

**Special points of interest:**

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### Diorhabda Dilemma

As has been mentioned in previous updates, the tamarisk leaf beetle, *Diorhabda carinata*, moved into the state in 2013. Since that time they have been doing extensive damage to tamarisk trees by feeding on their leaves. In 2014 they expanded from the Cimarron watershed into the Arkansas watershed and eventually ranged from Rice County to Hamilton County. This year, however, extensive surveys have failed to locate any of the beetles since they were observed emerging in April. Oklahoma and Colorado have reported similar disappearances.



The reasons for this rapid

loss of beetles are unclear but may be related to the large amount of rain we have experienced this year. The beetles are not accustomed to high levels of humidity in their native range in central Asia. The heavy rains may also have washed some of the beetles and pupae away.

The biggest concerns with losing the beetles are the loss of an excellent biological control of the tamarisk trees and the fact that we cannot easily replenish the lost populations. It is

against the law to move *Diorhabda* beetles across state lines. The populations we had moved into Kansas on their own from Oklahoma but since Oklahoma has lost most of their beetles, there aren't any left to move back up here.

The good news is we have some backup still in place. The splendid tamarisk weevil *Coniatus splendidulus* also feeds on tamarisk and has invaded the same areas as the *Diorhabda* beetle. While the weevils do not do nearly as much damage as the beetles, we will take all the help we can get.



### No Till Farming

No till farming techniques have their roots in the Dust Bowl years. Farmers and agronomists were looking for a way to conserve both the soil and water. Since then different types or systems, of no till farming have been developed and are collectively called "Conservation Tillage". In general a conservation tillage system is one that leaves 30% or more of the crop residue on the field after harvest. Crops are generally planted using no-till drills or other low dis-

turbance equipment.

One of the advantages of no till is the benefits it provides in weed management. While tilling weeds under during or just prior to planting has been an accepted advantage to standard farming practices, it actually is detrimental in many cases. Tilling weeds under breaks the roots and moves the pieces around the fields. This encourages both the growth and the spread of many perennial weed species. These are

species such as field bindweed that can grow new plants from pieces of their extensive root systems. No till systems do not break the roots and therefore do not create new plants.

Chemical controls are the most commonly used methods for weed control in no till systems but cultural controls such as crop rotation, cover crops and, of course, the shading provided by the crop residue are also beneficial methods of control.

## Integrated Weed Management: Part 8 - Cultural Control

Cultural weed controls can be used on any land by any person for any weed. They are, however, a lot more effective if you use them before you have any weeds.

Cultural controls are any action you can take to prevent weeds from growing or to force them out once they have become established. The most important and basic option of cultural control is creating and maintaining a healthy, vigorous stand of vegetation of a native or desirable species that will provide competition against invading species. Other options that support this option are proper livestock management which will prevent

overgrazing of fields and pastures which will eliminate the competition provided by the grazed vegetation; reducing and re-vegetating disturbed areas because bare, disturbed soil is like a magnet to noxious and invasive weeds; the use of cover crops will provide competition and reduce bare ground. It is also good for reducing erosion.

Of course crop fields are always going to be bare for



a while each year. Options for the use of cultural control in this situation include: Maintaining a healthy, dense crop will help prevent the establishment of weeds before harvesting exposes the ground; No till farming practices will help reduce the establishment of new infestations while reducing the spread of established weeds.

While these options will help reduce the number of

weeds that become established, there will always be a few that sneak in. Keeping an eye out for these early invaders and controlling them as quickly as possible is one of the most important parts of cultural weed management. If left alone, these early weeds will quickly reproduce and spread, increasing the amount of work you have to do to get them back under control.

In conclusion, the cultural control option works best at preventing weeds from becoming established through reducing the availability of bare ground and increasing the competition for resources.

## Control Corner: Equipment Calibration

As you have read in previous updates, when you apply chemicals to your fields it is very important to apply them according to the requirements shown on the label. This is sometimes easier said than done. If you have not calibrated your sprayer in a while, no

matter how carefully you do the math or how carefully you mix your chemicals, you may still be applying at an incorrect rate. This incorrect rate is not only illegal, it will also be costing you money you don't need to be spending if you are applying at too high a rate or setting you up for herbicide resistant weeds if you are applying at too low a rate.

Calibrating your sprayer is easier than you might



think. You do not need any fancy equipment and you can do it yourself in just a few minutes. The first step is to check your nozzles. The nozzle type, size, spray pattern and spacing on the boom are all important in determining application rates. The wrong nozzle or a worn one can both affect application rates and increase drift. You should

also check your sprayer's pump. If it is delivering too much or too little pressure, the amount of chemical being applied will be either too high or too low. The speed at which you drive can also affect your application rates.

These checks should be performed on all of your spray equipment, from backpack sprayers to both boom and boomless sprayers with your local extension agent for information on calibrating your equipment including the formulas to use and the equipment needed.



*Plant Protection and Weed Control*

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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**

### **Hydrilla (*Hydrilla verticillata*)**

Although we do not have any aquatic weeds on our noxious weed list, there are several invasive aquatic weeds in the state. One of these is hydrilla. Thought to have been introduced into the country in the 1950s by the release of unwanted aquarium plants into streams or ponds, it has spread throughout most of the country. In Kansas, it is found only in Johnson County. KDA is working closely with local agencies to eradicate it before it spreads to other waterbodies.

One of the primary reasons it is invasive is its ability to spread rapidly, outcompeting native and desirable species. It has horizontal stems called rhizomes, tubers that form along the rhizomes and buds along the stem called turions, all of which produce new plants. Also, if a plant is broken, each piece can take root



and form a new plant. A plant can grow as much as 0.75 inches a day. All of these together allow hydrilla to quickly invade an entire pond in a short period.

It is a submersed perennial which means it grows entirely below the surface of the water. Hydrilla can grow up to 30 feet tall, depending upon the depth of the water. Once it reaches the surface, it will grow horizontally. The leaves are strap-like with teeth along the sides and are about 0.5 inches long. 5 or more

leaves grow from a central point on a stem, or whorl. The flowers are small and white and rise to the surface on slender stalks from the upper parts of the stem.

Control options are mostly limited to chemical and cultural controls. Cultural controls include maintaining a proper nutrient balance in the water and promoting the growth of native species. Chemical controls include the use of copper, diquat and fluridone products.