



## "WHAT DETERMINES THE PRODUCTIVITY AND HEALTH OF DAIRY GOATS: A REVIEW OF RESEARCH?"

### Summary of the lecture in English

dr. Birutė Šlyžienė

The purpose of the goat breeding is to increase the efficiency of selection by breeding high - yield goats that are resistant to adverse environmental factors and diseases and whose products are safe for consumers, at a minimum product processing cost.

Investigated the influence of phenotypic traits and genotypic factors on the selection features of the Lithuanian dairy goat population (productivity, milk composition, milk flow and health indicators). Milk yield, composition and quality, udder and milking phase flow rate, electrical conductivity indicators as well as their relationships have been assessed for dairy goats of various breeds (the Alpine, Saanen, Anglo-Nubian, Czech White) and crossbreeds. The relationship between the number of somatic cells and electrical conductivity indicators has proved that these indicators have to be investigated for the purposes of both the prevention of mastitis and the reduction of prevalence of the disease. It has been established that, in Lithuania's conditions, the highest milk yield is obtained from the White Shorthaired goats, whereas milk from the Anglo-Nubian breed is characterised by the highest fat and protein content. Studies of AGPAT6, STAT5, LPL genes have shown that goats with the relevant genotypes have a higher milk yield and higher milk composition and quality indicators. In order to improve the goat milk yield, composition and quality, it is recommended that goat farmers should modernise their feeding and milking equipment and implement computer-aided systems designed for advanced automatic data recording and herd management.

Questions to dr. Birutė Šlyžienė.

### **1. Which breed of goat would you choose if you had to raise goats for yourself?**

#### **Answer:**

The answer would be Anglo Nubian. For a number of reasons: firstly, as the results of research carried out abroad and my own research show, the fat content of this breed of goat exceeds the fat content of other breeds of goats by 5% and more. Also as it was shown in my research, well-maintained herds of goats of this breed have high not only milk fat and protein content, but also milk yield. In high-productivity goats, the average of milk yield ranged 5-6l during the entire lactation. Another reason, although subjective, but I can not to mention it, for me, also for many people, these goats are very beautiful.

### **2. What advice would you give to a new or young farmer if he choose which livestock branch to choose?**

#### **Answer:**

The answer you probably already guessed it would of course be goat farming.

This is a very broad and promising area. Farms can be industrial i.e. large farms sell milk to milk buyers, which is popular abroad e.g. in the Netherlands and others. countries, but this is not the case in Lithuania. Family farms are popular in Lithuania. Most of them keep 30-50 goats. According to the specifics of the farm, goat farms are those that earn profit only from production or mixed additional recreational and / or educational activities. The production of goat farms is milk production (milk, cheese, curd, yoghurt) and offspring (are sold for breeding or food). As I know from experience, since I regularly buy goat's milk products from one farmer online, these products are really in demand. Some goat farmers carries out recreational activities near goats by setting up rural tourism homesteads, guest houses or mini zoos. Goat breeders who organize educational activities organize excursions, tastings on their farms, as well as seminars for other goat breeders, where they share their best practices on goat breeding and dairy production. So as we can see goat farming can be promising.

### **3. How would you explain the high somatic cell count in goat milk?**

The number of somatic cell count in goat's milk is significantly higher when compared to cow's milk. This is also determined by the physiology of goats. If we talk about the somatic cell count of goat's milk in foreign countries, then the situation is quite different between countries. In some countries, such as the Netherlands, somatic cell count is not regulated for purchased milk. Other countries specify a threshold, but it also varies, such as 750,000; 1 million or more. It is also the case, for example, that in some countries farmers receive an extra premium for lower somatic cell count in goat's milk. In Lithuania, the somatic cell count is regulated at 500,000 thousand / ml, but since goat's milk is not purchased, that regulation is more theoretical.



## **MILK COMPOSITION AND QUALITY TESTING SYSTEM IN LITHUANIA.**

### **Summary of the lecture in English**

Dr. Dalia Riaukienė, Quality System Manager at JSC „Pieno tyrimai“

JSC „Pieno Tyrimai“ is an accredited impartial central laboratory for raw milk testing in Lithuania founded by the state and provided with modern equipment. It provides the services of testing of composition and quality of purchased cow's milk: fat, protein, lactose, urea content; somatic cells and total bacterial count; freezing point; inhibitors (antimicrobial residues), which is required for settlement among parties of raw milk procurement agreements. Moreover, the company provides the services of testing of raw milk for dairy herd improvement with an aim to ensure productivity of dairy cows in Lithuania, maintaining an unified national raw milk testing system.

Other areas of activity of the laboratory – producing of calibration samples for users of mid infra-red equipment, preparation of pilot samples of raw milk for monitoring and control of accuracy of equipment, testing of mastitis causing organisms and their sensitivity to antibiotics, pooling samples for livestock diseases control, reference milk analyses, milk pregnancy testing, animal feed analyses and so on.

JSC „Pieno Tyrimai“ laboratory is accredited by the National Accreditation Bureau to perform physical-chemical and microbiological tests of raw milk. JSC „Pieno tyrimai“ applies a unified milk sampling, identification and sealing system, managed by a professional LIMS. The system administers arrival of milk samples, testing and provision of information, data analysis, statistical processing and management of the implemented quality system. Application of this system enables the laboratory to ensure efficient transfer of data to the customers and institutions concerned.

The company is committed to the highest quality of provided services and application of the most advanced technologies. Highly skilled and qualified employees have gained extensive work experience, thus being devoted to seek for more extensive list of services provided by the company,

as well as application of innovative technological solutions, complying with the most modern global practice and enabling to achieve competitive advantage.

The information from milk analysis is not only relevant as a check on the quality of the produced milk, but is more generally to be regarded as management information to the dairy farmer.

**Questions dr. Dalia Riaukienė Quality System Manager at JSC „Pieno tyrimai“**

**1. Question from participan - how many and what models of cars carry samples?**

**Answer:** 8 routes and about 12 cars, plus Livestock Productivity assistant cars. Depending on the number of samples, it is planned how many cars will go to pick milk samples.

**2. How much control costs for the farmer?**

**Answer:** 70% of the price is financed, and the farmer has to pay 30% of the price.

**3. Which control method is the most popular and why?**

**Answer:** C3, because it's the most cheapest. every 3 months the samples are taken by an assistant and every 2 months by a farmer or farm specialist who is certified or trained to take milk samples.

**4. How to increase the percentage of farms to control milk samples?**

**Answer:** About 60 % of farms are involved in control. Staff on JSC „Pieno tyrimai“ are trying to publicize the benefits of research through projects, seminars and they believe that the percentage will grow little by little in order to catch up the Slovaks, who control 80 %.

**5. Is there a falsification of milk samples?**

**Answer:** few, as many studies are performed on the same sample, the composition of the bacteria then the number of somatic cells. Together with the State Food and Veterinary Service identity program, they carry out a compositional study, so the results of the joint effort are excellent and the falsification rate is low.



# Maisto saugos valdymas taikant Geros Higienos Praktikos taisykles bei tarptautinius maisto saugos reikalavimus

Jurgita Stadalnykienė, UAB „Varėnos pienelis“ kokybės vadovė

## **FOOD SAFETY MANAGEMENT BY APPLYING THE RULES OF GOOD HYGIENE PRACTICE AND INTERNATIONAL FOOD SAFETY REQUIREMENTS.**

### **Summary of the lecture in English**

Jurgita Stadalnykienė

The report presents the minimum requirements of the rules of good hygiene practice (GHP) in the dairy sector. What requirements are set out in the rules of good hygiene practice for the supply of raw materials, control during their receipt from suppliers. Just as how premises must be prepared for production. The condition of the equipment and its maintenance are also reviewed.

The report will review the requirements of international food safety standards, the additional requirements that must be enforced to obtain an international food safety and management certificate, which opens opportunities for trade in foreign markets. Requirements for the management of allergen cross-contamination are included. Identification of risks posed by foreign substances and their preventive measures will be presented. Since nowadays it is very important to ensure the reduction of fraud in the food industry, the management of food protection against food fraud will be shortly presented.

### **Questions to lecturer Jurgita Stadalnykienė JSC“ Varėnos pienelis“ quality manager**

1. I would like to ask about the supply of raw materials and you mentioned that raw materials must be evaluated organoleptically, laboratory tests must be carried out. Who carries out such surveys and for how long and to whom the answer is given.

**Answer:** Raw materials are inspected for each batch in the company's laboratory (chemical and microbiological). That is enough for your needs. If the test is unreliable rises doubts, the result is sent to an external laboratory.

**2. Up to what number of somatic cell count in milk Your company is buying milk?**

**Answer:** The head of the laboratory would answer more accurately, but I think up to 350 thousand. / ml.

3. Who checks whether such tests are carried out or whether the packaging is harmful to the consumer, packaging paint or foil?

**Answer:** We receive inquiries from the supplier.

It is determined by the appropriate environment or may contain harmful substances in the packaging.

4. Are there procedures in place for quarantining / detention of raw material and an action plan?

**Answer:** yes, quarantine is also carried out on raw materials and products. If the raw material does not meet the specification, the raw material is quarantined in a certain marked place and the responsible person contacts the technologist, quality manager to clarify that specification and provide a final decision.

**5. Does the company use the JUST IN TIME methodology. If yes, what?**

**Answer:** Is applicable. Pasteurization is carried out by constant temperature control and the temperature in the refrigerators is measured from time to time.

**DARBUOTOJŲ DARBO REIKALAVIMAI PIENO PRAMONĖJE,  
DARBUOTOJŲ SKIRTINŲ AMŽIAUS GRUPIŲ YPATUMAI,  
POVEIKIS COVID-19 PANDEMIJOS DARBO RINKAI**

Edita Muzikevičienė UAB „Varėnos pienelis“ personalo vadovė



**EMPLOYMENT REQUIREMENTS OF WORKERS IN THE DAIRY INDUSTRY, CHARACTERISTICS OF DIFFERENT AGE GROUPS OF WORKERS, IMPACT ON THE COVID-19 PANDEMIC LABOR MARKET.**

**Edita Muzikievičienė**

**Summary of the lecture in English**

*How is recruitment today vs a decade ago?*

Ten years ago, when looking for employees, no matter what the profile, all an HR person had to do was flip through their notebook, find a candidate's CV in an email or go to a recruitment page on the internet to start the recruitment process. Today, this is not enough. Whether a professional or an unskilled worker, searches can take from one to six months. And the results may not necessarily be satisfactory after six months either. Ads are placed through employment services and private recruitment companies on Facebook and other social networks.

*What kind of candidates does a recruiter face now vs a decade ago?*

When you meet a candidate, you do not always find someone motivated and eager to make a name for themselves. While ten years ago we could choose from five equivalent candidates for one position, today there may be three candidates who do not meet the requirements, or we have not yet grown as a company in terms of meeting the candidate's needs. We must choose someone who is at least willing to work and learn and grow with the employer.

*Employer's requirements for the candidate from the candidate's point of view*

For contemporary employees, "demand" is equivalent to "imprisonment". Can an employer demand quality work? Responsibility? Duties? Feedback? We would say yes, they can, but the reality is different. Today's employees want to be free, uncommitted, and gain rather than give.

*What are the tools that HR professionals use today to attract employees?*

It is no longer original to invite employees to join the team through social networks, TV, cheerful radio ads, colourful signs outside the company, in the city or on the motorway. Today, flexible working hours, a comfortable office workspace or home office, a children's playroom, and other benefits are essential. But what to do when these methods do not work either? For those already employed, there are cash bonuses, trips, and various rewards for bringing in a new colleague. But there is yet a sense of powerlessness in attracting employees. What will we do next?

*The shadow of the global pandemic in the labour market: when will we get back on track?*

The Covid-19 pandemic affected everyone. In the beginning, it was a time of great fear and uncertainty, which then turned into even more significant uncertainty for employers. How to prevent the spread of the disease in the company? How to protect employees? What will we do tomorrow if half of our employees do not show up for work? Why is it more "comfortable" to be sick than to work? Whether or not to force employees to be vaccinated? How to know that an employee is absent due to a virus and not because of a pretended illness? The answer is that we do not know... Because there are more questions than answers.

*What is the answer to the question: Why are there so many unemployed and even more vacancies?*

It is not just that we hear a lot from the media, friends, and neighbours that some company is looking for employees. They are tempted, promised, and eagerly awaited. Employment services report a growing number of unemployed people. So why are we not helping each other? Why is it that an employer is going out of their way to lure an employee, while at the same time the Employment Service is being overcrowded by citizens looking for work? And the two parties do not manage to meet in the middle and find common ground? Who is to blame for this? The pandemic? The state? The employer or the individual? In my experience, all share the responsibility. The longer we look for the guilty, the bigger the black hole between employee and employer.

*What has changed in the motivation system? What do we call demotivation today?*

It takes much work to keep an employee and maintain a good relationship. And as you know, collaborating with people is one of the most challenging tasks. It is not enough to provide the tools and means to do the job and pay the wages. Much information proves that an employee is not motivated by money nowadays. Is it so? Some say yes, others say no. Where is the truth? Money is undeniably the most significant component; however, it is now translated into comfort, quality, and wholeness. Besides money, the relationship is substantial for a contemporary individual. The relationship between employee and employer. It is not always necessary to praise the employee; it is enough to show them attention and let them know that they matter. What is the reality? Alienation and an immeasurable distance between the two parties.

And what do we call demotivation? What makes us "clip" our wings in our activities? We can leave money out of it. We are demotivated by things like disrespect, mistrust, promises, angry jokes and other actions, which I will talk more about in the presentation.

**Questions to the lecturer** Edita Muzikievičienė

**Question.** Has the level of specialists working in your company been analyzed (From a university, college, professional schools?)

**Answer:** 10 years ago, attention was paid to employee education. Now that there is a lack of specialists, we follow another rule, we will probably be able to teach a person who will come to



work. For example, we looked for a microbiologist in the laboratory. We did not find such specialists, so we invited a microbiologist from the polyclinic to work, which blended perfectly into the team, although not educated in this field.

**Question.** Do you apply to Kaunas University of Technology, Lithuanian University of Health Sciences, Vilnius College when you are looking for specialists?

**Answer:** Yes, we were looking for employees in Kaunas, not only universities, but also factories, but for some reason we did not find an employee (-es), because everyone is afraid of traveling, traveling from one city to another. The location of our company is ungrateful, whether to drive from Kaunas or Vilnius. As an example. We had a microbiologist who worked in the summer and autumn, but to work in the winter and drive a car in the dark during the winter, she refused.

**Question.** Do you employ Ukrainians. According to the listener, there are educated, hard-working Ukrainians, technologists, researchers and workers who want to work in the European Union. Many of them are already working in Poland. So what is your position regarding this question?

**Answer:** a separate topic can be spoken on in this regard. The Ukrainian workers are already employed by the company, but we faced many challenges when we wanted to employ them directly rather than through another company that provides them as a service. We have faced with a lot of requirements, documents where we were thinking for a few days can our company meet those requirements? So for this day, I am glad that we have our lithuanian specialists. Of course, those ukrainians who now work in our company, they came to earn money and they work well and responsibly.



## FASHION AND ITS TRENDS IN THE DAIRY INDUSTRY

Jolanta Kuzminienė

### Summary of the lecture in English

Fashion of dairy ingredients:

- Sugar and its substitutes - reduced sugar content, artificial sweeteners such as maltitol, erythrol, stevia
- Salt - reduced to the recommended dose.
- Vegetable fats and their types - rapeseed oil, palm oil, coconut oil

Impact of fashion trends on product packaging

- Direct-primary packaging - mini and maxi packaging
- Secondary - package sizes, shapes, designs.

The harm of food fashions and the health benefits to consumers.

The effect of advertising, TV, press, influenza on buyers' habits.

Emergence and benefits of milk replacers and their impact on consumer habits and health.

The most popular milk replacers.

**Questions to the lecturer** Jolanta Kuzminienė (Factory Director).

**Question.** Maybe you have analyzed scientific publications about the impact of synthetic additives on human health is used in the dairy industry?

**Answer:** There are permitted and NOT permitted additives. In the case of permitted additives, it is essential that the manufacturer complies with the permitted standards. It is a matter of the conscience of the manufacturer. What are additives? Additives are usually preservatives, which maintain longer product validity. Thickeners, emulsifiers, stabilizers and in their use the most important is not to overdose. They are used for various purposes, such as lecithin - to combine water with fat. It is used to obtain a homogeneous mass. If you overdose, it can cause profuse sweating. Sweet locusts resin used in the dairy industry for yoghurts - on the one hand improves digestion however, in case of overdose, it can cause laxation. Therefore, their use in products must be limited. I think the Veterinary service from time to time has to pick the products off the shelf and inspect it.

**Question.** The range and offer of dairy products is deep and wide, maybe it is better for the consumer to buy dairy products in short chains ( farmers, markets of farmers)?

**Answer:** Yes, but not always. There is a time factor in all circuits. You came to a big supermarket, took 30-40 minutes to shop, but bought everything you need in one place. You bought products for a longer period of time, maybe for a week. In short chains, the buyer has to go shopping to different small shops or to the farmer. Also products from short chains, not everything represents a quality, taste what we get from the supermarket .. for example: how fun it is not to use simple curd, but curd cream, which you don't want to make by yourself, but better to buy it. Yes, I fully agree that the supply of products to the customer at the door could be returned to the farmer.

**Question.** Have you noticed the growth of dairy products with lower sugar content.

**Answer:** No. As an example, the project of one specific product, Kake Makè, where sugar was reduced by 30% in desert cheese. During the presentation, all the mothers said we would consume it. There was also a very nice packing design. The project started and after 6 months he was barely alive. We started analyzing the causes of this failure, and mothers were explaining that the child was chewing and spitting it, because of the taste. So reducing sugar in dairy products requires great care / reasonably. Sweet products are a commodity of pleasure. A yoghurt where we expect a delicious, sweet meal, and if we would left only yoghurt with sour berries we would not eat such product ourselves. This reduction of sugar to 30-40% is only advertising, a possible reduction is of 10% or 15% to 20%. Again, some countries have different tastes. Latvia likes it very sweet.

**Question.** And what are the trends with organic products.?

**Answer:** The ecological group is very interesting. Lithuanians think that if organic costs the same price as not organic, they would buy organic, so the point is in price. But perhaps even more ecologically, it is the one that wants to consume products without additives, natural.

Why do I say that because there are examples where there is not an organic farm on one side of the highway and an organic one on the other. So, what is the difference? So I understand, that in mountainous areas, in remote places, maybe it's an organic raw material. But also organic products are more expensive. Customers want to buy ecological products, but people are limited by money, but the price varies by 20-30 % and if you are healthy, without diseases, no allergies, you are thinking about buying organic products or not. I think that even without documentation is an organic but natural product, this group I think will grow in the future. What I have also noticed is that consumers of organic products are young people about 30 years old.





Mindaugas Petkevičius



## **THE REAL MILK WAY... TO A MILK PROCESSING PLANT.**

Mindaugas Petkevičius

### **Summary of the lecture in English**

The report is intended for farmers, processors, consumers and the public authorities.

In this report we will see and get acquainted with the "Real Milk Road", we will compare the differences between the certified Organic Milk Road. You'll probably be surprised when you find out about it.

The report will also tell you what a dairy farm owner needs to know, what to plan and prepare for, what to do, what to read and follow, what not to say and what to "fear" in order to achieve a smooth dairy path.

We will review Lithuanian statistics related to cows, dairy farms, milk production, milk imports and exports.

In the end, we will touch on the most painful topic for dairy farms: the price of milk. We will try to find out if we really know and understand what the price of milk depends on and how it can be influenced.

The report is based on the personal experience, statistics, knowledge, expert judgment and insights of the dairy farm owner.

Fashion and its trends are not only in the clothing, hairstyle, interior industry, but also in the food industry.

What food fashions and trends will be relevant in the near future ?. What trends are no longer fashionable. Fashion - harm or benefit to the body. How food fashion affects the dairy industry. What food and dairy products and their packaging will try to conquer our plates in the near future.

All goods and products are divided into two major groups:

Food group and non - food group.

The production of dairy products in Lithuania accounts for the entire production of the food and beverage industry.

Dairy products are very important for Lithuanian consumers. They are still widely consumed and loved.

Dairy products, like other groups of products, have their own fashions and trends.

We can single out several main trends in the development of dairy products:

- Natural (organic) products - for higher income earners
- Synthetic products - for mass consumption

Some of the latest food fashions:

- Functional food-Artificially enriched with various substances
- Fast food - made up mostly of synthetic additives
- GMO food - made from genetically modified ingredients
- “Homemade food” - food produced in small businesses that is close in taste to home-made food
- “Organic” food - food that is heavy on hormones, antibiotic

**Questions to the lecturer** Mindaugas Petkevičius (farmer and head of the cooperative “Ekotikslas”).

**Question.** Are you ever planning to switch to biodynamic farming DEMETER, because there is a lack of Demeter livestock products in the market, why to buy a german Demeter if it could be lithuanian?

**Answer:** DEMETER is a higher standard, in my opinion, but you have to believe in what you are doing. Demeter is based on lunar phases, microgranule fertilization..so the product is good but its production is complicated. So we have no plans to do this.

**Question.**What will change when you start producing milk under the new approved directive in year of 2022. Is there any change in the dairy sector compared to the older directive of 2007 year?

**Answer:** There are basically no strong changes in a new directive. Maybe some adjustments to the milk purchase contracts will be needed. The changes will affect farmers with stricter requirements, manure storage, environmental protection.

**Question.** Is there any hope that farmers will export more than 80% in the future? How much space is there to expand with exports?

**Answer:** No. I think it is only possible to expand the export only to the Polish side. Although we have been transporting milk to Germany for a year and the milk has met all the quality requirements (since it was of ideal quality from the very beginning), I do not think that there will be a lot of exports and will increase the price in the future.

**Question.** How many members in the cooperative?

**Answer:** Right now 62 member.

**Question.** What is the size of the farms according to the number of cows?

**Answer:** from 10 to 120 cows.

**Question.** Do you pay the same price to farmers for the milk which is delivered, or depending on the farm?

**Answer:** No, different price, depending on the amount of milk, but the difference in price is very small.

**Question.** What do you think about the Green Course?

**Answer:** very difficult question. A Green Course is basically a good thing, you just need to be able to come to the course and meet the requirements. These conditions must be established by the Ministry of Agriculture. It provides rules under which farmers will have to implement the Green Course. So when running the rules, the Ministry of Agriculture must consult with associations, the Chamber of Agriculture of the Republic of Lithuania, just to communicate.