



Using Sorghum Sudangrass and Mega-Millet for Summer
Grazing Sheep

FNE030-458

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2. Restate the goals of your project. Our project was to test the feasibility of using Sorghum Sudan Grass and Mega Millet as summer grazing for our flock of sheep. Our interest in doing this was, we use both of these products with great success with our dairy herd, and were interested to see if we could overcome the effects of summer slump in our pastures, a problem which has become more difficult to deal with after having back to back droughts .

3. Update the information on your farm since your project started. Include acres farmed, your current crops or livestock, and other key background on your operation. Our farming operation is made up of two separate parcels of land, the home farm which is owned is made up of 124 acres, the other farm is a rented farm of 60 acres. The second parcel is used only for cropping, while the home farm is predominately maintained as a grazing unit. We maintain a dairy herd of 45 milking cows, and also have a flock of 75 brood ewes. The sheep flock, is broken into 3 parts, the first part being a small group of Suffolks, part two and the majority of the flock is a group of Dorset based ewes which are maintained to produce lambs for the Ethnic market and thirdly, is a group of East Friesian ewes which are our Sheep Dairy. As mentioned earlier our home farm is mainly maintained as a grazing unit, with pasture renovation being done after year of either Sorghum sudan or a year of corn. We are always experimenting with new varieties of grasses and legumes trying to find an improvement in our grazing program.

4. Describe your cooperators and their roles in the project. Our cooperators for this project were: Bee Tolman Cazenovia New York- Bee operates a Dairy Sheep farm in New York, she was instrumental in getting our milk recording and testing program up and running and also assisted in body scoring ewes.

Aaron King and Tim Fritz- Aaron and Tim provided technical assistance concerning seeding rates, variety selection and any other agronomic questions.

Craig Williams- Craig is our Extension agent who works with our grazer network, He set up our field day and helped put together our fact sheet that was distributed. He also assisted in collection of plant material for testing.

My family- Who were always there whether it be to move flexi-net daily or to help with any daily or unexpected things that came up.

5. Tell us what you actually did in your project and how it was done. In the Fall of '02 a site was selected where we wanted to make a pasture renovation, soil tests were taken, and both ph and soil fertility levels were found to be at the correct levels. This spring an application of composted manure was made, and then the field was plowed using a conventional mold board plow. The land was fitted, and then we marked out areas in the field, which would receive seedings of different products. The first area was where we seeded Mega Millet at a seeding rate of 25 lbs to the acre. The remainder of the field was flagged so that one area would be seeded with a conventional Sorghum Sudan and the remainder would be put into a BMR Sorghum Sudan. Our reason for doing this was to test not only performance differences but also to recognize any preferences the sheep might have between the two types. We used a seeding rate of 40 lbs to the acre, some might think this is high, but we find it produces a much finer stemmed crop. The crop was drilled in on May 31, and then rolled, we usually wait a little later to do our seedings, but the field was ready, and we had already had stretches of wet weather, so we felt it better to get it in now. Rain it did, for most of the month of June, but to our surprise the Sorghum Sudan germinated quite well and by the end of the month of June we had a very nice field of Sudan which by month's end was 14 inches tall, just 4" short of our target grazing height of 18". With July came very nice weather, and by July 5 our crop was 18" tall and ready for grazing. The portion of the field which had been seeded to Mega Millet was pretty much a seeding failure, which I feel was due to the cool wet conditions. This part was eventually disked and reseeded with a BMR Sorghum Sudan. The ewes had already been on very good grass/legume pasture, as the weather was very favorable for pasture growth, but many of the paddocks had been grazed several times, and our rest periods were becoming longer, so the Sorghum was very helpful in maintaining our grazing sequence. Two different groups of ewes were used, one of which was made up of Suffolk and White Faced ewes and the other being the East Friesians. They were maintained separately to ease in moving the milking ewes to and from

the parlor. There was a perimeter fence around the field, which made using flexi-net much easier. Every day before putting them in we would move the net fencing giving them enough new grazing for the day. We estimated the yield by cutting the grass in a 4 foot square area, and then figured it on an acre basis, after several days you could eye ball pretty accurately how much to give them. If there was more than a 4" stubble left from the day before we would not give them as much for the new day. We found 4" is adequate to insure rapid regrowth. There was a strong preference by the sheep for the BMR Sudan over the conventional variety, so as the Sudan grew faster we started to fence only the BMR part of the field and left the remainder which we later took two cuttings off of and made them into balage for winter feed. By having the posts in the perimeter fence set at 20 feet and knowing the width of the field we could easily figure how much they were getting on an acre basis. We used a back fence of flexi-net which was moved every day or two depending on the amount left from the previous day, this helped eliminate back grazing, which you always want to do but is essential with Sudan as the regrowth is poisonous until 18 inches. On Aug 20 the field had regrown so there was a second grazing, we noticed as we have before a lot of tillering by the plants making more leaf area available to them. This time before turning the ewes in a grazing a mix of Italian Ryegrass and Forage Turnips were seeded into the Sudan with a hand crank broadcast seeder. With the ample rainfall the ewes did a good job of incorporating the seed. There was a third regrowth of Sudan but it did not reach a height to be regrazed before we had a killing frost on Oct 5. By this time there was an excellent stand of Turnips and Ryegrass growing on the field. On Nov. 25 the cycle started over again only this time we were using the forage to flush the ewes before putting the rams in with them, flushing has been used to increase the ewes plain of nutrition and there by increasing your lambing percentage. We were only able to graze once before the field became too muddy, and we are hopeful of getting at least one grazing off of this field in the spring.

6..Describe your results and accomplishments-did you have unexpected results? If so what were they?The one unexpected result we had was in the failure of the Mega Millet seeding which I attribute to the cool rainy weather.The remainder of the project I feel shows excellent results.we were able to provide a forage high in nutrition and very palatable to the ewes, giving the grass/legume paddocks time to rest before being regrazed.When the ewes were first placed on Sudan we body condition scored them. They averaged what we called a 2.5 or some where between thin and average, when we finished grazing the Sudan in Sept, we again scored them, and this time they averaged over a 3 so they were all in what I would consider excellent shape.One thing that we did notice with the Friesian ewes which was of interest to us because we were milking them was although they increased daily milk prod from an average of 2.4 lbs. to an average of 2.9 lbs. with no other ration changes, however butterfat content did drop through those times from 6.5% to 5.9% a concern for anyone milking sheep. Another concern was to stabilize the soil surface and help eliminate erosion by using something other than row crops,we were successful in doing this, and the field at this time is has a nice cover crop of ryegrass to stabilize it as we go through winter.So over all I would have to say we had excellent results with this project.

7. Describe any site conditions or conditions specific to your farm and this growing season that may have affected your results. After several years of back to back droughts and high summer time temperatures, this year brought us unusually cool and very rainy conditions.The sudan performed well, but would prefer a higher temperature, and I am sure our failure with the Mega Millet was directly related to our cool moist conditions, as it does real well on those hot summers even with less than normal rainfall.

8. Describe your economic findings, if any. This would include changes in expenses or net farm income triggered by the project. I think that the one change was that we were able to provide a rest period for our permanent paddocks, so that they were more productive, while at the same time provide excellent grazing for the ewes. We also harvested some surplus Sudan which yielded ten tons to the acre of balage to be used for winter feed. We experienced an increase in milk production, but this was offset by lower butterfat percentages. I think maybe the biggest economic change might be yet to come with our lamb crop in 2004, as the ewes were in very good shape to breed, and we should have an increase in our lambing percentage.

9. Say whether the results from your project generated new ideas about what is needed to solve the problem you were working on. What do you think is the next step? We really did not generate any new ideas, but it helped to keep us open to trying new practices whether it is new improved varieties or totally new crops. I think the next step will be to see what kind of a stand of ryegrass we have on this field in the spring, and how successful we are in using that, whether we graze it once, then reseed to a grass/legume mix or if we feel it is a good enough stand to graze throughout the summer and reseed in Aug. I think the important thing is we have an excellent cover on the soil which was established quite economically, by the sheep, we have grazed it once and have the potential for further grazings.

10. Explain what you plan to continue to use the practice you investigated, or conversely- why you are not going to. If you plan to revise your approach in light of what you learned, describe those revisions. We are definitely going to use Sudan for supplemental grazing for both our dairy cows and our ewes. I think one thing which became apparent, which encourages us to continue to try new varieties was the preference shown by the ewes for the BMR varieties over the conventional one we tried. I don't know if I would call it a revision or just a continuing effort to improve, but next year we might try seeding the turnips with the Sudan rather than wait until later in the summer. Another idea is to try a no-till seeding of Sudan into a worn out alfalfa field, allowing both the Sudan and alfalfa to grow for the summer and then reseeding the field in the fall. I don't think that we would rule out another try at Mega Millet as I think it would provide excellent feed in a more normal year.

11. Explain what you did in your outreach program. Send copies of any articles written about your project, along with any outreach materials you may have developed such as flyers, tip sheets, bulletins, or handouts that were used to explain or publicize your results. A pasture walk was held on our farm on July 15, about 16 people attended, they were able to see the ewes grazing in the Sudan as well as the dairy herd also grazing Sudan in an adjacent field. A flyer explaining field layout, seeding rates, etc was prepared for hand-out, {copy enclosed}, two articles were written, one as we were beginning the project and the other after our pasture walk was held {copies enclosed} Copies of my completed report have been sent to The Shepherd magazine and to The Dairy Sheep Assoc Journal for their consideration in publishing.

Willowmoor Farms Has Been Awarded SARE Grant (staff reporter)

Roger Coulter of Willowmoor Farms in Columbia Crossroads has been awarded a SARE grant to be used to research grazing practices on the farm.

Mid-summer grazing conditions are often challenging because of heat and drought, the Coulter's will experiment with drilling millet & sorghum sudan grass, followed by Italian ryegrass and turnips. The goal is to graze the sheep through the summer slump by using new forage species, thus avoiding the need for stored feed. Coulter will monitor the quality of the crops as well as take body condition scores and the results will be presented at a field day offered to the agricultural media

Pasture Walk Held At Willowmoor Farm-[Col. X Rds]

A pasture walk was held recently at Willowmoor Farm in Springfield, owner Roger Coulter explained to the group of about 20 people who were in attendance how they had received a SARE grant to research the feasibility of using alternate crops for summer grazing of their flock of sheep.

Coulter first explained how he laid out the field with three different crops, a conventional sorghum sudan, a BMR sorghum sudan and Mega Millet. Only a small piece of the Mega Millet was still there as Coulter related to the group that because of the cool wet conditions the crop did not do well, and the most of that portion had been reseeded to sorghum sudan. However he expressed an interest in trying the crop again next year, after seeing the crop grown on other farms he was impressed with the quality of the forage he had seen. A tip sheet was handed out that included information on seeding rates, product information and crop analysis. There was some lively discussion concerning the higher than usual seeding rates that he used. He related to the group that he had been working for several years along with Aaron King from Kings Agri Seeds using different seeding rates with the goal of having a much denser finer stemmed stand. This not only meant a more palatable crop but also helped reduce weed competition and also helped reduce erosion.

After a short discussion we went across the road to the field where the sheep were grazing in the Sudan. In a nearby field the Dairy herd could also be seen grazing Sudan. He told the group that he had always used Sudan for supplemental grazing for his cows, and in the ten years that he has been on this farm had been gradually increasing the amount seeded to this crop. He liked the results he has been getting and is always trying new varieties and seeding rates. He recently has started using the BMR varieties. BMR stands for Brown Mid Ribbed, he showed this by cutting of two stalks, one of the conventional varieties and one of the BMR's, you could see a difference in the coloring of center of the stalk, a trait which he said made the plant more digestible to the animal. In years when there is surplus Sudan he harvests it as balage for feeding during the winter months.

Many of those there were sheep pro-

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ducers, and of special interest were the East Friesian ewes that the Coulters maintain as a Dairy Sheep flock. A special treat for some of us that stayed was to see the ewes head for the parlor, and six at a time enter the parlor made especially for sheep to be milked. Mrs Coulter told the group how she used the milk for her sheep milk soap that she markets across the country, with some even going to England! They are beginning work on making their own Sheep milk cheese in the near future.

Refreshments were available during a short question and answer session, representatives from the PA Sheep and Wool Growers, The North American Dairy Sheep Assoc. and the seed company that they work with were introduced. A big hit was the Sheep Milk cheese and crackers that were available.

Certainly a most interesting and thought provoking day, as we were able to see how one farm family is trying new enterprises to help become more viable.

Variety	Harvest Date	Dry Matter	Crude Protein	ADF	NDF	TDN	NEL	RFV	Lbs. Dm./Acre
BMR	7/5	22.7	17	31.9	61.6	60.6	0.61	96.6	1468
BMR	8/20	16.5	15	34.7	65.5	56.5	0.56	87.9	1252
Mega Green	7/5	18.4	13.3	36.4	68.6	54.3	0.54	82	1119
Mega Green	8/20	23.9	9	42	74.4	47.2	0.46	70	974

Seeding rate was 60#/acre drilled into 4 inch rows, this is a much higher rate than what is recommend by some, but it results in a much thicker, finer stemmed, weed free stand.

No herbicide or pesticide was used other than the seed treatment which was already on the seed.

The BMR variety used was Century BMR and the conventional variety was Mega Green, we are not endorsing these products and acknowledge the fact that other seed companies have similar products which would give similar results. However, all BMR varieties are not the same, only those bred with the 18 gene will give the best results.

The first grass grazed was also the one which was grazed the most, and that was the BMR variety.

Although these results were the yields and analysis obtained in 2003, we realize that they could vary somewhat depending on the growing conditions.

Grazing Sheep on Sorghum Sudan

Our purpose in carrying out this project was to try and overcome the effects of summer slump, a problem with both our dairy herd and flock of sheep. We have successfully used sorghum sudan for our cows, and would now like to try and implement it's use with our sheep.

We selected two varieties of sudan one conventional and the other a newer BMR, with increased palatability, we also used Mega Millet, a forage millet which we have seen used for cows with great results. By use of soil testing done with Fertrell, we added high calcium lime to balance pH and Ca levels, and were able to supply all plant needs with our composted manure, one application was made before mold board plowing and another will be made as a top dress after grazing the first time. Plant as early as possible as long as soil temp. is 60 degrees and soil can be worked. We prefer to drill rather than broadcast seed as we get a more uniform seeding.

In our case the Mega Millet was pretty much a loss as this crop needs drier and much warmer conditions than we experienced this year. This however does not rule out the crop for consideration another year.

We began grazing at 18 inches, by the use of flexi net fencing we sectioned off a new piece for the ewes each morning, giving only what they would consume during the day, at night they were returned to a grass/legume paddock. Each day a back fence would also be moved to prevent back grazing. Moving the fence sounds time consuming but once set-up could be moved by my 13 year old son while I milked.

We found that the grass that they grazed first and also the most was the BMR variety. This was very noticeable, to the point that we might exclude the conventional part of the field and use it for balage as the ewes are wasting too much of that forage while they keep returning to the BMR.

Our ewes were all body condition scored and will be redone at the end of the project, the dairy ewes are also having their milk weights recorded as well as butterfat content to see if there are any changes in daily production. already we have noticed an increase in total daily production.

There seemed to not be any problem with the ewes accepting the sudan, right from day one they have readily accepted it and we have had no bad effects other than a much looser manure being observed, this was part of the reason we return the ewes to grass/legume paddocks at night. We will be doing analysis on the sudan and that information along with yield checks will be available later.

We thank you for coming on our pasture walk, we welcome your questions and comments and welcome you back later in the season if you have further interest in the project

Thanks , The Coulters