

GRASSHOPPER AND MOSQUITO MANAGEMENT PROGRAM IN NORFOLK

There will be a grasshopper and mosquito management program conducted by UNL Entomologists Keith Jarvi and Tom Hunt at the University Classroom at the Lifelong Learning Center on the Northeast Community College Campus in Norfolk on Tuesday, June 3. The program will begin at 1:00 and last approximately 1 ½ - 2 hours. Topics will include lifecycle and management of grasshoppers in rangeland, cropland and home gardens and mosquito life cycle and management in urban areas. There will be no fee charged to attend this meeting.

HOARY VERVAIN AND WESTERN RAGWEED CONTROL IN PASTURE

Hoary vervain (*Verbena stricta*), also known as wooly verbena or tall vervain, is a commonly found native weed in northeastern Nebraska's over-grazed rangeland, prairies and disturbed sites in all soil types. There are several other types of vervain in Nebraska (prostrate, white, and blue), most of which have similar growth forms and habits as hoary vervain. Hoary vervain is a perennial forb from the vervain family (Verbenaceae) that reproduces by seeds. The taproot (perennial structure) produces individual erect plants. The stem is nearly round, simple or branched above and can be up to 5 ft tall, covered with soft white hairs. Leaves are opposite; leaf blades are ovate with many teeth. The lower surface is pubescent with highly visible veins. Like many other plant species, the overall growth and development depends on the amount and timing of rainfall. Hoary vervain can flower from May to September, with blue or purple flowers positioned on the top of the main stem and branches and producing a two-seeded fruit.

Hoary vervain provides forage for deer while seeds are an important food source for small mammals and upland birds. Native Americans also made a tea from the leaves to treat stomachache. Hoary vervain has no value to livestock because of its low palatability.

Western ragweed (*Ambrosia psilostachya*) is a perennial forb from the sunflower family (Asteraceae) that reproduces both by seeds and rhizome. The rhizome is a horizontal creeping root system growing within the top 5-10 inches of the soil surface. The plants usually grow in sparse groups (patches or clusters). The stem is very erect, up to 3 ft tall, with many branches

and long hairs giving the stem a coarse feeling. Leaves are alternate on the upper part of the stem, opposite on the bottom, with many divisions and teeth. Like many other plant species, the overall growth and development depends on the amount and timing of rainfall. Western ragweed can flower from July to October, with greenish-yellow flowers positioned on the top of the main stem and branches, and produces an inch long bur-like fruits with a single seed within each bur.

Western ragweed provides forage for deer and the fruits are an important food source for upland game-birds, wild turkeys and songbirds. Native Americans also made a tea from the whole plants to treat colds and cramps. Western ragweed has almost no value to livestock because of its low palatability. With other forage limited, it may be eaten. Pollen produced in late summer causes late summer hay fever in many people. Ragweed can also cause skin irritation due to presence of volatile oils. Due to its low value for livestock forage, it is a concern to livestock producers and ranchers.

These weeds can be controlled by various means. Mowing these plants when they are 3-5 inches tall can reduce populations considerably for the season. Mowing can be done one or two times per season depending on the amount of rainfall. One mowing done in mid June can be effective (>75% control) if the season is dry, due to lack of moisture needed for weed regrowth. If the season is wet, an additional mowing is needed in July-August. Herbicides can be also very effective in providing season-long control. Herbicide application should be conducted when plants are 3-5 inches tall, which is usually in early June. The list of effective herbicides, their rates and cost per acre includes: Salvo (12 oz/acre, \$4), Grazon P+D (32 oz/acre, \$8), Weedmaster (32 oz/acre, \$6), Ally (0.25 oz/acre, \$8), and Vista (22 oz/acre, \$8). (SK)

PURPLE LOOSESTRIFE - BIOLOGY AND CONTROL – (PART I)

Purple loosestrife (*Lythrum salicaria*), was introduced to North America from Europe in the 1800s. Since then, it made a slow invasion of wetlands and waterways across Mid-West including Nebraska. It is estimated that about 12,000 acres of Nebraska's wetlands are infested with this plant, mostly along the main rivers. Therefore, there is a need to find a way to stop the spread of this highly competitive weed.

Lost Wildlife: When wetlands are taken over by loosestrife, the natural habitat is lost and the productivity of native plant and animal communities is severely reduced. Song birds will not feed on the loosestrife seeds. Muskrats can not use roots for food or shelter. Waterfowl are affected when dense impenetrable stand of loosestrife eliminates nesting sites and open water. Nearby water bodies are also likely to be affected by this or other types of habitat destruction. There is no room for displaced wildlife. The local fish and wildlife population that can not move is lost forever.

Lost Waterways: By growing vigorously in irrigation canals, ditches, stream banks and reservoirs, purple loosestrife will clog them. The result will be less water carried to the crop land and further negative effects on agricultural production and the end user, the consumer.

Loss Of Recreational Land: The loss of wetlands and wildlife directly influences other activities of the everyday life, especially during summer recreation time. The funds spent on

controlling this weed could be more effectively spent on improving wildlife habitats, boat ramps, camping grounds, etc. With the loss of recreational land, the local communities will also lose revenues from tourism.

A Perfect Plant: Purple loosestrife can colonize and thrive easily because it is a prolific seed producer and has a strong perennial root system (rhizome). Each plant can produce up to 2 million seeds in one season. Seeds can be carried far away by water, wind, some birds and can remain viable for many years. The rhizome grows well in the marshy soils, and can help the spread of the species if washed away by the river water.

There are not many birds, fish or animals that like to feed on purple loosestrife. They feed, however, on other plant species that grow around purple loosestrife. By doing this, indirectly, the wildlife population “eats themselves out of house and home”. As native vegetation get consumed, more space is created for purple loosestrife to spread and produce new plants.

In general, purple loosestrife can grow 3-9 feet tall with several, square stalks per plant. Leaves are on opposite sides of stalk, thin and sharply pointed with the base rounded or hart shaped. In Nebraska, it will flower from July to September. Flowers can range from red to rose-purple in color, an easy identifiable feature. The flowers are arranged on 1 to 3 feet long spikes. The fruit is a small oblong capsule with two valves containing many small seeds. There are many capsules within a spike. Also there are at least several spikes per plant and each spike can produce up to one hundred thousand small seeds. The tiny, light seeds are readily moved by wind. Seeds are also extremely viable and will easily germinate when exposed on bare soil. The root system is very strong and when mature, the root branches become thick and woody.

Can We Control It? - Purple loosestrife has no natural enemies nor other plant competitors here in North America, therefore its spreading is hard to stop. A single control measure can't provide long term, sustainable, management of this weed. However, if the control practices are integrated in a systematic manner, significant advances can be achieved. The biggest challenge is how to stop the spread of the current 12,000 acres of infested wetland across Nebraska. Methods of control must be based on an integrated management approach, which includes:

1. Prevention and Education: Educating the public should be the major part in preventing the spread of loosestrife. There are many people who are not even aware of this weed. For example, several duck-hunters reported that last Fall they used ‘some plants’ with ‘purple flowers’ to build their duck-blinds and to camouflage their boat. Of course, the boat was used to travel up and down the river. Obviously these duck hunters did not know that such a plant was purple loosestrife and that with such an action they actually helped spread the weed. Just to remind the reader, one plant can produce 1 - 2 million seeds. The above was just one example of the need for public education.

2. Manual control: Pulling and digging plants, can be very effective for small areas. Pulling is most effective on plants that are 1-2 years old. Loosestrife spreads vegetatively from stems, therefore, regeneration from discarded plants are likely. They should be dried and burned.

If plant pulling is not feasible, flower head removal helps reduce the spread of the seeds. Simply cut the heads in July and August (before the flower sets seeds). Seed formation starts at the bottom of the flower and progresses to the tip. Before cutting the seed head off, check to see that no ripe seeds are present.

3. Cutting: Cutting can actually spread looestrife if the cuts are not removed because the cut stalk portions can sprout. Therefore all cuts must be removed and burned. Make sure that all plant parts are in a carton or protected site so that they can dry completely without danger of being spread by wind, water, human or animal activity. (SK)

MANAGEMENT TIPS

“The pre-sidedress nitrate test is the best test for determining nitrogen needs in corn after alfalfa or manure applications. Sample the soil 12 inches deep when corn is 6 to 12 inches tall, and have a lab test it for nitrate-N. For more information see <http://www.extension.iastate.edu/Publications/PM1714.pdf>” (DL, BK, CS)

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