GOLD NOTES
Third Quarter 2018

Newsletter Date **Volume 1, Number 3**

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Great Resources about Goats

The Goat Library –

http://www.luresext.edu/?q=Library
Anything you want to know about goats is here!

http://www.luresext.edu/?q=Training
Web training for goat folks!

From the President

As the year rolls on, there is so much to reflect on. This past spring was the first kidding season for me, and I was not really prepared! There are many decisions to make as to how the kids will be raised. Because of my veterinary training, input of other goat folks, and with my goal being to raise healthy, quality breeding stock, hand raising kids with heat treated colostrum and pasteurized milk was what I had to do. Takes 20 seconds to say it, but doing it is another thing!!

The reason for heat treating colostrum and pasteurizing the milk they are fed, is that there are three diseases that can be transmitted by the doe, even if they consistently test negative. They are CAE, Mycoplasma and Johne's disease. The only way to be assured that the kids grow into healthy adults that do not harbor these diseases is to pasteurize the milk prior to feeding. Also please note that if you feed cow's milk, it also must be pasteurized because goats and cows can share some of these diseases. So, I will be one very happy lady when all the kids are weaned!!

Other options are simply bottle feeding with

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goat or cow milk or permit the dams to raise the babies. There are pros and cons for each. Bottle babies are much more social and easier to work with. When the dam raises the babies, there is not as much work because mama does it all!

There are always ways to improve. There are many ways to do things and we all need to make decisions regarding options that are right for us. In the meanwhile, I am enjoying the babies! All the bucklings are weaned and now taking time with the three doelings.

Have a great summer!
Gloria B Andrews, DVM
President, GGBOA

BREEDER PROFILE – JOAN STUMP
STUMPHOLLO GUERNSEY GOATS

My husband began keeping goats in 1981 and began showing in the mid 1980s. That is when I took over the breeding program. We showed Alpines for the next twenty years, eventually having both a Colorama and a Spotlight Sale entry. The year following the Spotlight sale, I also had a doeling selected for the National Show Raffle.

I had bred color-linked cream Persian cats for over ten years before getting involved with goats and had studied the genetics for the breeding of palomino horses, so it was no surprise that my interest was piqued by learning

that there was a breed of golden goats.

My interest in Golden Guernsey goats began in the late 1980s while I was working for the Dairy Goat Journal. In 1997, I heard of a GG semen shipment being brought into the country by Linda Campbell. I had a great American Alpine doe to use as a foundation, so I ordered a few straws of the semen. During the time I awaited this semen I arranged to visit South Wind Farm to see the Golden Guernsey goats for myself. During that visit, I convinced the farm manager to ask the owner if I could purchase a buck kid.

In 2002, Swind Panzer came to Stump Hollow from the South Wind purebred GG herd and our new breeding program began to take shape. Since then, I've had three more carefully selected purebred bucks…. Swind Rockafella. Swind Pendragon and Swind Paladin, along with imported semen from several purebred males in the UK.

These were crossed with the best of my French and American Alpines, to begin with genetics that should improve conformation and production. I then approached the British Goat Society with a request to use their herd books to officially register grading up offspring from the breeders in the US. They gave their approval and the Guernsey Goat breeding program, in the US, was begun in earnest. I can not thank the BGS enough for all the help they have provided us in this endeavour.

I am now using fully bred-up British Guernsey bucks, in the process of blending the various bloodlines into one completely harmonious breed. There is still a ways to go... but I feel that the US breeders are well on the way to bringing

the amazing Guernsey goats to the current goat world.

Below are several of my original first and second crosses, using both French and American Alpines.

BONUS BREEDER PROFILE- Jolene Jantzi

My family has been in livestock for as long as I

can remember, from showing mini horses at National level when they were first introduced in the US as exotic animals, to Grade A 100+ goat dairy many years later. Livestock raising began for myself as I started out my 4-H years with market and breeding sheep, and then moved to goats for my remaining 6 years, winning GCH market goat, and many champions and Best in Shows with my Boer and Dairy does. The love for the dairy goats still lingers with me today as I manage the goat herd on my family's dairy, and build my herd of Guernseys using the best genetics available.

I had heard of the Golden Guernsey goats but had no idea they were in the States, until 2006 when my sister and I were breeding some of our 4-H does out at a friend's farm and we were introduced to her new buck who had just arrived from New York - a purebred Golden Guernsey "Swind Plymouth". Breeding plans were quickly changed and we had Plymouth kids on the ground the following spring! Boys were born unfortunately, but I was hooked on the breed with those fuzzy golden babies. When Plymouth came available the next year he became my first and foundation herd sire, covering my best Swiss show does to start a breeding up program. In 2009 a new sire was needed for Plymouth's daughters so I traveled to WA and purchased Bluecollar MeadowLark, an A/I son of Peacload Pureglow, from Diane Gray. Two higher percentage does - Bluecollar GoldBerry, a GG Swind Copper daughter, and Bluecollar LuckCharm, a GG Swind Prince daughter - were also acquired that year

and although both were lost the first season to kidding complications, their offspring have contributed greatly to the herd.

Now 10 years later and over with 100 animals registered with BGS, I find myself looking to a high standard when it comes to type and style in the breed. My breeding goals are simple; to see the Guernseys competitive in our US shows and in the milk bucket. Both which I feel will ensure the life and expansion of the breed in not only small herds but in larger show and dairy herds where they will continue to be bred and registered. Having shown and studied dairy conformation for several years before beginning my Guernsey herd it has been very beneficial when selecting stock for breed improvement. From the very beginning does with poorly attached udders, frail boned, or extremely heavy shouldered with weak backs, were culled from the herd. Kids born with teat defects, and black or brown color or spots never go into the breeding program. I do permit high quality animals carrying white markings on their legs or body, as per our ADGA breed standards, to remain in my breeding program IF they meet all my other expectations, but white markings is not a desired trait and are being bred away from. To reach my expectations Golden Guernsey males are used as often as possible to keep the breed standard and qualities - the coat color and length, head style, ear type and set, calm gentle nature, and rich milk components - but with improvements seen little by little in udder attachment, flatness of back, and stronger pastern and hoof, by careful

selection and breeding the highest quality Swiss does into the gene pool.

I do plan to register my entire herd with ADGA when that comes available. Individuals may still be registered with BGS if the demand is there, but to register exclusively with BGS will in my opinion be detrimental to the breed in the US as it will prevent serious breeders and owners from taking advantage of programs such as LA or competitive showing. Also leaving horns on Guernsey breeding stock, as lovely as they are, will remove them from the majority of the show and dairy herds and reduce their marketability.

I look forward to the future of the "American" Guernseys in the US and seeing them our 10th ADGA breed!

Jolene Jantzi
Owner of the "Treasured" Guernseys
(ADGA herd name "Treasured Sunrise")

GGBOA VIRTUAL SHOW

The cutoff for the Virtual Show Entry is now August 31, 2018. So everyone has time now to get the Guernseys cleaned up and photographed!

http://guernseygoats.org/online-virtual-show-entry/

ADGA ANNUAL MEETING & CONVENTION

2018 ADGA Annual Meeting and Convention dates are **October 16-21 in Minneapolis, Minnesota**.

Address:
DoubleTree By Hilton
Bloomington Minneapolis South
7800 Normandale Blvd
Minneapolis, MN 55439

We encourage all of our members to consider and plan to go. It is like nothing else and there are great opportunities to learn and connect!

Please be thinking of articles/ items that you could donate for the Silent Auction that is our annual fundraiser at the convention. Please let us know if you plan to be present, as we would like to have representation at the table area to speak with other goat folks who would like more information about Guernsey goats!

POLLED GOATS – Douglas Dean

Soon after our first kidding season, my family and I quickly started to dream about kids born without horns. Especially for a beginner, the idea of disbudding is an especially daunting task. "Doesn't it hurt?" (Of course, but they get over it amazingly quick!), "Won't I burn their brains?" (Possible, but not likely if you follow the procedure!), and "It just seems MEAN!" (Maybe, but worth it to most breeders!) These are just a few of the many thoughts that run through the

head of most people when that first set of kids hit the ground. Shortly afterward, that dream of hornless goats usually begins. Such were the series of events at our farm. Of course, the reality of disbudding rested upon me. Being the husband/father of a "goat interested" family, (obsessed is probably more accurate) the jobs of disbudding, castrating, and tattooing were and still are seen as my participation in the family adventure. With a wife and five daughters looking at me with imploring eyes, well, I just didn't stand a chance. For me, the search to lighten one of my "manly" roles was on. Imagine my excitement and interest when I discovered that polled goats actually do exist! My search led me through a ton of information, or many times misinformation, about polled genetics. Sorting it all out took time but it was worth it. Every kid born polled on our farm was one less thing that I had to do. My next problem was finding breeders with good stock and that proved to be challenging. Polled goats were just not very common let alone ones that would compete in the show ring, my daughters' favorite summer activity. While I was searching for the perfect buck to introduce this precious gene to our herd of Nubians, our Guernsey goat kidded. Guernseys were my addition to our goat farm. While my family was busy in Nubianland, I had purchased two bred Guernsey does. Working with a rare breed, especially one as beautiful as the Guernsey, is my passion. Well, on Yeti's second kidding on our farm, something was different. She had twins, a buck and doe but the doe appeared a little odd. For some reason, she seemed to have bangs on her head. Two days

later, the buck needed to be disbudded. No signs of buds were showing on the doe, however. After a week and a half and still no buds, we were starting to become suspicious. Could it be possible? No way! Both the sire and dam were disbudded. It was not possible to get a polled kid from two horned parents. We started contacting breeders and after sending pictures of our doeling and her dam, it was determined that indeed not only was our doeling polled, but also her dam! After searching for that elusive polled gene for our Nubians for months, my tiny Guernsey herd raced ahead by dropping those genetics right in my lap. It was unbelievable! Not everyone will be able to have polled goats accidently added to their herd, although we are not the only ones that this has happened. So, how do polled breedings work, genetic-wise? The polled gene is dominant whereas the horned gene is recessive. This means that all that is needed to have a goat born polled is for it to inherit one polled gene from either of its parents. A polled goat that has one parent with horns will be a carrier of the horned gene. If bred to a horned goat, then the resulting kids will have a 50% chance of being polled. Two horned goats cannot produce polled kids, even if there is polled goats in their ancestry. This is because of the horned gene being recessive. Horned goats cannot pass the polled gene simply because they don't have it themselves. Besides the convenience of not disbudding, my own experiments have also shown that polled does tend to produce more milk. Comparing polled and horned animals, our polled does consistently out produce our horned ones. Other breeders

have told me the same thing. Breed doesn't seem to matter, whether it was Nubian or Guernsey. And while I have no official study to back it up, polled for us and for many others means more milk. "If polled goats are 'milkier' and it's a dominant gene, then why aren't all goats polled?" That was the big question that was racing through my mind. The answer lies with a study done by the USDA in 1944 that showed a correlation between polled goats and hermaphroditism. New thoughts raced through my head. "If I breed for hornless goats, I will also have to deal with weird mutants being born that will make disbudding seem like an Easter party!" Well, that must of been everybody's reaction back then because polled goats started being removed from herds. Polled kids were even purposely disbudded in order to deceive the freaked out populace. However, the study was not conclusive and it stated that hermaphrodites only resulted from breeding two polled animals. Many breeders have since experimented with polled to polled breedings despite the study and have not had a "hermie" problem. Hmm. Is it worth the risk? Maybe. However, if you are not the gambling sort and the idea continues to give you nightmares, then only breed a polled goat to a horned one. That, according to the study, was definitely "hermie" free! The biggest question most people have concerning polled kids has to be, "How do I tell if this kid is polled?" They normally look a little different. They usually have bangs instead of two horn swirls and a more round head. Only going by looks tends to leave most people wondering and guessing, however, and the many pictures posted online asking for

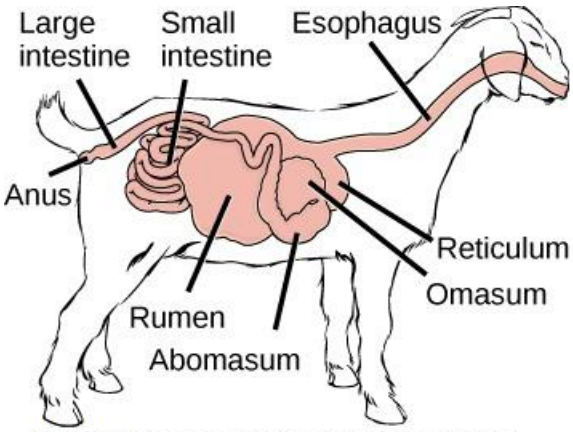
help in identifying a polled kid proves just that. I have found that the most sure way in identifying a polled kid is by feel; not by the presence of buds, but the movement of the skin. Place your finger over the bud location. If the skin moves even slightly, then it is polled. The skin over a future horn is held tight over the location of the buds and will not move. This technique has been accurate every time for us and has taken the guesswork from the equation. To prove the difficulty of just using looks to determine a polled goat, look at the picture. These are day old twin bucks from our beautiful British Guernsey, Ricotta. One is horned and one polled. Can you tell which is which? Breeding polled goats has brought even more excitement to the already exhilarating time of kidding for us. When your special doe is kidding triplets and the first two are bucks, the anticipation of the third kid is always great. "Is it the doe we've been waiting for?" My daughter lifts the third wet kid, quickly wipes it with a towel and checks the gender. "It's another buck!!" Disappointment floods the mind. "But he's polled!" Ahh. Not bad after all! (By the way, the goat in front is polled).

GOAT DIGESTION – Margaret Chamas

Hey all! My name is Margaret, and I'm a hobby-farmer-trying-to-be-full-time-farmer near Kansas City. I'm also a goat owner since being a kid in 4-H, an animal scientist by training, and an amateur nutritionist. (I don't make my living by

developing diets, but have done a decent bit of it, and know at least a little of what I'm talking about.) To me, ruminant nutrition is fascinating, and the intersection of nutrition, digestion, and milk production is really cool. I thought I'd do a two-part series on exactly how our goats digest what we feed them, and then how that gets turned into the milk we drink. There's a bit of science and biochemistry involved, but I'm trying to keep it fun and relatable. This is also vastly simplified, but covers what I feel are the most relevant bits for curious dairy goat folks.

We'll start with the goat. She produces milk in her mammary gland, from components gleaned from her diet and body reserves. The major components of milk that we'll cover are water, protein, fat, sugar, and calcium. The water comes mostly from what she drinks. The calcium comes both from the diet and from bone reserves. Proteins, fats, and sugars get a bit more interesting.



https://www.texasgateway.org/resource/critical-thinking-questions-61

Our goats all take in mostly fibrous foods, and convert them into nutritional components their bodies (and ours!) can use. This is done first by fermentation and digestion in the rumen, the largest of the four stomach compartments. Hay, grass, and grain are

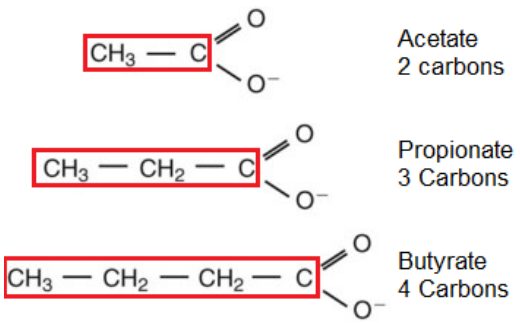
physically broken down by chewing, and nutritionally or chemically broken down by bacterial fermentation. These bacteria do a lot of the digestive work of ruminants. In humans (and other monogastrics, like dogs and pigs), most food is broken down by enzymes our body produces. Ruminants, meanwhile, can be thought of to eat partially to feed themselves, and partially to feed the 'bugs' in their rumen. Bacterial fermentation produces a number of nutritional byproducts. Some are waste – like methane – and get burped out. Some more useful ones are absorbed through the rumen wall, and then go into the animal's system for use. Other byproducts, partially-digested feed, and some of those bacteria will flow into the other stomach compartments – the omasum and abomasum – for further digestion. The abomasum is an acidic stomach like ours. Between the acids and the animal's own enzymes, the remaining feed is digested and the useful byproducts are absorbed in the intestines. The not-useful byproducts are known as goat berries. ☺

The breakdown of different feedstuffs and the way different components are used is kinda neat, and demonstrates how feed can directly affect milk output and composition.

Fiber and carbohydrates: the bulk of ruminant feedstuffs, like grass or hay and concentrate grains, are primarily sources of either simple carbohydrates (like sugars and starch) or more complex carbs (like fiber). These are broken down by the bacteria into volatile fatty acids, or

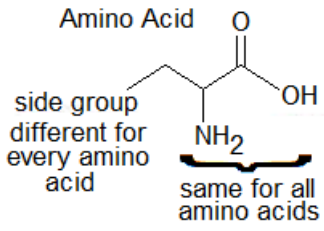
VFAs, which are absorbed through the walls of the rumen for use by the animal. There are three major VFAs: acetate, propionate, and butyrate. There's a lot more that can be said about forage quality and fiber digestibility… but that's an entirely different article.

Acetate is generally the most prevalent VFA, partially because it is the major breakdown product of forages. Acetate has two carbon molecules in its structure – and this is important, as we'll learn later. Many complex carbohydrates (fiber) are long chains of carbon molecules, which are simply chopped into small two-carbon bits by the enzymes of bacteria favoring these feedstuffs.



Propionate is less common than acetate, though the proportion of propionate increases when grains and concentrate feeds are fed. It has three carbons in its structure, related to the breakdown of starches and different sugars into glucose, which has six carbons. The glucose is then simply cut in half by the starch-loving microbes, resulting in two three-carbon propionate molecules.

Butyrate, which has four carbons, is the least common regardless of feed type.

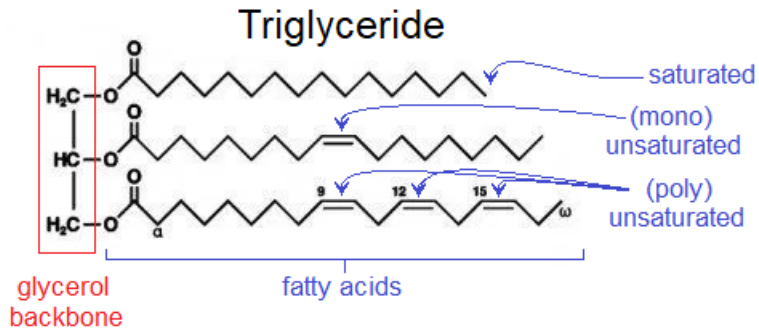


Proteins: protein digestion

and nutrition in the ruminant is complex. Proteins from feed may be broken down by the rumen microbes, or may pass through untouched – these are called undegradable, bypass, or escape proteins. Proteins are formed from long chains of individual amino acids (AA). The degradable, or non-escape proteins, are broken down by the rumen bacteria into these individual AA. Some of these AA are absorbed by the ruminant as-is; some of them are used by the bacteria for their own growth and reproduction; and some are broken down further into a carbon backbone and a nitrogen group, which ends up as ammonia. This ammonia is used by many bacteria to create their own proteins; the leftover carbon molecule chain may be converted into one of the VFAs mentioned earlier. When, inevitably, some of these microbes are washed from the rumen into the rest of the GI tract, the ruminant simply digests them and uses their proteins. The same thing happens to escape proteins. As a side note, if too much protein is converted into ammonia, the excess will enter the animal's bloodstream and be converted to urea in the liver. Much of this is simply recycled by the rumen again, but truly excessive amounts of ammonia will poison the animal. (This is why you're not supposed to feed lots of urea or other non-protein-nitrogen – it will be converted into ammonia and become toxic!) Anyway, the ruminant ultimately is either digesting and absorbing either 1) protein in the form of microbial organisms, which the later stomachs break down into amino acids; 2) amino acids produced in the rumen by microbial protein breakdown; or 3) amino acids broken from

escape proteins that were digested in the abomasum.

Fat: the third macro nutrient is not fed in high amounts to ruminants. Fat in the diet does not directly correlate to fat in the milk! This is true for both fat amount, and fat type (to an extent). Dietary fats are mostly in the form of glycolipids and triglycerides. Triglycerides, the main fat type in grains or starches, are three fatty acids (FA, long chains of carbon molecules) connected to a 3-carbon glycerol backbone. Glycolipids are a single FA connected to some sort of sugar molecule, and are the main fat form in forages. Rumen microbes will break the fats into individual FA and glycerol or another sugar. The glycerol or sugar is converted to VFAs (most often propionate) and then glucose later on. The free FA are used in microbial digestion or pass through to the omasum. FA in the rumen that aren't digested are often converted from unsaturated to saturated (think "saturated fat" that you see on nutrition labels). A saturated fat has no carbon double bonds and is "saturated" by hydrogen ions. Unsaturated fats have double bonds between carbons (preventing some hydrogens from being included), and this changes the shape and structure of the FA, giving them different properties. The conditions in the



rumen lead to saturation of FA, which has implications on milk fat composition later. Also, like protein, some fats are not broken down in the rumen and so escape to the rest of the GI tract. These will be broken down into fatty acids as well, which are then absorbed into the body in units called micelles.

So now the animal has digested all these feeds into basic components, and they have been absorbed through the ruminal or intestinal walls. From that point, they might be stored (propionate is re-formed into glucose, which is stored in the liver as glycogen; FA are combined with glycerol to produce triglycerides which may be stored as body fat), converted into other nutrients (reforming major proteins, for instance), circulated all over the body (glucose), and utilized by different organs as needed. The mammary system will take up some of these digested fats, proteins, and carbohydrates (VFAs) and use them to produce milk! And that is a story for next time.