



Great Lakes Grazing Newsletter

MICHIGAN STATE UNIVERSITY Extension

Osceola County MSU Extension
301 W. Upton Ave
Reed City, MI 49677

Phone: 231-832-6139
Toll Free: 888-678-3464
Email: lindquis@anr.msu.edu

Volume 5, Issue 3

August 2016

Dear Great Lakes Grazier,

The summer weather has been a mixed bag for many across the State. In the same day I am receiving calls from some farms that say their rainfall has been almost perfect thus far, and the next caller saying they have only received 3/10 “ of rain in the month of July. Most will admit that their springtime pasture growth and 1st cutting hay growth was “good to at least O.K.” regardless whether they got rain or not. I believe the good growth we experienced this spring was a result of the good growing conditions we received last fall. A moderate, moist fall with a very late frost invigorated the perennial forages and made them stronger this spring and their growth showed it.

Rainfall and crop growth has been good across much of the Upper Peninsula and parts of the Northern Lower Peninsula. But portions of the southern Lower Peninsula have been dry and especially in major portions of the south-east, crop growth has suffered. If you are excessively dry below are some guidelines to follow for your grazing decisions:

- 1.) Make decisions early on de-stocking or supplementing feed, if you keep hoping a two inch rain will come tomorrow, your alternative choices will be less beneficial each day that you wait.
- 2.) Early weaning of calves is one option. Numerous studies have shown calves at four months of age can do well when fed at the bunk and the cow’s requirement on pasture forage drops substantially when they stop milking.
- 3.) Supplementing a lower quality, lower cost fibrous feed like grass hay to the herd while still on pasture is another option at the lower hay prices that we currently have.

Inside this issue:

Fall Cover Crop Grazing Basics	3-5
Grazing School 2016	6-7
Calf pre-conditioning programs	8-9
Drone regulations	10-11
Lake City Bio Ag Research Center Field Day	12
MSU Agriculture Innovation Day: Focus on Soils	13
Information on Multi Specie Pasture Mixes	14
2016 Summer Grazing Educational Events	15

- 4.) Creep feeding a simple cracked/rolled corn and oat mix to the calves may be economical if grain prices continue to hold at this lower level.
- 5.) Don't over graze pastures. When rotating from pasture to pasture the rest period in dry weather may have to stretch out to 55 or 65 days. Always try to not return to a pasture to graze until its growth is at least 8" tall. Ignoring this rule will hurt the re-growth for the fall and possibly hurt pasture growth in future years.
- 6.) Try to roll more acres into the grazing system. Grassy hay fields just need fence and a water source (hauling water to a field for a week or two is more common than you might think).
- 7.) If the rainfall is not returning, pulling the animals off the pasture in mid-summer and drylotting them on hay or other harvested forage may be economical at these current feed prices. Cool season grass pastures like orchard grass have more growth potential in early fall than they do in the hot dry days of mid-summer. Don't abuse them just before their final growth phase of the year.
- 8.) Depopulate early. Cull prices are historically higher in August than September and the impact on the pasture will be better the sooner you reduce the grazing pressure.
- 9.) Check around. Some farms carried over a large supply of hay this spring. Some may be still sitting on it with no need to feed it this winter. If it is stored outside they may be willing to sell it rather than let it rot away. Also check the Michigan Hay Sellers List at <http://web2.canr.msu.edu/hay/index.cfm> to see what hay is for sale across the State.
- 10.) If you have to feed your hay supply now, start lining up fields of corn stalks to graze or bale, or find an area farm that sells stalk bales. Corn stalks can sustain a beef cow in gestation up to her second trimester of pregnancy more economically than hay. Normally feeding ½ hay and ½ of the diet as corn stalks works the best, or if grazing stalks setting a hay bale in the field.

There are many options to help stretch your forage supply for livestock. If you think you may be short of forage start pushing the pencil now to decide which option is best for you. In-decision is the worst option choice!



MSU Extension Grazing Educator

Fall Cover Crop Grazing Basics

Annual cover crop mixtures can make very nutritious and economical grazing crops for spring, summer, fall and early winter grazing in Michigan. Fall grazing is especially beneficial as it fills the gap as pasture grasses become dormant. Mixes of four or more plant species all planted together at the same time and same depth at a seeding rate total of 28-40 pounds per acre can be economical and nutritious for fall grazing livestock and are especially good for finishing grass fed beef cattle. These same mixes also tend to be soil improvers, suppressing weed growth and mining nutrients from deep down in the sub soil and bringing them to the soil surface. With their aggressive growth, they also tend to increase soil organic matter both from the grazing animal's manure and from the decaying plant's leaves, stems and roots. Below are answers by [Michigan State University Extension](#) staff to common questions on the grazing of fall cover crops:

Where do fall cover crops for grazing work best in Michigan?

Following a wheat harvest, oat harvest or an idled field, you usually need 70-120 days of growth before temperatures drop into the low 20s. Thus, plantings made from late July to mid August turn out the best.

What to plant for grazing?

To provide a healthy, nutritious blend, consider a balanced mixture of brassicas, small grains, legumes and cool season grasses.

Is weed control necessary before planting?

If rotating from a sod crop like hay or pasture, usually it is. But if seeding within 10 days of combining wheat or oats, usually it is not. The volunteer wheat or oat seed that was lost on the ground from the previous crop harvest can actually become part of the new seeding mix.

Can I plant an annual cover crop on the same field each year?

The risk of insect and disease pressure will increase if the same plants are seeded on the same sites annually.

Is it wrong to plant over 40 pounds of seed per acre?

It depends. With multi species mixes of four or more varieties for grazing that can be no. Tilled into wheat and oat stubble, we have found 40 pounds of seed per acre to be enough (remember there will be volunteer small grain growth as well). Higher planting rates cause crowding, competition, disease and lower plant growth, making the stand less efficient. If planting simple two or three way mixes into fields will not provide volunteer small grains, higher seeding rates up to or over 70 pounds per acre may be advisable.

Is fertilizer needed?

Following soil test recommendations is always advised. Usually manure or 50 to 60 pounds of N/acre is a minimum requirement. The non-legume plants really respond to nitrogen.

Is livestock death loss a risk?

Yes. Bloat, nitrate toxicity and others are a possibility. Turning livestock in on full stomachs and providing access to a round bale of hay is good insurance to prevent these. Having oats and other grasses in the mix also reduces the risk of bloat. When these precautions are followed the risks are low.

Do grazing livestock damage the soil?

Any time fields are grazed while wet, soil compaction can be a result, especially on heavier ground. Late fall and early winter grazing is often done in wet soil conditions, and some compaction will result. Thus, the best site locations are on lighter, well-drained soils. But research studies have shown that if management pulls the grazing animals out during times of excess moisture, the benefits of fall grazing will out-weigh the compaction issue. Soil fertility and crop yields often improve after cover crop grazing.

Plant Species

Here is some insight on the plant species to consider for cool season mixes seeded before August 15 for grazing after November 1 in Michigan.

Oats:

Seed 6 to 12 pounds in mixes. Great for fall grazing, will stay green into December and will die out in January. May start producing seed within 65 days of planting, which may be a concern if producing grass fed beef.

Wheat, Rye or Triticale:

Seed 6 to 12 pounds per acre in mixes. Less fall growth than oats but will survive the winter and provide substantial spring growth. Be aware of [crop insurance spring-time termination guidelines](#) for cover crops to be eligible for insurance on the following year's cash crop.

Annual Ryegrass:

Seed 6 to 10 pounds per acre in mixes. Short-lived (one to two years depending upon variety), highly-nutritious grass that establishes fast in the fall and will survive most winters providing more growth in spring. Can become a serious weed in fields rotated to grains the next year if proper herbicide timing is not followed.

Turnip:

Seed 2 to 3 pounds per acre in mixes. Need 60 to 90 days to mature. Leaves, stem and bulb are highly nutritious. Hold their feed quality well after a killing frost and are cold tolerant to 20 degrees Fahrenheit but eventually will winterkill. Some will just produce an edible leaf and stem but no tuber. Some will re-grow after grazing.

Rape:

Seed 2 to 4 pounds per acre in mixes. Need 45 to 100 days to mature. Most can be re-grazed. Produces a highly-nutritious, edible leaf and stem but no tuber. Some are cold tolerant to -5 F.

Radish:

Seed 1 to 2 pounds per acre in mixes. Need 70 to 85 days to mature. Vigorous fall growth of highly nutritious leaf and tuber that livestock like and do well on. Holds nutrient value well after killing frost. Taproot hairs can penetrate compacted soil hardpans and mine nutrients from the subsoil.

**Red Clover:**

Seed 2 to 4 pounds per acre in mixes. Will provide some fall growth but will be more productive the next spring for spring grazing. Can last for 2 to 3 years, so if rotation crops are planned the next summer, termination options have to be factored in. When given the chance to mature, will produce residual soil nitrogen that can benefit future nitrogen loving crops.

Fall Season Livestock Carrying Capacity for Annual Cover Crop Mixes¹

<i>Dry Matter Tons/Acre</i>	<i>Cow² Days of Grazing/Acre</i>
1.50 average stand	74
2.25 good stand	110
3.0 great stand	147

1. Assumes 70 percent utilization, 30 percent residual left standing or trampled on the soil surface.
2. Assumes a 1,300 pound beef cow that is not milking consuming 28.5 pounds of dry matter per day.

For more information contact MSU Extension Grazing Educator Jerry Lindquist at lindquis@msu.edu or 231-832-6139, MSU Forage Specialist Dr. Kim Cassida at cassida@msu.edu, or Michigan State University Beef Cattle Specialist Dr. Jason Rowntree at rowntre1@anr.msu.edu.

This article was published by [Michigan State University Extension](http://www.msue.msu.edu). For more information, visit <http://www.msue.msu.edu>. To have a digest of information delivered straight to your email inbox, visit <http://www.msue.msu.edu/newsletters>. To contact an expert in your area, visit <http://expert.msue.msu.edu>, or call 888-MSUE4MI (888-678-3464).

Grazing School 2016

MSU is Offering Grazing School at Three Locations

Michigan State University Extension is offering grazing school for dairy, livestock and small ruminant producers at three locations in Michigan simultaneously via high speed video conferencing in September. There will be a team of experts at each location that will broadcast their expertise to the different sites with technology that allows for interactive chat from participants with those experts. This new technology allows for additional expertise to be shared and expanded networking of producers through various online and face-to-face discussions.

Grazing school will be held on Sept. 22 and 23, 2016 and will begin at 8 a.m. on Thursday and concluding at 4 p.m. on Friday

The two-day school will be offered at the following locations:

1. The MSU W.K. Kellogg Biological Station Farm and Dairy Meeting Room in Hickory Corners, Michigan
2. The MSU Lake City Research Center in Lake City, Michigan
3. Bay Mills Community College in Brimley, Michigan

Participants only need to attend the closest location to participate in the full school and gain the expertise of speakers around the state of MI.

The goal of the school is to blend classroom instruction with in-field education and the latest animal/forage research to give participants an in-depth introduction to grazing management.

Feature presentations will cover approaches to:

- Introduction to managed grazing
 - Pasture management and decision making
 - Livestock nutrition and requirements on pasture
 - Forage yield determination and pasture allocation
 - Grass and legume species identification
 - Pasture soil fertility and management
 - Grazing systems, layout and design
 - Water systems and requirements
 - Building and using fence for grazing
 - Pasture establishment and improvement
-

Experts Participating In-Person at Lake City:

- Jason Roundtree, Ph.D., MSU Beef Specialist
- Jerry Lindquist, Grazing Educator, MSU Extension
- Kable Thurlow, Beef Educator, MSU Extension
- Doug Carmichael, Farm Manager, Lake City Research Center
- Boyd Byelich, NRCS

Experts Participating In-Person at Bay Mills Community College:

- Paul Naasz, Chatham Farm Manager
- Frank Wardynski, Ruminant educator, MSU Extension
- James Isleib, Crop production educator, MSU Extension
- Monica Young, Farm Manager, Waishay Bay Farm, Bay Mills Community College

Registration information:

Registration is \$125 for one participant; \$220 for two participant from the same farm, and \$315 for three participants from the same farm. The registration deadline is September 18, 2016. After the deadline, fees are as follows:\$150 for one participant, \$270 for two participants from the same farm, and \$390 for three participants from the same farm. The workshop fee includes notebooks, resource materials, and all meals.

Questions:

- Misty Klotz, KBS Pasture Dairy Outreach Coordinator at The MSU Kellogg Biological Station - Email: klotzmis@msu.edu or Phone:269-671-2402
- Jerry Lindquist, MSU Extension Grazing Educator at MSU Lake City Ag BioResearch Center - Email: lindquis@msu.edu or Phone: 231-832-6139
- Frank Wardynski, MSU Extension Beef & Dairy Educator at Chatham BioResearch Center - Email: wardynsk@anr.msu.edu or Phone: 906-884-4386

MSU is an affirmative-action, equal opportunity employer. Michigan State University Extension programs and materials are open to all without regard to race, color, national origin, gender, gender identity, religion, age, height, weight, disability, political beliefs, sexual orientation, marital status, family status or veteran status.

Calf pre-conditioning programs – A little time and money spent up front will return dividends later

Article written by Kevin Gould, MSU Extension Beef Educator

Where can beef producers spend \$10 for life insurance and then get paid a 400 percent return on your original investment? Answer: Properly pre-conditioning and vaccinating your calves!

Calf pre-conditioning should be a priority for every herd health program. An effective program can be developed to fit most operation and management approaches. For vaccination to be effective, they must stimulate the immune system to create a defense mechanism against important disease pathogens. Vaccines however are only part of management. We cannot overlook nutrition especially mineral/vitamin intake, environment, as well as stress management. Calf health should be addressed with the three legged stool approach.

- First Leg: have calves gaining 2 pounds per head per day or more up to weaning.
- Second leg: provided adequate nutritional supplementation focusing on high quality mineral/vitamin supplement that is available to all calves at least 45 days prior to weaning.
- Third leg: calf management at weaning and after must focus on minimizing stress for the 30-45 day pre-conditioning period. Prevent stacking stressful events such as weaning, castrating, (castration soon after birth is recommended), dehorning, deworming, vaccinating, comingling, changing feed or water source, weather stress, etc. – you get the idea. The more we stack stress, the less likely our pre-conditioning program will be effective.

Several options for pre-conditioning will work. Many will start vaccinating 2-3 weeks prior to weaning and then give booster vaccinations 2 weeks post weaning. Other may choose to vaccinate at weaning and then administer the boosters 3-4 weeks later. I prefer to wean, vaccinate 10-day post weaning and booster 3 weeks after the initial vaccination. This allows weaning to be accomplished without additional stacked stress events and with fence line weaning, everybody sleeps better. Ideally, calves should be weaned for 45 days before they move to market. Producers should consult with their local veterinarian or [Michigan State University Extension beef educator](#) to design a vaccination program that fits their particular operation and marketing plan.



...Continued from page 8

Calf pre-conditioning programs – A little time and money spent up front will return dividends later

To help producers better understand vaccination programs and scheduling, the [Michigan Cattle-men's Association](#) along with cooperation from [MSU Extension](#) developed the MCA Stamp Program. The program is self-verified by the producer by completing a one-page form that lists all management during preconditioning. This form is then faxed or emailed to the MCA office and signed for final verification. The form can then accompany your calves to the market of your choice.

Goals of the Vaccination Stamp Program

- Establish a standard health protocol for Michigan feeder cattle
- Maximize the performance and confidence in Michigan feeder cattle
- Help producers capture value for providing feeder cattle that are healthy and preconditioned

If you have questions about the MCA Stamp Program, please contact the MCA office at 517-347-8117 or contact me at 616-527-5357.

For those marketing calves out-of-state, consider reviewing the pre-condition protocols at the [Superior Livestock website](#).

If we manage nutrition and parasite loads, minimize stress, keep cows and calves in a good environment and use the proper vaccination protocol, (keeping all three legs of the stool grounded) we have a good opportunity to produce healthy marketable calves. This in turn will generate more income and potential repeat customers for your operation.

For additional cattle management resources, visit the [Michigan State University beef team website](#).

This article was published by [Michigan State University Extension](#). For more information, visit <http://www.msue.msu.edu>. To have a digest of information delivered straight to your email inbox, visit <http://www.msue.msu.edu/newsletters>. To contact an expert in your area, visit <http://expert.msue.msu.edu>, or call 888-MSUE4MI (888-678-3464).

New UAS or drone regulations: What does it all mean?

By simplifying some of the certification restrictions, the new Part 107 Unmanned Aerial Systems (UAS) regulations will expand drone technology use for agriculture and other commercial purposes.

On June 21, 2016, the [Federal Aviation Administration](#) released the much anticipated new [Unmanned Aerial Systems \(UAS\) or drone regulations](#), also referred to as [Part 107](#). These rules go in effect Aug. 29, 2016, and cover a broad spectrum of commercial uses for drones weighing less than 55 pounds (take-off weight).

One of the most significant changes is that commercial operations that fit within the framework of Part 107 will no longer require Federal Aviation Administration approval by exemption, which has typically taken months to secure. Previously, commercial operators needed a "Section 333 exemption," which allowed an operator with a Federal Aviation Administration-approved certificate of authorization to fly in the National Airspace. Needless to say, these certification rules restricted and discouraged the potential use of drones for agriculture and many other commercial purposes.

The new Part 107 regulations seek to ease some of these restrictions by establishing a new certified "Remote Pilot in Command" (R-PIC) position and a remote pilot certification process. The person operating the small UAS must either hold a remote pilot airman certificate with a small UAS rating or be under the direct supervision of a person who does hold a remote pilot airman certificate.

To qualify for a remote pilot certificate, you will have to be at least 16 years old and pass an initial in-person [aeronautical knowledge test](#) at a Federal Aviation Administration-approved testing center. If you already have a Part 61 pilot certificate other than a student pilot certificate, then the requirements are to complete a flight review within the previous 24 months and complete a small UAS online training course provided by the Federal Aviation Administration. Before the certificate is issued, you will be vetted by the [Transportation Security Administration](#) for background checks.

The R-PIC must conduct a preflight check of the small UAS to ensure it is in a condition to operate safely. The manned private pilot Federal Aviation Administration knowledge test is no longer required. If you already have a Section 333 exemption, you can continue to operate the UAS under the exemption until it expires. After that, you may choose to operate your UAS under the Part 107 rules by obtaining a remote pilot certificate.

The aircraft should remain within the visual line of sight of the R-PIC and only daylight operations are permitted. So delivery of Christmas gifts or nocturnal activities by drones will still be prohibited. The maximum altitude is 400 feet above ground level. If higher than 400 feet above ground level, then remain within 400 feet of a structure. This will permit drones to inspect tall buildings and storage structures. Some of these restrictions mentioned above are waivable if the operator demonstrates that the operation can be safely conducted under the terms of a waiver. Members of the public will be able to take the [Federal Aviation Administration aeronautical knowledge test](#) at testing centers starting Aug. 29, 2016. A cost of \$150 for the knowledge test is anticipated. Following the test, you will have to complete the Federal Aviation Administration Airman Certificate Application Form and apply for the remote pilot certificate. If you fail the test, you can retake the test after 14 days.

Continued on page 11...

...Continued from page 10

The new Part 107 regulations have been derived by essentially separating the small UAS from the manned aircraft rules. It is now possible to operate a UAS without a Federal Aviation Administration airworthiness certificate, a pilot license or section 333 exemptions.

With the expanding market potential, the drone industry will now attract substantial new private investments. That in effect will spur new innovations, critical scientific research and development and local job growth. If you feel the Federal Aviation Administration Part 107 regulations did not go far enough, the advice is to stay patient. This is the first step in a series of changes and more operational concepts will be approved with time.

Agriculture and food production would be significant benefactors in drone applications. Other commercial uses pertain to security, defense, public safety, communication and environmental and transportation services. Industry experts estimate the recent rule changes will help generate more than \$82 billion for the U.S. economy and create more than 100,000 jobs over the next 10 years.

For a summary of information, read the Federal Aviation Administration's "[Summary of Small Unmanned Aircraft Rule \(Part 107\)](#)."

For more information about the UAS use in agriculture and research, visit [UAS in Agriculture Learning Network](#) and read their blog post, "[A Summary of FAA Part 107 rules by the UAS in Agriculture Learning Network](#)."

I wish to thank Victor Villegas of [Oregon State University Extension](#) and members of the eXtension Community of Practice on UAS for their input into this article.

This article was published by [Michigan State University Extension](#). For more information, visit <http://www.msue.msu.edu>. To have a digest of information delivered straight to your email inbox, visit <http://www.msue.msu.edu/newsletters>. To contact an expert in your area, visit <http://expert.msue.msu.edu>, or call 888-MSUE4MI (888-678-3464).





Lake City Bio Ag Research Center Field Day

Saturday, August 13

9:00 A.M. – 1:00 P.M.

5401 West Jennings Road, Lake City, MI.

The Michigan State University Ag Bio Research Center in Lake City, Michigan will offer an educational field day on Saturday, August 13. Visitors will have the opportunity to hear from leading MSU scientists talk about the latest research in beef cattle grazing, grass finished beef production, and forage crop production from 9 a.m. to 1 p.m.

The field day is free and open to the farm community as well as the general public. Lunch will be provided at \$10 per person for adults. Kids eat free. The Center is located at 5401 W Jennings Road, Lake City, MI. 49651. To RSVP, or for more specific questions, contact farm manager Doug Carmichael at carmic16@anr.msu.edu or at 231-839-4608. MSU programs are open to all people.



MSU Agriculture Innovation Day: Focus on Soils

August 24, 2016

Saginaw Valley Research and Extension Center in Frankenmuth, Michigan

Hear from experts and see the results of cutting-edge techniques on crop growth and soil quality. Learn about soil testing and plant diagnostics, academic programs and other MSU resources.

Participate in sessions focused on:

- **Nutrient management.** Enhance decision making about nitrogen usage and rates through technology.
- **Soil quality.** Improve soil quality, including the architecture of cover crops, extended rotations and interseeding.
- **Compaction.** See the effects of soil structure, controlled traffic and various tillage methods.
- **Tile technology.** Get an in-depth view of the movement of nutrients from the soil to tile lines.

Participants attending the program will be eligible to receive up to 5 RUP credits for commercial, private or IA categories, and up to 8 CEUs for certified crop advisors – 2 in nutrient management and 6 in soil and water.

msue.msu.edu/msuaginnovationday



**MICHIGAN STATE
UNIVERSITY**

MSU is an affirmative-action, equal-opportunity employer.



Research Shows That Multi Specie Pasture Mixes Produce More

There has been a lot of interest and chatter about how well multi specie plant mixes have worked to improve soil health as a cover crop and as a grazing forage. Over the last few years most of these reports have been from farmers that have said the following years crops have grown better following an annual multi specie cover crop and/or the crop mix produced plenty of forage that grazing animals liked. But most of these reports were farmer trials or Extension educator demonstrations without scientific research methods to validate what people believe they saw.

But now a long-term nine year trial using perennial pasture forages shows a substantial advantage to a multi specie pasture mix. Researchers at the USDA-ARS Pasture System and Watershed Management Research Unit in Pennsylvania completed a nine trial comparing a two specie pasture mix to a five way mix. The five way mix of orchard grass, tall fescue, white clover, alfalfa and chicory produced 31% more total forage that cattle grazed than the two way mix of orchard grass and white clover. Lead researcher Dr. R. Howard Skinner and others planted four paddocks with the two way mix and four paddocks with the five way mix and grazed them with cattle for nine years.

They measured forage quantities before turn-in and immediately after cattle were taken out of each paddock. They also measured plant specie make up over the nine years and how it change. According to Skinner they were not surprised that over the nine years certain species declined in the five way mix. The last two years both of the mixes mainly had orchard grass and white clover left in them. But what was surprising was that all the way through the trial with differing weather conditions, the forage yield on the five way mix was better. Even those last two years when the mixes were pretty much the same plants, the five way mix yielded more. Skinner believes the five way mix was improving soil quality by increasing soil organic matter and soil carbon with its more



diverse root specie make-up. With our scientific, randomized method of planting the mixes and collecting data the only factor that should have been different was the soil quality. The only way that the soil was treated differently was how many plant species were planted in it, Skinner concludes.

Scientists believe that different plants roots provide different benefits in the soil. The more diversity of plants there are growing in the soil, the more improvement there may be in the soil. Some farms are going so far as to not only plant more legumes like alfalfa, clover and trefoil together with different grasses in hay and pasture mixes, but even are planting two different varieties of alfalfa and the other legumes to come up with over ten different plant types in the mix. It will take more research to determine if going to these levels of diversity are beneficial.

2016 Summer Grazing Educational Events

Mark your calendar for these upcoming grazing events.

Pasture Walk at Grand Traverse Land Conservancy Farm, August 9, 2016, 6:30 – 9:00 P.M., 11593 N Manistee County Line Rd, Benzonia, MI. See the beginning improvements of managed rotational grazing, winter bale grazing and more on a grass-fed beef Belted Galloway cattle Farm. Call Jerry Lindquist at 231-832-6139 for details.

Field Day at MSU Lake City AgBioResearch Center, August 13, 2016. 9:00 A.M. – 1:30 P.M. Grass-fed beef production update with a pasture walk of the grazing system, cattle and forage research trials. Call Jerry Lindquist for more details.

Summer Forage Tour at MSU Agronomy Farm in East Lansing and Dairy Farms in Clinton County, August 16, 2016. 8:30 A.M. – 5:00 P.M. View alfalfa, trefoil, grass, sorghum, and annual forage cover crop research trials at MSU, and join the gang on the air conditioned motor coach bus to tour two grazing farms – one being organic – in the Pewamo & Fowler area. \$20 fee for Michigan Forage Council members, \$30 for non-members which includes lunch and bus ride. Contact Kim Cassida at 304-575-6099 to register.

Forage & Cover Crop Field Day, August 20, 2016, 10:30 A.M. – 3:00 P.M., Eric Egeler Farm, 2940 West Victory Drive, Ludington, MI. 49431. View field trials of 10 corn varieties to be made into baleage for grass fed beef; plots of sorghum-sudan crosses & sudan grass with 30 varieties; and a cover crop plot with summer seeded mixed cover crops for fall grazing and soil improvement. Lunch provided at no charge. Sponsored by Byron Seeds, MSU Extension and NRCS. For more info contact Eric Egeler at 231-239-9961.

MSU Grazing School at MSU BioAgResearch Centers at KBS, Lake City and at Bay Mills Community College Waishkey Bay Farm in the Upper Peninsula, Sept. 22 & 23, 2016. Registration details are at <http://events.anr.msu.edu/event.cfm?eventID=A28B3E9AA7397E02> or call Jerry Lindquist.

Jerry Lindquist will be speaking on grazing management and rainfall management at the Oceana County Farm Bureau & Conservation District Tour on August 6, 8:45 A.M. – 1:00 P.M., 2016. For details go to <http://www.oceanaconservation.org/oceana-events/2016/8/6/farm-bus-tour>.

Jerry will also speak on grazing fall cover crops with some plantings to view at the Michigan Simmental Annual Meeting on August 7, 2016 at 3:00 P.M. at the Martiny Township Hall, 15051, 110th Ave., Rodney, MI. with a pasture walk to follow around 5:00 P.M. at the Seth Lattimore Farm. Everyone is welcome to attend. For details contact Seth at 231-250-3019.