Droughts, wildfires, hurricanes, and floods—these are just a few of the challenges livestock producers across the country faced in 2017. Looking ahead, it’s not easy to predict what will happen. Even the National Oceanic and Atmospheric Administration, which regularly issues long-range forecasts, admits the probabilities their models suggest are not guaranteed.

What producers can count on, says longtime grazing expert, Jim Gerrish, is, “Some people will have a drought and some people will have a flood. I’m just not sure where each is going to be.”

Getting his start in grazing research and extension in Missouri in 1980, today Gerrish manages a custom grazing operation in north-central Idaho. When he’s not in the pasture, he travels the world consulting and teaching others about proper grazing management.

Moisture trends, Gerrish explains, are directly tied to nature’s water cycle which moves water through Earth’s ocean, land, and atmosphere. There is a finite amount of moisture on Earth. Therefore, our planet’s water cycle dictates that if one part of a country has excess moisture, it’s likely another area will be deficient, potentially leading to a drought.

Despite this meteorological uncertainty, Gerrish says producers can take steps to reduce these potential risks and, consecutively, set themselves up better for success.

Perhaps, the most important of those steps is to develop an annual grazing plan. According to Gerrish, a grazing plan offers producers an organized approach to manage the complexities of a pasture system and bring their forage supply and livestock’s needs into balance.

“Grazing plans make life much more predictable,” says Gerrish.

As part of a grazing plan, Gerrish recommends graziers also regularly conduct a pasture inventory.

“Having a pasture inventory will allow you to keep count of how much forage supply you have,” says Gerrish. “You can then incorporate this information into your grazing plan and adjust accordingly.”

Gerrish suggests pasture inventories be scheduled every two weeks on irrigated or high natural rainfall areas and monthly on rangeland. The basic process involves looking at every pasture and coming up with a measure or estimate of available feed in each.

Along with a grazing plan and pasture inventory, Gerrish says producers in drier environments should have a drought plan, as well as a contingency grazing plan, in place.

“Way too many producers fail to adhere to the drought plan and trigger dates they set,” says Gerrish. “Because of this, they run the risk of damaging pastures or financially digging themselves into a hole of debt by buying in feed to hold onto livestock numbers. Those situations would be improved if they just did what they said they were going to do.”

In addition to these pre-planning measures, Gerrish points out graziers may want to consider making use of alternative forage options, such as cover crops, to extend their grazing season during forage gaps. In environments with annual rainfall averages over 18 inches or more annually or on irrigated pastures, Gerrish says he has seen producers have great success with the practice.

“In particular, those wanting to be in the grassfed beef business will find that cover crops are a high nutrition resource that can allow them to get good gains on finishing cattle,” says Gerrish.

(article continues on page 2)
Pastures which are beginning to thin out but still maintain at least 60% desirable species are excellent candidates for interseeding cover crops, or even legumes, in late winter or early spring. Once pasture inventories drop below 40% desirable species, producers may want to consider pasture renovation.

Additionally, Gerrish stresses producers shouldn’t overlook the nutritional value of the weeds in their pastures. Research has shown many weeds have equal or greater nutritional values than many common forage varieties. The trick is grazing these weeds at the right growth stage, as quality decreases more rapidly over time in weed species compared to improved forage varieties. For those skeptics of the practice, Gerrish says graziers can look no farther than Kathy Voth’s work in this area to realize the possibilities and benefits.

Lastly, producers should make it a habit to check that their fences and water systems are working properly. Walk fence lines from time to time to check fence wires, posts, braces, and the ground system. Energizers and voltage should also be examined to ensure the fence is conductive and producing adequate voltage.

Similarly, a seasonal run-through should be done on water systems.

“There are two major weak times for our stock water systems,” says Gerrish. “The most obvious one is in the heat of summer, winter is the other time. Can your system deliver enough water in the hottest time of the year? Can it withstand the cold temperatures and rigors of winter?”

In a state of deteriorating infrastructure, water systems will be more susceptible to freezing and breaking down. Keeping up with routine maintenance will ensure equipment continues to stay in working order through these more difficult times of the year.

By implementing these proactive management tips and strategically planning ahead, Gerrish says, pasture managers will be better equipped to cope with whatever conditions Mother Nature sends their way. In turn, their operation as a whole will become more resilient over time.

August: A Good Time to Plant
by Michael Heller, Chesapeake Bay Foundation

If you are thinking about planting annuals for good fall grazing – or, if you are planting perennials for hay or pasture – it’s time to get in gear! August, and into early September, is the best time to plant. I spoke with a few mentors from the Maryland Grazers Network to see what they were planning to plant this August and September.

Hay and Pasture
Les Vough, former University of Maryland Extension forage expert, is always telling us that the ideal time for planting hay and pasture mixes is from August 10 through September 10. “Early planting is critical to provide for sufficient fall growth to ensure robust spring stands,” he says. Here’s what one of our Maryland Grazers’ Network mentors does:

Myron Martin:

- Recommends a mix of alfalfa, orchard grass and red clover—or one of the new improved, and expensive, newer fescues to a fellow dairy farmer.
- Dry weather this summer will shut down the growth in most pasture plants, planting alfalfa will perform well and provide good grazing.
- The benefit of alfalfa is that the roots go deep and can be very important during the increasing number of dry spells.
- Cow’s milk production is definitely higher when they have alfalfa to graze.
- Likes to drill the grass seed in using the large front hopper in the drill, and the alfalfa and clover he puts in a separate small seed hopper.
- By removing the seed tubes the alfalfa/clover seed is scattered/broadcast on the surface, and he cultipacks it.

Annuals
The dry spells that have been happening with increased frequency these past few years have often meant that folks were feeding their animals precious hay or selling their animals to prevent harm to their pastures. Annuals can provide good grazing for 9 months of the year, depending on your needs, and are particularly good for getting through those dry spells. Fall pastures often offer only meager grazing. Annuals planted in August will give ample grazing as early as September and continuing into November.

Here’s some thoughts from the mentors about Forage Brassicas: there is ‘growing’ interest in fall grazing of several of the different varieties of brassicas for beef, dairy, and sheep.

(story continues on page 3)
I prefer to toss a half-bushel per acre of spring oats in with the forage brassicas. Using the spring oats was University of Maryland Extension’s suggestion several years ago, when I asked about good fall forage for finishing beef. The spring oats get up quickly and provide some sweet grazing along with the brassicas. David Greene cautions not to use too many oats because they can compete too much with the brassicas. Following a couple grazings, the field can be planted with cereal rye, vetch, and crimson clover for grazing early next spring.

Small grain mixtures such as cereal rye, wheat, or triticale mixed with a variety of other plants can be a good option for grazing during the usual lulls in pasture growth.

I really like the cereal rye, vetch, crimson clover mix, as it provides good early spring grazing before the pastures really kick into gear. This year, I might try some triticale in the mix based on Myron’s recommendation. Myron mentioned that he is planting a mix of oats and Daikon radish on some of his fields. He does this mostly to build up the soil and will graze the animals on it in the fall.

If you have any planting questions, feel free to email Jeff Semler at jsemler@umd.edu. He is our University of Maryland Extension expert and has worked with all of the farmers mentioned. You can also contact Rob Schnabel at rschnabel@cbf.org who can answer questions and provide advice on funding opportunities that help grazers. Good luck and good farming.
Multi-species Cover Crops Get More Popular with Awareness, Incentives
by Sean Clougherty, reprinted from The Delmarva Farmer

Still a pretty small piece of the cover crop pie, planting multi-species mixes is increasing in the Delmarva region as researchers and farmers gain a better understanding about their use.

Using mixes combines different modes of action for added benefit to a cropping system and the environment, advocates say, keeping more nutrients from leaving the field.

A commonly-promoted mix is to combine a brassica like forage radish to scavenge nutrients for the coming corn or soybean crop and alleviate soil compaction; a cereal grain for biomass production to suppress weeds and a legume for nitrogen fixation.

But as more information comes out through research and workshops, and with help from state and federal programs incentivizing the use of mixes, more farmers are experimenting on their own to see what works best in their operation.

In Delaware, the Sussex County Conservation District has advocated the use of cover crop mixes through its air seeder pilot program which allows for earlier planting into standing cash crops and only seeds mixes, and through workshops and field days focused on soil health. The percentage of total mixes in the district’s cover crop program increased ten percent from 2016 to 2017 and up almost 20 percent from 2012, according to district data.

“It’s certainly gotten more popular here in Sussex County,” said Debbie Absher, the Sussex Conservation District’s director of agricultural programs. “We’ve been talking about mixes and people are starting to experiment with their own mixes.”

This year, acreage in the air seeder pilot program was down slightly, perhaps due to crop rotations, she said, and also it was the first year the district charged a fee for using the seeder.

“We’ve had several people say they’d wish they’d done it this year so I think they’ll be back,” Absher said.

With an incentive for early planting and a new eligibility for three-way mixes, data from the Maryland Cover Crop Program shows a steep increase in acres planted with a cover crop mix. In 2017, 7,628.7 acres in the program had a mix planted and in 2018, acres including legume mixes, radish mixes and cereal mixes rose 67.7 percent to 12,798.8. Of the 2018 mix acres in the program, 2,834 acres had a three-way mix, according to the Maryland Department of Agriculture. Statewide, Maryland farmers signed up more than 639,000 acres in the program.

On his family’s Kings Grant Farm in Chestertown, Md., Webb Johnson was fairly early in using cover crop mixes to build soil quality, reduce fertilizer and herbicide inputs and increase yields. Johnson, who also sells cover crop seed, said by integrating cover crop mixes into their soybean production scheme over several years, he’s seen a ten bushel per acre increase.

“It’s not like a one-year thing,” Johnson said of the benefits. “You’re not going to see it overnight.”

Participating in cover crop research for years, Johnson is now partnering with the University of Maryland in the first year of a research project led by Dr. Ray Weil, quantifying the nutrient-saving benefits of mixed stand cover crops.

Along with multiple sites at the university’s Beltsville Research Farm, Johnson and four other Eastern Shore farmers applied a mix consisting of a brassica, a cereal grain and a legume into a standing corn or soybean crop on half of a field and then planted the mix after harvesting the cash crop on the other half for comparison.

The farmers are also asked to kill the cover crop later in the spring or plant their next cash crop directly into the live cover crop stands, according to Nathan Sedghi, a doctoral student in the university’s Department of Environmental Science and Technology working on the research.

Sedghi said they expect to repeat the cover crop trials two more years, gathering data on nutrient movement through leaching and runoff.

For the last three years, Dr. Mark Reiter, Virginia Tech associate professor of soils and nutrient management, and doctoral student Bethany Wolters have been testing different cover crop mixes on the Eastern Shore of Virginia.

“There’s a lot of farmers interested in mixes and a lot of interest in letting them grow longer,” Reiter said.

Studying mixes of three and four different crops and one “kitchen sink mix” of nine different crops, Reiter said under stressed conditions, the mixes in the study produced more biomass than a single cover crop and biomass production was highly correlated to the cover crop’s nitrogen accumulation.

Mixes that included a legume had the best yield benefit on following corn corps than mixes without, Reiter added.

With support from the USDA Conservation Innovation Grant program, Reiter plans to repeat the same treatments for at least three more years.

“I think it’s a good demonstration of how important they can be and how useful they can be,” Reiter said.

Even with their usefulness, there can still be management issues. Insect damage was an issue in the nine-way treatment in his study, suggesting it’s possible to have too many species in one mix.

“I think the lesson there is when you change the system you need to have a good handle on all the things you’re changing,” Reiter said.

Johnson said, like any other farming tool, it takes planning and management to get the most out of cover crop mixes.

“When you’re cover cropping, you’re thinking about the next year’s crop,” he said. “You really have to sit down and do you’re homework on what you want to plant and not just go throw it out there. There’s a mix for everything, one way shape or form.”
Diversity in Pasture Plants Has Big Effects on Herd and Flock Health
by Gary Kleppel, reprinted from On Pasture

Before I began farming, I was an oceanographer. I used to study tiny, planktonic crustaceans called copepods that feed on microscopic algae, at the base of the food chain, and are themselves consumed by fishes. Some 70 percent of all fishes in the ocean eat copepods at some time in their lives. So naturally, oceanographers and marine biologists are interested in identifying the factors that drive copepod production. My particular interest was in how the kinds of algae that copepods eat affect their egg production—an indication of their health.

In 1991, I conducted an experiment to document that relationship. I collected some copepods with a net and transferred a few females and a male to each of several jars containing filtered sea water. To one set of jars, I added a single species of alga, belonging to a group known as the diatoms. To another set of jars, I added a different algal species belonging to a group called the dinoflagellates. And to a third set of jars, I added a mixture of diatoms and dinoflagellates. The total amount of food was the same in all three groups of jars.

The copepods in jars containing only diatoms produced about 10 eggs per female each day. The copepods in the dinoflagellate jars, produced about 70 eggs per female each day.

That was no surprise, since dinoflagellates are known to contain more protein and lipids (energy) than diatoms.

But what came next was surprising. One would expect that by mixing the less and more nutritious algae together, the copepod’s egg production would be somewhere between that observed with each alga alone.

Instead, egg production soared to well over 100 eggs per female per day! The more diverse diet supported a significantly higher egg-production than did either food alone.

What Does This Have to Do With Grazing?
It turns out diversity in pasture improves animal performance too!

Fast forward to 2012. Now I am a farmer. I’m also an agricultural ecologist, studying the use of sheep to manage the spread of invasive plants in grasslands. One of my students, Corine Giroux, is managing a flock in rough terrain near Albany, NY. The landscape is overgrown with a variety of grasses, forbs and brush. As her undergraduate honors thesis, Corine has decided to compare the body condition scores of the sheep she is managing in this wild landscape to the flock at my farm, where the animals feed on a well-managed pasture dominated by Timothy, orchard grass, and red-clover. She’s hoping to determine the extent to which the poor-quality pasture that her sheep are grazing limits their body condition score relative to the animals in my carefully managed pasture.

Remember that body condition scoring is performed by feeling the sheep’s spine and pelvis, and ranking the layering of meat—and-fat-over-bone on a scale from 1 to 5. If the animal’s bones are really noticeable, like the knuckles on your fist, the sheep is considered emaciated. It receives a score of 1. If you detect little bone structure, like the back of your hand, the sheep is obese. It receives a body condition score of 5. If the spine feels like the fingers as you run your hand across your clenched fist, the animal receives an optimal body condition score of 3. So three is where you want to be.

Corine compared the body condition scores of my sheep with those that she was managing on the wild site by calculating the deviation around the optimal body condition score in my flock has dropped in half. As an added benefit, I’m putting less time and money into tractor maintenance than when I was mowing the pasture. I’m also using 70 percent less diesel than when I was mowing, and I’m putting about a ton less carbon into the atmosphere each year.

What Can You Do With This?
Corine’s results led me to change the way I manage my pastures. For one thing, I stopped mowing. And when I did, the number of species of plants in my pasture shot up. I’ve also noticed more pollinators in the pasture, especially in the fall, when the bees get their last nectar of the season from the golden rod. The deviation around the optimal body condition score in my flock has dropped in half. As an added benefit, I’m putting less time and money into tractor maintenance than when I was mowing the pasture. I’m also using 70 percent less diesel than when I was mowing, and I’m putting about a ton less carbon into the atmosphere each year.

Gary is the author of “The Emergent Agriculture: Farming, Sustainability and the Return of the Local Economy.” It documents the revolutionary changes underway in food production, marketing and consumption—rejecting industrial production for a smaller, healthier, more ethical food system. It tells the stories of some of the farmers, scientists, and economists who are making it all happen. You can get The Emergent Agriculture from the author at www.thefarmatlongfield.com or at www.amazon.com.
The Gateway Sorghum-sudan
reprinted from King’s AgriSeeds

If you haven’t dealt with sorghum crops in the past, photoperiod sensitive sorghum-sudans could be a good initiation into the world of multi-cut crops like sorghum-sudan and sudangrass. Sensitive to day length, they won’t initiate flowering until the day length gets below 12 hours and 20 minutes, around mid-September. This provides plenty of harvest flexibility and room for error as the crop carries vegetative quality late into the season. With the enhanced window, you have the flexibility to do multi-cut or one large cut late in the season.

As with most crops, sorghum-sudan quality takes a dive with flowering, as the plant builds up its lignin to support a heavy grain head, while sending plant sugars and protein into the grain head to form starches. With the delayed reproduction of photoperiod sensitive (PS) varieties, the plant can put on large amounts of high-quality, digestible vegetative growth. Standability is less of a concern than with the taller forage sorghums, since the plant doesn’t become top-heavy with grain, and can be harvested at the tallest height you’re comfortable with (where you can comfortably manage the amount of material to be harvested and stored). Those who cut later in the season typically direct chop. Because the material will be moister than a soft-dough plant, you’ll have to do a long cut for less weeping. If you cut as long as you can, you’ll disrupt fewer cells.

These varieties give you the flexibility of sticking to the normal multi-cut schedule, at about 40 days or 40 inches of growth (whichever comes first), or a one direct cut system. Direct cut works well if you have a window after a later-harvested crop, such wheat for grain, and will fit up to the small grain or cover crop planting window. The flexibility to plant late is critical because the PS varieties, like most sorghum-sudans, have a larger seed than sudangrass or millet, which allows you to plant deep enough to reach moisture if the soil surface is dry.

The great advantage of starting out with a PS variety is that if you are new to multi-cut summer annuals, they won’t push you. The flexibility for a quality harvest is there, as long as you are able to handle the higher volume of material, and if it gets big enough that you end up with one big direct cut, you have to be able to work with the higher moisture content. Because of the high sugars, PS sorghums ferment well, but it’s a good idea to add an inoculant. David Hunsberger, regional coordinator at King’s AgriSeeds, uses PS sorghum-sudan on his own dairy, along with an enzyme and homolactic bacterial inoculant. He has put some of this material in a vertical silo at 22% dry matter at the longest cut possible and was able to deal with the juicing of the high moisture crop, but highly recommends horizontal storage in an ag bag, trench, or pit silo, and says to be prepared for some seepage.

Tracy Neff, an agronomist at King’s AgriSeeds, notes that the PS varieties in research plots can double the yield of some of the short-season forage sorghums taken at boot stage, sometimes coming in at 25-29 tons at 65 percent moisture, in only 60 days of growth! So managing this high volume of material and whether it will be direct cut must be taken into account. Once it gets to be about 6 feet tall, you probably won’t be able to rake it. If direct cutting, you also don’t want to process it, to keep cell disruption to a minimum.

King’s has two photoperiod sensitive varieties available—AS 6501, and ADV 6504, a new variety with high sugars. These varieties are known for their drought tolerance, which helps with a mid-summer planting.

Photoperiod sensitive crops can give the best of both worlds in the way of high biomass minus deterioration of nutritive value, but you will still have to plan for increased plant moisture, watch out for Prussic acid after frost, and be sure you are prepared to handle and store the high volume of material.

These sorghum-sudans have their definite advantages because they won’t lignify, and provide the flexibility for multi-cut harvest and late planting after a small grain harvest, but they won’t fit everywhere. We like to think of it as a good way to get customers used to the multicut regime, where you can still get the harvest if you miss it within a few days. Other sorghum-sudans hybrids, growing six inches a day closer to their seed head, run the risk of significantly more lignin if the harvest is disrupted by weather or other unforeseen circumstances. The planned use of PS sorghums for one large direct cut in early fall is definitely not recommended as an amateur move, especially if you’re only working with a discbine. Of course, if customers are looking for superior regrowth and traffic tolerance in a multicut system, we like to emphasize our hybrid sudangrasses. These would also perform better in the grazing scenario.
MARYLAND EVENTS

No-Till Field Day
Tuesday, July 3
8:30 a.m.–2:30 p.m.
Farm of John Stoltzfus
37510 Westham Lane, Mechanicsville
Join fellow farmers, industry representatives, and Extension agents for a day of learning about no-till. To register, visit University of Maryland Extension’s website at extension.umd.edu or email Ben Beale at bbeale@umd.edu.

Farmer Legislative Workshop
Wednesday, July 11
8:00 a.m.–3:00 p.m.
Robin Hill Farm & Vineyards
15800 Croom Road, Brandywine
Be a part of the process to help shape policies that affect your farm, your business, and family. Join LEAD Maryland for this interactive workshop and learn how farmers can be involved in shaping legislation at the local, state, and national levels. For more information, visit the event’s Facebook page.

Diagnosing Plant Disease
Monday, July 16
10:00 a.m.–1:00 p.m.
One Straw Farm LLC
19718 Kirkwood Shop Road
White Hall, MD
Tour One Straw Farm’s plant disease prevention practices. University of Maryland Extension staff Dr. Karen Rane and Dr. Jerry Brust will lead an in-field scouting demo. For more information and to register, visit Future Harvest CASA’s website at www.futureharvestcasa.org or email Caroline Selle at caroline@futureharvestcasa.org.

VIRGINIA EVENTS

Summer Pasture Walk
Thursday, July 19
5:30–8:30 p.m.
Dick and Mary Lund’s Farm
1107 Narrow Passage Road
Sprout Spring
All farmers and landowners are invited to attend and learn how the Lunds have successfully developed a forage-based beef production system to provide grass fed beef and finished Black Angus beef to their clients in the region. Visit the Virginia Forage and Grassland Council website at https://vaforages.org for more information.

2018 Kentland Beef and Forage Day
Wednesday, September 12
8:00 a.m.–4:30 p.m.
Kentland Farm
5279 Whitethorne Road, Blacksburg
Learn about the research being done at Kentland Farm by Virginia Cooperative Extension and the Virginia Tech College of Agriculture and Life Sciences. The event will also focus on hay quality and baleage production. Registration fee is $10 and includes lunch. For more information, visit the Virginia Forage and Grassland Council website at https://vaforages.org. 

Advanced Grazing School
Thursday, October 25
Mauzy
If you are interested in reaching for the next level in grazing management, the Virginia Forage and Grassland Council’s Advanced Grazing School is for you. Details are being planned now. Contact Matt Booher at mbooher@vt.edu for more information and to let him know you are interested.

PENNSYLVANIA EVENTS

Twilight Tours
Thursday, July 5, 7:00–9:00 p.m.
Laurel Run Farm, Huntingdon
Thursday, July 12, 7:00–9:00 p.m
Zahncroft Farm, Womoldsdorf
Enjoy an evening of fellowship with friends, tour a dairy farm, and enjoy an ice cream social. The Penn State Extension dairy team will have displays on hand and will be available to answer questions. Register at the Penn State Extension website at extension.psu.edu/twilight-tour.

Multispecies Grazing: Management Techniques and Animal Care
Wednesday, July 11, 3:00–5:00 p.m.
Deep Roots Valley Farm
1047 Irish Creek Road, Mohrsville
Learn how to manage a multi-species grazing system, including implementing succession grazing techniques and caring for each animal species from start to finish. Register at the PASA website at pasafarming.org/events or email Aaron de Long at aaron@pasafarming.org.

Dairy Grazing Discussions
Thursday, July 19
Thursday, November 15
Thursday, December 13
11:00 a.m.–1:00 p.m.
Valley Dairy, Latrobe
This series of lunch meetings will cover topics from The Art and Science of Grazing. The discussions aim to give a foundational overview of effective grazing management for dairy operations, strategies that help improve performance, and things that have been learned by other grazers in the region. For more information, visit the Penn State Extension website at extension.psu.edu/dairy-grazing-discussions.

Forage Quality and Cow Health
Tuesday, August 14
10:00 a.m.–2:00 p.m.
Little Crick Farm
2486 Anderson Road, Stevensville
At this workshop, we’ll discuss how cows can thrive on grass-based diet. Learn about the qualities of different forages and how each of them contribute to cow health. Register at the PASA website at pasafarming.org/events or email Aaron de Long at aaron@pasafarming.org.