

Integrated Pest & Crop Management

Field Crop Disease Summary - June 29, 2012

By *Laura Sweets*

For most of the state the overwhelming issue right now is the weather. The unusually hot and dry conditions are definitely taking a toll of corn and soybean fields throughout the state. There are a few fortunate areas which have received timely rains and thus crops are in better condition. But for most rain is the immediate and pressing need.

Although I have gotten a few questions about common rust on corn and frogeye leaf spot on soybean, weather conditions for most of the state have simply not been favorable for the development of foliar diseases on either corn or soybean. And that is true even in most irrigated fields. The low relative humidity, high evapotranspiration rate and drying winds, mean that even in fields which are overhead irrigated the foliage is drying off quickly and humidity within the canopy is low. Most of the common foliar diseases are favored by periods of moisture on the leaf surfaces. Under the current conditions, foliar diseases aren't likely to be widespread or severe.

There have been some examples of root rots contributing to decline in soybean fields. Later planted fields in which seed germinated over several weeks to a month may show very uneven growth due to the uneven germination. Some of these plants may have rotted and discolored taproots. *Fusarium* and *Rhizoctonia* may be causing some of this taproot deterioration. A compromised root system may result in plants showing symptoms of scorch, especially on days with hot, drying winds. There are no rescue treatments for the root rot diseases.

One disease which is favored by hot, dry conditions is charcoal rot. Although we have not received any samples with charcoal rot yet, it is certainly a disease to be watching for as the season progresses. *Macrophomina phaseolina*, the fungus which causes charcoal rot, can infect both corn and soybean plants, although it may be more common on soybeans in Missouri.

Charcoal rot may be considered a mid to late season disease on maturing soybean plants, but it can also occur early in the season on seedlings. Infected seedlings tend to show a reddish brown discoloration from the soil line up the stem. The discolored area changes from reddish brown to dark brown to black. Foliage may appear off color or begin to dry out and turn brown. If the growing point is killed, a twin stem plant may develop. Under hot, dry conditions, infected seedlings may die. More typically symptoms begin to develop as plants move into reproductive stages of growth. Infected plants are less

vigorous and have smaller leaves. Leaves may turn yellow and wilt, eventually turning brown and having a dry appearance. The taproot and lower stem develop a silvery gray to light-gray discoloration of the epidermis (outer layer of the soybean stem). The epidermis may flake or shred away from the stem, giving the stems a tattered appearance. Fine black speck or microsclerotia may be evident in tissues below the epidermis and eventually in the epidermal tissues.

In corn, charcoal rot may begin as a root rot and move into the lower internodes of the stalks. Brown, water-soaked lesions develop on the roots. As the plant matures, the fungus spreads into the lower internodes of the stalk, causing premature ripening of the plants, shredding pith tissues and breaking of the stalks at the crown. The small, survival structures or microsclerotia may be visible as small, black flecks just beneath the stalk surface or on the vascular strands remaining in the interior of the shredded stalks. The stalk and pith may have a silvery gray to gray cast from the buildup of microsclerotia in these plant tissues.

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Bacterial Blight Damaging Cotton in Southeast Missouri

By *J. Allen Wrather*

Symptoms of bacterial blight have been observed on cotton plants in some southeast Missouri fields during the last 14 days. The symptoms are black, angular-shaped spots visible on both sides of the leaves. These spots are slightly smaller than a pencil eraser, and many spots may merge to kill large parts of leaves. The diseased tissue will remain black, and the infected leaves may begin to turn yellow and then defoliate if infection is severe. So far this disease is only on lower and middle plant leaves. It will probably not lower yield if only a few lower leaves are damaged, but it will lower yield if it spreads to upper plant leaves and especially if it spreads to bolls and causes boll rot.

Control of bacterial blight of cotton is difficult. I have seen no research results that show this disease can be managed by treatment of the plants with a bactericide or fungicide. However, farmers can take action to slow the spread of this disease to top leaves and bolls this year by restricting plant growth through aggressive use of growth regulators. This is because dew stays on leaves of rank-growth cotton until late morning, and the bacteria that cause this disease spread more when cotton leaves are wet for long periods. Air circulates better through small cotton plants, 30 inches tall, than rank-growth plants and this

helps dew dry more rapidly in the morning. Crop rotation will help control this disease, but fields must be left out of cotton for one or more years. The best method to avoid bacterial blight is to plant resistant cotton varieties.

Bacterial blight developed last year on cotton in some fields in southeast Missouri, north Mississippi, and east Arkansas, and this was the first time I have seen it since the late 1970's. It was a problem in many cotton fields in the USA until then when it almost disappeared because seed companies began acid delinting cotton seed. This delinting process killed the bacteria that survived on the seed. I have not seen any convincing evidence proving why this disease developed last year and this year. You may contact me at the University of Missouri Delta Center by phone, 573-379-0259, or E-mail, wratherj@missouri.edu, for more information about this or check the Delta Center Web Page (aes.missouri.edu/delta).

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MU IPM Pest Monitoring Network

Taking an Environmentally Sensitive Approach to Pest Management



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<http://ipm.missouri.edu/pestmonitoring>

Grasshopper Numbers Rapidly Increasing in Many Areas of Missouri

By *Wayne Bailey*

Numerous grasshoppers can be found in pastures, field borders, and in crop fields in most areas of Missouri. As drought conditions cause the drying of grasses in pastures and field borders, small and medium sized hoppers are moving to field crops to feed. Dry conditions occurring across most of Missouri favor grasshopper survival by reducing the threat from various viral pathogens that reduce grasshopper numbers in most years. The economic thresholds for grasshoppers vary depending on the commodity or non-cropland area requiring insecticide applications for effective grasshopper management. In Missouri, there are approximately 100 species of grasshoppers commonly found, although only 5-7 species

are common in field crops. Most entomologist believe that smaller grasshoppers (small nymphs) are more easily controlled with insecticides than larger nymphs or adult hoppers. As with most insects, the larger the hoppers grow, the more foliage and other plant materials they consume. Damage from both nymph and adult grasshoppers is often seen as very ragged feeding wounds located on leaf edges. In severe situations, high numbers of grasshoppers can consume large amounts of vegetation and cause substantial loss of grain and forage yields. Economic threshold information and labeled insecticides are listed with each of the following commodity tables.

SITE: Alfalfa

GRASSHOPPERS - 2012

Comments: Control grasshoppers when they are small by applying spot treatments to hatching sites in non-cropland areas. Treatment in these areas is justified when grasshopper numbers reach or exceed 15 grasshoppers per square yard.

Common Name	Trade Name	Rate of formulated material per acre	Placement
beta-cyhalothrin	*Baythroid XL	2.0 to 2.8 fl oz	broadcast
chlorpyrifos + gamma-cyhalothrin	*Cobalt	7 to 13 fl oz	
dimethoate	Dimethoate	see product label	
chlorpyrifos	*Lorsban Advanced	1/2 to 1 pt	
gamma-cyhalothrin	*Proaxis	2.56 to 3.84 fl oz	
zeta-cypermethrin	*Mustang Max	2.8 to 4.0 fl oz	
carbaryl	Sevin XLR Plus	1 to 3 pt	
zeta-cypermethrin + chlorpyrifos	*Stallion	9.25 to 11.75 fl oz	
cyfluthrin	*Tombstone	2.8 to 4.0 fl oz	
lambda-cyhalothrin + chlorantraniliprole	*Voliam xpress	6.0 to 9.0 fl oz	
lambda-cyhalothrin	*Warrior II	1.28 fl oz	

*Designates a restricted-use pesticide. Use is restricted to certified applicators only. Regardless of the formulation selected, read the label to determine appropriated insecticide rates, directions, precautions, and restrictions.

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<http://ipm.missouri.edu>

Grasshopper Numbers Rapidly Increasing in Many Areas of Missouri

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GRASSHOPPER Complex 2012 - SITE: Corn

Comments: Control grasshoppers when they are small by applying spot treatments to hatching sites in field borders and grass waterways. Treatment is justified in corn field when 7 or more grasshoppers per square yard are present and foliage is being severely damaged. After pollen shed, control may be necessary if grasshoppers are damaging foliage above ear zone. Dimethoate should not be applied to corn during pollen-shed.

Common Name	Trade Name	Rate of formulated material per acre	Placement	REI Hours	Pre-Harvest Interval Days
esfenvalerate	*Asana XL	5.8 to 9.6 fl oz	foliage	12	21 (grain)
cyfluthrin	*Baythroid XL	1.6 to 2.8 fl oz	foliage	12	21 (grain or fodder) 0 (green forage)
bifenthrin	*Brigade 2EC	2.1 to 6.4 fl oz	foliage	12	30 (grain, fodder, graze)
chlorpyrifos + gamma-cyhalothrin	*Cobalt	7 to 13 fl oz	foliage	24	21 (grain or ears) 14 (graze or silage harvest)
deltamethrin	*Delta Gold 1.5EC	1.0 to 1.5 fl oz	foliage	12	21 (grain, fodder) 12 (cut forage or graze)
dimethoate	Dimethoate 4E	1 pt	foliage	48	28 (grain) 14 (forage)
zeta-cypermethrin + bifenthrin	*Hero	2.6 to 6.1 fl oz	foliage	12	30 (grain, stover, graze) 60 (forage)
chlorpyrifos	*Lorsban Advanced	1/2 to 1 pt	foliage	24	21 (grain, ears, forage, fodder)
chlorpyrifos	*Lorsban 4E	1/2 to 1 pt	foliage	24	21 (grain, ears, forage, fodder)
zeta-cypermethrin	*Mustang Max	2.72 to 4.0 fl oz	foliage	12	30 (grain, stover) 60 (forage)
chlorpyrifos	*Nufos 4E	1/2 to 1 pt	foliage	24	21 (grain or ears)
microencapsulated methyl parathion	*PennCap-M	2 to 3 pt	foliage	48	12 (grain, forage, graze)
zeta-cypermethrin + chlorpyrifos	*Stallion	9.25 to 11.75 fl oz	foliage	24	30 (grain, stover, graze) 60 (forage)
cyfluthrin	*Tombstone Helios	2.1 to 2.8 fl oz	foliage	12	21 (grain or fodder), 0 (forage)
lambda-cyhalothrin + chlorantraniliprole	*Voliam xpress	6.0 to 9.0 fl oz	foliage	24	1 (forage) 7 (hay)
lambda-cyhalothrin	*Warrior II	1.28 to 1.92 fl oz	foliage	24	21 (grain), 1 (graze, forage) 21 (treated feed or fodder)

*Designates a restricted-use pesticide. Use restricted to certified applicators only.

Read the label and follow all insecticide rate information, directions, precautions, and restrictions.

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Grasshopper Numbers Rapidly Increasing in Many Areas of Missouri

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GRASSHOPPER spp. 2012 - SITE: Sorghum

Comments: Control grasshoppers when they are small by applying spot treatments to hatching sites in field borders and grass waterways. Treatment in field is justified when 7 or more grasshoppers per square yard are present.

Common Name	Trade Name	Rate of formulated material per acre	Placement	REI Hours	Pre-Harvest Interval Days
cyfluthrin	*Baythroid XL	2 to 2.8 fl oz	grain head, foliage	12	14 (grain or graze)
chlorpyrifos + gamma- cyhalothrin	*Cobalt	7 to 13 fl oz	grain head, foliage	24	30 (grain, forage, fodder, hay, or silage)
gamma-cyfluthrin	*Declare	1.02 to 1.54 fl oz	grain head, foliage	24	30 (grain)
deltamethrin	*Delta Gold 1.5EC	1 to 1.5 fl oz	grain head, foliage	12	14 (grain, cut or graze forage)
dimethoate	Dimethoate 4E	1/2 to 1 pt	grain head, foliage	48	28 (grain) 14 (forage)
chlorpyrifos	*Lorsban Advanced	1/2 to 1 pt	grain head, foliage	24	30 (grain, forage, fodder, hay, or silage)
chlorpyrifos	*Lorsban 4E	1/2 to 1 pt	grain head, foliage	24	30 (grain, forage, fodder, hay, or silage)
zeta-cypermethrin	*Mustang Max	3.2 to 4.0 fl oz	grain head, foliage	12	30 (grain, stover) 45 (forage)
chlorpyrifos	*Nufos 4E	1/2 to 1 pt	grain head, foliage	24	30 (grain, forage, fodder, hay, or silage)
zeta-cypermethrin + chlorpyrifos-	*Stallion	9.25 to 11.75 fl oz	grain head, foliage	24	30 (grain, stover) 45 (forage)
cyfluthrin	*Tombstone Helios	2 to 2.8 fl oz	grain head, foliage	12	14 (harvest or graze forage)
lambda-cyhalothrin	*Warrior II	1.28 to 1.92 fl oz	grain head, foliage	24	30 (grain), 7 (graze) 30 (straw fed to livestock)

*Designates a restricted-use pesticide. Use restricted to certified applicators only. Read the label and follow all insecticide rate information, directions, precautions, and restrictions.

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Integrated Pest Management Field Day

July 12, 2012

Bradford Research & Extension Center, Columbia, MO

This event provides an opportunity for farmers, agricultural retailers, crop consultants, and others to view thousands of research plots pertaining to the management of weeds, insects, and diseases in corn and soybeans.

Grasshopper Numbers Rapidly Increasing in Many Areas of Missouri

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GRASSHOPPER Complex 2012 - SITE: Soybean

Comments: Treat when defoliation reaches 30% before bloom, 20% bloom to pod fill, or when 5% to 10% of pods are damaged and hoppers are present. Treat when grasshoppers are small for optimal control.

Common Name	Trade Name	Rate of formulated material per acre	Placement	REI Hours	Pre-Harvest Interval Days
esfenvalerate	*Asana XL	5.8 to 9.6 fl oz	foliage	12	21 (grain) Do not graze or feed livestock
cyfluthrin	*Baythroid XL	2.0 to 2.8 fl oz	foliage	12	45 (grain, feeding dry vines) 15 (green forage)
bifenthrin	*Brigade 2EC	2.1 to 6.4 fl oz	foliage	12	18 (grain)
chlorpyrifos + gamma-cyhalothrin	*Cobalt	7 to 13 fl oz	foliage	24	30 (grain) Do not graze or feed livestock
dimethoate	Dimethoate 4EC	1 pt	foliage	48	21 (grain)
lambda-cyhalothrin + thiamethoxam	*Endigo ZC	3.5 to 4.5 fl oz	foliage	24	30 (grain) Do not graze or feed livestock
zeta-cypermethrin +	*Hero	2.6 to 6.1 fl oz	foliage	12	21 (grain) Do not graze or feed livestock
Imidacloprid + cyfluthrin	*Leverage 2.7	3.8 fl oz	foliage	12	45 (grain, feeding dry vines) 15 (green forage)
chlorpyrifos	*Lorsban Advanced	1 to 2 pt	foliage	24	28 (grain) Do not graze or feed livestock
zeta-cypermethrin	*Mustang Max	3.2 to 4.0 fl oz	foliage	12	21 (grain) Do not graze or feed livestock
chlorpyrifos	*Nufos 4E	1/2 to 1 pt	foliage	24	28 (grain) Do not graze or feed livestock
acephate	Orthene 97	1/4 to 1/2 lb	foliage	24	14 (grain) Do not graze or feed livestock
microencapsulated methyl parathion	*PennCap-M	2 to 3 pt	foliage	96	20 (grain)
zeta-cypermethrin + chlorpyrifos	*Stallion	5.0 to 11.75 fl oz	foliage	24	28 (harvest) Do not graze or feed livestock
cyfluthrin	*Tombstone Helios	2.0 to 2.8 fl oz	foliage	12	45 (grain, feeding dry vines) 15 (green forage)
lambda-cyhalothrin	*Warrior II with Zeon	1.60 to 1.92 fl oz	foliage	24	30 (grain) Do not graze or feed livestock

*Designates a restricted-use pesticide. Use restricted to certified applicators only. Read the label and follow all insecticide rate information, directions, precautions, and restrictions.

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2012 Crop Injury Diagnostic Clinic

July 24-25, 2012

Bradford Research & Extension Center, Columbia, MO

This clinic is designed to train or update agricultural professionals in the management of crop health and field crop diagnostics. Participants will have the opportunity to fine tune their skills in diagnosing crop production and pest problems.

<http://aes.missouri.edu/bradford/events/crop-clinic.php>

Grasshopper Numbers Rapidly Increasing in Many Areas of Missouri

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GRASSHOPPERS (numerous species) 2012 - SITE: Wheat

Comments: Treat when 8 or more adults per square yard are present within crop. Barrier treatments in border areas may be required to prevent migration into the crop if more than 20 adults per square yard are present in field margins.

Common Name	Trade Name	Rate of formulated material per acre	Placement	REI Hours	Pre-Harvest Interval Days
cyfluthrin	*Baythroid XL	1.8 to 2.4 fl oz	foliage	12	30 (grain) 3 (grazing or forage)
dimethoate	Dimethoate 4EC	3/4 pt	foliage	48	35 (grain) 14 (grazing)
zeta-cypermethrin	*Mustang Max	3.2 to 4.0 fl oz	foliage	12	14 (grain, forage, hay)
microencapsulated methyl parathion	*PennCap-M	2 to 3 pt	foliage	48	15 (harvest or graze)
zeta-cypermethrin + chlorpyrifos	*Stallion	5.0 to 11.75 fl oz	foliage	24	14(forage, hay) 28(grain, straw)
cyfluthrin	*Tombstone Helios	1.8 to 2.4 fl oz	foliage		3(forage), 30(grain)
lambda-cyhalothrin	*Warrior II with Zeon	1.28 to 1.92 fl oz	foliage	24	30 (grain or straw) 7 (hay or forage)
Seed Treatments					

*Designates a restricted-use pesticide. Use restricted to certified applicators only.

Read the label and follow all insecticide rate information, directions, precautions, and restrictions.

SITE: Non-Cropland Areas - GRASSHOPPERS - 2012

Comments: Control grasshoppers when they are small by applying spot treatments to hatching sites in non-cropland areas. Treatment in these areas is justified when grasshopper numbers reach or exceed 15 grasshoppers per square yard.

Common Name	Trade Name	Rate of formulated material per acre	Placement
esfenvalerate	*Asana XL	2.9 to 5.8 fl oz	Broadcast
zeta-cypermethrin	*Mustang Max	3.2 to 4.0 fl oz	Broadcast**
acephate	Orthene 75S	2 oz to 2 2/3 oz of soluble powder	Broadcast
carbaryl	Sevin XLR Plus	1 to 3 pt	Broadcast
lambda-cyhalothrin	*Warrior II	1.28 fl oz	Broadcast

*Designates a restricted-use pesticide. Use is restricted to certified applicators only.

**Foliage must not be used for forage or grazed for all products listed except for Mustang Max which has a 0-day pre grazing interval. Regardless of the formulation selected, read the label to determine appropriated insecticide rates, directions, precautions, and restrictions.

SITE: SITE: Grass Pastures - GRASSHOPPERS - 2012

Comments: Control grasshoppers when they are small by applying spot treatments to hatching sites or in grass pastures. Treatment in these areas is justified when grasshopper numbers reach or exceed 7 grasshoppers per square yard.

Common Name	Trade Name	Rate of formulated material per acre	Placement	Pre-harvest interval days
zeta-cypermethrin	*Mustang Max	3.2 to 4.0 fl oz	Broadcast	0(forage, hay), 17(straw)
carbaryl	Sevin XLR Plus	1 to 4 pt	Broadcast	14(harvest or grazing)
lambda-cyhalothrin + chlorantraniliprole	*Voliam xpress	6.0 to 9.0 fl oz	Broadcast	0(harvest or graze)
lambda-cyhalothrin	*Warrior II	1.28 to 1.92 fl oz	Broadcast	0(grazing or forage) 7(hay)

*Designates a restricted-use pesticide. Use is restricted to certified applicators only.

Regardless of the formulation selected, read the label to determine appropriated insecticide rates, directions, precautions, and restrictions.

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Crop Insurance Options in Drought

By Ray Massey

The current drought has many crop producers looking for salvage alternatives. Any unusual management practice is likely to affect crop insurance. Before doing anything out of the ordinary, contact your insurance agency to determine the impact of your actions on your insured crop.

For an insured crop severely damaged by drought there are several options.

The first option is to do nothing out of the ordinary. Wait out the season to see what will finally happen. When you eventually harvest the crop, report your yields to your crop insurance company and receive any indemnity for reduced yields.

A second alternative for corn is to harvest the crop as silage. Before you can harvest corn planted for grain as a silage crop you must first contact your insurance company and ask that an adjuster come to determine yield in the field. The adjuster may make a determination of yield upon inspection of the field or may ask that a strip be left until harvest which will be used to determine the yield of the field. Once the insurance adjuster has determined how to estimate expected yield, he will be able to give permission to harvest the crop as silage. You can harvest the crop as silage and sell it or use it yourself. If you do

not plant a second crop on those acres, your insurance indemnity will be the same as if you had left the crop standing until harvest time.

If you decide to harvest corn early as silage, you may have the opportunity to plant another crop. If you decide to plant another spring planted crop (e.g. soybeans), it will affect your crop insurance on the corn harvested as silage. In such a situation, you would receive 35% of the indemnity payment on the corn until the second insured crop is harvested. If there is no loss on the second crop, the remaining 65% of the corn indemnity will be paid. If there is a loss on the second crop, you get to choose to receive the remaining 65% of the corn indemnity or the indemnity associated with the loss of the second crop.

The bottom line is that farmers who purchased crop insurance, should not make any decisions on destroying the crop or harvesting it before maturity without first contacting their crop insurance company. Options exist but only if the crop insurance company is brought in before the decision is implemented.

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MU Extension Will Scout Southeast Missouri Soybean Fields for Rust in 2012

By J. Allen Wrather

University of Missouri Extension staff will scout select soybean fields in southeast Missouri for rust in 2012. These fields are in Pemiscot, New Madrid, Scott, and Dunklin Counties and will be scouted periodically from mid August to mid October. The objective is to detect soybean rust when it first starts to develop in this area so farmers can be warned about the presence of rust. Once the disease is detected, an all-out alert will be issued to farmers in the area. Rust was first found in the USA near the end of November 2004 in 11 southern states including southeast Missouri. Rust developed in Missouri five of the last eight years but never until after late September,

and soybean yield loss due to this disease has not yet occurred in Missouri. Just in case, MU Extension staff will be scouting for it again in 2012. Contact Allen Wrather, wratherj@missouri.edu, for more information about this. Individuals interested in more information about rust can go to www.sbrusa.net to view a map of the USA showing areas scouted for rust and areas where rust has developed.

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Forage of the Month: Eastern Gamagrass

By Rob Kallenbach

Eastern gamagrass, the king of bunchgrasses, is used for pasture, hay and silage. It grows well in wetter areas but prefers deep, well-drained soils. Eastern gamagrass lends itself to pasture-based operations because it has a more even distribution of yield over the grazing season than do many other warm-season grasses. It also has better forage quality than many other warm-season grasses. Despite these advantages, eastern gamagrass has a few problems.

Seed production is difficult, and gamagrass is slow to establish. Furthermore, it is easily overgrazed. Eastern gamagrass grows well throughout Missouri but is most popular in the central and western regions of the state. Despite its limitations, eastern gamagrass can be an important part of a forage system.



Eastern gamagrass



Collar region



Seed head

Origin: Eastern North America

Adaptation to Missouri: Statewide

Growth habit: Rhizomatous, perennial bunchgrass.

Blade: Flat, glabrous or sometimes pubescent on upper surface near ligule, scabrous margins, prominent midrib.

Sheath: Round, smooth, split, glabrous, sometimes pubescent near top.

Ligule: A short ring of hairs, truncate.

Auricles: Absent.

Seed head: Panicle, composed of 1 to 4 raceme-like branches.

Fertilization: 50 lb N/acre in spring when grass is 3 to 5 inches tall. Apply 50 lb N/acre every six weeks thereafter. Phosphorus and potassium to soil test.

Burning management: Every year or two, in early spring before new growth is 1 inch long.

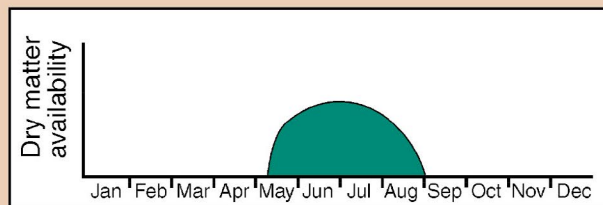
Timing of production: 85 percent of growth between May 15 and Aug. 31.

When to begin grazing: When grass is 14 inches tall.

When to cut for hay: Very early boot stage.

Lowest cutting or grazing height: 8 inches

Fall management: Do not hay or graze after Sept. 15.



Yield distribution of eastern gamagrass in Missouri.

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Weather Data for the Week Ending June 28, 2012

By Pat Guinan

Station	County	Weekly Temperature (°F)						Monthly Precipitation (in.)		Growing Degree Days‡	
		Avg. Max.	Avg. Min.	Extreme High	Extreme Low	Mean	Departure from long term avg.	June 1-28	Departure from long term avg.	Accumulated Since Apr.1	Departure from long term avg.
Corning	Atchison	92	70	101	57	81	+6	2.87	-1.52	1671	+531
St. Joseph	Buchanan	91	69	101	60	80	+5	3.56	-1.11	1550	+417
Brunswick	Carroll	91	67	100	60	79	+4	1.57	-3.19	1593	+419
Albany	Gentry	91	67	100	56	80	+5	1.92	-2.71	1498	+399
Auxvasse	Audrain	93	64	103	54	79	+4	2.25	-2.25	1551	+360
Vandalia	Audrain	92	62	102	54	79	+4	1.24	-2.75	1543	+404
Columbia-Bradford Research and Extension Center	Boone	94	63	102	56	80	+4	1.55	-2.65	1522	+294
Columbia-Capen Park	Boone	97	61	106	56	89	+2	1.34	-3.31	1461	+183
Columbia-Jefferson Farm and Gardens	Boone	95	65	104	58	81	+5	1.15	-3.05	1576	+344
Columbia-Sanborn Field	Boone	95	67	103	60	82	+6	1.64	-2.90	1685	+404
Columbia-South Farms	Boone	95	65	104	57	81	+5	1.21	-3.02	1568	+338
Williamsburg	Callaway	94	62	106	55	80	+5	1.26	-3.02	1562	+412
Novelty	Knox	89	63	101	53	77	+2	2.23	-1.67	1402	+272
Linneus	Linn	92	64	103	58	79	+5	1.5	-3.18	1470	+366
Monroe City	Monroe	91	61	103	50	78	+3	2.10	-1.56	1496	+321
Versailles	Morgan	98	68	104	58	83	+7	0.89	-3.29	1673	+394
Green Ridge	Pettis	94	68	100	61	81	+5	1.72	-3.03	1605	+400
Lamar	Barton	95	69	100	61	82	+5	3.35	-2.04	1694	+368
Cook Station	Crawford	97	58	107	51	79	+4	1.07	-2.95	1516	+224
Round Spring	Shannon	97	58	107	50	77	+3	2.65	-0.97	1465	+236
Mountain Grove	Wright	96	66	106	62	81	+6	1.45	-2.04	1543	+365
Delta	Cape Girardeau	93	61	98	54	77	-1	1.53	-1.64	1707	+208
Cardwell	Dunklin	94	63	98	56	80	0	3.47	+0.38	1926	+249
Clarkton	Dunklin	95	64	102	57	80	+1	0.53	-2.70	1892	+255
Glennonville	Dunklin	93	65	100	59	80	+1	0.74	-2.18	1894	+265
Charleston	Mississippi	95	65	102	59	81	+2	1.91	-1.78	1819	+309
Portageville-Delta Center	Pemiscot	95	67	100	61	82	+3	0.47	-3.13	2002	+343
Portageville-Lee Farm	Pemiscot	95	66	100	59	81	+2	0.63	-2.81	1967	+324
Steele	Pemiscot	95	67	101	60	82	+3	3.39	-0.34	2010	+337

‡Growing degree days are calculated by subtracting a 50 degree (Fahrenheit) base temperature from the average daily temperature. Thus, if the average temperature for the day is 75 degrees, then 25 growing degree days will have been accumulated.

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