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Kansas Noxious Weed Act

Article 8. – NOXIOUS WEEDS

Kansas Administrative Regulations

4-8-13. Service of notices and statements. (a) Service of notices and statements required by K.S.A. 2-1320, and amendments thereto, shall be deemed sufficient when made upon the owner of the land to which the notice or statement pertains or the landowner's agent or trustee, the executor or administrator of the estate of a deceased landowner, the guardian or conservator of the estate of a minor or legally disabled person, or one of several joint owners or tenants in common, by either of the following means:

- (1) Personal delivery; or
- (2) certified mail.

(b) The notices and statements required by K.S.A. 2-1320, and amendments thereto, may be served by any of the following:

- (1) The county, city, township, or district weed supervisor for the county, city, township, or district where the land specified in the notice or statement is located;
- (2) a county commissioner of the county where the land specified in the notice or statement is located;
- (3) the sheriff of the county where the land specified in the notice or statement is located; or
- (4) a member of the governing body of a city or the marshal or a law enforcement officer of any city having jurisdiction over land described in the notice or statement.

(c) If personal service or service by certified mail cannot be achieved within 45 days of the date on which any weed control activities are performed pursuant to K.S.A. 2-1320 and amendments thereto, then the notice or statement may be posted at the property where the weed control activity was performed, and the posting shall be considered valid notice.

(Authorized by and implementing K.S.A. 2019 Supp. 2-1315 and 2-1320; effective Jan. 1, 1966; amended March 26, 2021.)

4-8-14a. Herbicides approved for cost-share. The Kansas department of agriculture's document titled "approved herbicides for cost-share," dated May 20, 2020, is hereby adopted by reference. (Authorized by and implementing K.S.A. 2019 Supp. 2-1315; effective Oct. 21, 1991; amended Jan. 25, 1993; amended Sept. 27, 1993; amended Oct. 27, 2000; amended, T-4-5-27-04, May 27, 2004; amended Aug. 6, 2004; amended, T-4-5-20-05, May 20, 2005; amended, T-4-3-29-06, March 29, 2006; amended April 27, 2007; amended March 26, 2021.)

4-8-27. Adoption of control methods for musk thistle. (a) The Kansas department of agriculture's document titled "official control methods for musk thistle," dated May 20, 2020, is hereby adopted by reference and shall apply to the control of musk thistle in Kansas.

(b) If a county, city, township, or district weed supervisor determines that musk thistles in the weed supervisor's county, city, township, or district have reached a stage of maturity that will render the weed control methods currently being used in that county, city, township, or district ineffective, the weed supervisor may give notice requiring the effective control methods to be implemented within 10 business days of the date the notice was issued. (Authorized by and implementing K.S.A. 2019 Supp. 2-1315; effective May 1, 1988; amended Jan. 22, 1990; amended June 1, 1992; amended Oct. 27, 2000; amended Aug. 6, 2004; amended, T-4-5-20-05, May 20, 2005; amended, T-4-3-29-06, March 29, 2006; amended April 27, 2007; amended March 26, 2021.)

4-8-28. Adoption of control methods for Johnsongrass. The Kansas department of agriculture's document titled "official control methods for Johnsongrass," dated May 20, 2020, is hereby adopted by reference and shall apply to the control of Johnsongrass in Kansas. (Authorized by and implementing K.S.A. 2019 Supp. 2-1315; effective May 1, 1988; amended Jan. 25, 1993; amended Sept. 27, 1993; amended Oct. 27, 2000; amended Aug. 6, 2004; amended April 27, 2007; amended March 26, 2021.)

4-8-29 Adoption of control methods for field bindweed. The Kansas department of agriculture's document titled "official control methods for field bindweed," dated May 20, 2020, is hereby adopted by reference and shall apply to the control of field bindweed in Kansas. (Authorized by and implementing K.S.A. 2019 Supp. 2-1315; effective May 1, 1988; amended Oct. 27, 2000; amended Aug. 6, 2004; amended April 27, 2007; amended March 26, 2021.)

4-8-30. Adoption of control methods for hoary cress. The Kansas department of agriculture's document titled "official control methods for hoary cress," dated May 20, 2020, is hereby adopted by reference and shall apply to the control of hoary cress in Kansas. (Authorized by and implementing K.S.A. 2019 Supp. 2-1315; effective May 1, 1988; amended Oct. 21, 1991; amended Aug. 6, 2004; amended April 27, 2007; amended March 26, 2021.)

4-8-31. Adoption of control methods for Russian knapweed. The Kansas department of agriculture's document titled "official control methods for Russian knapweed," dated May 20, 2020, is hereby adopted by reference and shall apply to the control of Russian knapweed in Kansas. (Authorized by and implementing K.S.A. 2019 Supp. 2-1315; effective May 1, 1988; amended Aug. 6, 2004; amended April 27, 2007; amended March 26, 2021.)

4-8-32. Adoption of control methods for bur ragweed. The Kansas department of agriculture's document titled "official control methods for bur ragweed," dated May 20, 2020, is hereby adopted by reference and shall apply to the control of bur ragweed in Kansas. (Authorized by and implementing K.S.A. 2019 Supp. 2-1315; effective May 1, 1988; amended Sept. 27, 1993; amended Oct. 27, 2000; amended Aug. 6, 2004; amended March 26, 2021.)

4-8-33. Adoption of control methods for Canada thistle. The Kansas department of agriculture's document titled "official control methods for Canada thistle," dated May 20, 2020, is hereby adopted by reference and shall apply to the control of Canada thistle in Kansas. (Authorized by and implementing K.S.A. 2019 Supp. 2-1315; effective May 1, 1988; amended Jan. 25, 1993; amended Aug. 6, 2004; amended, T-4-3-29-06, March 29, 2006; amended April 27, 2007; amended March 26, 2021.)

4-8-34. Adoption of control methods for leafy spurge. The Kansas department of agriculture's document titled "official control methods for leafy spurge," dated May 20, 2020, is

hereby adopted by reference and shall apply to the control of leafy spurge in Kansas. (Authorized by and implementing K.S.A. 2019 Supp. 2-1315; effective May 1, 1988; amended Oct. 29, 1990; amended Oct. 27, 2000; amended Aug. 6, 2004; amended, T-4-5-20-05, May 20, 2005; amended, T-4-3-29-06, March 29, 2006; amended April 27, 2007; amended March 26, 2021.)

4-8-35. Adoption of control methods for quackgrass. The Kansas department of agriculture's document titled "official control methods for quackgrass," dated May 20, 2020, is hereby adopted by reference and shall apply to the control of quackgrass in Kansas. (Authorized by and implementing K.S.A. 2019 Supp. 2-1315; effective May 1, 1988; amended Aug. 6, 2004; amended April 27, 2007; amended March 26, 2021.)

4-8-36. Adoption of control methods for pignut. The Kansas department of agriculture's document titled "official control methods for pignut," dated May 20, 2020, is hereby adopted by reference and shall apply to the control of pignut in Kansas. (Authorized by and implementing K.S.A. 2019 Supp. 2-1315; effective May 1, 1988; amended Aug. 6, 2004; amended March 26, 2021.)

4-8-37. Adoption of control methods for kudzu. The Kansas department of agriculture's document titled "official control methods for kudzu," dated May 20, 2020, is hereby adopted by reference and shall apply to the control of kudzu in Kansas. (Authorized by and implementing K.S.A. 2019 Supp. 2-1315; effective May 1, 1988; amended Aug. 6, 2004; amended March 26, 2021.)

4-8-38. Weed supervisor employment. (a) Each individual hired to serve as a county, city, township, or district weed supervisor shall be hired as an employee of the county, city, township, or district and not as an independent contractor. Any county, city, township, or district weed supervisor serving as an independent contractor when this regulation becomes effective may continue to serve as an independent contractor until the expiration of the current term under that individual's existing contract, which shall not be renewed or extended.

(b) Any individual seeking employment as a county, city, township, or district weed supervisor may be conditionally approved for employment by the secretary if the individual has education, training, or experience sufficient to allow the individual to carry out the employment duties of a county, city, township, or district weed supervisor.

(c) Final approval of the employment of each individual who has been conditionally approved to be employed as a county, city, township, or district weed supervisor may be issued by the secretary when the individual has met the following requirements:

(1) Obtained certification as a pesticide applicator in category 9a, regulatory pest control, noxious weed control, pursuant to K.S.A. 2-2438a et seq. and amendments thereto; and

(2) successfully completed the noxious weed basic short course offered by the Kansas department of agriculture, plant protection and weed control program.

(d) Approval of the employment of each individual previously approved for employment as a county, city, township, or district weed supervisor may be renewed by the secretary on or before January 1 of each year if the individual meets the following requirements:

(1) Is still employed as a county, city, township, or district weed supervisor by the same county, city, township, or district when renewal is sought;

(2) is currently certified as a pesticide applicator as specified in paragraph (b)(1); and

(3) has timely filed the annual weed eradication progress report and any other records or reports requested by the secretary.

(e) Approval of the employment of any county, city, township, or district weed supervisor shall be withdrawn by the secretary if the county, city, township, or district weed supervisor has failed, without just cause, to comply with any of the requirements specified in subsection (c).

(Authorized by K.S.A. 2019 Supp. 2-1315; implementing K.S.A. 2019 Supp. 2-1316; effective May 1, 1988; amended March 26, 2021.)

4-8-39. (Authorized by and implementing K.S.A. 2006 Supp. 2-1315; effective May 1, 1988; amended Jan. 1, 1989; amended Oct. 21, 1991; amended Aug. 6, 2004; amended April 27, 2007; revoked March 26, 2021.)

4-8-40. Adoption of control methods for sericea lespedeza. The Kansas department of agriculture's document titled "official control methods for sericea lespedeza," dated May 20, 2020, is hereby adopted by reference and shall apply to the control of sericea lespedeza in Kansas. (Authorized by and implementing K.S.A. 2019 Supp. 2-1315; effective May 1, 1988; amended Jan. 1, 1989; amended Oct. 29, 1990; amended Oct. 21, 1991; amended Jan. 25, 1993; amended, T-4-5-27-04, May 27, 2004; amended Aug. 6, 2004; amended March 26, 2021.)

4-8-41. (Authorized by and implementing K.S.A. 2-1315; effective June 1, 1992; amended Oct. 27, 2000; revoked March 26, 2021.)

4-8-42. (Authorized by and implementing K.S.A. 2006 Supp. 2-1315; effective Oct. 27, 2000; amended Aug. 6, 2004; amended, T-4-3-29-06, March 29, 2006; amended April 27, 2007; revoked March 26, 2021.)

4-8-43. (Authorized by and implementing K.S.A. 2-1315, as amended by L. 2002, Ch. 37, Sec. 1; effective, T-4-1-2-03, Jan. 2, 2003; effective April 18, 2003; revoked March 26, 2021.)

4-8-44. Designation of noxious weeds. (a) Pursuant to K.S.A. 2-1314 and amendments thereto, the weeds designated noxious by the secretary shall be placed in the following categories:

(1) Category A noxious weeds, which are weed species that are generally not found in the state or that are found limited in distribution throughout the state;

(2) category B noxious weeds, which are weed species with discrete distributions throughout the state; and

(3) category C noxious weeds, which are weed species that are well established within the state and known to exist in larger or more extensive populations in the state.

(b) Category A noxious weeds shall be subject to control efforts directed at excluding the noxious weeds from the state or eradicating the population of noxious weeds wherever detected statewide, in order to protect neighboring lands and the state as a whole. Category A noxious weeds shall include the following:

(1) Hoary cress, *Lepidium draba*;

(2) leafy spurge, *Euphorbia virgata*;

(3) quackgrass, *Elymus repens*;

(4) Russian knapweed, *Rhaponticum repens*;

(5) kudzu, *Pueraria montana variety lobata*; and

(6) pignut, *Hoffmannseggia glauca*.

(c) Category B noxious weeds shall be subject to control wherever populations have become established within the state and subject to control efforts directed at eradication wherever populations are not established. Category B noxious weeds shall include Canada thistle, *Cirsium arvense*.

(d) New populations of category C noxious weeds shall be subject to control efforts directed at reducing or eradicating those populations. Known and established populations of category C noxious weeds shall be managed by any approved control method. Category C noxious weeds shall include the following:

(1) Field bindweed, *Convolvulus arvensis*;

- (2) musk thistle, *Carduus nutans*;
- (3) sericea lespedeza, *Lespedeza cuneata*;
- (4) Johnsongrass, *Sorghum halepense*; and
- (5) bur ragweed, *Ambrosia grayii*.

(e) Any county, city, township, or district weed supervisor or any official of another government agency may require the most stringent control measures specified in this regulation for any noxious weed, regardless of the category in which this regulation places that noxious weed, if the county, city, township, or district weed supervisor or government agency official determines that it is necessary to do so based on the results of the survey provided pursuant to K.S.A. 2-1316, and amendments thereto. (Authorized by and implementing K.S.A. 2019 Supp. 2-1314 and 2-1315; effective March 26, 2021.)

4-8-45. Official control plans. (a) Each official control plan adopted by the secretary shall be based on the most current available science and shall include, if applicable, biological, chemical, cultural, and mechanical methods of control.

(b) A control method adopted by the secretary as part of an official control plan that includes more than one control method shall not be used alone for the control of noxious weeds, except that any chemical control method may be used alone and any county, city, township, or district weed supervisor may, at the county, city, township, or district weed supervisor's discretion, use any integrated weed management technique alone for the control of any perennial noxious weed.

(c) The control of each noxious weed species shall be undertaken in accordance with the official control plan adopted by the secretary for that noxious weed species. (Authorized by and implementing K.S.A. 2019 Supp. 2-1315; effective March 26, 2021.)

4-8-46. Annual report. Each annual weed eradication progress report that a weed supervisor submits to the secretary pursuant to K.S.A. 2-1316, and amendments thereto, shall include, at a minimum, the following:

(a) The approximate acreage of land, including roadside areas, currently infested with each species of noxious weed and the location of each infestation in the county;

(b) the dollar amount of all expenditures made during the year to purchase materials, chemicals, and other equipment for the control of noxious weeds;

(c) the dollar amount of all sales made during the year, for cash or charge, of materials, chemicals, and other equipment for the control of noxious weeds;

(d) the dollar amount of all charges and receipts made during the year for use of equipment owned by each county, city, township, or district on public or private land;

(e) the approximate acreage of land, including roadside areas, treated for each species of noxious weed during the year and the control methods used for treatment; and

(f) any other relevant information that the secretary deems necessary. (Authorized by K.S.A. 2019 Supp. 2-1315; implementing K.S.A. 2019 Supp. 2-1315 and 2-1316; effective March 26, 2021.)

4-8-47. Management plan. Each county, city, township, or district weed supervisor, with the aid of that county, city, township, or district weed supervisor's board of county commissioners or city or township board, shall submit a management plan to the secretary no later than March 15 of each year pursuant to K.S.A. 2-1316, and amendments thereto. Each management plan shall be submitted on a form provided by the department and shall include, at a minimum, the following:

(a) The goals and priorities of the county, city, township, or district's noxious weed control program;

(b) the distribution and abundance of each noxious weed species known to exist within the county, city, township, or district; specific locations of new infestations; and areas particularly susceptible to new infestations;

- (c) integrated weed management goals and procedures, including goals and procedures regarding biological control agent selection and distribution, pesticide selection and application, and cultural and mechanical controls;
- (d) the estimated personnel, operations, and equipment costs of the proposed program;
- (e) a compliance plan or strategy;
- (f) a strategy for working with state agencies to control noxious weeds on state lands; and
- (g) any other relevant information that the secretary deems necessary. (Authorized by K.S.A. 2019 Supp. 2-1315; implementing K.S.A. 2019 Supp. 2-1315 and 2-1316; effective March 26, 2021.)

4-8-48. Contents of notices and statements. Each notice or statement given to the owner, operator, or supervising agent of any noxious weed-infested land pursuant to K.S.A. 2-1331, and amendments thereto, shall include, at a minimum, the following:

- (a) The legal description of the noxious weed-infested land;
- (b) the name of the owner, operator, or supervising agent of the noxious weed-infested land, as indicated by the records of the clerk of the county where the land is located;
- (c) the approximate acreage of the noxious weed infestation or infestations specified in the notice or statement;
- (d) the official methods adopted by the secretary for the control of the noxious weeds specified in the notice or statement;
- (e) a time frame, which shall not be fewer than five days after mailing the notice, in which the owner or operator or supervising agent of the noxious weed-infested land shall implement the required noxious weed control methods;
- (f) a statement that if the owner, operator, or supervising agent fails to implement the required noxious weed control methods within the time frame provided in the notice or statement, the county, city, township, or district weed supervisor may enter the noxious weed-infested land or cause the noxious weed-infested land to be entered upon as often as necessary to control the noxious weed infestation and may use approved noxious weed control methods that the county, city, township, or district weed supervisor deems best adapted for the control of noxious weeds on the particular area of land;
- (g) a statement that if the county, city, township, or district weed supervisor enters the noxious weed-infested land or causes the noxious weed-infested land to be entered upon to control the noxious weed infestation, the owner, operator, or supervising agent shall be served notice of the costs of treatment pursuant to K.S.A. 2-1332, and amendments thereto; and
- (h) a statement that the owner, operator, or supervising agent may be prosecuted pursuant to K.S.A. 2-1323, and amendments thereto, and, if convicted, fined as established by law. (Authorized by K.S.A. 2019 Supp. 2-1315, 2-1331, and 2-1332; implementing K.S.A. 2019 Supp. 2-1315 and 2-1331; effective March 26, 2021.)

CONTROL METHODS



APPROVED HERBICIDES FOR COST-SHARE

The herbicides listed below may be used for cost-share with landowners, for the control of noxious weeds only. The use of tank mixes or pre-mixes of two or more of the following herbicides may be available for cost-share if approved by your county weed director and allowed in accordance with the appropriate labels. Other products labeled and registered for use on noxious weeds in Kansas may be used in accordance with label directions but are not available for cost-share. Be sure to follow all label directions and precautions. For additional information consult the most recent edition of the Kansas State University publication of “Chemical Weed Control for Field Crops, Pastures, Rangeland, and Noncropland.”

Herbicide	Noxious Weeds	Mode of Action
2,4-D	Field bindweed, Musk Thistle, Canada Thistle, Pignut	Group 4
2,4-D LV Ester	Bur Ragweed, Leafy Spurge, Hoary Cress, Russian Knapweed	Group 4
Aminopyralid	Musk Thistle, Sericea Lespedeza, Canada Thistle, Kudzu, Russian Knapweed	Group 4
Chlorsulfuron	Musk Thistle, Sericea Lespedeza, Canada Thistle, Hoary Cress, Russian Knapweed	Group 2
Clopyralid	Musk Thistle, Canada Thistle	Group 2
Dicamba	Field Bindweed, Musk Thistle, Bur Ragweed, Canada Thistle, Leafy Spurge, Hoary Cress, Kudzu, Russian Knapweed	Group 4
Diflufenzopyr	Field Bindweed, Musk Thistle, Canada Thistle, Leafy Spurge	Group 19
Diquat	Canada Thistle, Quackgrass	Group 22
Fenoxaprop	Johnsongrass	Group 1
Florpyrauxifen-benzyl	Musk Thistle, Canada Thistle, Kudzu, Russian Knapweed	Group 4
Fluazifop-P-Butyl	Johnsongrass, Quackgrass	Group 1
Fluroxypyr	Sericea Lespedeza	Group 4
Foramsulfuron	Johnsongrass	Group 2
Glyphosate	Field Bindweed, Johnsongrass, Canada Thistle, Leafy Spurge, Quackgrass, Kudzu, Russian Knapweed	Group 9
Imazapic	Field Bindweed, Musk Thistle, Johnsongrass, Leafy Spurge, Russian Knapweed	Group 2
Imazapyr	Field Bindweed	Group 2
Metsulfuron-methyl	Musk Thistle, Sericea Lespedeza, Johnsongrass, Hoary Cress	Group 2
Nicosulfuron	Johnsongrass, Quackgrass	Group 2
Picloram	Field Bindweed, Bur Ragweed, Musk Thistle, Hoary Cress, Pignut, Russian Knapweed	Group 2
Primisulfuron	Johnsongrass, Quackgrass	Group 2
Quinclorac	Field Bindweed	Group 4
Quizalofop-P	Johnsongrass	Group 1
Sethoxydim	Johnsongrass, Quackgrass	Group 1
Sulfometuron	Johnsongrass	Group 2
Sulfosulfuron	Johnsongrass, Quackgrass	Group 2
Rimusulfuron	Johnsongrass, Quackgrass	Group 2
Tebuthiuron	Kudzu	Group 7
Triasulfuron	Musk Thistle	Group 2
Triclopyr	Sericea Lespedeza, Canada Thistle, Kudzu	Group 4



OFFICIAL CONTROL METHODS FOR MUSK THISTLE

DESCRIPTION

Musk thistle (*Carduus nutans* L.) is primarily a biennial, winter annual or short-lived perennial forb that was introduced from Eurasia. The leaves are deeply lobed, hairless, and dark green with a light green mid-rib. A silver-gray leaf margin is characteristic of each spine-tipped lobe, giving the leaf a frosted appearance. The stems grow from a rosette of leaves that grow flat to the ground and are present year-round. The leaf bases extend down the stem as wing-like flaps. Musk thistle is the first thistle variety to bloom in the spring. Each head is two to three inches in diameter, terminal, solitary, usually nodding or bent over slightly at the ends of branches, and consists of many tiny, purple (rarely white) flowers. The seed-like fruits are straw-colored, oblong, one-eighth inch long, and topped by numerous one-half to one-inch, white, capillary bristles that aid in dispersal of the seeds and detach as a unit. Fruit dispersal begins seven to ten days after blooming, with flowering from May until September (occasionally until frost) and fruiting from May until frost.

PREVENTION OF SPREAD

The Kansas Noxious Weed Law (K.S.A. 2-1313a et. seq.) requires all people to control the spread of and to eradicate musk thistle on all lands owned or supervised by them. Methods used for control must both prevent the production of viable seed and destroy the plant's ability to reproduce by vegetative means. Infestation sites must be monitored after control methods have been implemented to ensure that dormant seeds in the seedbank do not germinate and establish new infestations.

MUSK THISTLE CONTROL PRACTICES

Because musk thistle is a biennial or short-lived perennial, mechanical controls alone may be an effective control option because only the flower needs to be destroyed for control to be accomplished. Contact your county noxious weed director for more information.

Cultural Control

Cultural weed control involves land and vegetation management techniques used to prevent the establishment or control the spread of noxious weeds.

Grazing by sheep, goats, or cattle may be utilized as a control for musk thistle from the rosette stage until the bolting stage and should be repeated as necessary to prevent the production of flowers. Repeat grazing each year to deplete the seedbank and provide control.

Frequent surveys of fence lines, roadways, ditches, and other susceptible areas for new infestations and the timely removal of any new plants will prevent musk thistle from becoming established.

Mechanical Control

Mechanical weed control involves the physical removal of weeds or the reproductive parts of weeds.

Any mechanical controls that prevent the plant from producing flowers, including mowing and burning, may be used to control musk thistle as long as that control takes place before any flowers are produced. Care must be taken to ensure that a new stem does not sprout from the root crown. Removal of the root crown is preferable;

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OFFICIAL CONTROL METHODS FOR MUSK THISTLE**

therefore, mechanical controls such as digging, hoeing, disking, or tilling are more effective and preferred. Mechanical controls may be used throughout the year when they target the rosette.

Chemical Control

The herbicides listed below may be used for cost-share with landowners to control musk thistle. Other products labeled and registered for use on this noxious weed in Kansas may also be used in accordance with label directions but are not available for cost-share. Be sure to follow all label directions and precautions. For additional information, consult the most recent edition of the Kansas State University publication of “Chemical Weed Control for Field Crops, Pastures, Rangeland, and Noncropland.”

Any two or more of the herbicides listed below may be available for cost-share as a pre-mix or a tank mix if allowed on the respective labels. Contact your county weed program for availability.

Switching often between herbicides with different modes of action is highly recommended.

Herbicide	Mode of Action
2,4-D	4
aminopyralid	4
chlorsulfuron	2
clopyralid	4
dicamba	4
diflufenzopyr	19
imazapic	2
metsulfuron methyl	2
picloram	4
triasulfuron	2

Biological Control

Biological control refers to the deliberate application of a living organism to control the spread of weeds. These agents will not eradicate their host plant; therefore, other control methods must be used in addition to the use of biological control agents as part of an integrated pest management strategy. The importation of biological control agents is regulated by USDA-APHIS and is allowed by permit only. The below biological control agent is permitted for use as a biological control agent on musk thistle in Kansas. Other biological control agents may be available for use if the appropriate permit is obtained.

Cheilosia corydon flower fly

The biological control agents listed below are permitted for use in Kansas, though neither may be transported across state lines into or out of Kansas. Consult your county noxious weed director for more information.

Rhinocyllus conicus head weevil
Trichosirocalus horridus crown weevil



OFFICIAL CONTROL METHODS FOR JOHNSONGRASS

DESCRIPTION

Johnsongrass (*Sorghum halepense* (L.) Pers.) is a warm-season perennial grass native to Asia and northern Africa. It reproduces by long rhizomes and seeds and competes well with crop plants. Stems grow six to twelve feet tall, from roots that are freely-branching, stout, fibrous, and bear fleshy rhizomes. Leaves are alternate, simple, and relatively wide and long with a prominent white midvein. Spikelets are paired (one sessile and perfect, one stalked and anther-bearing) and borne in large open panicles. The fruits are reddish-brown grains about two millimeters long. Flowering occurs from May until frost, and fruiting occurs from June until frost.

PREVENTION OF SPREAD

The Kansas Noxious Weed Law (K.S.A. 2-1313a et. seq.) requires all landowners to control the spread of and to eradicate Johnsongrass on all lands owned or supervised by them. Methods used for control must both prevent the production of viable seed and destroy the plant's ability to reproduce by vegetative means. Infestation sites must be monitored after control methods have been implemented to ensure that dormant seeds in the seedbank do not germinate and establish new infestations.

JOHNSONGRASS CONTROL PRACTICES

Johnsongrass control means that the roots, rhizomes, and flowers must all be destroyed. The rhizomes, which are horizontal underground stems, can extend for more than six feet from the original plant and can sprout new plants every few inches. Because Johnsongrass is a perennial, two or more of the control methods listed below must be used together to control Johnsongrass, with the exception that herbicide applications may be used alone as a control. Contact your county noxious weed director for more information.

Cultural Control

Cultural weed control involves land and vegetation management techniques used to prevent the establishment or control the spread of noxious weeds.

Johnsongrass is generally a good forage grass, especially when young and healthy, but is intolerant of heavy grazing. Additionally, plants at certain developmental stages (when leaves and stems are actively growing) or plants that are stressed (especially due to drought, extreme heat, or frost) can become toxic to livestock due to the production of cyanogenic glycosides. Also, prolonged consumption of fresh Johnsongrass can cause nitrate poisoning in ungulates. Consequently, grazing as a control method must be carried out with extreme caution.

Planting a dense cover crop in the spring, after a period of intensive cultivation, may provide effective competition for Johnsongrass. The effectiveness of all competitive crops depends on intensive cultivation during the Johnsongrass growing season when land is not in crop.

Frequent surveys of fence lines, roadways, ditches, and other susceptible areas for new infestations and the timely removal of any new plants will prevent Johnsongrass from becoming established.

Mechanical Control

Mechanical weed control involves the physical removal of weeds or the reproductive parts of weeds.

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OFFICIAL CONTROL METHODS FOR JOHNSONGRASS**

As a perennial species, Johnsongrass is difficult to control mechanically. Hand-pulling or hoeing may work for small, recently established populations, but these methods are too time-consuming and laborious to be economical on a large scale. Mowing or harvesting prevents weed seed production but does not prevent the plant from reproducing vegetatively.

Fall plowing may bring Johnsongrass rhizomes closer to the surface, exposing them to temperatures cold enough to kill them. Cultivation also reduces carbohydrate reserves in Johnsongrass, making it less competitive. However, once cultivated, the system of rhizomes can quickly produce new plants, and cultivation can spread the pieces of rhizome, ultimately increasing the extent of the infestation. It is important to clean roots and root fragments from equipment before entering uninfested areas of the field or other fields to prevent the spread of Johnsongrass. This is not financially practical for most agricultural production systems and may also increase erosion of the topsoil. In general, mechanical control is not a good option for Johnsongrass because of its ability to reproduce from both rhizomes and seed.

Chemical Control

The herbicides listed below may be used for cost-share with landowners to control Johnsongrass. Other products labeled and registered for use on this noxious weed in Kansas may be used in accordance with label directions but are not available for cost-share. Be sure to follow all label directions and precautions. For additional information consult the most recent edition of the Kansas State University publication of “Chemical Weed Control for Field Crops, Pastures, Rangeland, and Noncropland.”

Any two or more of the herbicides listed below may be available for cost-share as a pre-mix or a tank mix if allowed on the respective labels. Contact your county weed program for availability.

Switching often between herbicides with different modes of action is highly recommended.

Herbicide	Mode of Action
fenoxaprop-ethyl	1
fluazifop-p-butyl	1
foramsulfuron	2
glyphosate	9
imazapic	2
metsulfuron methyl	2
nicosulfuron	2
primisulfuron	1
quizalofop-p	1
rimsulfuron	2
sethoxydim	1
sulfometuron	2
sulfosulfuron	2

Biological Control

Biological control refers to the deliberate application of a living organism to control the spread of weeds. These agents will not eradicate their host plant; therefore, other control methods must be used in addition to the use of biological control agents as part of an integrated pest management strategy. The importation of biological control agents is regulated by USDA-APHIS and is allowed by permit only.

There are no biological control agents available for Johnsongrass.



OFFICIAL CONTROL METHODS FOR FIELD BINDWEED

DESCRIPTION

Field bindweed (*Convolvulus arvensis* L.) is a twining perennial forb native to Europe and Asia. It reproduces by seeds and rootstocks. The root system is extensive, extending to a depth of twenty to thirty feet. The smooth, slender stems twine or spread over the soil and vegetation. Leaves are up to two inches long and are alternate, simple, petioled, and highly variable in shape and size. The leaf blade may be oblong to elliptical or may be rounded to pointed with spreading basal lobes. Flowers are white, pink or white with pink, funnel-shaped, about one inch across, and usually borne singly in the axils of leaves. Each flower stalk has two tiny, scale-like bracts one-half to two inches below the flower; the bracts, along with leaf shape and small flower size, distinguish field bindweed from hedge bindweed. Seeds are dark brownish-gray, about one-eighth inch long, and have one rounded and two flattened sides. Flowering occurs from June until August, and fruiting occurs from August until October.

PREVENTION OF SPREAD

The Kansas Noxious Weed Law (K.S.A. 2-1313a et. seq.) requires all people to control the spread of and to eradicate field bindweed on all lands owned or supervised by them. Methods used for control must both prevent the production of viable seed and destroy the plant's ability to reproduce by vegetative means. Because field bindweed is a perennial, two or more of the control methods listed below must be used together to control field bindweed, with the exception that herbicide applications may be used alone as a control. Infestation sites must be monitored after control methods have been implemented to ensure that dormant seeds in the seedbank do not germinate and establish new infestations.

FIELD BINDWEED CONTROL PRACTICES

Field bindweed control means that both the roots and the flowers must be destroyed. The seeds of field bindweed will remain viable in the soil for up to fifty years, so even repeated control practices may fail to deplete the seedbank, which can result in the re-establishment of the infestation. Contact your county noxious weed director for more information.

Cultural Control

Cultural weed control involves land and vegetation management techniques used to prevent the establishment or control the spread of noxious weeds.

Using no-till farming methods, utilizing crop rotation to break weed cycles, and keeping the soil covered to decrease weed seed germination are practices that minimize the establishment of new field bindweed populations.

Planting a dense cover crop in the spring, after a period of intensive cultivation, may provide effective competition for field bindweed. The effectiveness of all competitive crops depends on intensive cultivation during the field bindweed growing season when land is not in crop.

Frequent surveys of fence lines, roadways, ditches, and other susceptible areas for new infestations and the timely removal of any new plants will prevent field bindweed from becoming established.

**KANSAS DEPARTMENT OF AGRICULTURE
OFFICIAL CONTROL METHODS FOR FIELD BINDWEED**

Mechanical Control

Mechanical weed control involves the physical removal of weeds or the reproductive parts of weeds.

As a perennial species, field bindweed is difficult to control mechanically. Deep, repeated cultivation has been shown to reduce field bindweed infestations. Once cultivated, the plant will regenerate its root system in about three weeks, and any piece of a root that was broken during cultivation may establish a new plant. Therefore, to be effective, cultivation should occur every two to three weeks throughout the growing season. Such repetitive cultivation throughout the growing season will deplete the root system and provide control. It is important to clean roots and root fragments from equipment before entering uninfested areas of the field or other fields to prevent the spread of field bindweed. This is not financially practical for most agricultural production systems and may also increase erosion of the topsoil. In general, mechanical control is not a good option because of field bindweed's ability to reproduce from roots and because the plant's seeds remain viable in the soil for such a long period of time.

Chemical Control

The herbicides listed below may be used for cost-share with landowners to control field bindweed. Other products labeled and registered for use on this noxious weed in Kansas may be used in accordance with label directions but are not available for cost-share. Be sure to read and follow all label directions and precautions. For additional information, consult the most recent edition of the Kansas State University publication of "Chemical Weed Control for Field Crops, Pastures, Rangeland, and Noncropland."

Any two or more of the herbicides listed below may be available for cost-share as a pre-mix or a tank mix if allowed on the respective labels. Contact your county weed program for availability.

Switching often between herbicides with different modes of action is highly recommended.

Herbicide	Mode of Action
2,4-D	4
dicamba	4
diflufenzopyr	19
diquat	22
glyphosate	9
imazapic	2
imazapyr	2
picloram	4
quinclorac	4

Biological Control

Biological control refers to the deliberate application of a living organism to control the spread of weeds. These agents will not eradicate their host plant; therefore, other control methods must be used in addition to the use of biological control agents as part of an integrated pest management strategy. The importation of biological control agents is regulated by USDA-APHIS and is allowed by permit only.

While the biological control agents listed below are available for application to field bindweed, they have proven to be ineffective in Kansas, and the Kansas Department of Agriculture will therefore not provide them for use. Other agents may be available for use if the appropriate permit is obtained.

Aceria malherbae gall mite
Tyta luctuosa leaf-feeding moth



OFFICIAL CONTROL METHODS FOR HOARY CRESS

DESCRIPTION

Hoary Cress (*Lepidium draba* L.) is a perennial forb introduced from Eurasia. It reproduces by extensive root systems, rhizomes, and seeds. Stems are one-half to three feet tall and nearly hairless to moderately hairy. Leaves are alternate, oblong, one-third inch long, and grayish-green with toothed margins. The upper leaves are attached directly to the stem with a broad, forked base that appears to clasp the stem. The flowers are white, four-petaled, one-eighth inch across, and borne in showy, compact racemes. The fruits are flattened, heart-shaped pods about one-eighth inch long. One granular, reddish brown seed is produced in each half of the pods. Flowering occurs from May until July, and fruiting occurs from June until August.

PREVENTION OF SPREAD

The Kansas Noxious Weed Law (K.S.A. 2-1313a et. seq.) requires all landowners to control the spread of and to eradicate hoary cress on all lands owned or supervised by them. Methods used for control must both prevent the production of viable seed and destroy the plant's ability to reproduce by vegetative means. Infestation sites must be monitored after control methods have been implemented to ensure that dormant seeds in the seedbank do not germinate and establish new infestations.

HOARY CRESS CONTROL PRACTICES

Hoary cress control means that both the roots and the flowers must be destroyed. Because hoary cress is a perennial, two or more of the control methods discussed herein must be used together to control hoary cress, with the exception that herbicide applications may be used alone as a control.

Cultural Control

Cultural weed control involves land and vegetation management techniques used to prevent the establishment or control the spread of noxious weeds.

Grazing by sheep or goats may be used to control hoary cress before flowering, when the plant's palatability is best. Repeat grazing at least two times per year to deplete the seedbank and provide control. Grazing hoary cress is considered impractical because of low acceptance by livestock and the potential for poisoning, especially in cattle.

Frequent surveys of fence lines, roadways, ditches, and other susceptible areas for new infestations and the timely removal of any new plants will prevent hoary cress from becoming established.

Mechanical Control

Mechanical weed control involves the physical removal of weeds or the reproductive parts of weeds.

As a perennial species, hoary cress is difficult to control mechanically. The root system of hoary cress can be exhausted through cultivation, which must be at least six inches deep and repeated within ten days of weed emergence throughout the growing season each year to deplete the seedbank. It is important that no green leaves be allowed to develop between cultivations.

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OFFICIAL CONTROL METHODS FOR HOARY CRESS**

It is important to clean hoary cress roots and root fragments from equipment before entering uninfested areas of the field or other fields to prevent the spread of hoary cress.

Because of the resulting wind and water erosion or loss of income due to lack of crop returns, it is not practical to cultivate over a two to four-year period.

A second option is to cultivate when the plants are three to six inches tall post-harvest. Research has shown that cultivating hoary cress twice each fall after harvest provides complete control. The fall cultivation program has an advantage over the season-long program because it allows crops to be grown during the season and limits soil exposure to erosion. Two fall cultivations will reduce hoary cress infestations faster than one cultivation. However, a single cultivation may be a more practical management option when minimal tillage is desired or soil erosion is a concern.

It is important to clean hoary cress roots and root fragments from equipment before entering uninfested areas of the field or other fields to prevent the spread of hoary cress.

Chemical Control

The herbicides listed below may be used for cost-share with landowners to control hoary cress. Other products labeled and registered for use on this noxious weed in Kansas may be used in accordance with label directions but are not available for cost-share. Be sure to follow all label directions and precautions. For additional information, consult the most recent edition of the Kansas State University publication of “Chemical Weed Control for Field Crops, Pastures, Rangeland, and Noncropland.”

Any two or more of the herbicides listed below may be available for cost-share as a pre-mix or a tank mix if allowed on the respective labels. Contact your county weed program for availability.

Switching often between herbicides with different modes of action is highly recommended.

Herbicide	Mode of Action
2,4-D LV Ester	4
chlorsulfuron	2
dicamba	4
imazapyr	2
metsulfuron methyl	2

Biological Control

Biological control refers to the deliberate application of a living organism to control the spread of weeds. These agents will not eradicate their host plant; therefore, other control methods must be used in addition to the use of biological control agents as part of an integrated pest management strategy. The importation of biological control agents is regulated by USDA-APHIS and is allowed by permit only.

There are no biological control agents available for hoary cress.



OFFICIAL CONTROL METHODS FOR RUSSIAN KNAPWEED

DESCRIPTION

Russian knapweed (*Rhaponticum repens* (L.) Hidalgo) is a perennial forb that was introduced from Asia. It reproduces by roots, rhizomes, and seeds. Stems are up to three feet tall, often branched near the base, ridged, covered with soft white or gray hairs, and develop from a particularly well-developed branching root system. Leaves are alternate and nearly hairless to moderately hairy. Rosette and lower stem leaves are oblanceolate to broadly lanceolate or oblong, up to four inches long, and deeply lobed to nearly entire; upper stem leaves are progressively smaller, oblong, and toothed or entire. Flowers are all tubular, rose to purple or blue, and borne in flask-shaped heads about one-half to three-quarters inches long. The heads are solitary on the ends of leafy branches. The seed-like fruits are an ivory to light brown, about one-eighth inch long, flattened, ovate, longitudinally ridged, and topped with numerous capillary bristles one-quarter to one-half inch long. Flowering occurs from June until August, and fruiting occurs from August until September.

PREVENTION OF SPREAD

The Kansas Noxious Weed Law (K.S.A. 2-1313a et. seq.) requires all landowners to control the spread of and to eradicate Russian knapweed on all lands owned or supervised by them. Methods used for control must both prevent the production of viable seed and destroy the plant's ability to reproduce by vegetative means. Infestation sites must be monitored after control methods have been implemented to ensure that dormant seeds in the seedbank do not germinate and establish new infestations.

RUSSIAN KNAPWEED CONTROL PRACTICES

Russian knapweed control means that both the roots and the flowers must be destroyed. Because Russian knapweed is a perennial, two or more of the control methods discussed herein must be used together to control Russian knapweed, with the exception that herbicide applications may be used alone as a control.

Cultural Control

Cultural weed control involves land and vegetation management techniques used to prevent the establishment or control the spread of noxious weeds.

While palatability is considered low, grazing by sheep or goats may be utilized to control Russian knapweed during the early vegetative to flowering stage then repeated as necessary, after eight to ten inches of regrowth, to prevent the production of flowers. Repeat grazing each year to deplete the seedbank and provide control.

Frequent surveys of fence lines, roadways, ditches, and other susceptible areas for new infestations and the timely removal of any new plants will prevent Russian knapweed from becoming established.

Mechanical Control

Mechanical weed control involves the physical removal of weeds or the reproductive parts of weeds.

As a perennial species, Russian knapweed is difficult to control mechanically. Hand pulling or hoeing can be effective for small, less established infestations of Russian knapweed if repeated whenever the plant emerges during the growing season, over multiple years. Removal is generally easier and more effective in late spring when soil is moist and plants are beginning to bolt (but before seed set). It is very important to pull up all parts of the plant, especially the roots.

**KANSAS DEPARTMENT OF AGRICULTURE
OFFICIAL CONTROL METHODS FOR RUSSIAN KNAPWEED**

Chemical Control

The herbicides listed below may be used for cost-share with landowners to control Russian knapweed. Other products labeled and registered for use on this noxious weed in Kansas may be used in accordance with label directions but are not available for cost-share. Be sure to follow all label directions and precautions. For additional information consult the most recent edition of the Kansas State University publication of “Chemical Weed Control for Field Crops, Pastures, Rangeland, and Noncropland.”

Any two or more of the herbicides listed below may be available for cost-share as a pre-mix or a tank mix if allowed on the respective labels. Contact your county weed program for availability.

Switching often between herbicides with different modes of action is highly recommended.

Herbicide	Mode of Action
2,4-D LV Ester	4
aminopyralid	4
chlorsulfuron	2
dicamba	4
glyphosate	9
imazapic	2
imazapyr	2
picloram	4

Biological Control

Biological control refers to the deliberate application of a living organism to control the spread of weeds. These agents will not eradicate their host plant; therefore, other control methods must be used in addition to the use of biological control agents as part of an integrated pest management strategy. The importation of biological control agents is regulated by USDA-APHIS and is allowed by permit only.

The biological control agents listed below are permitted for use on Russian knapweed. Other agents may be available for use if the appropriate permit is obtained.

Aulacidea acroptilonica
Jaapiella ivannikovi
Subanguina picridis

bud gall wasp
bud gall midge
leaf stem gall nematode



OFFICIAL CONTROL METHODS FOR BUR RAGWEED

DESCRIPTION

Bur ragweed (*Ambrosia grayii* (A. Nelson) Shinners) is a native, erect, perennial forb, one to two feet tall, that reproduces by underground rootstocks and seeds. Stems are usually branching from the base and covered with fine, woolly hairs that give the plant a silvery-gray to purplish-white appearance. The leaves are usually alternate (rarely opposite toward the base of the stem), broadly ovate, pinnately three to five-parted or entire, long-petioled, and dusty greenish-gray. The central lobe of the leaves is usually much larger than the lateral lobes.

Male and female flowers are borne in separate heads, with male heads drooping, about one-quarter inch in diameter, and produced in terminal racemes and female heads mostly solitary in the leaf axils, two-flowered, and less than one-quarter inch in diameter. The one-seeded fruits are bur-like, one-eighth to one-quarter inch long, and bear stout, straight or hooked spines that are one-sixteenth to one-eighth inch long. Flowering and fruiting occur from September until frost.

PREVENTION OF SPREAD

The Kansas Noxious Weed Law (K.S.A. 2-1313a et. seq.) requires all landowners to control the spread of and to eradicate bur ragweed on all lands owned or supervised by them. Methods used for control must both prevent the production of viable seed and destroy the plant's ability to reproduce by vegetative means. Infestation sites must be monitored after control methods have been implemented to ensure that dormant seeds in the seedbank do not germinate and establish new infestations.

BUR RAGWEED CONTROL PRACTICES

Bur ragweed control means that both the roots and the flowers must be destroyed. Because bur ragweed is a perennial, two or more of the control methods listed below must be used together to control bur ragweed, with the exception that herbicide applications may be used alone as a control.

Cultural Control

Cultural weed control involves land and vegetation management techniques used to prevent the establishment or control the spread of noxious weeds.

Frequent surveys of fence lines, roadways, ditches, and other susceptible areas for new infestations and the timely removal of any new plants will prevent bur ragweed from becoming established.

Mechanical Control

Mechanical weed control involves the physical removal of all parts or just the reproductive parts of weeds.

As a perennial species, bur ragweed is difficult to control mechanically. Controlling bur ragweed with cultivation would require tillage three to four inches deep every 14 to 21 days throughout the growing season to deplete the seedbank. Following this time period, the area should be regularly policed for new seedlings, which can be killed by further cultivation. When using this method, it is important to clean bur ragweed roots and root fragments from equipment before entering uninfested areas of the field or other fields to prevent the spread of bur ragweed.

Current residue requirements for cropland would not allow the excessive tillage needed to control bur ragweed. It is also not practical to clean cultivate over a two-year period because of the resulting wind and water erosion or loss of income due to lack of crop returns.

**KANSAS DEPARTMENT OF AGRICULTURE
OFFICIAL CONTROL METHODS FOR BUR RAGWEED**

Chemical Control

The herbicides listed below may be used for cost-share with landowners to control bur ragweed. Other products labeled and registered for use on this noxious weed in Kansas may be used in accordance with label directions but are not available for cost-share. Be sure to follow all label directions and precautions. For additional information consult the most recent edition of the Kansas State University publication of “Chemical Weed Control for Field Crops, Pastures, Rangeland, and Noncropland.”

Any two or more of the herbicides listed below may be available for cost-share as a pre-mix or a tank mix if allowed on the respective labels. Contact your county weed program for availability.

Switching often between herbicides with different modes of action is highly recommended.

Herbicide	Mode of Action
2,4-D LV Ester	4
aminopyralid	4
dicamba	4
florpyrauxifen-benzyl	4
picloram	4

Biological Control

Biological control refers to the deliberate application of a living organism to control the spread of weeds. These agents will not eradicate their host plant; therefore, other control methods must be used in addition to the use of biological control agents as part of an integrated pest management strategy. The importation of biological control agents is regulated by USDA-APHIS and is allowed by permit only.

There are no biological control agents available for bur ragweed.



OFFICIAL CONTROL METHODS FOR CANADA THISTLE

DESCRIPTION

Canada thistle (*Cirsium arvense* (L.) Scop.) is a perennial forb native to Europe. It reproduces by seeds and whitish, creeping roots that send up new shoots every eight to twelve inches. Stems are two to four feet tall and usually branched above the middle. Leaves are alternate, oblong or lanceolate, irregularly lobed or toothed, spiny-margined, and hairless or white-haired. Flowers are pink to purple (rarely white) and borne in one-half to one-inch diameter heads clustered near the ends of branches. Male and female flowers are on different plants and can be difficult to tell apart without careful examination. For viable seed to be produced, plants bearing male flowers and plants bearing female flowers need to be in close proximity. The seed-like fruits are about one-eighth inch long, smooth, light to dark brown, oblong, slightly flattened and slightly curved, and bear a terminal cluster of numerous white, one-half to one-inch capillary bristles that aid in wind dispersal. Flowering occurs from June until August, and fruiting occurs from July until frost.

PREVENTION OF SPREAD

The Kansas Noxious Weed Law (K.S.A. 2-1313a et. seq.) requires all landowners to control the spread of and to eradicate Canada thistle on all lands owned or supervised by them. Methods used for control must both prevent the production of viable seed and destroy the plant's ability to reproduce by vegetative means. Infestation sites must be monitored after control methods have been implemented to ensure that dormant seeds in the seedbank do not germinate and establish new infestations.

CANADA THISTLE CONTROL PRACTICES

Canada thistle control means that both the roots and the flowers must be destroyed. Because Canada thistle is a perennial, two or more of the control methods discussed herein must be used together to control Canada thistle, with the exception that herbicide applications may be used alone as a control.

Cultural Control

Cultural weed control involves land and vegetation management techniques used to prevent the establishment or control the spread of noxious weeds.

Grazing by sheep, goats, or cattle when rosettes are green and begin to sprout can be utilized as a control for Canada thistle. Remove animals when grazing shifts to desirable species and then re-graze new sprouts often enough during the season to prevent flowering. Grazing will need to be repeated annually to deplete the seedbank and provide control.

Frequent surveys of fence lines, roadways, ditches, and other susceptible areas for new infestations and the timely removal of any new plants will prevent Canada thistle from becoming established.

Mechanical Control

Mechanical weed control involves the physical removal of weeds or the reproductive parts of weeds.

As a perennial species, Canada thistle is difficult to control mechanically. Repeated mowing of Canada thistle over a three-year period, timed for bud to early-bloom stage, should suppress infestations in forages. This mowing should be as low to the ground as practical. Care must be taken to mow before any of the target plants sets seed; mowing after seed set will help disperse the seed.

**KANSAS DEPARTMENT OF AGRICULTURE
OFFICIAL CONTROL METHODS FOR CANADA THISTLE**

Chemical Control

The herbicides listed below may be used for cost-share with landowners to control Canada thistle. Other products labeled and registered for use on this noxious weed in Kansas may be used in accordance with label directions but are not available for cost-share. Be sure to follow all label directions and precautions. For additional information consult the most recent edition of the Kansas State University publication of “Chemical Weed Control for Field Crops, Pastures, Rangeland, and Noncropland.”

Any two or more of the herbicides listed below may be available for cost-share as a pre-mix or a tank mix if allowed on the respective labels. Contact your county weed program for availability.

Switching often between herbicides with different modes of action is highly recommended.

Herbicide	Mode of Action
2,4-D	4
aminopyralid	4
chlorsulfuron	2
clopyralid	4
dicamba	4
diflufenzopyr	19
glyphosate	9
imazapyr	2
metsulfuron-methyl	2
picloram	4

Biological Control

Biological control refers to the deliberate application of a living organism to control the spread of weeds. These agents will not eradicate their host plant; therefore, other control methods must be used in addition to the use of biological control agents as part of an integrated pest management strategy. The importation of biological control agents is regulated by USDA-APHIS and is allowed by permit only. The biological control agents listed below are permitted for use on Canada thistle. Other agents may be available for use if the appropriate permit is obtained.

Ceutorhynchus litura	stem weevil
Urophora cardui	stem gall fly



OFFICIAL CONTROL METHODS FOR LEAFY SPURGE

DESCRIPTION

Leafy spurge (*Euphorbia virgata* Waldst & Kit.) is a perennial forb introduced from Europe and Asia. It reproduces by seed and creeping roots that give rise to new roots and shoots every few inches. Stems are bright green, two-thirds to two feet tall, branched above the middle, stiff and woody when mature, and usually grow in bunches. Stems are branched at the top and very stiff and woody when mature. The stems and leaves emit a milky sap when broken. Leaves are alternate, oblong, one and a half to three and a half inches long, and entire. Male and female flowers are tiny and borne together in small cup-like structures surrounded by broad greenish-yellow bracts. Groups of flower-bearing cups and their bracts are produced in umbel-like clusters at the ends of the stems. Seeds are borne in three-lobed capsules with three seeds per capsule and are explosively ejected up to twenty feet from the capsule. Flowering occurs from May until September and, and fruiting occurs from June until October.

PREVENTION OF SPREAD

The Kansas Noxious Weed Law (K.S.A. 2-1313a et. seq.) requires all landowners to control the spread of and to eradicate leafy spurge on all lands owned or supervised by them. Methods used for control must both prevent the production of viable seed and destroy the plant's ability to reproduce by vegetative means. Infestation sites must be monitored after control methods have been implemented to ensure that dormant seeds in the seedbank do not germinate and establish new infestations.

LEAFY SPURGE CONTROL PRACTICES

Leafy spurge control means that both the roots and the flowers must be destroyed. Because leafy spurge is a perennial, two or more of the control methods discussed herein must be used together to control leafy spurge, with the exception that herbicide applications may be used alone as a control.

Cultural Control

Cultural weed control involves land and vegetation management techniques used to prevent the establishment or control the spread of noxious weeds.

Grazing by sheep or goats may be utilized during the vegetative to flowering stage then repeated as necessary to prevent the production of leafy spurge flowers. Repeat grazing each year to deplete the seedbank and provide control.

Frequent surveys of fence lines, roadways, ditches, and other susceptible areas for new infestations and the timely removal of any new plants will prevent leafy spurge from becoming established.

Mechanical Control

Mechanical weed control involves the physical removal of weeds or the reproductive parts of weeds.

As a perennial species, leafy spurge is difficult to control mechanically. An intensive cultivation program, with tillage four inches deep, should begin in the spring, two to four weeks after leafy spurge emerges. Cultivation should continue every three weeks until the soil freezes in the fall for at least two growing seasons. The tillage schedule cannot be interrupted because leafy spurge recovers quickly from the effects of cultivation. Pieces of roots as small as one-half inch long and one-tenth inch in diameter can produce new shoots and can survive two

**KANSAS DEPARTMENT OF AGRICULTURE
OFFICIAL CONTROL METHODS FOR LEAFY SPURGE**

or three hours of drying in the hot sun. It is important to clean leafy spurge roots and root fragments from equipment before entering uninfested areas of the field or other fields to prevent the spread of leafy spurge. Because of the resulting wind and water erosion or loss of income due to lack of crop returns, it is not practical to cultivate over a two to four-year period.

Chemical Control

The herbicides listed below may be used for cost-share with landowners to control leafy spurge. Other products labeled and registered for use on this noxious weed in Kansas may be used in accordance with label directions but are not available for cost-share. Be sure to follow all label directions and precautions. For additional information consult the most recent edition of the Kansas State University publication of “Chemical Weed Control for Field Crops, Pastures, Rangeland, and Noncropland.”

Any two or more of the herbicides listed below may be available for cost-share as a pre-mix or a tank mix if allowed on the respective labels. Contact your county weed program for availability.

Switching often between herbicides with different modes of action is highly recommended.

Herbicide	Mode of Action
2,4-D LV Ester	4
dicamba	4
diflufenzopyr	19
glyphosate	9
imazapic	2
picloram	4

Biological Control

Biological control refers to the deliberate application of a living organism to control the spread of weeds. These agents will not eradicate their host plant; therefore, other control methods must be used in addition to the use of biological control agents as part of an integrated pest management strategy. The importation of biological control agents is regulated by USDA-APHIS and is allowed by permit only. The biological control agents listed below are permitted for use on Leafy Spurge. Other agents may be available for use if the appropriate permit is obtained.

- | | |
|-----------------------|------------------------------------|
| Aphthona abdominalis | minute spurge flea beetle |
| Aphthona czwalinae | black leafy spurge flea beetle |
| Aphthona flava | copper leafy spurge flea beetle |
| Aphthona lacertosa | brown-legged spurge flea beetle |
| Aphthona nigriscutis | black dot leafy spurge flea beetle |
| Hyles euphorbiae | spurge hawk-moth |
| Oberea erythrocephala | red-headed leafy spurge stem borer |
| Spurgia esulae | shoot tip gall midge |



OFFICIAL CONTROL METHODS FOR QUACKGRASS

DESCRIPTION

Quackgrass (*Elymus repens* (L.) Gould) is a cool-season perennial grass introduced from Eurasia. It reproduces by seed and rhizomes. Rhizomes are pale yellow or straw colored, cord-like, about one-eighth inch in diameter, and vary from two to eighteen inches in depth, with new roots and plants emerging from nodes. Stems grow up to three feet tall with three to six joints. Leaves are three to twelve inches long, shiny, dark green, and bear two conspicuous tooth-like projections where the blade joins the stem. The dry lower sheaths, leaves, and stems are distinctly hairy; upper sheaths are hairless or nearly so. Tiny, wind-pollinated flowers are borne in groups of four to seven, subtended by two unawned or short-awned glumes (each group is called a spikelet). Spikelets are flattened and mostly solitary at each node along a two to four-inch terminal spike. The grains are slender and about one-quarter inch long. Flowering occurs from June until August, and fruiting occurs from July until October.

PREVENTION OF SPREAD

The Kansas Noxious Weed Law (K.S.A. 2-1313a et. seq.) requires all landowners to control the spread of and to eradicate quackgrass on all lands owned or supervised by them. Methods used for control must both prevent the production of viable seed and destroy the plant's ability to reproduce by vegetative means. Infestation sites must be monitored after control methods have been implemented to ensure that dormant seeds in the seedbank do not germinate and establish new infestations.

QUACKGRASS CONTROL PRACTICES

Quackgrass control means that both the roots and the flowers must be destroyed. Because quackgrass is a perennial, two or more of the control methods discussed herein must be used together to control quackgrass, with the exception that herbicide applications may be used alone as a control.

Cultural Control

Cultural weed control involves land and vegetation management techniques used to prevent the establishment or control the spread of noxious weeds.

Cattle and horses readily feed on quackgrass, but populations are only suppressed, and rarely eradicated, even with intensive grazing. Intensively grazing to two inches or less will reduce the dominance of quackgrass in an area. Horses and cattle enjoy eating rhizomes, and pigs will root through the soil to find them.

Frequent surveys of fence lines, roadways, ditches, and other susceptible areas for new infestations and the timely removal of any new plants will prevent quackgrass from becoming established.

Mechanical Control

Mechanical weed control involves the physical removal of weeds or the reproductive parts of weeds.

As a perennial species, quackgrass is difficult to control mechanically. Repeated tillage, at least four inches deep and beginning in the hottest and driest part of the summer, should suppress infestations. Tillage will separate rhizome buds from their parent plants and cause them to sprout, so it must be repeated throughout the season, whenever the new plants put out three leaves, to prevent the development of any new rhizomes. This tillage must be repeated annually for good control. It is important to clean roots and root fragments from equipment before entering uninfested areas of the field or other fields to prevent the spread of quackgrass. It is also not

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practical to clean cultivate over a two-year period because of the resulting wind and water erosion or loss of income due to lack of crop returns. Following a sequence of repeated tillage throughout the summer, a fall cover crop should be planted at a seeding rate of two to two-and-a-half bushels per acre.

Chemical Control

The herbicides listed below may be used for cost-share with landowners to control quackgrass. Other products labeled and registered for use on this noxious weed in Kansas may be used in accordance with label directions but are not available for cost-share. Be sure to follow all label directions and precautions. For additional information consult the most recent edition of the Kansas State University publication of “Chemical Weed Control for Field Crops, Pastures, Rangeland, and Noncropland.”

Any two or more of the herbicides listed below may be available for cost-share as a pre-mix or a tank mix if allowed on the respective labels. Contact your county weed program for availability.

Switching often between herbicides with different modes of action is highly recommended.

Herbicide	Mode of Action
diquat	22
fluazifop-p-butyl	1
glyphosate	9
nicosulfuron	2
sethoxydim	1
sulfosulfuron	2

Biological Control

Biological control refers to the deliberate application of a living organism to control the spread of weeds. These agents will not eradicate their host plant; therefore, other control methods must be used in addition to the use of biological control agents as part of an integrated pest management strategy. The importation of biological control agents is regulated by USDA-APHIS and is allowed by permit only.

There are no biological control agents available for quackgrass.



OFFICIAL CONTROL METHODS FOR PIGNUT

DESCRIPTION

Pignut (*Hoffmannseggia glauca* (Ortega) Eifert), also known as hogpotato or Indian rushpea, is a native, perennial legume. The stems, petioles, flowers, and fruits are covered with tiny, distinctive, tack-shaped glands. Pignut has deep roots on which nut-like tubers develop ten to fifteen inches below the surface that are difficult to remove from the soil. The stems are eight to twelve inches tall. The leaves are mostly at the base of the stem, are three to five inches long, and twice compound with three to fifteen pairs of primary leaflets and twelve to twenty-two pairs of secondary leaflets on each primary leaflet. The secondary leaflets are oblong and one-twelfth to one-quarter inch long. The flowers are of the pea-type, yellow or orange-red, and about one-half inch long. The seed pods are flat, one to one and one-half inches long, and typically contain one to six seeds. Flowering occurs from May until September, and fruiting occurs from June until October.

PREVENTION OF SPREAD

The Kansas Noxious Weed Law (K.S.A. 2-1313a et. seq.) requires all people to control the spread of and to eradicate pignut on all lands owned or supervised by them. Methods used for control must both prevent the production of viable seed and destroy the plant's ability to reproduce by vegetative means. Because pignut is a perennial species, two or more of the control methods listed below must be used together to control pignut, with the exception that herbicide applications may be used alone as a control.

PIGNUT CONTROL PRACTICES

Pignut control means that both the roots and the flowers must be destroyed.

Cultural Control

Cultural weed control involves land and vegetation management techniques used to prevent the establishment or control the spread of noxious weeds.

Frequent surveys of fence lines, roadways, ditches, and other susceptible areas for new infestations and the timely removal of any new plants will prevent pignut from becoming established.

Mechanical Control

Mechanical weed control refers to any technique that involves the use of mechanical or manual equipment to control weeds. Unless the entire root of a perennial plant species is removed as part of a mechanical control, the control is not likely to be successful. As a perennial species, pignut is difficult to control mechanically.

Cultivation three to five inches deep should be performed at least every three weeks, and more often as necessary to ensure that newly emerging weeds are not allowed to grow for more than ten days following their first emergence. Cultivation should be continued until the plants have been eradicated or have been suppressed to such an extent that remaining plants may be more economically destroyed by other treatment, such as by the application of approved chemicals to individual plants or by hand cultivation.

Small infestations should be grubbed out, taking care to remove all the tuberous, nut-like roots. This grubbing must be repeated annually for at least two years for good control. It is important to clean roots and root fragments from equipment before entering uninfested areas of the field or other fields to prevent the spread of pignut.

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Chemical Control

The herbicides listed below may be used for cost-share with landowners to control pignut. Other products labeled and registered for use on this noxious weed in Kansas may also be used in accordance with label directions but are not available for cost-share. Be sure to follow all label directions and precautions. For additional information, consult the most recent edition of the Kansas State University publication of "Chemical Weed Control for Field Crops, Pastures, Rangeland, and Noncropland."

Any two or more of the herbicides listed below may be available for cost-share as a pre-mix or a tank mix if allowed on the respective labels. Contact your county weed program for availability.

Switching often between herbicides with different modes of action is highly recommended.

Herbicide	Mode of Action
2,4-D	4
picloram	2

Biological Control

Biological control refers to the deliberate application of a living organism to control the spread of weeds. These agents will not eradicate their host plant; therefore, other control methods must be used in addition to the use of biological control agents as part of an integrated pest management strategy. The importation of biological control agents is regulated by USDA-APHIS and is allowed by permit only. There are no biological controls approved for use on Pignut at this time.



OFFICIAL CONTROL METHODS FOR KUDZU

DESCRIPTION

Kudzu (*Pueraria montana* var. *lobata* (Willd.) Maesen & S.M. Almeida ex Sanjapp & Predeep) is a long-lived, semi-woody vine with long runners that can cover the ground and climbing stems that can grow to 100 feet long and envelop nearby shrubs and trees. The long runners root at the nodes to form new plants. Older stems have a rough, bark-like covering, and young stems bear abundant, spreading brown hairs. The leaves are alternate and compound with three leaflets; lower leaf surfaces are sparsely hairy while upper leaf surfaces are mostly hairless. Each leaflet is broadly ovate to triangular, two to ten inches long and up to six inches wide, entire or two to three-lobed, and abruptly taper to a pointed tip. Showy, fragrant lavender to purple or reddish flowers up to one-half inch long are borne in short, dense racemes. Seed production is infrequent because of sparse blooming. The seed pods are one-and-a-half to three inches long, papery and densely covered with fine brown hairs. Seeds are reddish-brown and hairy. Flowering and fruiting occur from August until October.

PREVENTION OF SPREAD

The Kansas Noxious Weed Law (K.S.A. 2-1313a et. seq.) requires all landowners to control the spread of and to eradicate kudzu on all lands owned or supervised by them. Methods used for control must both prevent the production of viable seed and destroy the plant's ability to reproduce by vegetative means. Infestation sites must be monitored after control methods have been implemented to ensure that dormant seeds in the seedbank do not germinate and establish new infestations.

KUDZU CONTROL PRACTICES

Kudzu control means that both the roots and the flowers must be destroyed. Because kudzu is a perennial, two or more of the control methods discussed herein must be used together to control kudzu, with the exception that herbicide applications may be used alone as a control.

Cultural Control

Cultural weed control involves land and vegetation management techniques used to prevent the establishment or control the spread of noxious weeds.

Grazing by sheep, goats, or especially cattle may be used throughout the growing season to control kudzu. Repeat grazing each year to suppress the plant.

Frequent surveys of fence lines, roadways, ditches, and other susceptible areas for new infestations and the timely removal of any new plants will prevent kudzu from becoming established.

Mechanical Control

Mechanical weed control involves the physical removal of weeds or the reproductive parts of weeds.

As a perennial species, kudzu is difficult to control mechanically. The only option for controlling kudzu mechanically would be to physically dig out the root crown and all vines in contact with the soil, as these will re-sprout new plants. In larger, well-established infestation sites, this would be physically difficult and potentially hazardous. If an area of infestation is cleared, care must be taken to replant desirable species to prevent erosion and provide competition against re-infestation.

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Chemical Control

The herbicides listed below may be used for cost-share with landowners to control kudzu. Other products labeled and registered for use on this noxious weed in Kansas may be used in accordance with label directions but are not available for cost-share. Be sure to follow all label directions and precautions. For additional information consult the most recent edition of the Kansas State University publication of “Chemical Weed Control for Field Crops, Pastures, Rangeland, and Noncropland.”

Any two or more of the herbicides listed below may be available for cost-share as a pre-mix or a tank mix if allowed on the respective labels. Contact your county weed program for availability.

Switching often between herbicides with different modes of action is highly recommended.

Herbicide	Mode of Action
aminopyralid	4
dicamba	4
glyphosate	9
tebuthiuron	7
triclopyr	4

Biological Control

Biological control refers to the deliberate application of a living organism to control the spread of weeds. These agents will not eradicate their host plant; therefore, other control methods must be used in addition to the use of biological control agents as part of an integrated pest management strategy. The importation of biological control agents is regulated by USDA-APHIS and is allowed by permit only.

There are no biological control agents available for kudzu.



OFFICIAL CONTROL METHODS FOR SERICEA LESPEDEZA

DESCRIPTION

Sericea lespedeza (*Lespedeza cuneata* (Dum. Cours.) G. Don) is a shrubby-looking perennial forb, two to five feet tall with many stems branching from a stout, woody, branched taproot. It is native to Asia. The leaves, each with three one-quarter to one-inch long leaflets, are crowded along the stems. The leaflets are wedge or club shaped. Two types of flowers are produced individually or in small clusters along the stems: showy, mostly cross-pollinated flowers are one-quarter inch long and cream-colored with purple markings; self-pollinated flowers are smaller and less showy. Fruits from both types of flowers are tan to brown one-seeded pods one-eighth to one-quarter inch long. Flowering occurs from August until frost, and fruiting occurs from September until frost.

PREVENTION OF SPREAD

The Kansas Noxious Weed Law (K.S.A. 2-1313a et. seq.) requires all landowners to control the spread of and to eradicate *sericea lespedeza* on all lands owned or supervised by them. Methods used for control must both prevent the production of viable seed and destroy the plant's ability to reproduce by vegetative means. Infestation sites must be monitored after control methods have been implemented to ensure that dormant seeds in the seedbank do not germinate and establish new infestations.

SERICEA LESPEDEZA CONTROL PRACTICES

Sericea lespedeza control means that both the roots and the flowers must be destroyed. Because *sericea lespedeza* is a perennial, two or more of the control methods listed below must be used together to control *sericea lespedeza*, with the exception that herbicide applications may be used alone as a control.

Cultural Control

Cultural weed control involves land and vegetation management techniques used to prevent the establishment or control the spread of noxious weeds.

Grazing by sheep or goats may be used as a control for *sericea lespedeza* on young plants early in the season. Two or more treatments each season and repeat grazing each year are necessary to deplete the seedbank and provide control.

For grasslands infested with *sericea lespedeza*, controlled burning in late August through September will kill the above-ground portion of the plant, including flowers and seeds, which are produced at that time of year, and prevent the plants from reproducing sexually. It will also encourage seed in the seedbank to germinate. Juvenile plants are susceptible to winter kill.

Frequent surveys of fence lines, roadways, ditches, and other susceptible areas for new infestations and the timely removal of any new plants will prevent *sericea lespedeza* from becoming established.

Mechanical Control

Mechanical weed control involves the physical removal of all parts or just the reproductive parts of weeds.

As a perennial species, *sericea lespedeza* is difficult to control mechanically. Repeated mowing in the flower bud stage should reduce the plant's vigor, but this method of control is not as effective as late season burning

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because the mown plants are not removed and the soil is not heated, which allows dormant seeds in the seedbank to germinate.

Chemical Control

The herbicides listed below may be used for cost-share with landowners to control sericea lespedeza. Other products labeled and registered for use on this noxious weed in Kansas may be used in accordance with label directions but are not available for cost-share. Be sure to follow all label directions and precautions. For additional information consult the most recent edition of the Kansas State University publication of “Chemical Weed Control for Field Crops, Pastures, Rangeland, and Noncropland.”

Any two or more of the herbicides listed below may be available for cost-share as a pre-mix or a tank mix if allowed on the respective labels. Contact your county weed program for availability.

Switching often between herbicides with different modes of action is highly recommended.

Herbicide	Mode of Action
aminopyralid	4
chlorsulfuron	2
fluroxypyr	4
metsulfuron methyl	2
picloram	4
triclopyr	4

Biological Control

Biological control refers to the deliberate application of a living organism to control the spread of weeds. These agents will not eradicate their host plant; therefore, other control methods must be used in addition to the use of biological control agents as part of an integrated pest management strategy. The importation of biological control agents is regulated by USDA-APHIS and is allowed by permit only.

There are no biological control agents available for sericea lespedeza.