)(Khatri & Ng, 2000).

Success in dairy farming is measured through factors such as financial profitability, technological innovation, and efficient resource utilization (Mäkinen, 2013) (Kamarubahrin et al., 2018). Biographical factors, including age, especially education, and experience, play a role in farm management and success. Education shows a positive impact on correlation with financials and profitability by comparing to other biographical factors (Betts, 2020)(Wilson, 2001)(O'Leary, 2017). Psychological factors, including interpersonal aptitudes, such as cognitive abilities and adaptability, impact decision-making and overall farm management effectiveness (Nuthall, 2001)(Salas et al., 2009). Personal attributes such as cognitive abilities, emotional intelligence, and managerial practices significantly influence farm performance and success (O'Leary, 2017)(Mayer, 2004)(Young et al., 2002). Implementing practices like continuous comprehensive improvement and making decisions based on data are important elements for achieving sustainable success in dairy farming over the long run (O'Leary, 2017)(Taramuel-Taramuel et al., 2023). By summarizing, all of the key aspects are strongly interlinked to the farm performance and success, measured by financial profitability, technological innovation, and efficient resource utilization, by showing an increase of more than one third better result in profitability (O'Leary, 2017).

### 3. Research methodology

This section describes the aspects of the methodology authors used in research covering peer group sample, financial indicators and performance analysis, theoretical framework and limitations of the research. Research methodology design is shown in Figure 2., by visualizing the scope of research tasks in sequence from problem identification till data classify and results. Description of Figure 2. is elaborated in sub articles 3.1-3.7.

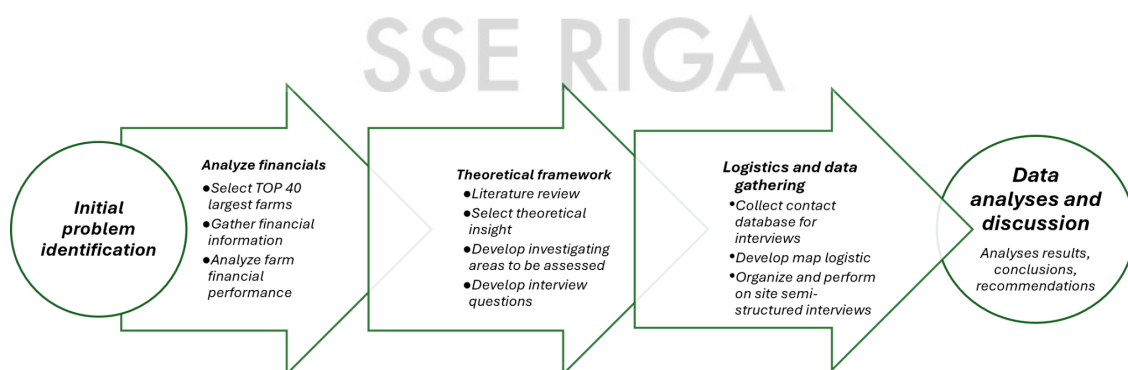


Figure 2. Research methodology design. Made by authors.

### **3.1. Peer group sample, financial indicators and performance analysis**

To determine the research sample of the largest 40 dairy farms the authors utilized annual data of raw milk volume sold to the dairy product producers, extracted from the Agricultural Data Center in Latvia (2022). Retrieved data consisted of each farm's herd size and average milk production capacity per monitoring period, which is 12 months.

In order to identify and select dairy farms to invite for this research, authors began with financial data collection and database settlement of the largest 40 farms in Latvia. Free cash flow (FCF) data analysis was conducted for ensuring closer look on possible research subjects. According to Setiany et al. (2021) accessibility to FCF is the main source to covering interest, capital and other expenses, described also as a success factor also by Bailey (2003).

After designation of the information about largest dairy farmers, authors used the Lursoft database to collect annual statements of each farm for the past decade. Firstly, authors eliminated from the financial data set those farms whose sales have other businesses in the statements because it would not allow to compare the farms between each other. Authors used the best understanding about the sector and set a boundary of >50% of farms income, which should be income from selling the milk to producers to be eligible for data analysis. All data were compiled and normalized in excel format with adjustments eliminating one off statement positions, for example extra sale of tangible assets, received EU fund subsidies of investment projects, dividend payout to owners and other one-offs. Main aim of normalizing data was to develop the most trustworthy and comparable financial result to determine how successful the farm has been during periods by calculating Free cash flow of each farm. Heatmap establishment based on financial indicators helped authors reveal trends and patterns within data enabling comparisons across multiple variables simultaneously. According to the Perkhofer (2020) heat maps are inherently intuitive by using colorings and they can provide understanding information without specific preparation of the auditorium. Therefore, the authors estimated that heatmap will be useful in all further stages of this research.

### 3.2. Theoretical framework of semi-structured interviews and execution.

Even qualitative data analysis does not represent the general public (Hayashi et al., 2019), it was used to explore farm owner or management behavioral (personality traits) aspects to success of dairy farms. Compared to the digital closed ended questionnaires, the interviews also allowed authors to retrieve the answers of “how” perception type questions.

Even time consuming for authors, this approach allowed for respondents to share their thoughts in their own comfortable and natural wordings and perspectives and did not limit the information sharing in a specific framework (Opdenakker, 2006).

Literature provided four areas of personality traits which have closest relations to success, particularly dairy farm performances. Four areas include factors as: owners or management biography, psychological traits, management preferences and attitudes, beliefs, objectives, values (O'Leary, 2017). All mentioned were incorporated in the research question and provided understanding of their relations to the farm performance expressed in success. By applying those factors, authors developed an extended list of questions consisting of detailed covering of sub-factors related to the four personality traits. By narrowing down and compiling, authors reached the questioner of 13 dedicated questions (appendix No 1).

**First area** of personality trait covered biography, consisting of attributes associated with age, experience, education, knowledge, skills and competencies, therefore the first and third questions were related to experience and knowledge.

**Second area** of personality traits covered sub areas. First sub area covered psychology, consisting of attributes associated with general cognitive ability, emotional intelligence, locus of control, agreeableness. Second sub area covered cognitive ability, emotional intelligence, locus of control, agreeableness. Therefore third, fourth and six to eleven questions were related to this area.

**Third and final** area of personality traits covered management practices consisting of attributes associated with planning abilities, targets and goals setting, monitoring and record-keeping. Therefore, second and fifth questions were related to this area.

By summarizing it is noticeable that **several questions were overlapping and covered more than one personality trait area**, for example free time activities can be associated not only with psychology but also attitudes, beliefs, objectives and values.

Even more, the questions twelve and thirteen were designed to investigate the perception of respondents' interpretation of interpersonal and dairy farms success factors and attributes. Additionally, the authors during the interview used the opportunity to ask additional questions related to dairy farm management traits to the research topicality. Despite the scope of the Research question, the discussions naturally revealed meaningful information to authors, for example related to operations, management and experiences, animal wellbeing, handling, milk production, succession planning etc. which relates to personality traits.

Semi-structured interviews were conducted in the following approach, authors separated roles where one was the interviewer who structured discussion based on developed questions while the second was providing transcription in written form from answers provided by the farm owner or management during the interview.

### **3.3. Logistics and limitations of research**

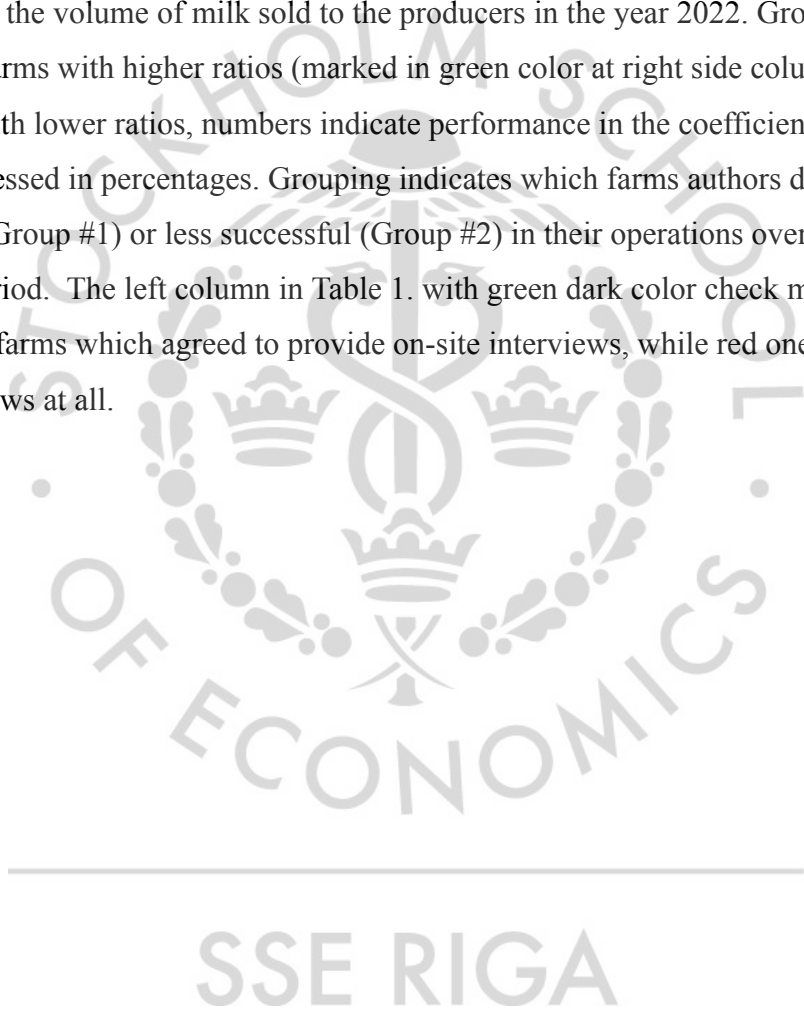
Preparation of the contact list of dairy farms was the first stage of logistics necessary to organize interviews. The Lursoft database and Procurement Monitoring Bureau database were used to retrieve contact information for dairy farm owners. Addresses retrieved from Lursoft were saved in Google maps, to establish better understanding which farms in which regions could be visited simultaneously to improve efficiency, time and resources (appendix No 2). Contact information retrieved from the Procurement Monitoring Bureau database provided mobile numbers of owners and they were contacted by direct phone calls. For each of the interview attempt authors prepared plan A and B, where A was designated to list first farms to reach out and leaving plan B dairy farms as back-up options, if affected by circumstances plan A farms could not be reached. Two semi-structured interviews were conducted per one day attempt.

In this particular research, the authors had to deal with the limitations of acceptance to agree for participation in interviews, openness to disclose and share information, specific seasonality constraints, attitudes and even overall perception of the economical environment. There were no doubts that qualitative interviewing would be time consuming as farms are located in rural regions and traveling includes additional resources. The authors were ready to face emotional draining during the interviews and maintain the ability to adapt to different respondents' characteristics, where introversion

and extraversion plays crucial roles. Qualitative interviews ensured respondents' ability to describe specific details about themselves, their thoughts, behavior, emotions and attitude in deep understanding (Opdenakker 2006).

#### **4. Results**

Twelve interviews were conducted by authors. Each of the interviews were conducted according to the semi-structured interview (Appendix No 1). As it is shown in Table 1., the farms were divided in two groups and listed in descending order according to the volume of milk sold to the producers in the year 2022. Group #1 represents farms with higher ratios (marked in green color at right side column) and Group #2 with lower ratios, numbers indicate performance in the coefficient of FCF per annum expressed in percentages. Grouping indicates which farms authors determined as successful (Group #1) or less successful (Group #2) in their operations over the analyzed period. The left column in Table 1. with green dark color check marks represented farms which agreed to provide on-site interviews, while red ones refused to give interviews at all.



**Group #1** =FCF oper, %

Farm No.	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
3	-0,1%	3,1%	-3,4%	-2,2%	8,6%	8,6%	-1,3%	5,4%	2,4%	7,2%	6,5%	-1,6%	23,4%
4	0,2%	6,8%	-22,6%	-6,4%	0,9%	21,5%	27,5%	7,4%	-3,3%	-2,0%	13,5%	15,8%	14,4%
5	39,4%	24,6%	4,3%	5,5%	11,0%	4,5%	-30,5%	4,1%	-17,8%	-4,4%	7,2%	7,1%	16,6%
7	22,6%	16,9%	15,4%	9,2%	7,7%	-1,0%	2,9%	12,7%	18,2%	16,9%	4,3%	10,3%	22,7%
9	12,5%	24,4%	29,7%	22,5%	14,8%	6,4%	6,8%	23,0%	13,4%	5,7%	12,9%	8,9%	25,4%
10	42,6%	43,2%	30,1%	32,6%	23,7%	23,2%	23,0%	29,9%	11,0%	7,8%	18,2%	17,7%	18,2%
11	-14,8%	-0,4%	18,7%	9,0%	-3,6%	0,2%	-14,7%	-1,7%	-5,8%	3,3%	7,4%	20,4%	33,5%
13	8,1%	-8,6%	1,4%	8,3%	-2,7%	-14,6%	12,9%	22,7%	6,6%	15,9%	28,4%	17,9%	17,4%
14	12,0%	16,2%	-9,5%	11,1%	1,9%	-8,4%	7,9%	23,1%	9,1%	19,0%	3,7%	7,7%	-15,2%
15	-11,4%	-3,1%	-5,0%	-3,6%	-9,1%	2,6%	-14,6%	-4,8%	-6,1%	13,8%	12,8%	13,5%	22,0%
17	12,0%	16,0%	14,7%	12,3%	-3,6%	9,5%	12,1%	33,5%	22,3%	29,2%	28,3%	16,1%	26,0%
18	7,0%	-2,5%	16,9%	17,8%	17,5%				9,7%	15,3%	12,3%	11,1%	19,8%
20	19,6%	42,0%	7,4%	17,5%	9,2%	13,4%	5,5%	13,9%	8,3%	15,0%	26,8%	36,3%	42,3%
23	9,8%	-2,3%	14,4%	12,7%	-7,3%	5,9%	2,6%	8,6%	6,4%	12,9%	9,8%	13,4%	35,1%
24								18,7%	0,8%	10,2%	3,5%	15,9%	22,4%
27	-3,4%	-17,9%	12,5%	11,1%	-10,6%	-0,3%	-6,3%	17,6%	-8,0%	3,6%	-0,3%	8,9%	35,9%
28	-6,4%	-8,3%	11,5%	6,8%	16,1%	28,9%	26,1%	30,3%	0,8%	13,2%	17,5%	24,1%	25,9%
29					23,5%	13,3%	14,4%	15,9%	12,4%	-0,7%	6,1%	11,2%	13,2%
31	34,9%	30,2%	24,0%	21,2%	22,1%	15,2%	6,2%	21,7%	19,2%	13,7%	19,2%	15,4%	35,2%
32	10,6%	13,6%	20,2%	37,9%	10,2%	17,1%	11,9%	6,9%	11,0%	-0,5%	-15,2%	8,4%	30,3%
33												6,7%	10,9%
36								39,8%	21,8%	28,1%	29,4%	20,2%	18,2%
38	-2,8%	-11,7%	1,5%	-10,1%	-9,2%	-16,7%	-8,1%	-2,9%	-7,1%	-4,4%	81,5%	-7,2%	11,9%
40								14,8%	5,1%	-1,3%	0,3%	-0,6%	3,4%

**Group #2**

Farm No.	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
1	1,2%	12,0%	-3,0%	-12,9%	-17,5%	-1,2%	-4,1%	19,4%	-1,2%	22,7%	2,5%	-1,0%	4,3%
2							4,4%	3,5%	7,9%	-6,6%	-11,7%	-26,3%	-14,9%
6	5,5%	11,2%	14,9%	1,6%	-0,7%	-0,8%	-0,9%	3,3%	-0,9%	-2,9%	-21,0%	-56,0%	-3,9%
8	-18,9%	-36,6%	-68,1%	-105,3%	-76,6%	-56,7%	-52,4%	0,2%	2,6%	3,6%	5,6%	9,1%	18,6%
12	-8,7%	-7,8%	-13,7%	-10,4%	-6,6%	-27,7%	-21,6%	20,4%	-0,3%	11,5%	8,7%	5,8%	27,6%
16	-3,1%	0,1%	-14,3%	-19,8%	-13,5%	-41,4%	-23,5%	-3,2%	-8,4%	5,5%	-2,2%	-1,2%	11,9%
19												9,9%	37,7%
21	0,6%	7,6%	7,6%	15,2%	-4,3%	15,8%	1,9%	6,8%	-41,2%	-1,7%	-7,3%	4,3%	2,4%
22	-43,8%	-24,4%	-19,0%	-12,7%	-3,2%	-41,2%	-36,6%	-8,6%	-25,5%	-5,7%	-8,2%	-4,0%	2,9%
25	-13,1%	-29,7%	-5,7%	6,5%	-0,9%	-1,1%	-5,4%	6,8%	-15,2%	-3,7%	-5,6%	2,8%	23,5%
26	-24,0%	-33,6%	-52,2%	-35,6%	-50,2%	-49,4%	-40,8%	-27,1%	-44,5%	-20,6%	-37,1%	1,9%	-15,2%
34	-12,5%	-2,5%	-19,5%	-9,3%	-24,6%	-35,8%	-25,8%	-19,6%	-28,1%	-17,2%	-13,5%	-16,4%	-18,2%
35	-31,8%	-3,7%	0,0%	1,0%	2,0%	-4,7%	-7,6%	6,3%	-9,4%	0,6%	-5,7%	-9,3%	4,1%
37	-13,4%	-12,7%	-10,3%	-19,1%	-15,1%	-17,1%	-13,9%	10,5%	-16,0%	-4,5%	-6,1%	4,0%	11,7%
39	-33,2%	-21,3%	-17,0%	-16,7%	-23,9%	-59,1%	-54,4%	-10,7%	-25,5%	-41,3%	-34,7%	-36,6%	16,2%

Table 1. Heatmap of Free-cash-flow in % of the TOP 40 largest farms per sold milk volume in 2022. Annual statements from Lursoft database. Made by authors.

Overall, the top 40 largest farms are growing larger by years. As the sector is capital-intensive and not all owners can manage such complex operations, the smallest and weakest are being squeezed out from the market and forced to close operations. As shown in Table 2., the top 40 largest farms have almost doubled their milk output capacity in the last decade and accounts for one-third of all Latvian milk sold to producers, thus their importance significantly increases.

(thousands/Kg)	Year											
Sold milk to producers	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	
TOP 40 farms together	136 151	135 448	154 673	158 491	168 583	191 112	190 005	198 465	206 431	215 859	222 679	
TOP 40 in % from total	19%	18%	19%	20%	21%	23%	24%	25%	26%	27%	27%	
Total Latvia:	718 355	735 661	804 394	807 516	814 005	813 464	780 639	785 186	790 502	812 649	810 876	

Table 2. Sold milk to producers by TOP 40 largest farms annually. Agriculture Data Center of Latvia, annual reports from Lursoft data base and authors calculations.

The aggregated data for the top 40 dairy farms described in Table 3. provides insights into various key metrics indicating the industry landscape. Table 3. includes the herd size, the total employment figures, representing the total workforce involved in dairy farm operations and the financial aspects such as sales revenue, specifically from milk sales, total debt, and annual capital expenditure (CAPEX). Additionally, the data includes earnings before interest, taxes, depreciation, and amortization (EBITDA) both before and after adjustments for dividends and subsidies, offering a comprehensive view of the farms' operational profitability. Subsidies received and dividends paid out are also applied into the analyses influencing the adjusted EBITDA figures. Finally, the free cash flow (FCF) after dividends and subsidies provides further insights into the financial health and sustainability of these dairy operations. This aggregated data of 11 years serves as a valuable resource for understanding the performance and dynamics of the top-tier dairy farms in the industry. Top-tier dairy farms have grown their herd size by an average of 22%, increasing from 421 milking cows to 542 per herd on average. This resulted in a 378% increase of sales for sold milk without increasing employment, and even achieving a 6.8% average decrease over the period. One of the drivers for this increase is capital expenditure (CAPEX), which represents a total investment of 253 million EUR across the respective years, or an average annual investment of 23 million EUR per top-tier farms. This allowed them to operate with an average annual EBITDA of 23 million EUR, of which at the same time 17 million EUR received as a subsidy. On average top-tier players have paid out in dividends 2.2 million EUR annually. The last four years have been successful or favorable in terms of market conditions and together with productivity increase enabled these farms to operate with positive free cash flow (FCF) after adjustments.

	Year										
	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Herd size (cows)	16 938	19 389	19 923	20 266	19 685	21 498	20 750	20 513	21 032	21 476	21 684
Employees	1 578	1 608	1 609	1 668	1 616	1 567	1 528	1 523	1 529	1 514	1 477
	(thousands, EUR)										
Sales	52 777	61 912	66 247	60 355	61 642	79 520	79 198	84 861	88 249	101 500	146 715
Sales, only milk	30 914	38 396	43 593	34 842	37 594	57 911	59 349	64 206	64 602	77 937	116 805
Total Debt	44 830	44 497	47 623	49 286	51 867	52 819	50 617	54 861	50 173	60 693	65 713
Annual CAPEX	35 962	29 968	18 617	19 399	18 272	29 168	16 971	19 764	16 657	20 956	27 282
EBITDA without adjustments	16 093	17 642	18 359	16 880	16 887	26 381	18 401	23 000	27 022	26 070	46 948
Dividends	1 727	2 090	1 854	1 834	1 810	2 445	2 553	2 499	2 167	2 061	3 467
EBITDA adjusted by dividends	14 367	15 552	16 504	15 046	15 076	23 936	15 848	20 502	24 855	24 009	43 482
Subsidies	16 528	16 494	18 966	18 591	18 062	15 394	16 516	16 709	21 168	19 644	19 763
EBITDA adjusted by subsidies	-435	1 148	-607	-1 711	-1 175	10 986	1 885	6 291	5 854	6 425	27 186
FCF after dividends and subsidies	-2 162	-942	-2 461	-3 545	-2 986	8 542	-668	3 793	3 687	4 365	23 719

Table 3. Summarized financial items in the aggregated form of TOP 40 farms. Lursoft database with annual statements of dairy farms. Made by authors.



## 4.1 Biography

To understand the personal traits which are associated with biography the authors asked the following questions one and three (Appendix No 1). Age, as expressed through experience, can vary widely, from generations taking over their own farms to newly established farms inherited or by privatized collective farms in the early 90's. In some way, they all have connections to agricultural experience, either through their own hands-on involvement or through family members in previous generations. The authors observed that every interviewed farm owner had some form of connection to farming in their ancestor past. In certain instances, these farm owners explain their farming inclinations to genes inherited from past generations - noble families.

"Why is the business for someone not working? Anyone can be a businessman, but out of 1000, only one is real. They lack skill, they lack knowledge. That is something in their blood, heredity" (Farm 7). "I have my father's genes" (Farm 5).

All farm owners or management are enlightening that education and international practice is essential for continuous improvements in the farm and to be successful in adopting new technologies, which also indicates intelligence within a group of farm owners. "Without knowledge nothing will happen" (Farm 27). "I am driven by curiosity and eagerness, in the evenings I read what is proven to be the best. Americans are highly advanced. Then we adapt solutions described in research, such as floor grooves. My father and colleague have also been to America" (Farm 31). "We travel all over the world, because the more you see, the more you understand where to go. USA and Canada" (Farm 5). "We are in constant circulation, exchanging experiences with each other, meeting at various seminars, and informal events. Innovations also come through this communication. Searching for a needle in a haystack is like searching for information on the internet, we visit each other" (Farm 20). Authors recognize that it is not essential to travel all around if farm owners can hire professionals and attend local seminars or are interested to adapt latest practices, as they can be communicated by consultants. "Professionals are hired. Life teaches, courses and seminars teach, if you don't know something or need to know. Now the team is very professional. We will also start taking genomes - we need to start sorting animals and we will do so" (Farm 29). "Vidzeme Veterinary Service provides knowledge and trips abroad, also to the USA. The American school is the best, because it teaches how to

work in a capital environment. We also receive consultations from specialists” (Farm 30).

Two lower performing farms also state that they follow the best and latest technologies, but results are not showing that. “We travel to agricultural exhibitions in America. We explore genomic analysis for calves, incorporating cutting-edge global technologies from countries like America, Canada, and New Zealand.” (Farm 1).

Relying on the information provided by local associations or information retrieved from the internet does not provide sufficient ground to improve farms operations, efficiency and to adopt innovations. “Learning must be continuous. Except for Murphy's Law, everything is in our own hands. [...] The association collected information from the Rural Support Service and provided it to us. Whether you have time or not, as managers, I had plenty of time to read online” (Farm 34).

#### **4.2. Psychology, attitudes, beliefs, objectives and values**

To find out more about the openness, and the locus of control, authors asked the following questions: third and fourth, while the sixth question provided better understanding about respondents' ability to handle stress and adapt to various situations. Question seven was dedicated to communication, extraversion and mindset in a fixed and growth manner. Question eight for emotional intelligence, perception and emotions expression. Ninth for empathy and understanding others, tenth for introversion, extraversion and intelligence. Question eleven to thirteen were designed to understand the owner's perception of what is or not success for a farm and what is a successful farm owner in general. During interviews authors observed a significant tendency of farm owners being common in traits, with only two of them showing differences especially in locus of control and proactive management.

##### **4.2.1. Openness**

Openness is found to be advantageous in training and getting new knowledge and learning more about implemented practices within other farms. That allows cautious farmers to decide what to adapt, when they are not innovators. "I visit other farmers, allowing them to experiment before implementing myself" (Farm 1).

Additionally, their openness to sharing knowledge and actively seeking solutions to challenges reflects a growth-oriented approach to problem-solving and

personal development. “We visit each other. The human factor is important, there is always someone to communicate with, most colleagues are quite open” (Farm 20). Overall, the openness was observed in all interviews and all have an understanding that this is the only way to continuously develop best farm practices. “I am even criticized for sharing too much with others, I have neither white nor black jealousy” (Farm 27). As openness is part of being open for new learnings and experiences, the farm owner's willingness to learn, and share experience approves their openness and cognitive ability. “The cooperative is becoming the business center to share practices. We exchange various experiences with each other” (Farm 31).

Overall, openness in farm owners and management is associated with a willingness to learn, adapt, and share experiences, ultimately contributing to the success and sustainability of dairy farms.

#### **4.2.2. Locus of control**

In most cases authors observed internal locus of control. Usually, the farm owners were unsatisfied with the price fluctuations, still they made decisions on how to stand even in uncertainty because they cannot influence the factors which are spot market driven. “I use the principle of reliance because I can't influence it” (Farm 31). “You can't influence anything, do everything possible on the farm itself to be more efficient” (Farm 29). “I am a calm person. Extreme fluctuations are unpleasant. Weather always affects. I have an understanding of things - not to worry about things that cannot be influenced” (Farm 20). “I'm worrying about cataclysms, livestock diseases, for example, if the entire herd must be eliminated, rains and droughts no longer worry me” (Farm 11).

Uncertainties and challenges always come with the opportunity of doing something in a new way. “Crises force us to start thinking, crises eat up reserves, and then we start thinking and moving twice faster” (Farm 7).

One of lower performing farms heavily referred to external factors influencing their ability to develop the business and prolonging the decision process for investments. “Price fluctuations. The price dropped to 190 from 380, "that hits hard," how can you afford to invest? You have to look at how you got in business. I've gotten in by coincidence, even though I'm a rural engineer, but it happened to get into this business. [...] Without stability, you can't do anything, no new investments, no new

practices development is possible. We dragged out this process for a long time, and finally only in 2019, we built a new farm. Whether to install robots or not, we decided not and managed with old milking methods, and only the conditions for the animals improved by this late investment” (Farm 34).

The locus of control observed among dairy farm owners is comparable by indicating that those with an internal locus of control demonstrate a proactive and empowered mindset, while those with an external locus of control struggle to overcome barriers and achieve success in their farming business. Owners of farms with lower financial performance were difficult to convince to participate in this research as they thought that their contribution would not provide meaningful data. Those rejecting at all, were referring to the state, politics and other factors being responsible for their results.

#### ***4.2.3. Problem solving handling stress, ability to adapt***

Authors observed that stress resilience and adaptability are common within all farm owners. They are adapting very fast to the situation provided by different circumstances and adjusting their behaviors and decisions by influencing farm success. “Two of three farm technicians left. I thought it was all over, the business had to end, to hell with those animals, with such an area of 600 hectares. I somehow found strength, understood what I wanted, and as a result I found better people.” (Farm 31). “The strategy changes when we see that trouble is coming” (Farm 7). “Principally, never give up, no matter what. I have a specific goal - I strive to maintain myself” (Farm 27). “I protect my business with a stop/loss strategy, it's not a problem to do that. If the business doesn't go well, I can walk away from it all. We used to grow mushrooms, but we were pressured, faced inspections, and had to buy mushroom spawn from Lithuania. We struggled in this business, there were times when we made a profit of it, and times when we didn't, then we closed it. We are loyal for any commitment if we have agreed. We are not stagnant, we know how to work in any conditions” (Farm 5).

During interviews authors observed that successful farmers also showed sense making decision abilities linked to intuition despite high technological development and its availability. “During our time on the farm, we faced challenges with cutting the grass due to adverse weather conditions. Despite bad forecasts, I stepped outside, took a deep

breath, looked up at the sky, and made the decision to begin harvesting and it turned out to be the right decision."(Farm 31).

#### **4.2.4. Communication, mindset, benchmarking, proactive management**

Many farmers emphasize the importance of collaboration and mutual assistance. They usually build friendly relationships with their partners, assisting each other in times of need and sharing knowledge and experiences. "Collaboration developed into friendship, and then, in times of need, we helped each other out. Work relationships become very friendly. Today I assist you, tomorrow you help me, it is mutual trust. That includes also in sharing knowledge with others, such as corn cultivation" (Farm 7). "Everything depends on the person who works for the supplier. I follow people. I can't stand it if I'm being pushed around. If the seller will start to work in another company, we'll follow him. Middle management with whom we work is always important" (Farm 11).

Farmers value trust and reliability in their partnerships, they prefer to minimize the number of partners to build trust and stability. "Partnerships with sales and supply vendors are best kept to a minimum to build trust. In sales, someone might offer one cent more, but not in the long term, as afterward, whoever you left will not take me back. The risk factor is high, so we don't walk away for the sake of one cent" (Farm 34).

Farmers actively communicate with their partners, sharing information about prices and market conditions, believing that open communication promotes collaboration and enables them to negotiate better deals. Even more emphasis on collaboration, aligns with a growth mindset rather than a fixed mindset. "It's important to keep an eye on prices and actively communicate rather than resent. I usually inform my partner if better prices are available elsewhere, so there needs to be collaboration between us, and then we can negotiate" (Farm 20). "We're not the kind of people who jump between buyers every month. We've been with the dairy combine, Pienšaimnieks, for up to 5 years. We established a cooperative called Piena ceļš, but we left because we felt like sheep being milked, we could only watch the injustice" (Farm 31).

Those making decisions without sufficient risk management negatively affect the sustainability of farms and showed weaker results in financials, representing a desire to seize opportunities that can yield economic benefits or create losses, even if they are associated with risks or uncertain outcomes. "We sell milk with a long-term contract.

Prices always are fluctuating, we are in the milk spot market. We try to distribute risk among various distribution partners. We do change suppliers, we adapt. We buy feed from any supplier if the offer is more economical. I have suffered losses buying cheaper from an unknown partner, even been involved in tax litigation, legal disputes and criminal cases, but I thought that I should give it a try” (Farm 1).

These traits contribute to the success of dairy farms by promoting strong partnerships, effective communication and facilitating adaptation to market changes. The identified competencies play a crucial role in driving the success of dairy farms by influencing decision-making, problem-solving, and relationship-building.

#### ***4.2.5. Emotional intelligence and emotions, perception***

Farmers exhibit emotional control in business, valuing professionalism when interacting with employees and partners, yet they also acknowledge the necessity of expressing their emotions as human beings. They demonstrate resilience and emotional fortitude during challenges, prioritizing loyalty and teamwork to navigate crises within their operations. “No one is made of iron, but emotions should not be let out in business, but it happens that they are let out in the family” (Farm 34). “I try to gather myself and not spill onto others, sometimes all my papers are on the floor, I get frustrated, I sit and cry, sometimes it gets to the point where it tests my patience, you can't unload onto others, then I go to relax” (Farm 7). “There must be abnormal strength to withstand shocks. We build loyalty and a strong team based on understanding, values, and a shared vision. We are good employers in this field. Stress for employees, we invest in long-term relationships - we are the bank, risk manager, insurer for our employees” (Farm 1). “According to the horoscope, I am a Gemini. I may initially get upset, but then I quickly calm down and rationally assess the situation. I can't hold onto resentment for long” (Farm 9). “I can explain and calmly fire people while still maintaining good relationships. The ability to explain is humanity. It's important for me to part ways in a friendly manner. Of course, there are higher compensations, but then we can still maintain the relationship” (Farm 11).

Farmers stress the significance of handling emotions constructively, employing methods such as self-reflection, seeking external viewpoints, or taking breaks to maintain composure. Additionally, they underscore the value of adapting to situations and acknowledging mistakes as part of the learning process, promoting discussions or

accepting and moving beyond failures. “When there are emotions - take a break, keep your mouth shut, it's a crisis situation and it needs to be resolved, then the option is to say, “I'll think about it.” It needs to be considered. Usually there are two problems - people and manure. Everything must be clear. Good relationships have developed with my colleague, when the heart is full, then you express yourself and get an outside perspective “maybe I really am wrong”” (Farm 31). “Over time, it becomes clear that someone makes mistakes or fails, it simply needs to be digested. Knowing the job market, the employer is a captive. To avoid harming health, either discuss it or simply accept it as it is.” (Farm 29).

Emotional intelligence enhances the success of dairy farms by encouraging effective emotional management, promoting positive relationships and making it easier to overcome challenges.

#### ***4.2.6. Empathy and understanding***

All farms recognize the importance of balancing business needs with employee well-being, demonstrating empathy and a pragmatic approach to management.

However, one farm prioritizes financial stability and functional systems over deep emotional connections. “I didn't chase after either the animals or the people, the zootechnician had been milking for 40 years, but I had no direct connection with him. It was all coincidental. The common working nation worked with us - I can clearly see that he only has three grades in fact. There was a system that worked, and I was the wallet holder in it. The salary was regularly paid, never delayed, it wasn't a big salary, but it was known that it would be there and that gave a moment of stability. Only money works. 2/3 of the employees are okay, only 1/3 are not” (Farm 34).

In contrast, some actively create positive and supportive environments, reflecting varying levels of emphasis on emotional intelligence in leadership. “In the workplace, we don't bring in personal matters, we leave our personal emotions at home; such things won't be here. You can go home and vent, but when you cross the work threshold, you come in with a smile. I have the skill to adapt people with psychology, even experienced in salvaging family breakdowns. Is it easy to fire people? I call and explain, but now you just write a resignation at your own discretion. There are people I don't even try to please” (Farm 7). “The important thing is how these emotions are expressed. Discussions are long, everything is debated, analyzed” (Farm 16). “I want to

have a positive environment in the farm, even with too much empathy, that's the environment we live in. I try to create stability for them as well. I delegate, trust people, even make mistakes sometimes, but overall, I look for those who don't need to be watched over and we can work as a team" (Farm 1). "I have never thought about it, but caring for people is necessary. Assistance can be provided technically and financially. I don't believe that there should be no concern for others" (Farm 20). "I must find a balance. I understand that I cannot satisfy everyone. There are people who can disrupt the atmosphere. I am calmer now, but my father couldn't stand it. There were times when I had to raise my voice, but that hasn't happened in a long time" (Farm 31). "I listen and can also argue, but sometimes I need to drive 100 km away to reflect. Listening is important, but decision-making will still be necessary. If you can't persuade the other person and they can't succeed, then they need to leave. We provide 17 apartments for our employees. We cover 50% of their utility bills" (Farm 5). "Of course emotions are important, for example, decisions about production development are not only about economics and income, but also about whether the son will live on site and whether the conditions will be good for him. What if one day he says that he does not want to take over. You can end at any stage - then a decision must be made whether to continue, but you can also sell everything, as in any business" (Farm 30). "In human management, each employee must be known and appreciated. This is important, it is emotional" (Farm 27).

Despite these differences, most farms strive to address emotions and conflicts effectively, indicating a shared commitment to promoting a healthy work environment for overall success and sustainability of dairy farm operations.

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#### **4.2.7. Intelligence**

Intelligent farm owners often have a wide range of interests beyond their primary matter. Owners who engage in activities such as reading, gardening, playing musical instruments, or pursuing hobbies like woodworking demonstrate curiosity and a thirst for knowledge. "I also go swimming, both in summer and for winter dips, and I enjoy water aerobics and walking, along with managing four grandchildren. Gardening is for relaxation, then I read a calming book. And with age comes resilience, which helps endure hardships" (Farm 16). "Every year we travel 3-4 times, I venture to another country, somewhere unreachable, where I can disconnect. I thoroughly enjoy



traveling, exploring the cultures of other lands. Venturing into the countryside, spending time with people, learning about their customs, their way of life, the fields, nature, and culture. I appreciate my own country, it liberates and fulfills me. Extreme river rafting in African rivers. Documentaries. Fishing for carp and bream” (Farm 7). “I have work desks, a basement, a cave. I played in one band for 10 years, I play the drums. I haven't used alcohol for 30 years” (Farm 5). “I recharge at work, on weekends I check on crops, etc. I'm involved in the whole process. I enjoy listening to good music that charges me up. Energizing music. I work to travel. If I hadn't been with smart people, I wouldn't have seen the whole world. Learning, I just spread my wings abroad, I'm traveling to learn after all. Now people come to me to learn from my experience” (Farm 27).

Some farm owners prioritize balance in their lives by valuing downtime for relaxation, meditation. “I still search, but I also try to spend time with my family. In the evenings, I do breathing exercises, physical workouts, and ride a trial motorcycle. I used to play squash. Dynamics are necessary; Of course, I cannot afford to take too many risks” (Farm 31). “Traveling and spending time with family” (Farm 9).

Intelligence is crucial for dairy farm owners' success, as it involves a broad spectrum of interests and a continuous pursuit of knowledge beyond agriculture, ensuring adaptability and innovative problem-solving.

#### ***4.2.8. Characteristics/qualities of the farm owner/management***

Farm owners exhibit a range of characteristics crucial for success, with emphasis on leadership, professionalism, and maintaining distance in human relationships to avoid biases. “The manager must be tolerant, but not overly familiar. The leader is always one, he has no friends. As soon as you have friends, you have biases. It doesn't work out. Communication must be adapted, and familiarity should be avoided. There must be distance.” (Farm 34). “Firm, fair, and consistently favorable yet sufficiently professional. Not as a dictator, but firm and fair with everyone. Equality towards everyone is essential” (Farm 16).

Additionally, they prioritize adaptability and proactive measures to prevent emergencies, ensuring a structured daily routine and risk management strategy. “Being able to juggle many tasks, being optimistic, resilient, positive, open to different approaches, progressing, and continuously monitoring industry developments are all essential qualities” (Farm 1). “Structured in daily routine by ensuring that fire-fighting

measures are not necessary, as preventive actions are already in place. Instead of operating in emergency mode, farmers should already have a risk forecast and management in place” (Farm 31).

Farmers also should have true interest in dairy farming coupled with practical skills and persistence. Farmers should prioritize continuous learning and effective communication, understanding the importance of practical knowledge and adaptability in the dynamic dairy farming industry. Their persistence, innovation, and personal involvement gives good commitment to success. “First and foremost, there must be an interest in the matter at hand. The primary focus should be on the interest in the animals, and then the financial aspect should be arranged in a way that allows earning from it” (Farm 30). “Learning various skills is important, but it's essential to be able to communicate with people and understand technology, as well as grasp dairy farm management. You shouldn't overlook anything in that information, but rather understand where you can contribute, as ignorance leads to losses, while knowledge helps you grow” (Farm 27). “Farmers should be persistent, open to innovation, communicative and the ability to work with people is essential. In private business, nothing can be achieved without persistence” (Farm 20). “You have to control everything yourself, you need to be knowledgeable and able to tell the workers what needs to be done. You can't expect from others if you yourself don't know, only by going through in detail through all processes yourself will give you understanding. We run through the barns every morning, you need to see the whole field” (Farm 29). “Creativity for ideas is essential, all my business plans are invented overnight. Idea to construct a complex came to me at night. If it's white, then I'll prove that white is still white even if it appears black” (Farm 7). “If you're not present and can't make decisions as a person, nothing will work out. You can't have a subordinate. You can't control animals by managing a dairy farm from a luxury vehicle. Every day brings interesting and different situations. I wake up every day at 5:30, I encounter a new and exciting situation, and then I can analyze and think. Problem-solving brings both emotional and economic rewards. I want an easier life like our ancestors had” (Farm 9). “I don't know. There must be interest in what you do. There must be problem-solving skills. I have good leaders, both for livestock, plants, and technical matters. 95% of them cope with problems. You have to be a practitioner, roll up your sleeves, and go to the barn. I spend

2-3 months observing and making sure the new improvements are implemented. At first, I lived alongside, and then I backed off” (Farm 11).

#### **4.2.9. Successful farm owner**

Three of farms indicate success through financial performance for the owners and overall farms financial stability. “Money. What's the point if you lack it? People need to be fed, the state needs its taxes. Good people make a good herd, but if there's no money in the account, what good does it do? Stability.” (Farm 7). “All bills are paid, and there's some left over” (Farm 29). “One who is ethical and does not cheat others. Innovative. Knowledge and education keen with the desire to supplement that knowledge, with desire to learn. With Business vision. Growth oriented. Outcomes then can be observed stability which also is observed as dividends” (Farm 20).

Some farm owners believe in the interactions of success through giving, they emphasize passion for their work, and possess an intuitive understanding of operations and earnings. “Success is never too much – it's the sum total of outcomes, the interactions of your actions. The more you give, the more comes back to you as an outcome, by doing something good, subconsciously, you feel that you'll be rewarded with something good in return” (Farm 9). “He needs to know the animals and love what he does. Without passion, merely pursuing profit won't yield results” (Farm 31). “The best dairy farmers have an intuition of how to operate and earn, even on an emotional level” (Farm 30).

Two of farms consider successful farm owners to be purposeful, adaptable, and emphasize the importance of conscious effort also by learning from their own mistakes. “Purposeful and open to change, adaptable in business approaches, capable of distinguishing oneself from other industries. Success is the outcome of logic and decisions, with 99% of success being the result of purposeful effort” (Farm 1). “Don't be afraid to make mistakes and have goals. You need to be systematic. Others go with the flow, but when analyzed, they don't understand anything. There shouldn't be a collective farm. The mistake of young farmers is wanting to make millions from one box of berries. However, you still need to use your head to calculate. Others are just superficial—they lack vision. They don't understand what and how. Some don't even know at what price they sell milk and don't know how much milk production costs them” (Farm 5).

#### **4.2.10. Successful farm**

Authors observed that financial success is a key metric for four farms, alongside adherence to business principles and generational continuity in succession.

“Well-managed, adhering to business principles, self-control, economic results, self-control of cost structure. I don't need flashy toys like a child. Financial literacy needs to be learned” (Farm 27). “Economic indicators and perspectives should be viewed broadly, not just in terms of milk yield and employees. A successful dairy farm often relies on generational continuity. The most successful operations are those with a second generation involved” (Farm 30). “There must be good financial results” (Farm 29). “Farm success is measured in finances - how much, for example, the same processes cost. I don't know the cost of producing my own milk. It's essential to keep track of the market, but you can't cut corners when it comes to feeding the cattle. There's not much that can be changed in cattle farming during a crisis situation, you can't economize on cattle feed. The milk yield should be above average, achieved rationally and economically” (Farm 20).

Three of farms indicated that successful dairy farms thrive on trust, reputation, and collaboration coupled with planning and financial discipline. “A successful dairy farm is one that has earned trust and reputation, benefiting from collaboration, and operates with honesty. Money is a commodity that requires work, and success doesn't come easily. Good management and a culture of openness are essential. It should feel like a family operation, but with a professional touch” (Farm 5). “Farm where everything is planned correctly, from genetics selection to feeding, team management, and finances. I enjoy a good life, but I don't splurge unnecessarily. I raise everyone's wages three to four times in a year. I don't drain money for my own needs” (Farm 7). “There are no vacancies available, and the owners themselves do not have to milk the cows. The desire of people to work and care for employees are important factors, including providing bonuses” (Farm 16).

Efficient processes, technological understanding, and financial development, as well as adaptability and resilience should ensure balanced cash flow and sustainability is necessary for two of the farms. “A well-organized process is essential. There needs to be an ability to earn in order to develop further. A very good understanding of technology is also crucial” (Farm 1). “The price dropped, there's a drought, issues with

subsidies, lack of liquidity, insurance problems, everything dragged on. It's a successful farm that can balance cash flow with expenses” (Farm 34).

Authors did not observe that any of farms would have been mentioning success interlink to commitment to environmental sustainability by minimizing the farm's environmental footprint and relevance to laws, regulations and industry standards related to animal welfare, food safety, environmental protection, and labor practices.

### **4.3. Management practices**

To deep dive in farm owner management practices consisting of attributes associated with planning abilities, targets and goals setting, as well as monitoring and record-keeping, authors referred to questions two and five.

#### **4.3.1. Strategy**

The strategic approaches of the farm owners vary, reflecting their individual philosophies and circumstances.

Two of the farms emphasize adaptability and innovation in response to changing circumstances. They prioritize flexibility in decision-making, self-reliance, and the ability to seize opportunities as they arise. “Market and emotions, putting together what is, and how it is. These are things that are put in a drawer. Life comes together in a way that it must. Not everyone can be neatly arranged on shelves. If you are put on a shelf, you adapt” (Farm 9). “From the very beginning, step by step, it has always been this way. We reasoned that we could sustain 1000 cows, made the decision to build this and that, and then moved forward. Strategies are not an optimal volume. I myself make decisions about the strategy. We provide feed for the animals ourselves. Adaptation to the point of action where grains are being brought in. Now it is clear that we can do it ourselves using a granary. It creates independence so that our production process does not have to be adjusted by others. It expands business maneuvers” (Farm 20).

Other two farms focus on diversifying their operations and ensuring sustainability. They seek to create added value, reduce costs, and mitigate risks through strategies such as diversification, value-added production, and optimization of resources. “Only one breed - Holstein, good genetics and good yield. Since 2011, no imports, and now we export cows ourselves. Buying land - crop farming. When milk is weak, then meat and grains balance. Also, forestry. Diversification. The strategy

changes when we see that there will be a bad result, I don't care where I am in the statistics, the main thing is that there is money in the account. A vision of the full cycle with the creation of added value, quality, and reduction of self-costs. Feed the land so that it does not grab heavy metals from the ground. You cannot keep money in the account, you have to invest, the well-being of the cows can bring milk” (Farm 7). “We will never be ready, some have a mania for size, there's no need for another 500 cows. It affects the cost price and everything else; some want to boast about size. There's a scope where the farm can earn capital to invest. British farmers came and were surprised by our large farms, as historically they've been confined to certain frames. Our milk price is at the bottom, subsidy levels are the lowest, but raw material costs remain the same. Our expenses are much, much higher, so we need to move faster” (Farm 27).

At the same time many farm owners or management are also prioritizing stability, tradition, and careful planning in their strategy. They emphasize maintaining stability in operations, investing in infrastructure, and preserving traditional methods while also considering long-term stability. “We do not know what Europe and the government will come up with. It is quite complicated. How much we will be able to sow, what we will be able to sow, will affect these requirements. Our farm will be similar to now, but with better organized infrastructure” (Farm 11). “Five to six years ago, I believed that there would never be a robot. Did we sabotage this industry? We introduced it, and now financially it's the same, but it's easier to work. Ensuring retirement for parents - the land that belongs to them, the farm repurchases for a large sum of money. When you're burned out, the vision doesn't excite you; then you need to seek renewal for inspiration. Machinery allows for the processing of larger areas, but human resources are also limited, and there is a shortage of agricultural land. Sometimes you also want to throw that wrench into the bushes. The grain grower says, "What are you mumbling about? You're in the clouds", but no one sees what's happening behind the scenes in reality. You spend the whole evening planning and planning. We have several objectives - the best-paid jobs. 1. People, 2. Animals, 3. Infrastructure - all of this sequentially then helps. The business operates in a way that my involvement is not necessary, but I still need to sit and think. If there were a larger area, then there would be a lack of resources that we take from outside. I can also take on a task myself if someone needs to be replaced as necessary” (Farm 31). “When I

came back from America, I saw that scale is the only way to achieve profit. There is a difference in the number of cows, in grain farming it is not felt so much. In America, with 300 cows, they don't even look anymore. To be competitive, you have to run to get scale and investment” (Farm 1). “A specific vision hasn't been put on the wall. There have been years just for survival. However, the strategy is to develop the herd, selecting the best sires. A well-developed herd provides good yield. Milk is fetched three times a day. The goal hasn't been to be at the top, but it has happened. Development plans have to be as well. The farm doesn't focus on small things but detailed work” (Farm 16).

“What allowed us to create this system exactly as it is, was the combination of a zootechnician, a mechanic, and myself. But right from the start, we understood how we would divide this among us, and we walked onto the field feeling confident, feeling good. Three wise or unwise men came together, but we came together with experience and built the company. Without stability, you can't really do much, you can't even get a 1 million credit. They didn't give out loans at all, not even 500,000, not in 2008. Being among three board members, it took a long time to make a decision on infrastructure development. The instinct for self-preservation kicked in. When you pay off a loan, capital appears, then you start thinking actively. We dragged out this process for a long time, and in the end, in 2019, we built a new farm. Whether to install robots or not, we ultimately decided against it and managed with old milking methods, only improving conditions for the animals. Mixed farming operations expanded. However, our sole source of income and expenses revolved solely around milk. Investments were needed to develop other aspects, such as land, grains, etc. However, experience showed that grains and milk were often in conflict: when grain prices were favorable, milk prices were poor, and vice versa. Consequently, it didn't seem advantageous to establish a mixed farming operation” (Farm 34).

#### **4.3.2. Monitoring and record keeping**

With most of the farm's owners a strong emphasis on data-driven decision-making and record-keeping practices in dairy farm management has been observed. Each farm highlights the importance of automation, analysis, and monitoring of various metrics such as yield, expenses, self-cost, and financial performance. The commitment to data-driven practices emerges as a fundamental aspect of successful dairy farm management. “Everything is being automated, dated, and analyzed, fields are

being analyzed, loads are weighed. If you don't have data, it's just an emotional event” (Farm 9). “I have controlled everything, business data for the past five years. I need to know everything, the numbers must be perfect. Without data, there is no business, the details must be mastered. The big farms - the numbers are nice, but do they understand them? I can account for every number, I wonder why others don't” (Farm 5). “Do not exceed the set limits; the zootechnician monitors the yield, ensuring that the daily feed allowances do not exceed the set amount. This approach has been adopted by the consulting office. The self-cost must be monitored and the aim is to get as low as possible” (Farm 7). “Kilograms and money, average yield; if it's not good, think about what the reason could be. When we were small, we knew all the expenses” (Farm 29). “In the herd, we see all the expenses and the self-cost. The old accounting from Soviet times, how much each has spent, for any crop, I can tell the self-cost. It's cumbersome accounting, but it's comprehensive. On the 20th, I see how the farm has operated” (Farm 11).

Authors observed that lower-performing farms often fail to make data-driven decisions. “Financial data. We sat next to the accountant, discussed something during the board meeting, met in the courtyard, and discussed everything. The zootechnician looked at all the other data. Generally, there is a shortage of specialists in Latvia” (Farm 34) “I don't care about the specifics of what and how, the main thing is how much milk is in the tank. Absolute indicators like weight, soy, don't interest me; I simply need to feed the cows. At times, mental development stops, making it difficult to understand what exactly affects the volume of milk fetched. We have to experiment a lot ourselves” (Farm 1).

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#### **4.3.3. Succession**

Farms emphasize creating an engaging environment for children and proving that a fulfilling life can be lived in rural areas. Owners also highlight the parents' willingness to pass on the farm to their descendants by guiding them towards the business to demonstrate a hands-on approach, where the new owner in the future can handle everything. Better performing farms have a clear vision about succession and they have one or another plan in place. “Existing owners must create an environment where children are engaged, where they can observe what their parents are doing, and create an environment where we can afford what we want for ourselves. It must be



proven that it is possible to live well and enjoy life in the countryside too” (Farm 9). “Father: I have a plan - I will try to help with advice, as my son, the farm owner, is still young, currently managing agricultural machinery. If there is someone to pass it on to, then it must be passed on. Son: It wasn't easy for my father to accept five years ago that the farm would have to be handed over to me” (Farm 5). “Only one person should have access to the account. I handle everything myself, from paying salaries to managing expenses. It's all in my hands, and if I'm not around, it's a problem, but I'm guiding my middle son to take over, although he still lacks seriousness. I sent him to the USA, Czech Republic, and Poland to learn and accumulate knowledge, experience” (Farm 7).

All farmers referred to the sentiment that they hope that the next generation will take over and engage in the business to continue successful operations. “What would be the point of doing all this if you have no one to leave it to?” (Farm 29). “We have generational issues, children don't want to stay here and have no interest in taking over the business” (Farm 27). “It would be a shame if there's no one to leave it to. I haven't even counted, but I've probably invested around 6 million. I'm pinning my hopes on my son, who has started studying at the Latvia University of Agriculture” (Farm 20). “My son didn't succeed, but the other owner with her son will continue” (Farm 16).

Two of them show a mild view on succession for different reasons. “I don't know who will take over, I don't intend to force it on anyone” (Farm 31). “I am relatively new to this industry, I still have 20 years to work until retirement, but sometimes I think about it” (Farm 11).

Less successful farms indicate that they don't have clear vision, the vision is foggy or couldn't find any successor to pass and was forced to seek investors and sell business. “In Latvia, there's no one to take over, there are too many foreigners buying all up. I wouldn't want to sell my farm, we'll see if the boys take over” (Farm 1). “Is there anyone willing to take over? The youngsters weren't interested. None of the three board members were. I'm 67 years old. Three years ago, we were already considering selling. Consequently, within three years, we found an investor and ended successfully” (Farm 34).

## ***5. Discussion***

During the research interviews authors found out that in the context of biography, interviewed farms vary in three groups of farm owners, five starting their

operations from collective farms, four starting from newly established farms and three passed down through the generations. Overall authors couldn't find strong biography interlink with farm results as it is also approved by other researchers. Even the research aim was to investigate broader attributes, constant learning (openness, growth mindset) is observed by authors and approves the farmers ability to have better financial standings and better profitable results as found also by Betts (2020 p. 25). This observation is related to the fact that education expressed in consistent learning, is viewed in light of general cognitive ability of openness and the farm owner growth mindset for long-term success in dairy farm development.

The first two years of experience usually provides the most essential basic knowledge as stated by Ericsson (2006), as subsequent years play a significant role in continuous shaping of a person's knowledge and skills to improve business and development (Figure 3). Based on this knowledge and competences farmers should increase herd size and make sufficient investments to maintain constant development moving upwards with the herd size, increased Free-cash-flow and investments. Otherwise as stated in the interviews the farm can face declining operations and weaker ability to withstand market fluctuations.

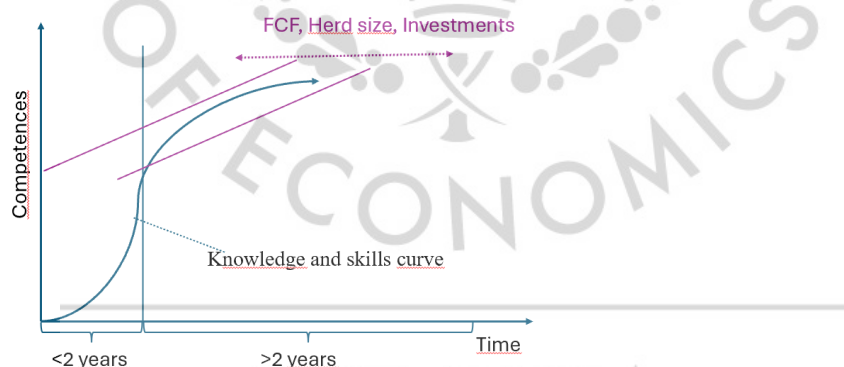


Figure 3. Learning curve of competences relation with herd size and its profitability over time. Made by authors based on Ericson (2006) and interviews.

Despite this, continuous learning plays a crucial role, each farm has its owner/management with his/her own personality attributes related to psychology, aptitudes and managerial practices. Those affecting each farmer's own teams, employees and cow herds and tengables which all together are considered as a farm.

Literature reviewed suggests that managerial cognitive ability is a one of key factors influencing farm performance. Studies by O'Leary (2017), Boyatzis (2006), Nuthall (2010), and Rosenberg et al. (1990) support this finding. For instance, Boyatzis (2006) found a 10% increase in gross margins for companies with managers exhibiting higher psychometric intelligence. In the interviews authors found that the ability to control emotions is essential for making objective decisions in crisis situations. Successful farmers are able to stay calm and focused under pressure. Physical and mental abilities are important for overall health and well-being, it also improves energy levels and productivity. Furthermore, Rosenberg et al. (1990) found that a growth mindset with effective feedback practices contributed to improved milk quality. Authors observed in interviews that creating a positive and supportive work environment is essential for attracting and retaining local staff.

Benefits of cooperation can lower costs and increase sales per unit as per O'Leary (2017) research. The research cohort indicated that even honesty and integrity potentially are essential for building trust and relationships within cooperatives and suppliers, authors observed that overconfidence in them and the inability to assess partners can lead to losses and lawsuits. Furthermore, attributes which negatively affect farm performance and success are related to lacking financial literacy and inability to make data driven decisions.

Nuthall (2010) linked internal locus of control in managers to a 10% increase in farm profitability. Authors observed that on the contrary, lower level performing farms believe (external locus of control) that the only way to improve their performance is an environment with consistent stability as a key to success. However, this often leads to lower performance and inability to make innovations related decisions. Farms focusing on short-term gains make it on the account of long-term goals, which can lead to wrong decision-making and missed opportunities.

Beyond the literature review in this research authors found that having a clear succession plan in place is essential for the long-term development and vision of dairy farms. Even more, the succession motivates for continuous improvement and significant decisions for investments in business for farm owners' family heritage to increase farms value and capital. Those farmers who are investing are rather those who are younger and already have taken over from previous generations. The farming business is not worth further investments or development if succession and family heritage is not a part

of the family long term plans and this is due to large capital investments with long repayment maturity.

Authors observe that interactions within the all involved parties (owners, specifically their personality attributes affect on employees and assets) in the farm determine outcomes and results which are statistical and descriptive as described by Kamarubahrin et.al. (2018).

Statistical results are described as follows. Successful dairy farm owners/managers are able to collect and analyze data to make data driven decisions (Figure 4). They are not afraid to take risks, but they do so in a rational manner. Believing that they are in control of their own destiny is crucial, meaning that they do not allow external factors to influence their performance or decision-making, for example milk prices, weather conditions etc. However, they consider those factors in the decision making process. Successful owners or management are investing in their businesses rather than spending on themselves for long-term growth and success of business. As stated by Salas et al. (2009) and observed by authors in interviews, outcomes of farm performance are not only related to data driven decision, but also intuition when decisions are made.

Descriptive outcomes mean having farm management and owners who understand how to invest in innovative technology to improve efficiency and productivity. They also are able to make decisions which technology suppliers and investment solutions to follow for. If simplified, it means that dairy farms in Latvia are recognized as small farms, at the same time they have to operate as large factories driven by adopting new technology, biochemistry, and aspects of genetics. Successful farmers are often willing to take on debt to invest in their businesses to achieve growth or to accumulate capital (free-cash-flow) for future investments without long term debts as well as to ensure resilience to vulnerabilities in the business. Both statistical and descriptive results make direct affect on farms, while FCF (statistical result) provides welfare for its owner, and investment strategies on descriptive results, but descriptive results on farms as an unite mechanism. Furthermore, authors found that descriptive results provide also satisfaction for those owners who describe success not only in personal or farm financial welfare, but also in consciousness, that success of farm owners can be expressed in satisfaction of milk quality, animal welfare, ownership of specific herd sort and well genetics, as well as technologies, processes implemented.

This process initiates infinity loops. The whole interactions are visualized in Figure 4.

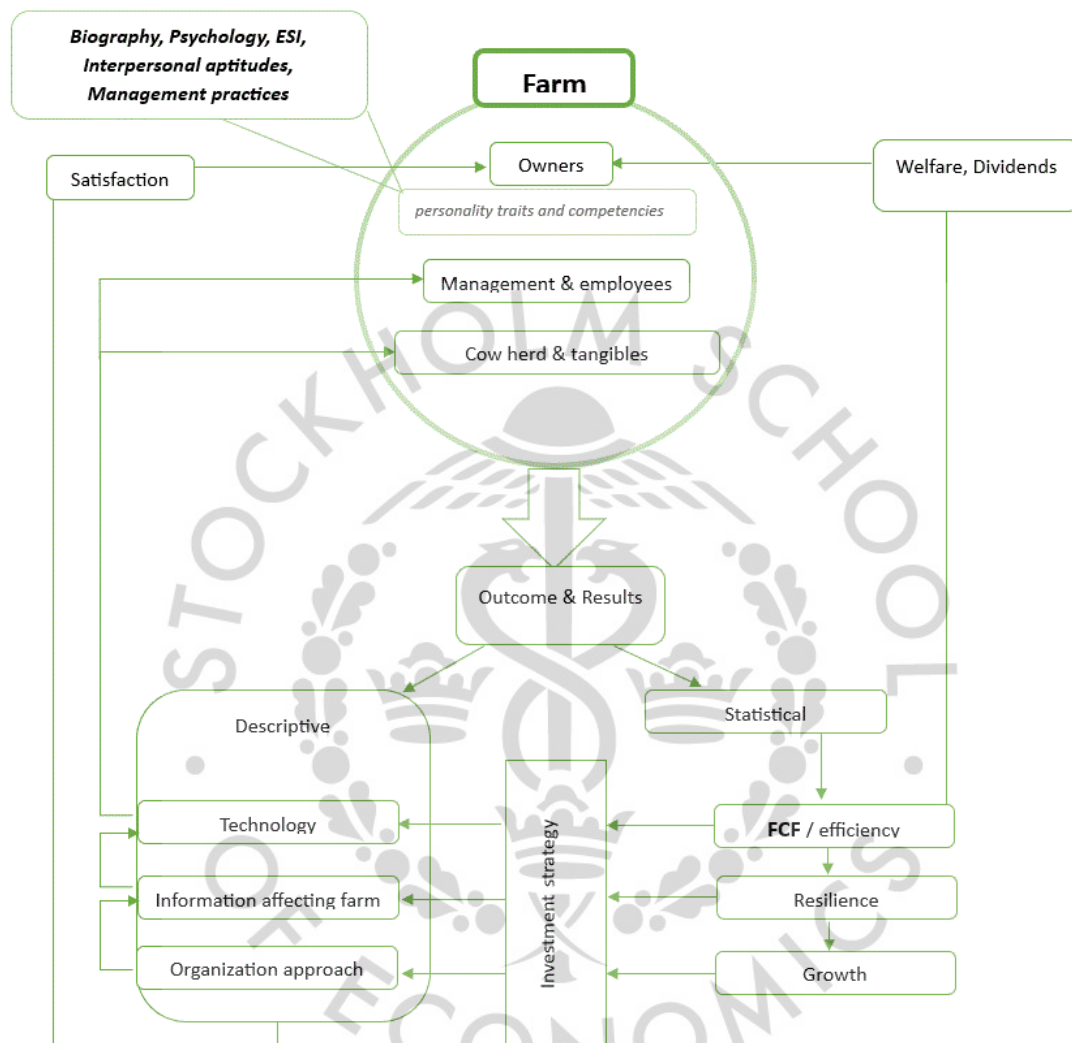


Figure 4. Interaction of success factors and their influence on dairy farms. Made by authors based on Kamarubahrin et.al. (2018) and Salas et al. (2009) and interviews.

The interactions of success factors allowed the dairy farms in Latvia to be associated, or considered as factories, operated in complex mechanisms with the purpose to be maximally efficient as possible by utilizing less resources and achieving best outcome result in large scale, rather than family businesses dealt somewhere in the countryside with smaller scale purposes for ensuring only self-sufficiency with some income.

## ***6. Conclusions and recommendations***

This research investigated how the personality attributes of owners and management influence the success of dairy farms in Latvia. The personality attributes of dairy farm owners and management are an important factor which can explain the differences in financial results and success among sector peers. By examining the personal characteristics of 12 of 40 largest milk producers in the country, the research aims to find out which attributes are most relevant to Latvian dairy farm management success.

Financial analysis revealed that the top 40 largest farms have been consistently expanding over the past decade, investing on average 23 million EUR annually. During this time, their milk output capacity nearly doubled, now constituting one-third of all Latvian milk sold to dairy product producers. Consequently, their significance within the industry has notably escalated.

Financial success was determined by analyzing annual statements of the farms, dividing them into two groups based on higher and lower Free Cash Flow ratios. This identified the farms considered successful or less successful in their financial operations.

Twelve interviews with farm management offered a unique perspective to uncover deeper motivations, thought processes, and decision-making strategies compared to solely analyzing financial data or surveys. Semi-structured interview template was used for each of the interviews.

Authors observed that farm outcomes can be described as statistical and descriptive, both representing success. Both statistical and descriptive results make direct affect on farms, while Free Cash Flow, resilience and growth (statistical result) provides welfare for its owner, investment abilities, and descriptive results affect farms as an unite mechanism. Descriptive results also provide satisfaction for those owners who describe success not only in personal or farm financial welfare, but also in consciousness, that success of farm owners can be expressed in satisfaction of milk quality, animal welfare, ownership of specific herd sort and well genetics, as well as technologies, processes implemented and organizational approach.

During research interviews, authors discovered that farm owners can be categorized into three groups based on their farm origins (starting their operations from

collective farms, newly established farms and passed down through the generations) and the association between biography assessment and farm outcomes were not observed. Continual learning was noted by authors, linking openness and a growth mindset to improved financial standings and profitability in dairy farm development. The authors noted that each interviewed farm owner had ancestral farming ties, all emphasizing the importance of education and international practices for ongoing farm enhancements and successful technology adoption, reflecting intelligence among the group.

The success and sustainability of dairy farms are influenced by various traits observed during research interviews. These include:

- Openness among farm management, encouraging a culture of continual learning and adaptability.
- The locus of control plays a role, with an internal locus correlating with proactive management and empowerment, while an external locus may hinder success.
- Effective problem-solving, stress handling, and adaptability are common traits among farm management, contributing to their ability to navigate challenges and make sound decisions.
- Communication, collaboration, and proactive management are emphasized, with trust and reliability being essential in partnerships.
- Emotional intelligence is recognized as vital, enabling farmers to manage emotions constructively and promote positive relationships. Successful farm management exhibits intelligence beyond agriculture, demonstrating curiosity and a thirst for knowledge.
- Leadership, professionalism, adaptability, and a commitment to continuous learning are highlighted as essential characteristics for success.
- Financial stability, adherence to business principles, collaboration, and technological understanding are key indicators of successful farms.

Authors conclude that personality attributes such as **willingness to gain knowledge, implement new technologies/practices** (openness and growth mindset), and **self-centric farm performance outcome control** (internal locus of control) are two most important of seven aspects contributing to a successful dairy farm. The management practices, driven by personality traits of dairy farm owners or management

vary widely. Some farm management prioritizing adaptability and innovation, while others are focusing on diversification and many emphasizing stability, tradition, and careful planning. Data-driven decision-making and record-keeping are crucial for successful management. Mentioned ones, personality traits and management practices are contributing to investment strategies, decision making processes on organizational practices by resulting in increased owners' satisfaction of wellbeing and emotional contentment.

The following questions “What determines the manager/owner of a successful dairy farm?” and “Please describe your company's strategy and vision”, as well as “Which data in your business for you is important?” allowed authors to discover that successful farm managers are often detail-oriented. They understand the importance of even the smallest details and take the time to get things right. As a small organization, they are very much into operative task management. Successful farms also are aware of data, by knowing the milk production prices and are strictly monitoring resources and finances. Those findings approve that farm owners should be associated as “managers” rather than “leaders” who are motivating and leading followers through the changes. Still, farmers should also have some of the leadership traits, the ability to lead a team for a common goal, where the team must be able to function as a single mechanism.

Two lower-performing farms demonstrated a lack of data-driven decision-making and record-keeping and management were not expressing some of the personality traits related to success and management practices. They also hesitated to make investments, were not keen to implement innovations and were presumptuous in decision making. Furthermore, those farm management with an external locus of control showed struggle to overcome barriers and achieve success in their farming business. In addition, three addressed farm management were refusing to participate in the research due to skepticism about the value of their data and contribution.

Farms' performance are not only related to data driven decisions, but also intuition when decisions are made. Succession planning is also significant, with successful farms actively engaging in creating opportunities for the next generation and to also encourage for new investments, while some showed struggle due to unclear visions or difficulties in finding successors, leading some to seek external investors by considering selling the business.



Further quantitative research is needed to examine particular or specific personality traits within a larger scope of Latvian farm owners or management by conducting tests for identifying different personality types and their correlations to the success. Authors recommend creating development plans that focus on developing the personality attributes that are associated with success. If some of the personality traits are not present owners or management should consider involving in the team person with those attributes to cover missing ones. Finally, the benchmarking on produced milk volumes and herd size are not the only factors to farm management to focus on, instead they should make broader financial analysis and comparison of financial results among their peers.

The findings of this research are important for anyone who is interested in the farm success interactions within the Latvian dairy industry. That includes dairy farm owners or management, suppliers and policymakers. By understanding the personality attributes associated with successful dairy farm management, policymakers can develop education programs to support the industry. Suppliers (traders, lenders etc.) and investors can use this information to comprehend the farm owner or management which they are cooperating with. Dairy farm owners or management can use the findings and developed interview questions of this research to assess their own strengths and weaknesses and to identify areas where they can improve. Even more, farm owners or management can evaluate and bring up potential successors of their business.

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## **8. Appendices**

### ***Appendix No 1. Questions for semi-structured interviews***

1. Please tell us about your current experience on the dairy farm.
2. Please describe your company's strategy and vision.
3. How often and where do you update your knowledge?
4. What worries you the most about your business?
5. Which data in your business for you is important?
6. Please share and describe how you identified some specific problem/challenge and how you solved it?
7. Please describe what collaborations do you have and what do you get from them?
8. Please describe one situation in which you had to deal(manage) with your emotions and how did you manage that?
9. How important are other people's feelings/emotions to you when making decisions?
10. Please describe the situation, how do you recover energy after a hard week of work?
11. What characteristics/qualities the owner/manager of the farm should have?
12. What determines the manager/owner of a successful dairy farm?
13. What characterizes and defines a successful dairy farm?

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*Appendix No 2. Farm geographical distribution*



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