



Your local link to MU for ag extension and research information

<http://agebb.missouri.edu/agconnection>

For more information please contact your MU Extension Center:

Adair
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Schuyler
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(660) 265-4541

The Effect of Soil pH and Fertility on Pasture Weeds

The drought of 2018 will have a lasting effect on Missouri pastures and hay fields. Cool April temperatures and very warm May temperatures led to decreased spring forage production. The extremely dry conditions during the summer compounded the forage shortage. Consequently, many pastures were overgrazed.

Overgrazed pastures have very little green leaf material to manufacture sugars for plant growth. When more than half of the above ground plant material is removed, root growth slows down and may even stop. The weakened root systems have reduced ability to take up water and nutrients. As a result, overgrazed pastures are very slow to recover. Weeds are plants of opportunity. Overgrazed pastures provide an opportunity for weeds to fill in the open spaces left when the forage is grazed short and plant roots are stunted.

University of Missouri Weed Scientist, Kevin Bradley conducted a pasture survey during 2015 and 2016 to determine if soil pH and soil nutrients influenced weed density. Over a two-year period, 46 sites throughout the state were surveyed every two weeks from April through October. Eighty percent of the pastures in the survey had low or very low soil phosphorus levels. Thirty seven percent of the pastures had low or very low soil potassium levels and the average soil pH was 5.8. When pH was increased by one unit the total weed density decreased by over 4000 weeds per acre. Common ragweed and lanceleaf ragweed were two species that dramatically decreased when pH increased. Yellow foxtail also decreased significantly when pH increased.

Forage ground cover also plays a big role in weed density. For each one percent increase in forage ground cover, weed density declined by over 280 weeds per acre. Increasing forage ground cover with desirable forage by five percent would reduce weed density by over 1400 weeds per acre. Providing a favorable growing environment with optimum soil pH and adequate plant nutrients will lead to improved forage stands and provide less opportunity for weeds to encroach.

Minimum soil test value for most forage crops is a salt pH of 5.5, a phosphorus level of 25 lbs/acre and a potassium level of 250 lbs/acre. Increasing soil phosphorus levels by 0.1 lb/acre reduced weed density by 81 weeds per acre. Increasing soil potassium levels by 0.1 lb/acre, reduced weed density by 6 weeds per acre.

If annual weeds, like ragweed and foxtail, are problems in pastures or hay fields, improving soil pH and soil phosphorus and potassium levels may be more beneficial than controlling weeds with herbicides. Perennial weeds like ironweed and horsenettle are more effectively controlled with herbicides.

Identifying weeds is the first step in controlling weeds. The MU Weed Science Department has a free "ID Weeds" app for smartphones or tablets. The weed identification database can also be accessed online at www.weedid.missouri.edu. For additional questions about weed identification, soil fertility or weed control, contact a local University of Missouri Extension agronomist.

Source: Valerie Tate, agronomy specialist

Show Me Quality Assurance Program Undergoing a Rewrite

The Show-Me-Quality Assurance (SMQA) program was developed to educate youth in animal care and well-being related to quality assurance. The SMQA program was implemented in 2006 when Missouri 4-H made it a requirement for all 4-H youth exhibiting any food producing animal. Since implementation, more than 16,000 Missouri youth (8-21 yrs. of age) have been certified. In addition, more than 90 adults (Extension specialists or Vocational Ag teachers) have been trained to teach the curricula.

Starting in 2019, youth will certify with a new version of SMQA, including videos and new hands on learning activities. Learning principles will focus on, Quality Assurance, Administering Injections, Biosecurity, Feed Labels, Medication Labels, Animal Identification, Chemical, Biological, and Physical Hazards, Antibiotics, General Animal Care, Record Keeping, Veterinary Client Patient Relationship (VCPR) and the Six Pillars of Character.

All youth under 14 years of age are required to attend face-to-face trainings. Each county can make modifications to the program and how it is presented, depending on the needs of the county's youth. The criteria for certification, however, remains the same.

- *Certified to Show*- Youth (8-13 years of age) will be required to learn principles on six of the topics and the Six Pillars of Character, through face-to-face training with hands on exploration.
- *Conditionally Certified*- Youth (8-13 years of age) will learn the principles on the other six topics via video and the Six Pillars of Character, again, through face-to-face training with hands on exploration. These first two certification levels must be completed consecutively.
- *SMQA Certified*- A refresher course is not needed until 14 years of age and can be completed online, by watching all 13 videos. Upon completion of the refresher course, youth will be certified for the remainder of exhibition career in either 4-H or FFA.

The Show-Me-Quality Assurance program relies on the positive attitudes of producers and students. By participating in the program, youth producers show they are committed to producing top quality food and making responsible decisions while raising their project. The revamped SMQA program will highlight focused topics in an updated way using new technologies and presentation styles. For further information, contact the local Extension Office.

In short, the Six Pillars can dramatically improve the ethical quality of our decisions, and thus our character and lives.

- Trustworthiness – To be honest, not lie, cheat, or steal.
- Respect – Show others that they are valued for who they are. Treating others the way you want to be treated.
- Responsibility – Doing what you are suppose to do. Being accountable and always do your best.
- Fairness – Playing by the rules, taking turns, sharing and listening to what others have to say.
- Caring – Being kind, generous, and helpful.
- Citizenship – Doing your part to help your family and make your community a better place.

Six Pillars of Character

Trustworthiness
Respect
Responsibility
Fairness
Caring
Citizenship

Source: *Heather Conrow, livestock specialist*

Growing in High Tunnels

For centuries a wide variety of techniques have been used to extend the growing season of horticultural crops. Glass jars, glass cloches, hotcaps, cold frames, hotbeds, and greenhouses of various types have all contributed to season extension. More recently, row covers and high tunnels have become popular with growers because of their simplicity and effectiveness in protecting crops from low temperatures in both spring and fall. Many growers and market gardeners throughout Missouri are using high tunnels as a way to extend their season. During the cold winter months, cool-season crops like leafy greens, can be grown. This is particularly true in the southern part of the state, although a few north Missouri growers have tried it.

Row covers and high tunnels do not offer the precision of conventional greenhouses for environmental control, but they do sufficiently modify the environment to enhance crop growth, yield, and quality. Although they provide some frost protection, their primary function is to elevate temperature a few degrees each day over a period of several weeks. In addition to temperature control, there are also the benefits of wind and rain protection, soil warming, and in some instances control of insects, diseases, and predators such as varmints and birds. Overall, these protected growing systems enhance earliness, yields, and quality, and may reduce the use of pesticides.

Row covers and high tunnels have sufficient versatility to make them useful for a wide diversity of crops and various cropping systems. Vegetables, small fruits, and flowers are all suited to these growing systems. Specific crops to be grown should depend on marketing opportunities for individual crops by individual growers.

High tunnels are not conventional greenhouses. Like plastic-covered greenhouses, they are generally quonset-shaped, constructed of metal bows that are attached to metal posts that have been driven into the ground about two feet deep. They are covered with one layer of 6-mil greenhouse-grade polyethylene, and are ventilated by manually rolling up the sides each morning and rolling them down in early evening. There is no permanent heating system although it is advisable to have a standby portable propane unit to protect against unexpected below-freezing temperatures. There are no electrical connections. The only external connection is a water supply for trickle irrigation. Dr. Otho Wells was a pioneer in promoting the use of high tunnels in the northeastern United States and developed the New Hampshire design and system of production that involved covering the entire soil surface inside the tunnel with a solid sheet of 6-mil thick plastic. At Penn State, the endwalls were redesigned to be raised facilitating easy access into the tunnel for a small tractor and tiller. This system of production uses 18-inch wide raised plastic mulch covered beds with drip irrigation tape buried 2-3 inches beneath the bed. The raised mulch beds are 44 inches apart, which allows 4 rows in a 17 foot wide high tunnel.

Source of information: https://newenglandvfc.org/sites/newenglandvfc.org/files/content/proceedings2003/greenhouse_season_extension/latest_techniques_high_tunnels.pdf

Source: *Jennifer Schutter, horticulture specialist*

New 2018 Farm Bill

On December 20, 2018, President Donald Trump signed, H.R. 2, the Agriculture Improvement Act of 2018, more commonly called the 2018 Farm Bill. The entire document is online (807 pages) <https://docs.house.gov/billsthisweek/20181210/CRPT-115hrpt1072.pdf>

The final bill is a compromise. More than 75 percent of the \$867 billion price tag over a 10-year period funds the SNAP program. For this newsletter the focus is the agricultural commodity programs.

Commodity Programs

The bill reauthorizes Price Loss Coverage (PLC), Agriculture Risk Coverage County (ARC-co), and Agriculture Risk Coverage Individual (ARC-i). Producers must make a new five-year election (2019-2023) to obtain PLC or ARC-co on a commodity-by-commodity basis or ARC-i for all commodities. If no unanimous election is made, coverage is waived for the 2019 crop year and producers are deemed to have elected the same coverage for each covered commodity on the farm for the 2020 through 2023 crop years as they did for the 2015 to 2018 crop years.

Base Acres

The bill amends the minimum 10 base acre test for PLC or ARC payments to provide an exception for producers who collectively have more than 10 base acres across all farms. The bill adds beginning and veteran farmers or ranchers to the current law exception for socially disadvantaged farmers from the minimum 10 base acre test for ARC or PLC.

If all crop land on a farm was planted to grass or pasture from 2009 through 2017, base acres will continue, but PLC or ARC payments will not be made. These farms may participate in a five-year grassland incentive contract under the Conservation Stewardship Program (CSP), with a payment rate of \$18 per acre.

Elections

The bill allows producers to change program elections to PLC or ARC each year, beginning with crop year 2021. This is a discretionary option. Producers who do not opt for a change will not be required to reaffirm previous elections.

PLC

The bill reauthorizes the PLC program, which generally continues to provide assistance to producers when the market price for a covered commodity falls below a statutory reference price. The bill sets the PLC payment rate as the difference between the “effective reference price” (a new term) and the effective price. This allows for potential increases in reference prices as market conditions improve. The “effective reference price” is the lesser of:

- 115 percent of the reference price OR
- The greater of:
 - ▶ 85 percent of the Olympic average of the five most recent marketing year average crop prices or
 - ▶ The reference price

The reference price for corn is \$3.70 and for soybeans is \$8.40. The maximum effective reference price for these commodities is \$4.26 and \$9.66 respectively. Within 30 days after the end of each applicable 12-month marketing year for each covered commodity, the Secretary must publish the payment rate. The bill also gives all farms in the country a one-time opportunity to update the payment yield that would otherwise be used in calculating any PLC payment for each covered commodity on the farm, based upon a statutory formula, to be in effect beginning with the 2020 crop year.

ARC

The bill reauthorizes both the ARC-co and ARC-i programs, which generally continue to provide payments to producers when actual crop revenue falls below 86 percent of benchmark revenue. Under the bill, payments under ARC programs would be based on the payment rate of the county where the base acres are physically located. The transitional yield plug would also increase to 80

percent (from 70 %). The yield would be trend-adjusted, and the “effective reference price” would be used to calculate the benchmark revenue (guarantee).

Other ARC provisions include the following:

- The bill separates irrigated and non-irrigated yields that would be calculated for each county, and RMA data would be prioritized in calculating guarantee and actual yields.
- When actual yields drop below 80 percent of the transition yield for the county, FSA will consult with the RMA to ensure that the transitional yield used is current and reflective of recent yields within the county.
- When a farm has a tract with base acres that cross a county boundary, FSA will prorate the base acres based upon the quality of cropland of the tract in each county. ARC-County payments will be calculated on that basis.
- The bill requires the USDA to publish the payment rate for each county no later than 30 days after the end of each 12-month marketing year for each covered commodity.

adapted from an article by Kristine Tidgren, attorney ISU Center for Ag Law and Taxation

Private Pesticide Applicator Training

(The training is for those who need to obtain a license and those who need to renew a license)

Adair (Kirksville) – Feb. 20 @ 2 p.m. (660-665-9866)

Carroll (Carrollton) – Feb 5 @ 2 p.m. (660-542-1792)

Chariton (Keytesville) – Feb. 12 @ 2 p.m. or 6 p.m.
(660-288-3239)

Lewis (Lewistown) – Feb. 11 @ 6:30 p.m.
(573-767-5273)

Linn (Linneus) – Feb. 13 @ 2 p.m. or 6 p.m.
(660-895-5123)

Macon (Macon) – Feb 18 @ 2 p.m. or 6 p.m.
(660-385-2173)

Putnam (Unionville) – Feb 26 @ 2 p.m. (660-947-2705)

Randolph (Moberly) – Feb 8 @ 2 p.m. or 6 p.m.
(660-269-9656)

Saline (Marshall) – Feb 7 @ 2 p.m. or 6 p.m.
(660-886-6908)

Sullivan (Milan) – Feb. 11 @ 2 p.m. (660-265-4541)