

## Managing Grassy Weeds in a Grass Pasture or Hay Meadow

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Weed management in warm-season perennial grass hay meadows can be a challenging task. However, grassy weeds such as crabgrass (*Digitaria* spp.), Johnsongrass (*Sorghum halepense*), bahiagrass (*Paspalum notatum*), dallisgrass (*Paspalum dilatatum*) and annual ryegrass (*Lolium multiflorum*) can be even more challenging, due to their similarity to desirable pasture grass species.

**Crabgrass** is a warm-season annual grass that is commonly found in pastures and hay meadows in parts of Texas. Relative to other warm-season annual grasses, crabgrass has a low- to medium-yield potential but is high in forage quality. As such, it is often a desirable component in pastures and is sometimes planted for forage in pastures. As is the case with many annual grass species, crabgrass is a prolific seed producer which enables new stands to establish in subsequent growing seasons for summer grazing.

Due to its high-volume seed production, crabgrass also has the potential to become a problematic and persistent weed in hay meadows. Its competitive growth among perennial grass hay meadows contributes to stand thinning from spring to late summer; thus, growers are concerned about its economic impact. Crabgrass has a slower drying rate than most hay species, which causes rotting and mold development after baling. Once it is dry, crabgrass often turns a dark brown or black color, which stands in stark contrast to the bright green color of other grass hay crops. This can substantially lower the value of the hay crop, so controlling the growth of crabgrass may be critical for long-term successful production.

### *So how to manage unwanted crabgrass?*

If the hay meadow happens to be fenced as well as have a source of water, grazing can be an excellent way to utilize the high-quality crabgrass forage as well as remove it from the meadow. Grazing pressure can reduce seed production and reduce further spread of crabgrass.

Use of herbicides to control crabgrass is probably the most common method practiced. **Prowl H<sub>2</sub>O** (pendimethalin) is a preemergence herbicide labeled for dormant bermudagrass and bahiagrass pastures and hay meadows. Treatments should be applied in late winter/early spring before crabgrass emerges. This herbicide should also be applied prior to rainfall for the herbicide to receive adequate incorporation into the soil. **Glyphosate** (active ingredient in Roundup, etc.) and **Pastora** (nicosulfuron + metsulfuron) are two postemergence herbicide options labeled. Spot treatments of glyphosate are recommended in bahiagrass for control. As with any herbicide application timing is critical along with following label directions. When spot treating with glyphosate, crabgrass needs to be sprayed when plants are less than 6 inches in height in the spring. Unfortunately for bahiagrass growers there are no selective herbicides available for postemergence control of crabgrass. For rates and any restrictions refer to product labels. Pastora

may only be used in bermudagrass, for suppression of large crabgrass (large crabgrass here refers to a species of crabgrass, not the size of crabgrass) only. “Suppression” only means a reduction in weed competition, and does not necessarily guarantee that the weed will be fully controlled. If using Pastora for this purpose, applications should be made to newly emerging crabgrass seedlings less than 2 inches in height.

**Johnsongrass** is a warm-season perennial grass that is commonly found along roadsides and ditches but can also be found in hay meadows. Johnsongrass is a relatively high-quality summer forage species that is also fairly drought tolerant. Johnsongrass is rarely a concern in grazing pastures as livestock tend to over graze and eliminate it from the pasture. It is commonly one of the last forages to stop growing in drought-stressed pastures. Johnsongrass also has the potential to be poisonous (i.e., prussic acid and nitrate toxicity) during drought and after early frosts. Johnsongrass can accumulate prussic acid in its leaves and poison livestock. Young, tender, fast-growing plants are more likely to be toxic than mature plants. Once the hay has dried enough to be safely baled, prussic acid will have volatilized to non-toxic levels. Additionally, Johnsongrass has a strong potential for nitrate accumulation when subjected to stress and/or high nitrogen fertilization. Unlike prussic acid, nitrate levels do not decline after cutting or baling. Proper sampling and testing are required to ensure the hay is safe to feed.

*So how to manage unwanted Johnsongrass?*

If the hay meadow happens to be fenced as well as have a source of water, grazing can be an excellent way to utilize the high-quality forage as well as remove it from the meadow. Be mindful of grazing Johnsongrass during drought and after early frosts due to the potential of prussic acid and/or nitrate toxicity.

**Outrider** (sulfosulfuron) is an effective herbicide on Johnsongrass found in bermudagrass or bahiagrass pastures and hay meadows. For successful control, Outrider must be applied during active growth that is at least 18 to 24 inches tall and up to the heading stage. Weeds to be treated should not be mowed or grazed for two weeks before or after application. Bermudagrass may be harvested after the two-week period without any effect on Outrider performance. **Glyphosate** (active ingredient in Roundup, etc.) and **Pastora** (nicosulfuron + metsulfuron) are two other postemergence herbicide options in bermudagrass. Glyphosate may be used as a spot treatment or as a wick or wiper application for control of Johnsongrass. With Pastora, applications need to be made to Johnsongrass seedlings before they reach 12 inches in height. If rhizome Johnsongrass is present, applications need to be made to plants between 10 and 18 inches in height. These are very different recommendations compared with Outrider. Therefore, it is critical to always refer to specific product labels for rates, application recommendations and any restrictions.

**Bahiagrass** is another warm-season perennial grass that is utilized for pasture and can be undesirable in bermudagrass hay meadows in East Texas. Bahiagrass is often a desirable forage due to its persistence under low fertilization and close (heavy grazing pressure) grazing. It grows better on drought-prone soils with relatively low fertility and on sandier soils than do most other forages. Bahiagrass forms a deep, extensive root system which few other plants can encroach after a sod has been developed. Bahiagrass has a reputation as a low-quality forage because the quality of bahiagrass hay tends to be lower than the quality of bermudagrass due to less nitrogen fertilizer

applied to bahiagrass stands. The grass is very tolerant of low-fertility, acid soils, but does respond to nitrogen and potassium. Once bahiagrass grows 10 to 12 inches tall, it produces little new growth and loses nutritive with maturity.

#### *So how to manage unwanted bahiagrass?*

Bahiagrass can be grazed if a producer is okay with a mixed stand of forage in their pasture (bermudagrass and bahiagrass). It can also be harvested for hay. It is necessary to harvest every 30 to 35 days to maintain forage nutritive value. Neither grazing nor harvesting will lead to eradication of bahiagrass. Therefore, if it is considered an undesirable species on your property the best method of removal/control will be the use of herbicides.

There are a multitude of herbicides that provide postemergence control of bahiagrass in bermudagrass pastures and hay meadows. Products that contain the active ingredient **metsulfuron-methyl** have activity on bahiagrass. Some trade names include Pastora, Cimarron Plus, Cimarron Xtra, Cimarron Max, MSM 60, Chaparral, etc. Metsulfuron also controls many broadleaf weeds and some brush species. For rates and any restrictions refer to product labels. It is important to follow up the herbicide application with a fertility program to encourage the bermudagrass growth.

**Dallisgrass** is a warm-season perennial that has grazing potential. Dallisgrass is palatable and has a higher level of nutritive value than bahiagrass and some bermudagrass varieties, and it can retain its nutritive value later into the summer. Dallisgrass, however, produces a lower dry matter yield than some bermudagrass varieties. One concern with dallisgrass is the potential for an “ergot” fungus (*Claviceps* spp.) to infect seedheads and cause dallisgrass poisoning (also known as dallisgrass staggers). The fungus infects the seedheads typically in late summer or fall. The affected animals show neurological symptoms including trembling of major muscles and head, uncoordinated movements and sometimes displays of aggression. Poisoning can be avoided by removing livestock when seed heads are affected or keeping seed heads mowed.

#### *So how to manage unwanted dallisgrass?*

Use of herbicides to control dallisgrass is probably the most common method practiced. **Glyphosate** (active ingredient in Roundup, etc.) is the only postemergence herbicide option. As with any herbicide application timing is critical along with following label directions. Ideally, dallisgrass needs to be sprayed when plants are less than 6 inches in height in the spring. Unfortunately for bahiagrass growers there are no selective herbicides available for postemergence control of dallisgrass, thus spot treatments of glyphosate are recommended. For rates and any restrictions refer to product labels. In bermudagrass, there is often an opportunity to selectively control dallisgrass with glyphosate at the end of the season. Often, there is a period in late fall to early winter when bermudagrass becomes dormant while dallisgrass remains green for a short period of time. During this time glyphosate provides fair to good dallisgrass control. Bermudagrass injury varies depending on the stage of dormancy at the time of application. Timing and calibration are important. Once the first frost occurs, bermudagrass should be checked

frequently so that the application can be made as soon as it is completely dormant. If glyphosate products with higher concentrations are used, the rate should be adjusted.

**Annual Ryegrass** is a cool-season annual grass often planted and utilized by livestock producers for winter grazing. However, it's often deemed an enemy of many a hay producer in East Texas. Volunteer annual ryegrass can be common in hay meadows. Winter rainfalls can promote seed germination and seeds can survive for multiple years in our soils. Later maturity of annual ryegrass can delay or prevent our warm season perennial forages (i.e. bermudagrass or bahiagrass) from breaking dormancy in April/May therefore delaying initial hay cuttings.

*So how to manage unwanted ryegrass?*

If the hay meadow happens to be fenced as well as have a source of water, grazing can be an excellent way to utilize the high-quality forage as well as remove it from the meadow.

Harvesting ryegrass for baleage or a hay is an option. Baleage or haylage is forage baled at 50 to 60% moisture. It is then preserved in an air-tight plastic wrap (single bales or one long tube). This requires specialized equipment and diligence in maintaining the integrity of the plastic wrap. {See publication for more details} Harvesting for hay can be tricky during years we have ample spring rainfall.

Use of herbicides to control annual ryegrass is probably the most common method practiced. **Prowl H<sub>2</sub>O** (pendimethalin) is a preemergence herbicide labeled for dormant bermudagrass and bahiagrass pastures and hay meadows. Treatments should be applied prior to rainfall, to enhance soil incorporation and herbicide activation. **Glyphosate** (active ingredient in Roundup, etc.) and **Pastora** (nicosulfuron + metsulfuron) are two post emergent herbicide options only for use in bermudagrass. **Gramoxone Inteon** (paraquat dichloride) is labeled for dormant bermudagrass or bahiagrass pastures/hay meadows for postemergence control of grass weeds such as ryegrass. As with any herbicide application timing is critical along with following label directions. Ideally, ryegrass needs to be sprayed when plants are less than 6 inches in height in the fall. Annual ryegrass is generally susceptible to postemergence herbicides in early winter prior to freezing temperatures and before seedhead emergence. Spot treatments of glyphosate are recommended in bahiagrass for control if bahiagrass is actively growing. Glyphosate or paraquat dichloride can be used in a broadcast method if bahiagrass is still dormant. For rates and any restrictions refer to product labels.

Maintaining some substantial bermudagrass/bahiagrass stubble height (>4") could provide shade that could reduce ryegrass seed germination. This may not provide 100% control; however, competition can help to reduce undesired plant growth. Maintaining a higher stubble height can also be beneficial for the warm season perennial future growing season. Higher stubble height means more substantial root structure to capture deeper soil moisture and nutrients.

See Table 1 and 2 for quick reference. For rates and any restrictions refer to herbicide product labels.

Table 1: Permanent bermudagrass pastures and hay meadows

Weedy Grasses to be Controlled	Product (Herbicide common name and active ingredients)	Application Rate per acre (broadcast)	Times to apply	Remarks
Crabgrass	Prowl H <sub>2</sub> O (pendimethalin)	1.1-4.2 qt/A	Preemergence	Currently a supplemental label. Labeled for <b>dormant</b> bermudagrass and bahiagrass pastures and hay meadows. Treatments should be applied prior to rainfall. Do not exceed 3.2 qt of Prowl H <sub>2</sub> O per acre per year. Some stunting and chlorosis (pale discoloration of leaves) of bermudagrass may occur with postemergence applications.
	Roundup (glyphosate)	12-16 oz/A	Postemergence	Preventing viable seed production is key to successful control. Do not apply more than 3 quarts per acre per year.
	Pastora (nicosulfuron + metsulfuron)	1-1.5 oz/A	Postemergence when weeds are actively growing.	For <i>suppression</i> of large crabgrass (species of crabgrass) only. Apply in a tank mix with 2.5 to 4.1 oz ai/A glyphosate for best results. Treat crabgrass before it exceeds 2 inches in height. Do not apply more than 2.5 oz of Pastora/A per year. No grazing or hay harvest restrictions.  Supplemental label for use of Pastora for suppression of KR bluestem in Texas. A repeat application 4 to 8 weeks after the first application for improved suppression. Do not apply more than 2.5 oz of Pastora/A per year.
Johnsongrass	Outrider (sulfosulfuron)	1.33 oz/A	Postemergence	Make application when Johnsongrass is actively growing, is at least 18 to 24 inches tall and up to the heading stage. Do not mow or harvest the hayfield or pasture to be treated for 2 weeks before or 2 weeks after application.
	Roundup (glyphosate)	1-3 pints in 10 to 40 gallons of spray solution per acre	Postemergence	Preventing viable seed production is key to the successful control. Do not apply more than 3 quarts per acre per year.
	Pastora (nicosulfuron + metsulfuron)	1-1.5 oz/A	Postemergence when weeds are actively growing.	For seedling Johnsongrass: apply before seedlings reach 12 inches in height. For rhizome Johnsongrass: apply to 10 to 18 inch tall plants. Do not apply more

				than 2.5 oz of Pastora/A per year. No grazing or hay harvest restrictions.
Bahiagrass	Roundup (Glyphosate)	1-3 pints in 10 to 40 gallons of spray solution per acre	Postemergence	Preventing viable seed production is key to the successful control. Do not apply more than 3 quarts per acre per year.
	Chaparral (metsulfuron methyl + aminopyralid)	1.0-3.3 oz/A	Postemergence	No grazing or hay harvesting restrictions.
	Pastora (nicosulfuron + metsulfuron)	1.25-1.5/A	Postemergence	Apply after greenup in the spring but before bahiagrass seedheads form. Only for control of Pensacola bahiagrass. Do not apply more than 2.5 oz of Pastora/A per year. No grazing or hay harvest restrictions.
	Cimarron Plus (Metsulfuron + chlorsulfuron)	0.125 to 1.25 oz Consult Label	Postemergence	No grazing restriction. Has residual soil activity so it may affect the following crops: alfalfa, clover, and ryegrass. Rate for Pensacola bahiagrass control is 0.375 oz/A. Using a surfactant improves the performance of this herbicide.
	Cimarron Max (metsulfuron + dicamba + 2,4-D)	Cimarron Max is a 2-part product used in a ratio of 5 oz of Part A to 2.5 gal of Part B which will treat 5 (Rate III), 10 (Rate II), or 20 (Rate I) acres.		Rate for Pensacola bahiagrass control is the equivalent of Cimarron Max Part A at 0.33 oz/A and Cimarron Max Part B at 1.33 pt/A. Wait at least 4 months before planting some clovers after applying Rate I. Check the label for other rotation restrictions. There is no waiting period between treatment and grazing for non-lactating dairy animals. There is a 37-day harvest restriction for dry hay.
	Cimarron Xtra (Metsulfuron Methyl + Chlorsulfuron)	0.5-2.0 oz/A		No grazing or hay harvest restrictions for Cimarron Xtra. Consult the label for bahiagrass control.
Dallisgrass	Roundup (Glyphosate)	1-3 pints in 10 to 40 gallons of spray solution per acre	Postemergence	Preventing viable seed production is key to the successful control. Do not apply more than 3 quarts per acre per year.

Annual Ryegrass	Prowl H <sub>2</sub> O (Pendimethalin)	1.1-4.2 qt/A	Preemergence	Currently a supplemental label. Labeled for <b>dormant</b> bermudagrass and bahiagrass pastures and hay meadows. Treatments should be applied prior to rainfall. Do not exceed 4.2 qt of Prowl H <sub>2</sub> O per acre per year. Some stunting and chlorosis (pale discoloration of leaves) of bermudagrass may occur with postemergence applications.
	Roundup (Glyphosate)	1-3 pints in 10 to 40 gallons of spray solution per acre	Postemergence	Preventing viable seed production is key to the successful control. Do not apply more than 3 quarts per acre per year.
	Pastora (nicosulfuron + metsulfuron)	1-1.5 oz/A	Postemergence	Apply when ryegrass is taller than 2 inches. For best results, apply 1.0 oz and follow up with a second 1.0 oz application 3 to 4 weeks later. Do not apply more than 2.5 oz of Pastora/A per year. No grazing or hay harvest restrictions.
	Gramoxone Inteon (Paraquat dchloride)	1-2.0 pts/A	Postemergence during dormancy	Apply when bermudagrass or bahiagrass is <b>dormant</b> . Do not pasture or mow for hay until 40 days after treatment. Gramoxone Inteon is a restricted-use herbicide and is poisonous. Using a surfactant improves the performance of this herbicide.

Table 2: Permanent bahiagrass pastures and hay meadows

Weedy Grasses to be Controlled	Product (Herbicide common name and active ingredients)	Application Rate per acre (broadcast)	Times to apply	Remarks
Crabgrass	Roundup (Glyphosate)	3 quarts/A or less	Postemergence	Applications may be made in the same area at 30-day intervals
	Prowl H <sub>2</sub> O (Pendimethalin)	1.1-4.2 qt/A	Preemergence	Currently a supplemental label. Labeled for <b>dormant</b> bermudagrass and bahiagrass pastures and hay meadows. Treatments should be applied prior to rainfall. Do not exceed 4.2 qt of Prowl H <sub>2</sub> O per acre per year. Some stunting and chlorosis (pale discoloration of leaves) of bermudagrass may occur with postemergence applications.
Johnsongrass	Roundup (Glyphosate)	3 quarts/A or less	Postemergence	Applications may be made in the same area at 30-day intervals
	Outrider (sulfosulfuron)	1.33 oz/A	Postemergence	Make application when the johnsongrass is actively growing, is at least 18 to 24 inches tall and up to the heading stage. Do not mow or harvest the hayfield or pasture to be treated for 2 weeks before or 2 weeks after application.
Dallisgrass	Roundup (Glyphosate)	3 quarts/A or less	Postemergence	Applications may be made in the same area at 30-day intervals
Annual Ryegrass	Roundup (Glyphosate)	3 quarts/A or less	Postemergence	Applications may be made in the same area at 30-day intervals
	Prowl H <sub>2</sub> O (Pendimethalin)	1.1-4.2 qt/A	Preemergence	Currently a supplemental label. Labeled for <b>dormant</b> bermudagrass and bahiagrass pastures and hay meadows. Treatments should be applied prior to rainfall. Do not exceed 4.2 qt of Prowl H <sub>2</sub> O per acre per year. Some stunting and chlorosis (pale discoloration of leaves) of bermudagrass may occur with postemergence applications.
	Gramoxone Inteon (Paraquat dchloride)	1-2.0 pts/A	Postemergence during dormancy	Apply when bermudagrass or bahiagrass is <b>dormant</b> . Do not pasture or mow for hay until 40 days after treatment. Gramoxone Inteon is a restricted-use herbicide and is poisonous. Using a surfactant improves the performance of this herbicide.



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