



Northeast Missouri Ag Connection

Your local link to MU for ag extension and research information
<http://agebb.missouri.edu/agconnection>

For more information
please contact your
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Ag Site Tool

MU Extension has a new tool for assessing physical, environmental and cultural characteristics of land. The new tool is called Ag Site Assessment and can be found online at (AgSite.missouri.edu). The website redirects browsers to communitycommons.org. The site was designed that way to meet university guidelines.

The site has many choices in data layers including: soils, streams, wetlands and ponds, watersheds, floodplains, legal descriptions, threatened and endangered species and more.

There are four steps to creating a report on a piece of land: 1) enter a nearby location such as a zip code, 2) navigate to the location on the map, 3) outline by clicking the borders (which also calculates acres) and 4) generate the report. Once the report is generated, there are many features to explore. Each section of the report has additional information. Each section will have hyperlinks “page” and/or “map.” These links lead to a vast amount of information. For example, additional layers can be added to maps; labels may be put on maps, soil boundary lines may be added and many other options.

The site is free to use and allows printing and creating PDF maps. Registration is optional, but does allow additional features including the ability to save maps and site boundaries.

The site was designed so farmers can use the reports by printing or saving them as PDF files for practical ideas. A few uses could include sharing them with custom spray applicators, landlords and contractors moving dirt. Looking at the maps may also help in looking at alternatives for parts of farms and learning more about the farms you have.

Creating the site was partially funded by a grant through the North Central Extension Risk Management Education Center and the USDA National Institute of Food and Agriculture. The site was designed and created by the MU Ag Economics Department.

Source: *Mary Sobba, ag business specialist*



AgSite.missouri.edu

Weeds of Missouri

The definition of a weed is any plant growing out of place. Weeds have several classifications including: native and nonnative, invasive and non-invasive, and noxious and non-noxious. A nonnative plant is one introduced into an environment where it did not evolve. Approximately 25 percent of the 2,500 plant species found in Missouri are nonnative. The majority of nonnative plants have an agricultural and ornamental purpose, but a few are detrimental and considered weeds. Nonnative weeds have no natural enemies to limit their reproduction or spread; therefore, they are often classified as invasive weeds. Invasive weeds are able to quickly invade due to their prolific growth and high reproduction rates. Invasive species left uncontrolled can result in major disturbance of vegetation and ecosystem functions. Noxious weeds are defined by the Bureau of Land Management, as any plant designated by a federal, state or county government as injurious to public health, agriculture, recreation, wildlife or property. Noxious weeds must be treated with control measures as required by law.

Oversight of the noxious weed control program varies by state. The Missouri Department of Agriculture (MDA) provides technical assistance regarding the control of noxious weed species. The MDA has no authority to deal with noxious weed violations; instead, the county prosecuting attorney is responsible for enforcing all weed statutes. While there are approximately 600 designated noxious weeds across the United States, Missouri has designated only twelve weed species as noxious.

Nearly half of Missouri's noxious weeds can be classified as thistle and thistle-like plants. These weeds include Canada thistle, musk thistle, scotch thistle, common teasel and cut-leaf teasel. These plants were introduced in the U.S. from Europe and gradually spread into Missouri and surrounding states. Not all thistles in Missouri are noxious; therefore, it is important to be able to distinguish between them. Refer to MU guide IPM 1015 for assistance with identification. With the exception of Canada thistle, these species are biennials; therefore, control with herbicides should target the spring and fall of the first year of growth, when plants are in the seedling or rosette stage. Canada thistle, a perennial, should be treated in the early bud to bloom stage in the spring or fall.

The state noxious weed list has one grass—Johnsongrass, a perennial. It was introduced into the U.S. as a forage crop in the 1800s. It spreads quickly through prolific seed production and underground vegetative structures known as rhizomes. Herbicide control is most effective in the fall because more herbicide is translocated into the roots.

Field bindweed and kudzu are both perennial vine species. It came from Europe around 1870 in contaminated wheat. It is a trailing vine with white morning glory-like flowers

which grows from both seed and rhizomes. Field bindweed is best controlled in the bud stage or in the fall after several inches of regrowth has occurred. Kudzu is an aggressive climbing or trailing vine found mostly in the southern tier of Missouri. It was introduced as an ornamental from Japan in 1876, but was widely spread in the 1930s when it was used by the Soil Conservation Service for erosion control.

The remaining species of noxious weeds include spotted knapweed, multiflora rose, purple loosestrife, and marijuana.

Spotted knapweed is primarily a weed of pastures and hay fields and can be distinguished by spotted bracts below the pink to purple flowers. It is best controlled with herbicides in the rosette stage, which can occur in the fall and early spring, or the bud to bloom stage in the summer.

Multiflora rose was introduced in the U.S. from eastern Asia in 1866 as a rootstock for cultivated roses, but was rapidly spread when it was promoted by the U.S. government as a wildlife food and living fence. Chemical control is most effective as the plant comes out of dormancy in the spring.

Purple loosestrife came to the U.S. from Europe as an ornamental perennial plant and is still used today. It is not found extensively, but thrives in wet, marginal sites. It can be identified by the long, terminal spikes of flowers that range in color from magenta to purple. A single plant is capable of producing several million seeds. Herbicides are best applied to actively growing plants in the bloom stage.

Marijuana has multiple forms. The agriculture form came from Asia before the Civil War and was widely used in Missouri as industrial hemp for its strong fibers in making paper, rope, sacks, twine, and cloth. It is more commonly found in northwest Missouri, typically in river bottom areas with rich, fertile soil.

A complete list of noxious weeds of Missouri can be found on the MDA website (<http://tinyurl.com/noxious-MO>) and includes pictures. Every species on the noxious weed list is an invasive weed; however, not all invasive weeds are designated as noxious weeds. While treatment of non-noxious invasive weeds may not be required by law, it is still recommended to limit their reproduction and spread. Unfortunately, by the time an invasive species is recognized as a major problem, it is generally well established and difficult to control. While there is no extensive list of invasive weeds, a list of the 25 most common invasive plants in Missouri is available on the Missouri Department of Conservation website. (<http://tinyurl.com/MO-invasive>)

Source: Wyatt Miller, agronomy specialist

Missouri's noxious weeds:

Canada thistle,
Common teasel
Cut-leaf teasel
Field bindweed
Johnsongrass
Kudzu
Marijuana
Multiflora rose
Musk thistle,
Purple loosestrife
Scotch thistle
Spotted knapweed.

Spring Garden Preparation

Cool-season vegetables should be planted by the second week of April for harvest later in the spring. These include lettuce, spinach, kale, peas, radishes, carrots, potatoes, onions, broccoli, cabbage, Brussels sprouts, kohlrabi, Swiss chard and other greens. Cool-season vegetables like cool weather and do not perform well during hot days of summer. Bolting, or flowering, occurs when they are exposed to warm temperatures for an extended period of time. Leafy greens, like lettuce, turn bitter when exposed to warm temperatures for very long. Most cool-season vegetables are harvested from late April until early June, followed by warm-season vegetables (zucchini, green beans, tomatoes or peppers). This is called succession planting. An exception of a cool-season plant left in the garden after harvest is broccoli, as side shoots can be picked throughout the season, particularly in the fall when the weather turns cooler.

Spent plants can be pulled out and placed in a compost pile. Compost improves both the physical condition and the fertility of the soil when added to the landscape or garden. It is especially useful for improving soils low in organic matter. Organic matter in compost improves heavy clay soils by binding soil particles together into "crumbs," making the soil easier to work. Although compost contains nutrients, its greatest benefit is improving soil characteristics. Consider compost a valuable soil amendment rather than a fertilizer because additional fertilization may be necessary to obtain acceptable growth and yields. For more information on making and using compost see MU Guide 6956 at <http://extension.missouri.edu/p/g6956>.

By late April, imported cabbageworm butterfly larvae may become a problem on cruciferous vegetables like broccoli, cabbage and cauliflower. The adults are small, white butterflies and the larvae are green caterpillars, commonly found on the undersides of the leaves. The body of a full-grown caterpillar is a little over one inch long and uniformly green with a velvet-like texture. A thin yellow line is on the top of the body in the center and runs lengthwise.

Cabbage looper larvae can also be a pest of cruciferous vegetables. Full-grown caterpillars are about 1.5 inches long and uniformly green. However, there may be a faint, longitudinal white stripe on the lateral sides and several narrow lines dorsally. They move in a looping motion. The adult is a gray, mottled moth with a characteristic white or silver "Y" mark on each forewing. Rye flour, which can be purchased from a grocery store, can be used as an organic control for the larvae. They ingest the flour and it causes compaction and death. *Bacillus thuringiensis (Bt)* can also be used, and can be found at local farm supply stores or garden centers under the brand name *Dipel*. For more

information on caterpillars in the yard and garden see <http://extension.missouri.edu/p/ipm1019-29>.

Spring is a good time to plant fruit trees and small fruit plants like strawberries, grapevines, blackberries, raspberries, gooseberries and other small fruits. Review the requirements for selected fruits before planting. For example, some fruit plants require winter protection, most require yearly pruning and fertilization, and some require sprays to keep away insects and disease. Contact your county extension center for guides on commonly grown fruit crops in Missouri.

Spring lawn care is important for a healthy lawn. Small areas can be reseeded, but large areas are best reseeded in the fall. If crabgrass has been a problem, apply crabgrass preventer by April 15.

Cool-season flowers like pansies, violas, dianthus and snapdragons can be planted for early spring color in the landscape. These are available from local greenhouses and garden centers. For more information on gardening, contact your county Extension center.

Source: *Jennifer Schutter, horticulture specialist*

Mineral Intake Affects Cattle Performance and Health

Mineral supplementation is often an overlooked practice in grazing beef operations. The majority of operations provide free choice mineral; however, it is often unclear how much is being consumed by individual animals. Consumption of mineral is important to cattle performance and health especially with the addition of products such as chlortetracycline (CTC) and ionophores. Research has shown there are benefits to monitoring mineral consumption.

A study was conducted by Oklahoma Cooperative Extension Service and the OSU Department of Animal Science. Steers were grazed on wheat pasture and given a free-choice mineral and tracked for 53 random days during a 90 day grazing period. A commercially available free-choice mineral was provided and replenished as needed. Recommended daily consumption rate of the mineral was 1.41 oz. to 4.4 oz./head/day. The mineral feeder was placed close to the water source forcing the steers to walk in close proximity to the mineral. Steers visited the mineral supplement feeder an average of 44.3% of the days monitored. At the conclusion of the study, the steers were divided into two groups: 1) below average visits to the mineral feeder and 2) above average visits to the mineral feeder

The overall results from the study showed average daily gain (ADG) was 2.27 lbs./head/day with the range being

1.72lbs-2.77 lbs./head/day. Average consumption of the mineral was 2.54 oz./head/day. There was quite a bit of variation in average herd intake throughout the grazing season. For each 10% increase in average frequency of visits to the mineral feeder, ADG increased 0.11 lb./head/day. The increase may be due to the mineral and/or the ionophore (lasalocid) in the mineral mix. (Graph 1)

Individual consumption frequency of a free-choice mineral is highly variable and can be influenced by a number of factors such as: placement of mineral feeders, individual animal preferences, individual and herd behavior, weather and feed additives. The variation may result in under or over consumption leading to disease or nutritional problems. Inadequate mineral intake may result in reduced profits or mortality. For example, if an antibiotic like chlortetracycline (CTC), which is commonly mixed with mineral, is not consumed in the prescribed quantity, cattle under-consuming the mineral may potentially have increased health risks. While it may be more convenient to feed a free choice mineral, under certain circumstances it may be beneficial to

include the mineral mix in a supplement package, such as distillers grains. For more information contact your local MU Extension Livestock Specialist.

Source: *Wendy Flatt livestock specialist*

Graph 1: Correlation of individual mineral feeder visit frequency and ADG

