

Special points of interest:

- The warm winter and wet spring have caused plants to grow earlier and more quickly than normal. Check now for weeds that don't usually show up until o late May to early June.
- Don't waste your money spraying a "weed". Because not all herbicides work on all weeds, make sure you identify the plant before you treat it.

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Early Detection—Rapid Response: "Nip it in the Bud"

Early Detection, Rapid Response, or EDRR, is a very important part of an effective invasive weed management program. When new invasive species or new populations of established species are found, it is critical to take action against them as soon as possible. As the saying goes, "The cheapest and easiest weed to control is the first one".

The early detection part of the program consists of finding these new weeds as soon as possible before they become fully established. This can mean conducting in-depth surveys of

your property and making note of any new weeds they haven't seen before or, in the case of County Weed Directors, inventorying a portion of their county each year for not only state listed noxious weeds but any other weed they feel may have the potential of becoming invasive.

Rapid response refers to taking quick and decisive action against these new invaders. A landowner's first response should be to either identify the plant or find someone who can and then report the species and its location to their County Weed Director or the Kan-

sas Department of Agriculture (KDA). The Weed Director can then determine the best method to eradicate the plant and assist you in getting rid of it before it becomes an unfixable problem. He or she can also report the infestation to neighboring counties so that they can keep their eyes open for any possible infestations.

See the mapping article below for more information on how to record a specie's location to make reporting it a lot easier.

-S. Marsh

New Mapping Tool for Both Landowners and Weed Managers

Mapping new infestations of weeds is a key part of an EDRR program. It is also great for marking established populations on the map so they can be relocated for treatment and for measuring the success of those treatments.

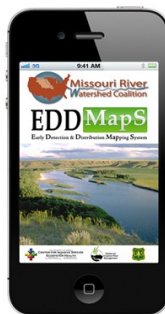
In the past it required a person to know about where they were at any given time so they could draw a dot on

a map. This made things difficult when they were dealing with small infestations in big prairies. These days, with Global Positioning System (GPS) units, a person can pinpoint their location anywhere on earth, store that location and return to the exact spot at any time.

If you do not have one of these units have no fear. The Missouri River Wa-

tershed Coalition (MRWC) and EDDMapS have developed a free smartphone application that will record the location of a weed infestation, help you identify the species and allow you to take a picture of the plant. Hit the save button and it will automatically upload the data to the EDDMapS website.

Search for EDDMaps on your phone App Store or Marketplace and install the MRWC EDDMapS choice.



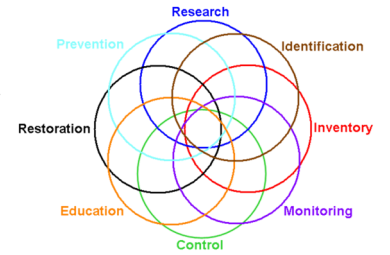
Integrated Weed Management: A Multi-pronged Attack

Integrated weed management (IWM) is a broad-scale approach to controlling noxious and invasive plants. At the largest scale it includes Education, Prevention, Research, Inventory, Identification, Control, Restoration and Monitoring. Each of these steps are important for preventing the establishment of new weeds and eradicating weeds that have become established. They also help to ensure that these weeds don't return after they have been eradicated. If you go back and check,

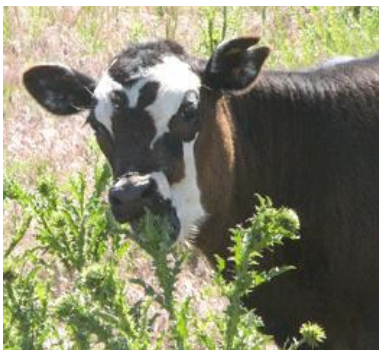
you will see that all of the articles in this update have to do with one step or another of IWM. EDRR is part of Prevention and Inventory. Biological control is, of course Control, the yellow starthistle article contains Identification and Control information and Mapping is also part of Inventory. And this and every update are geared toward the Education of landowners on all aspects of weed management.

In the course of the next few updates, I will cover each of the above men-

tioned aspects of integrated weed management and try to relate to you how they are all interconnected and the importance of each one as it relates to the war we are fighting against invasive plant species. When I get to the control step, I will break it down into the four types of integrated control methods that can and should be used together against the weeds that you are combating. These are Mechanical, Biological, Cultural and Chemical.



Control Corner: Biological Control isn't Just for Bugs



Biological control (biocontrol) is usually thought of as the release of insect species to slow down the growth rate, reproduction and spread of an invasive species. Well, they aren't the only family of animals that can do that. In fact a lot of landowners have biological control agents at their disposal every day. Domestic livestock are very effective tools in helping to control most of our noxious and invasive weeds in Kansas. Cattle will readily graze Canada thistle, musk thistle, quackgrass and other species while goats will eat



those species and others such as spotted knapweed, leafy spurge and Russian knapweed. Sheep will eat about everything that goats will eat while horses are a lot more picky.

One very important thing to be aware of is that some weed species can be poisonous to some animals. Leafy spurge, for example, is poisonous to cattle as is common tansy while those species are edible for goats and sheep. Horses are more susceptible in that leafy spurge, Russian knapweed and yellow starthistle, among others, are poisonous to them. Poison hem-

lock is, of course, poisonous to everything, including humans.

Like conventional biocontrol, grazing is not intended to eradicate an infestation but rather to slow down the growth rate, reproduction and spread. Using grazing in combination with herbicide application, mechanical controls or even conventional biocontrol as part of an Integrated Pest Management program is the best approach to take if you are looking to eradicate any noxious or invasive species.

-S. Marsh



Plant Protection and Weed Control

Any questions or comments, please contact:

Scott S. Marsh
State Weeds Specialist
P.O. Box 19282
Forbes Field, Bldg. 282
Topeka, KS 66619
Phone: (785) 862-2180
Fax: (785) 862-2182
E-mail: scott.marsh@kda.ks.gov

Visit our website at:
www.ksda.gov

Plant Protection and Weed Control staff work to ensure the health of the state's native and cultivated plants by excluding or controlling destructive pests, diseases and weeds. Staff examine and analyze pest conditions in crop fields, rangelands, greenhouses and nurseries. Action taken to control potential infestations of new pests, whether they are insects, plants diseases or weeds, is beneficial to the economy and the environment.

Our mission is to:

- Exclude or control harmful insects, plant diseases, and weeds;
- Ensure Kansas plants and plant products entering commerce are free from quarantined pests;
- Provide customers with inspection and certification services.

Invasive Species Spotlight

Yellow starthistle (*Centaurea solstitialis*)

Although you may not have heard of it, yellow starthistle was introduced into this country more than 150 years ago. It is thought to have been brought over from Eurasia accidentally in contaminated seed.

Yellow starthistle is easily identified by the 1-inch long spines on the base of its flowerhead and its grey-green foliage. It grows to 6 inches to 2 feet tall and will flower late into the fall. It is an annual which means it

germinates, grows and produces seeds all in one year, dying in the late fall.

This species is highly invasive and is considered noxious in many western states. It infests more than 10 million acres in California, but in Kansas it has been identified in 16 counties, mostly in the eastern half of the state. Surveys are planned to determine just how widespread it is.

It grows aggressively and forms dense infestations,

crowding out desirable species and depleting soil moisture. It is also poisonous to horses, causing the nervous disorder "chewing disease".

Control is most effective during the rosette stage. Apply 2,4-D or aminopyralid at the rates listed on the label. Digging and grazing also work. Mowing does not. Revegetate disturbed areas quickly to provide competition.



Pinnacles National Monument