IOWA STATE UNIVERSITY
Extension and Outreach

DAIRY GOAT News & Views from ISU Extension Dairy TEAM

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Larry Tranel


Jenn Bentley


Fred Hall

NE/NW Iowa Dairy Goat Seminars a Big Hit!

There was much interest with our dairy goat seminar in Kalona on December 8th and in Sioux Center on December 9th. Approximately 75 dairy goat producers and allied industry participants attended with results showing both learning and appreciation for the information that was presented.

We are looking for Dairy Goat Financial Profit Participants. Dairy goat producers have lots of questions about profitability in milking goats. ISU Extension and Outreach is hoping to find 15-20 dairy goat producers who would like to do a full cost of production analysis with their 2023 data. With each farm's finances held in strictest confidence and without inquiring about farm debt levels, the project aims to determine each farm's cost of production but also do a profit analysis as an added benefit that looks at financial ratios and production efficiencies. If your operation would like to be part of the project, please call Larry Tranel at 563-583-6496 or email tranel@iastate.edu .

It is hoped this information inside, our seminars, webinars and farm visits continue as ways to assist our dairy goat producers become better and more profitable.

Sincerely,

Jenn Bentley and Larry Tranel
ISU Extension Dairy Field Specialists, NE and SE Iowa
Fred Hall
ISU Extension Dairy Field Specialist, NW Iowa
Newsletter edited by: Larry Tranel

ISU Extension Dairy Team
"Bringing Profits to Life"

Happy New Year! All Kidding Aside 😊

ISU Dairy Goat Webinars, 2024

Friday, January 19: "Nutrition for feeding closeups to maximize health in the close up and fresh period"
Andrea Mongini, DVM MS, M&M Veterinary Practice

Friday, February 16: "Neonatal Diarrhea in Goat Kids"
Dr. Paul Plummer, Iowa State University College of Veterinary Medicine

Wednesday, March 20: "Raising Buck Kids"
Carolyn Ihde, Small Ruminant Extension Specialist – UW Extension/Iowa State University Extension and Outreach

Friday, April 19: "Using Functional Type Assessment to Improve Milk Quality"
Dannie Louie, ADGA Linear Appraiser

Wed, May 22: Biosecurity - preparing for shows, health and identification requirements, keeping animals healthy at the fair
Rachel Friedrich, Dipl. ABVP – Food Animal, Clinical Assistant Professor, Food Animal and Camelid Field Services, Veterinary Diagnostic and Production Animal Medicine, ISU College of Veterinary Medicine

June-July-August – no webinars

Wed, September 18: "Respiratory disease in Dairy Goats" Dr. Rachel Friedrich and Dr. Amanda Kreuder, ISU College of Veterinary Medicine

Wed, October 23: "Small Ruminant Abortion Diagnostics" Alyona Michael, ISU College of Vet Med

TBD - November: "Common diseases in small ruminants and approach to farm management"
Dr. Anne Jablinski and Dr. Vengai Mavangira, Iowa State University College of Veterinary Medicine

TBD December Date/Topic

Registration link:
https://iastate.zoom.us/meeting/register/tJArdu2vrjMuHdypXAFD8hWHOAIESUmHm9N7
https://go.iastate.edu/2024DAIRYGOATWEBINARS

Please Join us for the above Dairy Goat Webinars!

Navigating Milk Composition and Quality in Dairy Goats by *Dr. Gail Carpenter, State Dairy Extension Specialist, Iowa State University*

Dairy goat producers understand the delicate balance required to maintain optimal milk quality in their herds. Achieving the right levels of fat and protein content is essential for product quality and reflects the goats' overall health and performance. As producers aspire to produce high-quality milk, understanding and managing somatic cell count (SCC) and mastitis become paramount.

Milk composition is intricately tied to various precursors: glucose, amino acids, fatty acids, and minerals. For ruminants like dairy goats, acetate and butyrate also play vital roles in shaping milk characteristics. Milk fat, a key component in dairy products, originates from dietary fatty acids and *de novo* synthesis. This term refers to the process by which the mammary gland produces fatty acids on its own through precursors. Acetate and butyrate are produced by the digestion of feeds in the rumen, providing the building blocks for *de novo* synthesis. High *de novo* production of fatty acids is strongly linked with higher milk fat levels. Therefore, a strong link exists between high milk fat production levels and good rumen health. Importantly, good rumen health is also closely related to milk protein production.

Forages are pivotal contributors to the dairy goat diet, serving multiple purposes. Beyond essential energy, forages supply necessary proteins and promote rumen fill, contributing to overall rumen health. This symbiotic relationship between forages and the rumen's microbial community becomes crucial in optimizing the production of microbial crude protein in the rumen. As microbes break down dietary forage, a balance of nitrogen and energy sources becomes imperative for their growth, directly influencing milk protein levels.

In addition to components, udder health is critical to producing quality milk. SCC is a critical metric in evaluating milk quality. Unlike cows, goats typically exhibit higher SCC levels, although this does not necessarily correlate with infection. As a result of the mechanism that goats produce milk, they shed more of their own cells into milk, which lab tests interpret as SCC.

However, it is still possible for goat producers to use SCC as an indicator of subclinical (no visible symptoms) mastitis, a common concern in goat herds, even those who do not experience high levels of clinical (visible symptoms) mastitis.

Achieving levels below 1 million is achievable and is often incentivized by creameries. Monitoring SCC involves various methods, from bulk tank assessments providing herd-level information to monthly DHI tests and laboratory examinations such as the California Mastitis Test (CMT). CMT is an effective, economical screening tool for individual goats. This cheap and easy test can easily identify goats with SCC > 1 million. Incorporating CMT into your routine enables early detection and targeted management of udder health.

Ensuring high milk quality goes beyond SCC monitoring; it involves meticulous attention to various aspects of goat management and milking practices. Maintaining a clean and dry environment in the pen, employing best practices in the parlor (including clean udders and hands/gloves), and implementing calm and stress-free doe handling all contribute to superior milk quality.

In conclusion, maintaining high-quality milk in dairy goat operations involves many aspects of nutrition and management. By integrating these management practices, dairy goat producers can consistently produce high-quality milk from a healthy herd.

Ihde Joins ISU Extension with Joint UW appointment as Small Ruminant Specialist

Carolyn Ihde is the Small Ruminant Outreach Specialist for the University of Wisconsin - Madison Division of Extension and Iowa State University Extension and Outreach. Ihde will work toward building the Extension Small Ruminant Program in Wisconsin and collaborate with Iowa State University Extension & Outreach to bring Extension programs to Iowa's Small Ruminant Producers.

Carolyn has worked with small ruminant producers, Extension Educators and specialists, and industry stakeholders to create engaging programs for beginning and experienced producers as the UW-Madison Extension Agricultural Educator in Crawford and Richland Counties. Carolyn believes that obtaining continued knowledge and experience and analyzing data, procedures, and goals are the keys to profitable small ruminant enterprises.

Carolyn has a Master of Science in Agricultural Education from Iowa State University. She lives in Clayton County, Iowa, and raises sheep for meat and fiber production. When she is not creating educational opportunities and tending the flock, she can be found growing flowers, sewing, and bead weaving. Carolyn can be reached at 608-262-3803 or cihde@wisc.edu

Use the Secure Goat, Milk & Mohair Supply Plan to create a sound biosecurity plan by Carolyn Ihde, Small Ruminent Specialist, UW-Madison Division of Extension and ISU Extensino and Outreach

Adding animals to the herd or bringing animals home from an exhibition or show significantly increases the biosecurity risk to your goat operation. Knowing and implementing the proper biosecurity steps daily will reduce the possibility of an infectious disease outbreak, animal morbidity (illness and disease), mortality (death), and costs associated with treating sick animals. A sound biosecurity plan can be broken down into small steps that can be easily incorporated into the daily routine.

The American Goat Federation has recently released the Secure Goat, Milk, & Mohair Supply Plan (SGMMS) as a resource for producers, veterinarians, processors, and regulatory officials in the event of a foreign animal disease (FAD) outbreak, specifically Foot and Mouth Disease (FMD). However, the plan can be used to create a sound biosecurity plan to control the spread of endemic diseases. Developing and implementing a biosecurity plan using the SGMMS sooner rather than later will also give producers time to practice and evaluate the feasibility and effectiveness of the plan. Knowing every operation is different, the SGMMS gives producers the flexibility to create an individualized plan to work best for their operation.

The SGMMS is a comprehensive resource guide. The resources can be used to create a strategy where biosecurity measures are implemented slowly over a period of time. Begin working on these steps to get started building a sound biosecurity plan:

- Premises Identification Number (PIN)
    - Obtain or verify PIN, a unique number assigned to the physical location where animals are located.
- Post signs
    - Inform workers, visitors, and those involved in the operation about biosecurity protocols.
- Self-Assessment
    - Evaluate your current biosecurity actions to determine areas of strengths and weakness.
- Safeguard with Line of Separation (LOS)
    - Create a clear separation between your animals and disease risks.
- Logging movement of animals and vehicles that cross the LOS
    - Keep precise records to track ways the infection can enter your farm.

Continue to study and work to create, implement, and evaluate a sound biosecurity plan to reduce the risk of endemic and foreign animal diseases. Being prepared and practiced will allow goat operators to focus on the health and safety of animals and not create and implement mandatory biosecurity measures. Doing so now will reduce stress on farm workers and managers during a FAD outbreak.

Remember, implementing a sound biosecurity plan is not only for an FAD outbreak. The plan can help reduce risk and loss associated with normal animal movement if adequately followed. Visit the SGMMS website at https://securegoat.org/ or contact Carolyn Ihde at 608-262-3803 or cihde@wisc.edu to discuss the steps you can take to begin building a solid biosecurity plan.

Iowa Department of Agriculture & Land Stewardship. (2023). https://iowaagriculture.gov/animal-disease-traceability Secure Goat, Milk, & Mohair Supply. (2023). https://securegoat.org/

Make Cheese at Our March 12th Dubuque County Extension Cheese Making Class!

Learn how to make cheese by attending this home cheesemaking workshop, coordinated by ISU Extension and the ISU Creamery! Learn about the essentials of sanitation, equipment & supplies, and cheesemaking, then make delicious fresh cheese, in this 3-hour workshop. Cost is $10 per person. Supplies and lesson included. Our instructors are from the ISU Creamery and the session tentatively runs from 12:30 – 3:45 pm.

Topics Included:

- Overview of sanitation, equipment & supplies
- Hands-on cheesemaking experience steps
- Recipes for Queso Fresco, Ricotta, String Cheese
- Wrap-up discussion/observations/questions

What you need to make most cheeses:

- All the materials can be acquired in local stores.
- **Whole milk** Non-homogenized milk is used for commercial cheeses–not needed for queso fresco
- **Cultured buttermilk**—found in the dairy case.
- **Junket rennet tablets**--near gelatin/pudding.
- **Salt, Dishwashing Detergent and Bleach**.
- **Large pots,** a **slotted spoon,** a **colander** or **strainer,** a **bowl,** a **measuring cup**, and a **tablespoon** may be in your kitchen. If not, take a trip to the gadget section in the grocery store.
- **Cheesecloth** and a **thermometer** (stick or candy) may be found in a grocery store's kitchen gadgets.
- A long, thin, narrow "icing spatula" is best, but a knife can suffice if none is available.

Register with Dubuque County Extension at 563-583-6496 or email tranel@iastate.edu

Managing for Reducing Mastitis

by Jenn Bentley, Dairy Field Specialist,
ISU Extension and Outreach
Reprinted from American Dairyman magazine

Mastitis is an inflammatory condition of the mammary gland (udder) and can play a significant role in a dairy goat's health and longevity in the herd. Not only does mastitis impact the dairy goat, but also the producer's income. Mastitis can directly reduce farm income through decreased milk production and cost of treatment. It can also indirectly impact the farm when factors such as time and labor to treat clinical cases, long-term decreases in production, culling and replacement costs, and loss of milk quality bonuses are considered.

Mastitis develops when bacteria gain access to the udder, via the teat canal. The teat end can be damaged because of over milking, poorly maintained milking equipment, how the clusters are removed during milking, getting teats caught on brambles or wire or because of teat biting. Other factors which may increase the incidence of mastitis include general sanitation both in the parlor and where the goats are housed and milking procedure protocols.

Signs of mastitis can include a decrease in milk production, changes in milk color and texture, and lameness. If kids are nursing, they appear to be hungry or kid mortality increases. The udder shape is another sign of mastitis. A swollen udder that is hot, reddened, and painful to touch may be an indication of an acute infection. A withered udder may be firm and show no signs of pain but may be an indication of a chronic infection. General illness symptoms can occur such as depression, fever, or loss of appetite.

Proper diagnosis using a combination of signs and symptoms the doe is expressing, taking a bacterial culture to determine pathogen, and reviewing somatic cell count (SCC) will aid in a more immediate action of a mastitis problem. Somatic cells are leukocytes (white blood cells per mL of milk) which increase in numbers to help fight off germs and often indicate the severity of the infection. Dairy goats generally have a higher SCC than dairy cattle and so the interpretation is a little more complex. Other factors such as stage of lactation and breed need to be considered for the dairy goat when reviewing SCC. Finding the cause of mastitis will reap the most reward both productively and financially.

Contagious mastitis occurs when microorganisms (germs), live in the udder of sick does and are highly contagious during milking to healthy does. It is mainly due to organisms *Streptococcus agalactiae*, *Staphyloccocus aureus,* and *Mycoplasma.* Often, contagious mastitis can be spread through milking equipment due to poor hygiene or post milking procedures. Good milking hygiene using clean or disposable gloves and use of a pre or post dip, can help minimize the risk of infection and spread of disease.

According to the 2019 NAHMS Goat Study on Milking Procedures and Milk Quality on U.S. Dairy Goat Operations[1], milking protocols that were implemented included by dairy goat producers included: using disposable gloves (17.7%), washing teats before milking (76.3%), using pre-dip on teats (11%), fore stripping does (76%), drying teats with a single use cloth/paper towel (33%), and using a post-milking teat disinfection (63%). Liner slips should be avoided to reduce the introduction of pathogens being pushed in with outside air. A routine milking equipment maintenance program will go a long way in preventing contagious mastitis.

While bringing does in for milking, regular inspection of udders is very important to catch any signs of swelling. Separating known infected animals and milking them last will help reduce transmission. Culling may be the best option for chronic mastitis cases or cases that have been identified as untreatable. Identifying contagious mastitis early will be beneficial to keeping the problem from growing quickly.

Environmental mastitis occurs when microorganisms live in the environment, waiting to enter a doe's udder through the teat canal, causing damage to the milk-producing tissue. These germs can be found in the bedding, manure, and soil. They include organisms namely: Coagulase negative *Staphylococcus* spp., *E. coli, Klebsiella, Pseudomonas* spp., *Streptococcus* spp., and *Bacillus* spp. Inspect the does coming into the milking area for cleanliness, making sure to wash and dry udders if needed. If does are noticeably dirty, then housing and bedding should be inspected, making sure they have clean, dry bedding and pens are not overcrowded. This should be done regularly as the weather elements change and the need to respond to increasing or removing dirty bedding is critical.

Best management practices for managing mastitis:

- **Identify the bacteria** causing the mastitis using culturing to determine if it is coming from the environment or spread from doe to doe. Once identified, an appropriate treatment plan and control measures can be implemented effectively. Antibiotic treatment plans should be reviewed with your veterinarian.
- **Evaluate the genetics** of the herd. Can improvements be made in genetic selection to improve udder attachment, teat placement, and other udder health traits?
- **Monitor somatic cell count**, taking into consideration non-infectious factors that increase SCC in goats (estrus, parity, stage of lactation, stress). The current recommendation is to perform somatic cell evaluations on each

individual animal every 3-4 weeks throughout the lactation. This can be accomplished through routine Dairy Herd Improvement (DHI) testing which aligns with the American Dairy Goat Association's Dairy Herd Improvement Registry (DHIR). Producers may elect to have a full-service test done monthly by a DHI-certified testing supervisor or can self-submit samples depending on whether they participate in the DHIR program. Regardless of sample collection method, DHI provides producers with electronic records of each test day's data which allows tracking of individual animal and whole-herd data throughout the year.

This is the most effective method of evaluating trends in somatic cell counts as well as milk production and component levels. Not only is this valuable for detecting subclinical mastitis events but it can also assist producers in management decisions based on other production metrics.

- **Keep a good record-keeping system** as it's important to track the name/number of the doe, affected teat, dates and duration of the infection, type of treatment, length of withdrawal period, and outcome of the treatment. This will be beneficial in having conversations when reviewing issues or trends with your farm and veterinarian.
- **Selection of does to cull** will be different on each farm. These decisions are based on economic factors, emotional ties, and pedigree of the animal.
- **Dry of management practices** vary. According to the 2019 NAHMS Goat Study on Milking Procedures and Milk Quality on U.S. Dairy Goat Operations, dry-off management practices included skipping milking before completely drying off (88.7%), utilizing the California Mastitis Test or other individual-doe SCC test (5.4%), reducing the quality/energy content of feed (55%), reducing access to feed (31.4%) and water (2%), treating any does at dry-off with intramammary antibiotics (21.1%), and using an internal or external teat sealant (6.5%).

Milk procedures and management can vary widely in dairy goat herds depending on size, type of milking system, breed, genetics, and overall goals of the operation. What is common is that mastitis can be a costly disease, both financially and productively to any dairy goat farm. Implement best management practices including milking routines, milk quality testing, and dry-off procedures, culling and treatment decisions, and record-keeping will help improve the health and quality of milk being produced.

[1]*https://www.aphis.usda.gov/animal_health/nahms/goats/downloads/goat19/goat2019-milking-procedures-milk-quality.pdf*

January 24 @ 7:30 PM CST - *Abortion & Respiratory Diseases in Sheep & Goats*
Maggie Highland, DVM, PhD, DAVCP

February 21 @ 7:30 PM CST - *Lamb and Kid Care*
Roselle Busch, DVM

March 27 @ 7:30 PM CDT - *National Sheep Improvement Plan*
Rusty Burgett, NSIP Program Director

April 24 @ 7:30 PM CDT - *Prepare for the Grazing Season*
Dr. Andrew Weaver

Extension UNIVERSITY OF WISCONSIN-MADISON

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What is a VCPR and Why Do You Need One? *By Jenn Bentley, ISUEO Dairy Field Specialist*

The impact of animal health on a dairy goat herd is important in that it can mean the difference of a very healthy to a not so healthy herd and everything in between. A health veterinary – client relationship is key to a healthy herd. Successful and profitable dairy goat herds tend to have good relationships with their nutritionists and veterinarians as the nutrition and herd health tend to go hand in hand.

VCPR stands for Veterinarian Client Patient Relationship. It is a written agreement and formal relationship that identifies the veterinarian who knows you and your farm well enough to provide guidance and treatment of your animals. This agreement builds a trusting relationship between the herd owner and veterinarian, keeping productivity and profitability in mind. For more information on establishing a Valid Client Patient Relationship the American Association of Small Ruminant Practitioners has developed a handout available here: https://www.aasrp.org/Common/Uploaded%20Files/resources/VCPR2020.2F.pdf

A VCPR is now required for any purchase of prescription medications and extra-label use of drugs. There are many benefits to having a VCPR including knowledge and resources around animal health, biosecurity, assistance in troubleshooting issues on the farm. A VCP is much like having a primary health or family doctor. This is someone you regularly communicate with about prescription needs, changes in health, or referrals for specialized services. An overall goal of this relationship is to prevent health issues before they occur rather than simply reacting to concerns when they occur.

As herd owner, your role in a VCPR is to have active communication with the veterinarian so they know of any health changes to the herd. This allows the veterinarian to diagnose and make a treatment plan based on your farm's history and animal health. Through this open communication, you can ask questions to make sure you understand the health treatment being prescribed. With this agreement, you are also asked to follow through with your veterinarian's instructions.

Keeping records of animal health is also very important to the care of the animals as well as helping in discussions you may have with your veterinarian. Good records help the veterinarian understand patterns of health incidences that might otherwise go unnoticed without proper records.

The veterinarian's role is to assist in developing an agreement that reflects how and when you will communicate and work with each other. Once the agreement is established, a farm specific health and treatment plan can be discussed. This allows the veterinarian to diagnose and treat animals based on clinical judgement and animal health history, provide medical care and oversight of treatment as well as assist in maintaining health records for your animals.

This type of agreement becomes quite valuable to you as the herd owner in managing and identifying ways to improve animal health. Many veterinarians offer a wide range of additional services that can add value or save costs for your dairy goat operation.

Reprinted in part from American Dairyman magazine

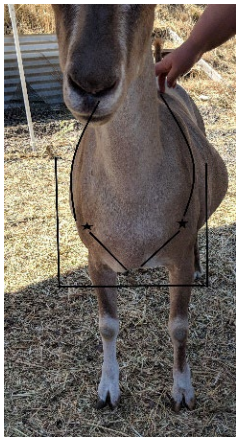
Type Traits Function and Relation to Milk Quality and Production

By Danni Louie – BlissBerry Dairy Goats

Correct type in dairy goats is not only important for the well-being of the animal but can also play a crucial role in the overall production and milk quality traits. The American Dairy Goat Association (ADGA) has a scorecard with points assigned to the various structures of the dairy goat. This scorecard is unified in which traits are considered desirable across all breeds of dairy goats. The goal of the ADGA unified scorecard is "To aid in the selection of the type of dairy goat that can function efficiently over a long productive lifetime".

The traits described in the scorecard are important to the overall function of the dairy goat from walking, eating, drinking, to getting in and out of the milk parlor. They also contribute to creating the overall shape and essence of the dairy goat. For this article the focus will be a few key traits and their relation to the function of the dairy goat.

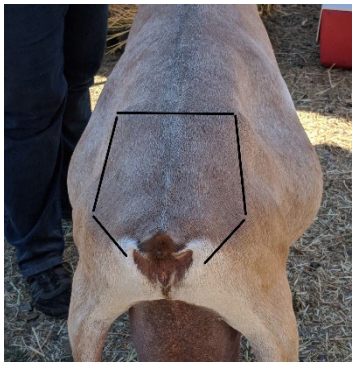
Front End Assembly really sets the stage for the animal. When viewing the animal from the front, we want to see the animal being narrower at the top of the shoulder and gaining depth and width as we move down to the chest floor. As the animal walks towards you it should lead with its chest floor and not the point of shoulder. See right photo.



In side profile, see left photo, there should be moderate extension of the brisket and the front leg should be placed under the high point of the withers.

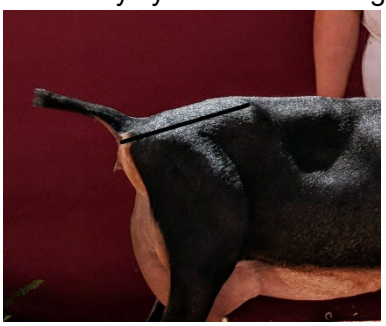
A correct Front End Assembly helps support the back of the animal as well as support the front legs. It provides the space for vital organs such as the heart and lungs, as well.

Rump Structure plays a very important role in the housing of the mammary system. This in turn affects the production and overall milk quality of the dairy goat. The rump structure is essentially the garage of the mammary system. Whatever size mammary system the animal has must fit within the rump structure.



Rumps are considered correct in structure when they are uniformly wide with thurls placed two-thirds the distance from the hip bones to pin bones. See right photo.

In side profile the rump should be slightly higher at the hips than the pin bones with the thurls set closely in the line from hips to pin bones. See left photo. This correct structure of the rump lends to having space for the mammary system with rear legs that can easily walk around the mammary system without repeatedly hitting the mammary system. As thurl placement drops, narrows, or becomes unbalanced within the proportion of the rump, the rear legs change in their set.



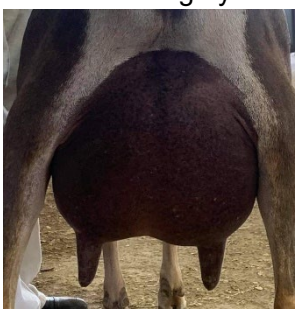
This often produces animals with narrow, turned in hocks, and straight legs. These types of animals can no longer accommodate capacious mammary systems as the rear legs hit the mammary system as they walk. This can result in the animal blowing out their stifles or breaking down their mammary attachments.

Commonly, we will see these animals drying off one side of their mammary system or the mammary system twisting to be accommodated in the narrow space. These issues can also be seen in animals with correct rump structure but that have been selected for extremes in mammary traits. Such as, extreme area of attachments in height and width of rear udder. The mammary system again no longer fits in the space provided.

It is important to keep the balance of the dairy goat in mind when selecting mammary system traits. As stated above the mammary system must fit on the animal. Ideally, we want the animal to have the largest capacity and area of attachment that the animal can maintain in an efficient and healthy manner. This maximizes production of the animal. In the descriptions of the mammary system traits the scorecard doesn't promote extremes. Normally to have an extreme is to give up balance. The repeating theme for the mammary system traits is to provide support to capacious and balanced mammary system.

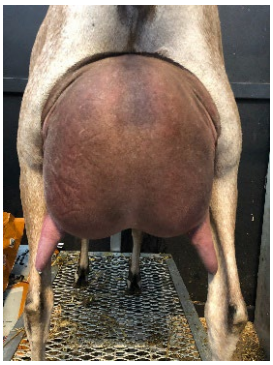
It's important to recognize that capacious mammary systems have shape and are balanced in size with relation to the animal's body. In side profile one-third of the mammary system should be seen in front of the leg, one-third hidden behind the leg and one-third coming out behind the leg. See right photo. The mammary system should not protrude too far beyond the vulva as this can lead to a sanitation issue which can in turn lead to mastitis.

Teat placement plays an important role for udder health and ease of milking. Teats placed two-thirds the distance from the medial are considered optimal for ease of milking by machine or hand. See left picture.



This also allows for milk to fully drain from the mammary system as well as keep the teat ends from hitting the animals' legs as they walk. As the teat placement widens, milk can pool below the opening of the teat making it impossible to milk the mammary system out fully without manipulation.

See right photo. Wide teat placement also causes the teat ends to rub the rear legs. This can cause the teat orifice to open and let milk be expressed and allow bacteria to get into the mammary system. All of this can affect the animal's overall production and milk quality.



Correct type plays an important role in the dairy goats' ability to have a long and productive lifespan. Focusing on breeding for the correct type not only can help increase your animals productivity but it can also increase the animals wellbeing and longevity.

References: American Dairy Goat Assoication Unified Scorecard 2023.

Picture Credit: Goat-San Dairy Goats and BlissBerry Dairy Goats

ISU Extension and Outreach Dairy Team wishes to thank Danni for presenting at our 2023 Dairy Goat Seminars in Kalona and Sioux Center.

What Do We Know About Subclinical Mastitis in Dairy Goats?

by Michelle Buckley, DVM, ISU College of Vet Medicine

Subclinical mastitis is common in dairy goats. Our research shows that upwards of 40% of clinically healthy does may be infected with non-aureus *Staphylococci* at dry-off. These infections can decrease productivity, increase somatic cell count, and decrease the productive life of a doe. Long-acting intramammary antibiotics (dry treatments) can cure more than 70% of infections when administered at dry-off.
However producers can also expect some level of new infections in the post-fresh period – our data suggests approximately 25% of does treated at dry-off may experience new infections after freshening.

Preventative measures are another highly effective method for mitigating subclinical mastitis issues. Incorporating proper milking hygiene into the routine can go a long way toward maintaining udder health. Each goat's teats should be wiped with a clean cloth before betadyne pre-dip is applied. Maintain contact time for at least 60 seconds before wiping it off with another clean cloth or paper towel and stripping 1-2 squirts from each teat before applying the milking machine.

Non-return dip cups should be utilized and each dip cup should be emptied and set out to dry between milkings. Apply a betadyne teat dip after milking is complete and ensure that fresh feed is put out for does during milking so that they go straight to the bunk when they return from the parlor. This will allow time for the teat's natural defense mechanism (the teat sphincter) to return to its closed, protective state before the udder comes into contact with the ground when animals lay down.

All milking equipment should be sanitized between each milking as well. Rinse all equipment with lukewarm water (100-110°F) immediately after milking. Wash or soak all milking equipment in chlorinated alkaline detergent solution diluted in hot water (120-135°F) specifically made for milking equipment to eliminate any milk solid residues on equipment. Rinse immediately with warm water (100-110°F) before applying an acid rinse in cold water for 2-3 minutes to prevent mineral accumulations. Equipment should be allowed to dry after each wash cycle.

Finally, 30 minutes before the next milking is to begin, soak equipment in chlorine-based sanitizer diluted in lukewarm water (100-110°F) to destroy any lingering bacteria. Be sure to pay attention to recommended manufacturer maintenance for all equipment and replace rubber hosing and all teat cups accordingly to avoid equipment malfunctions or cracking which can harbor bacteria and contribute to mastitis development.

Subclinical mastitis can present significant production challenges for dairy goat producers and can be a frustrating problem to eliminate from your herd. Although intramammary dry treatment can be one effective method of eliminating current infections, utilizing sound milking hygiene and equipment sanitation can help to prevent infections from developing in the first place.

Annual Dairy Goat Seminar Benefits Producers *by Fred Hall, Dairy Field Specialist, ISU Extension and Outreach, NW Iowa*

Sixty dairy goat herd owners from four states heard four presenters covering the topics of; mastitis identification, setting VCPR goals, identifying functional type, antibiotic use, financials and attended a milk quality workshop.

Ninety-one percent of the attendees were either producers or employees milking an average of 74 does with a range from 2 to 210. Over 95 percent were completely or mostly satisfied with the program. The past two years we have surveyed the attendees to assess the status and management trends of the herds in Iowa. While trendlines are unclear with just two years data, below are several of the topics we covered.

We found that 38 percent were planning on expanding their operations in the next five years plus an additional 31 percent would expand if a milk market was available. A significant number have plans to improve or change their milking system.

While a different mix of producers attend the seminar each year, trendlines do give us insights. For example, both in 2022 and 2023, bucket milkers were the most common milking system. In 2022, hand milking followed close behind; but in 2023 hand milking had fallen to third place with in-line parlors the second most popular.

How milk is used is greatly affected by those who attend and respond to the survey. We can surmise that over 25 percent is sold into a fluid milk market followed by family use including cheese and other edible products. The next highest usage is feeding to kids and other livestock.

When asked about feeding and nutrition, feeding all stored forage was the most popular with alfalfa hay being the main forage on 85 percent of the farms. Even with the economic advantage of feeding high quality corn silage, no herds include it in their forage list.

In 2019 the dairy team started asking about the significance of stress in farm families. During the pandemic years the concern peaked and has since diminished. However, the past two years it is rising to nearly the same levels as during the pandemic. While we are still seeing indications of personal stress in farm families, in neither year have there been instances that have prompted them to take action or intervention.

The complete summary can be found with link or code:
https://go.iastate.edu/2023DAIRYGOATSEMINARSUMMARY

Dairy Goat Budgeting and Profit Analysis by Larry Tranel, Dairy Field Specialist, NE/SE Iowa

The PowerPoint slide to the right shares the goals of this article which were the goals of my presentation at our 2023 Dairy Goat Seminars in Iowa. There are so many ways to look at our finances and profits but so often many look through lenses that might not show the true picture and at times are often mislead into thinking they have profits but when in reality that is not the case.

The Profitability Equation is:

Profit = (Price-Cost) x Volume

This same profit equation is depicted by financial measures below:

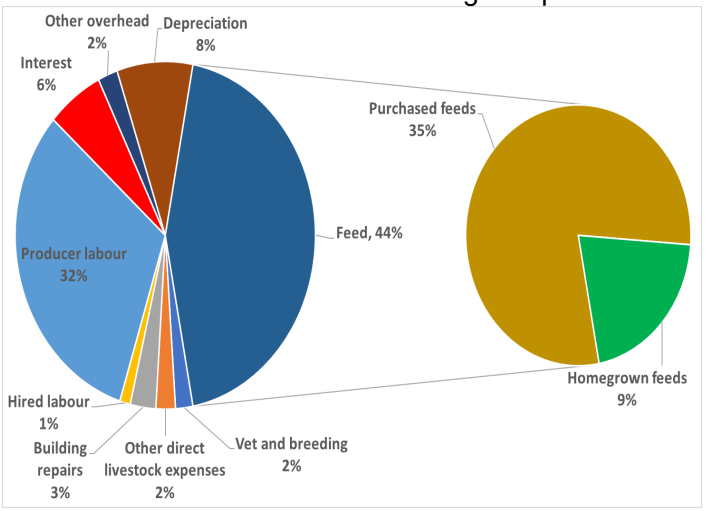
ROA = OPM x ATO

Profit equates to Return on Assets (ROA). To increase profit or ROA, one can increase price or reduce cost (Price – Cost) thereby increasing the Operating Profit Margin (OPM). Or, with the same OPM, one can produce more which is exhibited as Volume or Asset Turnover Ratio (ATO). These three financial measures of ROA, OPM and ATO are most important to profits.

A good ROA is a return higher than percent paid for borrowed monies and if a farm is returning more than they are borrowing for, that would be considered good debt. An OPM of 20% would be good meaning that for every dollar you are taking in, 20 cents is being kept in your pocket. An ATO of 33% would be good meaning the farm is grossing enough income to pay for all the assets in 3 years. If at 50%, that would be awesome as grossing enough income to pay for all the assets in 2 years. If the ATO is 33% and the OPM is 20%, the ROA is 6.67%, hopefully higher than the interest rate paid.

Ontario Cost of Dairy Goat Production Project

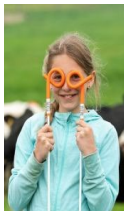
The last known USA cost of production project for dairy goats was done in Wisconsin in 2008-09 that was applicable to the Iowa dairy goat industry. Canada just released a study that seems to have similar cost structures to Iowa so relatable to our goat operations.



Source: Ontario Dairy Goat COP Study 2019-2021 – Final Report

Goals:

- Profitability Equation
- Share Financial Study on Dairy Goats
- Dairy Goat Budget
- Dairy Goat TRANS Financial Software
- Profitability Measures
- Cash Flow vs Profitability Concerns



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The previous graph shows why feed and labor are the first targets at reducing production costs as long as milk production is not sacrificed while doing so. Feed costs are 44% of the total cost with purchased feed being 35% of that and homegrown feeds only 9%.

Labor costs are 32% of total costs of production. Many dairy goat operations have room for improvement in this area, probably much more so than in the feed cost area. Compare this to a dairy cow operation where goat labor costs are twice that or 2-3 times more labor efficient on a per cwt. of milk sold as the average dairy goat farm.

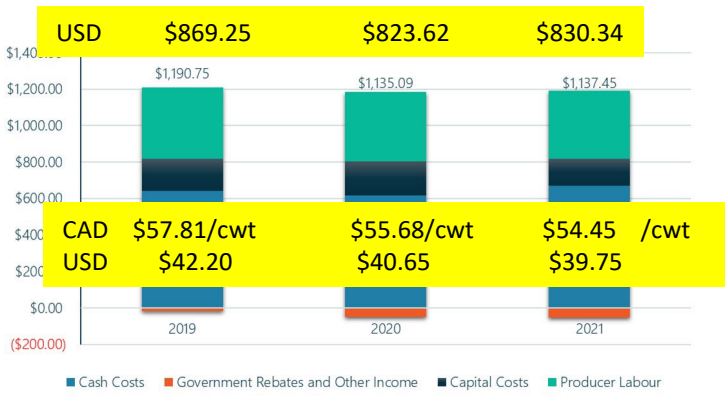
My sense is that labor inefficiencies and genetics are two of the biggest factors lessening profits on dairy goat farms. The table below shows on bottom line the cwts. produced per FTE (full-time equivalent of 3,000 hours annually) laborer just above the 400,000 lbs range. Compare this to a dairy cow herd that can produce triple that at 1.2 million pounds of milk per worker in systems that produce a much higher percent of their feed as well.

Ontario Cost of Dairy Goat Production

Increasing labour efficiency-- litre sold per labour hour

Person equivalents	**2019**	**2020**	**2021**
(3000 hrs/person/yr)	1.89	2.07	2.12
Litres per labour hour	61.3	62.6	65.5
Cwts. per labor hour	**1.3485**	**1.3772**	**144.10**
Lbs. per FTE annual	404,550	413,160	432,300

The table below shows the production costs per doe with cash costs being about 50% of total, capital costs in the 15% range and labor about 35%. Costs of production over the 2019-21 period hovered around $40-$42/cwt. which seems similar to Iowa producers.



Note: Exchange rate $1 CAD equals $0.73 USD

Using Dairy Goat TRANS for Profit Analysis and Benchmarking by Larry Tranel, Dairy Field Specialist, NE/SE Iowa

As producers gain interest in better understanding their financial picture and their profitability, ISU Extension has interest in producers participating in a financial study to better help producers compare profitability and benchmark their dairy goat operations. The following depicts the inputs need and the outputs gained.

Dairy TRANS 4.44 – Inputs:
Net Worth Statement Beginning and End
Schedule F and Cash Flow Items
Cows, Acres and Labor Hours

Dairy TRANS 4.44 – Outputs:
Net Farm Income & Cash Flow Statement
Cost of Production, Ratios, Benchmarks
Efficiencies per cow, cwt.eq., acre, FTE Laborer

The most important input is the beginning and ending net worth statement that is sort of like a still picture of the farm on January 1st each year. This picture includes all assets like feed, herd, crop, land and machinery inventory values. The same picture is taken end of year on Dec 31st. Then, taking the ending minus beginning, one is able to account for inventory change during the year, adjusting for capital purchases/sales, farm market value depreciation, differences in prepaid expenses and account payable. This is all necessary for an accurate financial analysis.

Next, the cash incomes and expenses can be taken from the Schedule F tax form. In addition, labor hours of both paid and unpaid personnel should be estimated for a total cost picture. It is NOT necessary to collect information on loans to do a profit analysis. Instead, an interest/equity charge is taken across all assets.

The output is depicted in the following column and exhibits the cash incomes and expenses in number value, per doe and per cwt.eq with a per doe benchmark. The many financial and production ratios have a goal or an average beside them (Note: these goals are averages need updating, thus the reason needing producers to participate in the study). Finally, the 16 financial ratios are then listed, also comparing the farm being analyzed by the goal and average with the ranking showing how farm the farm is between the goal and the average.

Iowa producers looking to use the Dairy Goat TRANS program can contact Larry Tranel at 563-583-6496 or tranel@iastate.edu for a free consultation on your farm. The following is a sample dairy goat operation analyzed through the Dairy Goat TRANS program. Notice even though Net Cash Income was positive with a positive inventory change also, after subtracting opportunity cost of equity at 5%, the return to labor is negative.

NET FARM INCOME STATEMENT					Goal
Farm Cash Incomes		**Yours**	**/Cwt.Eq.**	**/Doe**	**/Doe**
Milk Sales		$88,177	2,662	$441	$472
Cull Doe Sales		$1,668	50	$8	$10
Kid Sales		$5,353	162	$27	$25
Crop Sales		$3,000	91	$15	$0
Other Income		$17,568	530	$88	$65
Total Cash Income		$115,766	$33.12	$579	$572
Farm Cash Expenses		**Yours**	**/Cwt.Eq.**	**/Doe**	**/Doe**
Veterinary, Medicine		$1,293	$0.35	$6	$9
Dairy Supplies		$8,628	$2.32	$43	$40
Breeding Fees		$170	$0.05	$1	$0
Feed Purchased	B	$41,805	$11.24	$209	$175
Repairs		$5,090	$1.37	$25	$15
Seed, Chem, Fert		$5,133	$1.38	$26	$25
Fuel, Gas, and Oil		$6,569	$1.77	$33	$25
Utilities		$5,617	$1.51	$28	$25
Interest Paid	+	$3,208	$0.86	$16	$0
Labor Hired		$8,100	$2.18	$41	$0
Rent, Lease and Hire		$5,207	$1.40	$26	$20
Property Taxes		$2,103	$0.57	$11	$10
Farm Insurance		$2,737	$0.74	$14	$13
Other Cash Expense		$8,677	$2.33	$43	$25
Total Cash Expense		$104,337	$28.06	$522	$382
Net Cash Income		$11,429	$5.06	$57	$190
Inventory Change		$4,271	$1.15	$21	$20
*** Net Farm Income**		$15,700	$6.21	$79	$210
- Equity@	5.0%	$29,265	$7.87	$146	$110
= Return to Labor		($13,564)	($1.66)	($68)	$100

DAIRY TRANS Profit Performance Rating			Yours	Goal
Adjusted Gross Return per FTE Labor			$123,150	$139,112
Return to All Labor per FTE Labor			($5,464)	$26,637
Number of Does per FTE Labor			200	175
Cwts. of Milk Sold per FTE Labor			2,662	3,000
Pounds of Milk Sold per Doe			1,331	1,500
Total Debt per Doe			$153	$100
Productive Crop Acres per Doe			0.4	0.2
Capital Cost per Doe	$2,796	Invested/Doe	$177	$165
All Labor Costs per Doe			$191	$115
Fixed Cost per Doe	(depreciation, interest, repair, taxes, insurance)		$227	$200
Net Farm Income per Crop Acre			$196	$6,700
Pounds of Milk Produced per Crop Acre			3,328	60,000
Adjusted Gross Cash Income per Crop Acre			$1,539	$25,000
Machinery FMV per Crop Acre			$461	$500
Fuel, Gas and Oil Cost per Crop Acre			$82	$200
Repair Cost per Crop Acre			$64	$130
Fert/Lime/Chem/Seed Cost per Crop Acre			$64	$100
Livestock over Total Investment Percent			18%	35%
Cash Expense / Cash Income w/o Labor&Interest			80%	60%
All Labor as a Percent of Total Costs			23%	20%
Fixed Cost as a Percent of Total Cost			27%	25%
The "Sweet 16" of Financial Ratios as determined by the National Farm Financial Standard				
**Net Farm Income From Operations (NFIFO)			$15,700	$50,000
**Rate of Return on Assets	10.5%	Paid..*	-1.80%	8.0%
**Rate of Return on Equity	[1-5 Profit Ratios]		-2.44%	10.0%
**Operating Profit Margin			-9.01%	20.0%
**Asset Turnover Ratio	5.0	years	20%	45%
**Operating Expense Ratio	[4 Efficiency Ratios]		82%	55%
**Depreciation Expense Ratio			2%	5%
**Interest Expense Ratio			3%	10%
**Net Farm Income Ratio	100%		13%	35%
**Current Ratio	[2 Liquidity Ratios]		1.91	1.75
**Working Capital	[Goal=Family Living+Principal;Ave=half]		$26,365	$22,281
**Debt/Asset Ratio..[Solvency]...Begin...	5%	...End	5%	40%
**Equity/Asset Ratio...Begin...	95%	...End	95%	60%
**Debt/Equity Ratio...Begin...	5%	...End	6%	67%
**Debt & Capital Lease Coverage Ratio	[2 Repay Capacity Ratios]		1.23	
**Debt & Capital Replacement Margin			$1,690	

Cash Flow versus Profitability

by Larry Tranel, Dairy Field Specialist, NE/SE Iowa

Cash flow is often confused with profitability and at times misused to make "unprofitable" management decisions. Cash flow is NOT profitability! A farm can be highly profitable and not cash flow or have good cash flow while not being at all profitable.

Cash flow includes all sources and uses of cash for both the farm and personal accounts. A typical cash flow includes:

CASH FLOW STATEMENT		
Beginning Cash Balance		$800
Non-farm Income		$2,200
Income Taxes Paid		$70
Principal Payments		$4,281
Family Living Expenses		$18,000
Capital Purchases		$2,000
Capital Sales (exclude cull doe sales)		$3,141
New Monies (from loans, savings, ect.)		$0
Net Farm Cash Income		$11,429
Ending Cash Flow	-5.27%	($6,781)

Notice that many of these "cash flow" items may or may not have much to do with the farm itself, except of course the Net Cash Farm Income. Principal payments will only be found on the cash flow statement as not related to profitability. The interest paid is in the cash expenses but the principal is an investment, not an expense, made into the business and should NOT be thought of as an expense.

Profitability will use the Net Farm Income State and the Net Worth Statements (beginning and end) and marry them together to calculate profitability measures, led by return on assets (ROA), operating profit margin (OPM) and asset turnover ratio (ATO). Aside from these three, there are many ways producers might want to look at profitability that are pretty much all calculated in the Dairy Goat TRANS financial analysis program. To compare one farm's profitability to another the following three measures are used:

1) ROA – best to compare to financial markets
2) Return to Unpaid Labor per hour – best to compare to labor markets
3) Cost of Production per cwt.eq. – best to compare to milk price paid and margin of profit per unit of output

When comparing farms to each other, at times the best ROA might not have the highest return to unpaid labor or even lowest cost of production and vice versa. It is best to use all three measures to determine profitabililty.

Dairy Goat Budget, 2024

Budgeting for your dairy goat operation is important before beginning an operation and this budget can be used to determine profitability at year end as well but not in near the detail of a full financial analysis. Each year, the ISU Extension dairy goat budgets are updated and can be found at: www.extension.iastate.edu/dairyteam and a paper copy is included below for educational purposes:

ISU Extension and Outreach Dairy Goat Budget					2024	
					Per Doe	Does in Herd
Cash Incomes	**Price**	**Unit**	**Quantity**		**1**	**250**
Milk Sales	$43.00	cwt	18.00	cwts	$774.00	$193,500
Buck Kids	$35.00	head	0.90	head	$31.50	$7,875
Cull Does	$115.00	head	0.25	head	$28.75	$7,188
Doe Kids	$140.00	head	0.40	head	$56.00	$14,000
Other Income					$2.00	$500
			Total Incomes		$892.25	$223,063
Cash Costs						
Forage dry matter	$175.00	ton	0.90	tons	$157.50	$39,375
Grain Mixture	$0.160	lb	1350.0	lbs	$216.00	$54,000
Milk Replacer	$2.50	lb	12.5	lbs	$31.25	$7,813
Supplies					$25.00	$6,250
Breeding/Vet/Med					$17.00	$4,250
Bedding	$100.00	ton	0.15	tons	$15.00	$3,750
Fuel/lubricants	$3.50	gallon	3.00	gallons	$10.50	$2,625
Custom Hire					$10.00	$2,500
Utilities					$24.00	$6,000
Repairs					$37.00	$9,250
Other Expenses					$12.00	$3,000
			Total Cash Costs		$555.25	$138,813
Investment Costs	**$ FMValue**		**Depreciation**	**Interest**		
Equipment/Parlor	$40,000		5.0%	5.0%	$16.00	$4,000
Building/Housing	$30,000		7.5%	5.0%	$15.00	$3,750
Machinery/Other	$10,000		5.0%	5.0%	$4.00	$1,000
Livestock	$98,750					
Does	$325	head	0.0%	5.0%	$16.25	$4,063
Doelings	$200	head	0.0%	5.0%	$2.50	$625
Bucks (20 does/buck)	$400	head	33.0%	5.0%	$7.60	$1,900
Total Investment	**$178,750**		**Investments Costs**		$61.35	$15,338
			Total Costs		$616.60	$154,150
			Net Return to Labor		$275.65	$68,913
Labor Costs	$14.00	hour	18	hours	$252.00	$63,000
			Net Return Over Total Costs		$23.65	$5,912
			Approximate Rate of Return on Assets		8.3%	

Note the lighter cells are the variables to be input by the user and vary widely from farm to farm. The above budget again is a sample only for educational purposes.

This budget is positive with estimated 2024 pay price that does not include premium or deductions for quality or components. Costs were estimated from Ontario dairy goat project and former Wisconsin goat financial project studies.

For added information please visit our dairy goats and sheep tab at: https://www.extension.iastate.edu/dairyteam/dairy-goats-and-sheep

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Iowa Concern Hotline 800-447-1985 is available for:

Stress – available 24 hours/day and 7 days per week
Crisis – Free and Confidential
Legal Education – Dial 711 or TTY/TTD;
Financial Concerns -- iowaconcern@iastate.edu

211 is a free, comprehensive information and referral line linking Iowa residents to health and human service programs, community services, disaster services and governmental programs. This service is collaborating with the Iowa Department of Public Health to provide confidential assistance, stress counseling, education and referral services related to COVID-19 concerns.

Inside This Issue: