



Northeast Missouri Ag Connection

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Cash Rent Guide Being Updated - Help Requested

University of Missouri is in the process of gathering data to update extension's guidesheet, *2015 Cash Rental Rates in Missouri*. This guidesheet is referenced frequently by both tenants and landlords statewide.

For many years, the University of Missouri Agricultural Economics Department has conducted a survey of landowners and tenants every three years via U.S. mail. The data is compiled to produce the guidesheet. For the first time, the survey will be mostly online.

Data is needed from both tenants and owners of rented crop, pasture and hay ground. In addition, rental data for grain bins, machine sheds and recreation is being collected. The more participation in the survey, the better the reflection of rates across the state will be. The purpose of the guidesheet is simply to be a guide. It is a starting point for both tenants and owners when starting negotiations. It can be a tool in understanding Missouri rents for absentee owners or those living away from the farm.

Many surrounding states have similar publications, with some conducting surveys every year. Missouri has chosen to update and publish every three years for several reasons. Participation is essential; therefore, less frequent updates prevents over burdening those providing input. Updating every few years allows the cost of analyzing data and publishing to remain reasonable.

The preferred method of participating in the survey is online <https://tinyurl.com/cashrent2018>. If internet is an obstacle, paper copies are available by calling the local county extension center or Audrain County at 573-581-3231 to request a copy.

Please return completed paper forms to Audrain Extension by fax 573-581-2766 or mail to 101 N. Jefferson St., Rm 304, Mexico, MO 65265.

The last day to participate is July 9, 2018. Your participation is greatly appreciated.

Source: *Mary Sobba, ag business specialist*



2015 Cash Rental Rates in Missouri

In the summer of 2015, 228 Missourians responded to a mailed survey and provided information on their cash rental arrangements for farm property. A summary of their rates for Missouri cropland, pasture, farm buildings and the housing is shown in the following tables. As expected, most rates had increased since our last survey.

This guide should not be used as the sole basis for determining your rent, but it may provide a reference as you consider the factors unique to your situation. The acres of land available for rent (single) and the number of tenants wanting to rent for each (double), as well as production costs and market prices, can affect the amount of rent negotiated.

Table 1. Cash rent paid for Missouri crop and pasture land in 2015.

Cropland	Average rent per acre per year	Range in rents			Normal yield per acre	Number of responses
		Low	Mid	High		
Corn, organic	\$145.50	50	130	200	160 bushels	196
Impure	148.24	20	120	200	44 bushels	196
Wheat	92.25	30	90	150	40 bushels	18
Wheat/oats, double crop	125.12	50	100	180	wheat 72 bushels oats 24 bushels	13
Grain sorghum	102.44	40	70	120	3,077 pounds	6
Alfalfa hay	60.53	20	45	100	4 tons	6
Grass hay	32.33	10	30	70	2.41 tons	38
Pasture and grazing land						
Good	\$28.41	\$10	\$20	\$30	less than 4 acres per 1,000 pound cow per year	144
Fair/poor	30.56	10	30	65	more than 4 acres per 1,000 pound cow per year	42
Timber pasture	17.96	3	15	50		13

Note: Average rents and yields are weighted based on the number of acres rented. The rent and in the range has an equal number of responses below and above it.



Nitrogen Fertilizer Selection for Tall Fescue Pastures

Efficient nitrogen (N) management through proper fertilizer selection for grass pasture is one of the most important factors for successful and profitable forage-cattle production systems. Proper fertilizer selection can increase pasture productivity by increasing forage yield, improving N utilization efficiency and forage quality, which leads to increased farm income.

In general, producers in Missouri, apply N fertilizers to grass pastures in early spring for spring grazing or hay production, and again in August for stockpiling and winter grazing.

Producers in Missouri have used different N fertilizers including urea, ammonium nitrate, ammonium sulfate and others. In the past, ammonium nitrate was one of the most common and efficient sources of N for grass pastures, particularly for August application. It is less prone to ammonia volatilization-loss compared to urea; however, ammonium nitrate availability in the market at present is limited compared to ten or more years ago. Availability is limited, due to its explosive properties. Producers have used urea as another common source of N for pastures. It is cheaper and more accessible in the market compared to other N fertilizers; however, there is a volatilization loss of N from urea after broadcasting on the vegetative surface mat of pastures. Research has shown up to 40 percent of N in urea can be lost due to volatilization, if no rainfall occurs within 48 hours of application. The low N use efficiency of urea is one of the major concerns among the producers in Missouri and other states. These issues of ammonium nitrate and urea are driving producers to look at alternative forms of N fertilizer for pastures.

Rob Kallenbach, Assistant Dean and Senior Program Director- Agriculture and Environment Extension and former MU Extension State Forage Specialist, conducted a three-year study at two locations in Missouri. The study looked at the effects of different N fertilizer products on Kentucky-31 tall fescue and compared the forage yield, forage nutritive value and change in soil pH. Products included ammonium nitrate, urea, ammonium sulfate, and slow release urea based fertilizers (polymer coated urea and agrotain treated urea). Established tall fescue pasture was fertilized at the same N rate in March and again in August.

From the study, ammonium sulfate was in the top producing group for a majority of all harvests, years and locations. There was no significant difference in

ammonium sulfate, ammonium nitrate and urea for tall fescue when applied in the spring if rainfall occurred within 48 hours of application. For late-summer N application (typically August), tall fescue fertilized with urea yielded 35 percent less than that fertilized with ammonium sulfate or ammonium nitrate in the years when the fall was dry. There were no differences on pasture soil pH fertilized with the different products after the three years. The results suggest using ammonium sulfate as the nitrogen source for late summer (August) application.

Source: *Dhruba Dhakal, agronomy specialist*

Physiological & Disease Problems of Tomatoes

Several physiological disorders and diseases may affect tomato plants and fruits throughout the summer. The fruit may still be eaten if affected portions are removed. Many of the disorders are quite common and difficult to control. Some of the problems include:
Blossom-end rot - This is a very common problem on homegrown tomatoes. It appears as a depressed brownish dry rot, the size of a dime to a half dollar on the blossom end of the fruit. It is caused by a calcium deficiency coupled with wide fluctuations in available moisture. Remove the affected fruit and keep the plants well watered. Provide good soil drainage and mulch plants to maintain uniform moisture.

Catfacing - Catfacing causes poorly formed tomatoes on the blossom end. It is usually rough with scar tissue. Cold weather at the time of blossom set intensifies deformities. Catfacing is most common in the large-fruited beefsteak-type tomatoes.

Cracking - Fruit cracking varies by the variety, and is common in cherry tomatoes. Cracking is usually a problem when there is a fluctuation in soil moisture. Tomatoes exposed directly to sunlight are highly susceptible to cracking. When planting your garden in the spring, select varieties that are crack-resistant.

Cloudy spots - These are irregular white spots under the skin of the tomato. It is the result of stink bugs feeding on the fruit at some stage of its development. Control stink bugs to avoid cloudy spots.

Yellow Shoulder - This is caused by high temperatures that retard the development of good color. Tomatoes exposed to high temperatures will scald and develop an uneven yellow color on the top of the fruit. Good foliage cover is helpful in avoiding this problem.

Early blight (fungus) – It causes dark-brown circular

spots with concentric rings, or "targets," on leaves. Tissues around spots become yellow. When spots are numerous, leaves wither and dry up. For control: sterilize stakes, stake or cage plants, provide adequate spacing to improve air circulation, water plants in the morning, use organic mulch, and if necessary use a fungicide, such as Daconil, containing the active ingredient 'Chlorothalonil'.

Septoria leaf spot (fungus) – This causes small, circular spots with dark-brown borders and gray centers on leaves. Leaves may die and drop off if heavily infected. For control of this disease, limit overhead irrigation, water in the morning and use mulch. Daconil is recommended for control. For healthy tomato plants all summer, keep plants well-watered, mulched, caged or staked, and monitor regularly for insects and disease. If a problem is found, treat it promptly to prevent it from spreading.

Source: *Jennifer Schutter, horticulture specialist*

Feed or Foe? Forage Quality of Common Weeds Found in Missouri Pastures

(The following information is from an interpretative summary from the 2017 MU Bradford Extension Research Center.)

Pastures account for approximately 9.9 million acres of land in the state of Missouri. Weeds are the primary pest of pastures and can result in reductions in forage yield and quality. Many weeds are readily grazed or browsed by cattle, but little is known regarding the nutritive value of many of these species. A survey of 66 Missouri pastures was conducted in 2015, 2016, and 2017 to determine the prevalence of weed species across the state and to investigate the nutritive value of common weed species. A 215 sq. ft. area was surveyed for every 9.9 acres of pasture, and each sampling area was visited at two-week intervals from April through September. Weed and representative forage samples were also collected from many of the pastures at each two-week interval.

The weed species collected included common ragweed (*Ambrosia artemisiifolia* L.), large crabgrass (*Digitaria sanguinalis* L.), annual fleabane (*Erigeron annuus* L.), buckhorn plantain (*Plantago lanceolata* L.), yellow foxtail (*Setaria pumila* Poir.), horsenettle (*Solanum carolinense* L.), dandelion (*Taraxacum officinale* F.H. Wigg.), vervain spp. (*Verbena* spp. L.), and tall ironweed (*Vernonia gigantea* Trel.) These species were chosen based on their commonality and abundance across all surveyed pastures during the

three years of the survey.

Near -infrared spectroscopy was used to predict crude protein and in vitro true digestibility of all weed and representative forage samples. When compared over the collection period, many weeds, such as common ragweed, horsenettle, and dandelion, were significantly higher in crude protein and in vitro true digestibility compared to the representative forage sample collected in the same field at the same time. Crude protein levels for common ragweed ranged from 14.2 to 19.4% in 2015 and from 11.4 to 26.1% in 2016. Crude protein levels of common ragweed were higher than that of the representative forage sample from the same location for all sampling intervals in 2015 and for the first 10 of 12 collection timings in 2016. Crude protein content of yellow foxtail ranged from 8 to 10.3% and was lower than that of the representative forage sample collected from the same location at all sampling intervals. Large crabgrass crude protein content ranged from 9.1 to 14.3% was lower than that of the representative forage sample for the first two sampling intervals. The results of this study indicate that some weeds are detrimental to the overall nutritive value of a pasture, but many may be nutritious if grazed.

Source: *Bunton Gatlin, graduate student and Dr. Kevin Bradley, MU weed scientist*

Summer Weeds of Pastures & Hayfields

It is time to start thinking about getting pastures and hayfields into the best possible condition going into the summer and fall. Several things need to be considered: fertility, avoiding overgrazing, stockpiling, overseeding legumes, and maybe even a complete pasture renovation. One management practice that should not be overlooked is summer weed control.

1. Musk Thistle – Musk thistle is a common weed many people recognize when blooming. Spraying when they are blooming does not provide good control. Mowing may only spread the seed further. One option is to cut the flower heads off by hand and destroy them, but it is extremely time consuming and inefficient. The best thing for this time of year is to hope that the musk thistle weevil is working on the plant. Musk thistle control is best achieved by spraying rosettes in the spring or fall.
2. Johnsongrass – Early in the spring, when johnsongrass is young, it has a forage quality similar to that of tall fescue. As it matures, it becomes more of a problem. It is capable of accumulating high levels of nitrates on heavily fertilized fields. In the fall, it can produce high levels of prussic acid when stressed due to freezing

temperatures. It is an aggressive spreader and can quickly take over large sections of pastures. Unfortunately, there are not selective herbicide options on cool-season grass pastures. Outrider is often mentioned as an option but there are specific label restrictions regarding its use on certain forages. Glyphosate used as a spot spray or with a weed wiper is effective, but has limited use.

3. Sericea Lespedeza – Sericea Lespedeza is rapidly becoming a major problem throughout Missouri. A single plant has dozens of stems and each of those stems can produce up to 10,000 seeds, making a small problem this year a big problem in future years. There are two times when sericea lespedeza can effectively be controlled with herbicides: 1) when it is 12 or more inches in height (June) or 2) when it is in the bud to flowering stages (late August to early September). Sericea lespedeza should not be sprayed when the plant is under drought stress, as herbicide may not be effective on drought stressed plants. Seed in the ground will make multiple years of spraying a necessity to achieve good control.

4. Poison Hemlock – This weed is not considered a summer weed, but is often found flowering in early summer throughout Missouri. Much like musk thistle, poison hemlock is a biennial and is best controlled by spraying the rosette in the fall or early spring. Poison hemlock has toxic properties. Ingestion of a relatively small amount can easily kill a cow. Grazing animals are unlikely to selectively consume the plant in a pasture setting, as long as other forage is available; however, they will eat it in a bale of hay and the plant remains toxic long after the hay is baled.

For more information, see MU Extension’s Pasture Weed and Brush Control Guide or contact your local agronomy specialist.

Source: *Travis Harper, agronomy specialist*



**Have a Safe &
Happy
Independence Day,
July 4th**

