

Spring 2013

NORTH DAKOTA

Ag Mag

A Magazine about Agriculture for North Dakota Students



This issue of the Ag Mag focuses on weeds. The Ag Mag's information and activities are geared primarily toward the state's third, fourth and fifth graders. The Ag Mag is distributed three times per year. Subscriptions are free, but if you're not on the mailing list or if you know someone who wants to be added, contact the North Dakota Department of Agriculture at (800) 242-7535 or ndda@nd.gov.

The magazine also is on the Web at www.ag.ndsu.edu/agmag/agmag.htm or through the North Dakota Agriculture in the Classroom website at www.ndaginclassroom.org.

This magazine is one of the N.D. Agriculture in the Classroom Council activities that helps you and other K-12 teachers integrate information and activities about North Dakota agriculture across your curriculum in science, math, language arts, social studies and other classes. It's a supplemental resource rather than a separate program.

N.D. Agriculture in the Classroom Mission

To cultivate an understanding of the interrelationship of agriculture, the environment and people by integrating agriculture into K-12 education

Weeds, WEEDS, weeds!

Weeds grow in yards, gardens, fields and pastures; along roadsides; and by rivers and lakes. They also grow in all shapes, sizes and colors. Some people define a weed as any plant growing where it is not wanted, such as a dandelion in a lawn, field bindweed in a wheat field or musk thistle in a pasture.

Many students may think a dandelion is a flower. Dandelions are considered a weed because they grow in yards, road ditches, fields and many other areas where they are not wanted. Most people do not like the little yellow weed growing in their lawn and will spray them with chemical or dig them out of the ground to kill them.

Some weeds started out as useful plants. For example, purple loosestrife was a beautifully striking purple-flowered garden plant before it aggressively spread. Saltcedar was introduced to the U.S. to reduce erosion along stream banks, but it then took over, displacing native plants. Some corn kernels may drop to the ground during harvest and grow the next year – when the field is planted to wheat.

Idea: Brainstorm weeds with students. Define weed. What weeds do they already know?

If they don't know the weed's name, have them draw a picture of what it looks like.

Idea: Have the students go outside and find as many different weeds as they can. Have them draw a picture or write a descriptive paragraph about the weed(s) they saw.

Answers to What is a Weed?

1. environmental
2. physical
3. wildlife
4. spread

Even though some weeds are pretty, they're harming a lawn, crop, pasture or other vegetation. Those weeds aren't wanted there. Some flowers, such as wild prairie rose and wild sunflower, are considered weeds when growing in an unwanted location. Dandelions probably are the best example for students.

Idea: Wildflower or Grass-Head Babies Activity – Cut an 8- to 10-inch portion of pantyhose, and fill the toe with a couple tablespoons of wildflower or grass seed mixture. Add a mix of potting soil and wood shavings. Tie off the bottom, and have students create a nose and ears using small rubber bands. Draw eyes and a mouth. Place the 'baby' in a Styrofoam cup, moisten it and set the cup in a well-lit window. Water regularly, and watch as it begins to grow grassy or wildflower hair.

Idea: Review with students the basic parts of most plants. Talk about how weeds have adapted to their environments. For example, many perennial weeds have long tap roots to grow deep to reach water.

WANTED:

North Dakota's 11 Most Wanted Weeds

Noxious weeds are plants designated by state or national agricultural authorities as plants that are injurious to agricultural or horticultural crops, humans or livestock. Many times, they are introduced into an area by accident, but some are native plants. Usually, they are plants that grow aggressively, multiply quickly and adversely affect desirable plants. North Dakota has 11 weeds on the state's noxious weeds list.

North Dakota's Noxious Weed Law requires that landowners control noxious weeds. Weed boards are active in all of North Dakota's 53 counties and in six cities (Bismarck, Devils Lake, Dickinson, Fargo, Grand Forks and Mandan). (Source: North Dakota Department of Agriculture)

Idea: Discuss why students think it might be a law to prohibit certain weeds. Discuss, in general, how state laws are made.

Idea: Ask your local weed control officer or Extension agent to speak to your class. Ask a farmer to tell the students about how weeds affect his crop fields and pastures. Ask him to bring samples of weeds, including noxious weeds, if possible.

Definitions:

Noxious – seriously harmful weeds or pests, often legally designated by a government entity

Eradicate – destroy completely down to the roots

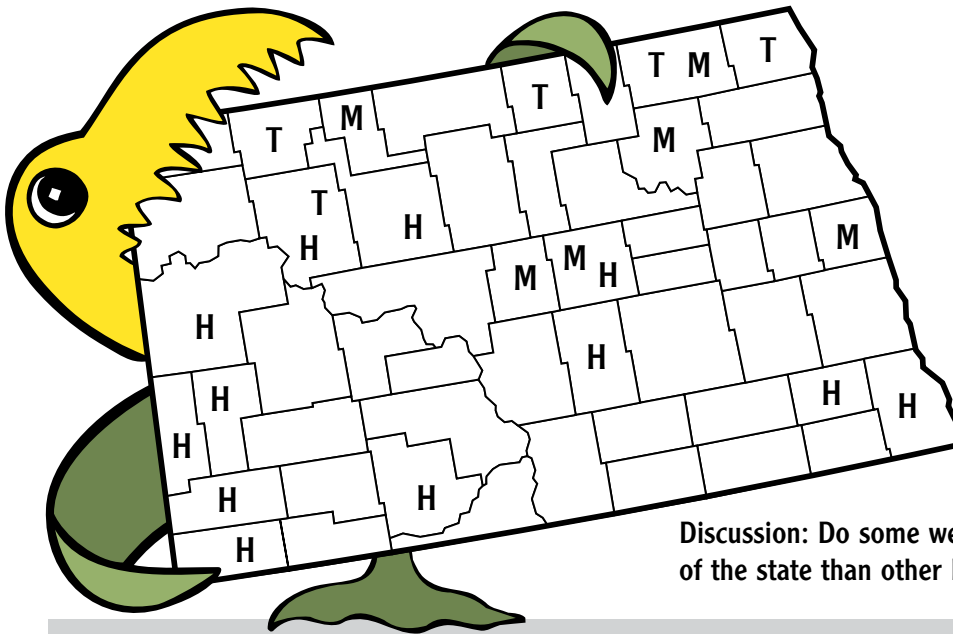
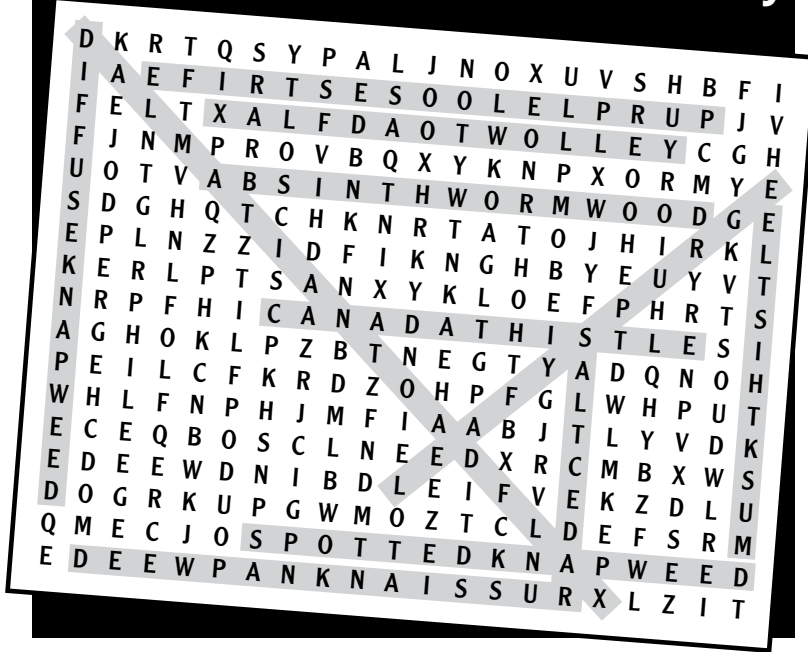
Bract – a modified or specialized leaf growing just below the flower or flower stalk. Bracts often bring attention to small or pale flowers. The poinsettia's tiny yellow flowers are surrounded by vivid red bracts.

Answers to What Weed Am I?

This is a very challenging exercise. The goal is not for students to be able to identify these weeds but rather for them to use their critical thinking skills to read the descriptions and find the characteristics that make each weed unique.

1. Leafy Spurge
2. Saltcedar
3. Musk Thistle
4. Purple Loosestrife
5. Absinth Wormwood
6. Dalmation Toadflax
7. Yellow Toadflax
8. Canada Thistle
9. Spotted Knapweed
10. Diffuse Knapweed
11. Russian Knapweed

Answers to Word Search Activity



Answers to Weeds in North Dakota

Discussion: Do some weeds apparently grow better in some parts of the state than other locations? Why do you think that is?

Idea: Weed Crime File – Wanted: North Dakota Noxious Weeds! Allow students to become “detectives” of North Dakota’s 11 legally noxious weeds.

1. Create a crime file card – Have students pick one of the 11 noxious weeds and research it at the North Dakota Department of Agriculture website at www.nd.gov/ndda/program/noxious-weeds or www.ag.ndsu.edu/pubs/plantsci/weeds/w1103.pdf.

2. Arrange information under headings –

What is its crime? (Why is the weed a problem?)

What does it look like?

Where did it come from?

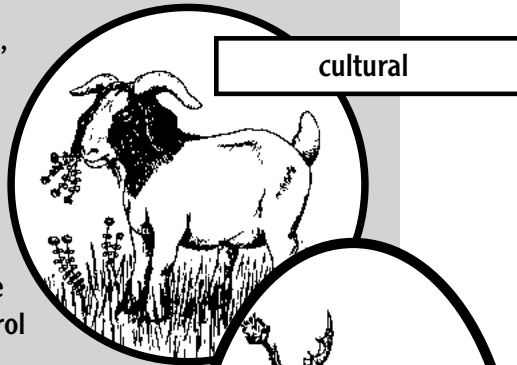
What control method is best to use?

3. Create a wanted poster – Design a wanted poster to go with the crime file card. Encourage students to be creative.

Answers to Control Those Weeds!

Top to bottom: cultural, mechanical, chemical, integrated (note both the hoe and the sprayed herbicide), biological

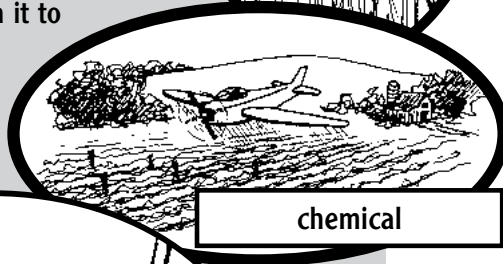
Discussion: How do the students' families control weeds in their yards or gardens? What are some issues a farmer or rancher should consider when trying to decide which weed control method to use? (too many acres to pull weeds by hand, don't use chemicals too close to streams or ponds since chemical may run off into the water, worth it to take care of goats, can afford to hire a spray plane, will beetles survive the winter, etc.)



cultural



mechanical



chemical



integrated



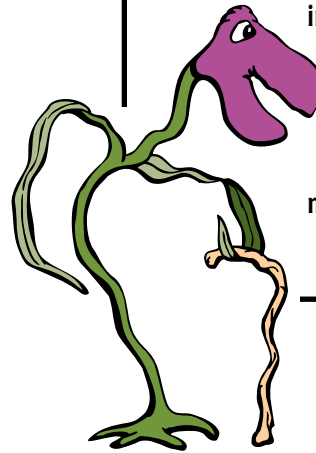
biological

Idea: Have students write a persuasive essay arguing for the best method of the five to use for weed

control in different situations (lawns, gardens, fields, pastures, in town, near a stream, etc.) Have them list pros and cons of the control method selected, and possibly even have a class debate.

Annual, Biennial or Perennial?

Idea: Discuss annuals, biennials and perennials. Have students list some of the plants in your area and research whether they're annual, biennial or perennial. What makes the three different?



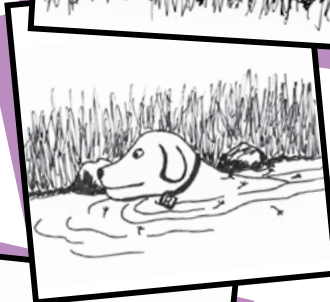
Answers to Math Problems

- 100 acres - 30 acres = **70 acres**
- 45 bushels per acre X 70 acres = **3,150 bushels**
- 3,150 bushels X \$8 per bushel = **\$25,200**
- 1,350 bushels X \$8 per bushel = **\$10,800**
- \$25,200 + \$10,800 = **\$36,000** or 45 bushels per acre X 100 acres X \$8 per bushel = **\$36,000**
- \$25,200 - \$15,000 = **\$10,200**

Idea: Have each student create a math problem that illustrates a farmer's or rancher's loss from weed infestation.

Answers to How Weeds Travel

Rufus is playing in a yard full of dandelions. As the **wind blows**, the white seeds from the dandelions drift across the yard. Dandelion seeds **cling to Rufus' long, shaggy hair**. He gets warm from playing in the hot sun and jumps in the river to cool down. As Rufus jumps into the water, the dandelion seeds attached to his hair end up **floating in the river**. The dandelion seeds travel on the water until they reach the shore. At the shoreline, the seeds germinate, and a new patch of dandelions begins.



Idea: Have students write a short poem or creative story about weed seed traveling by wind, water, hitchhiking on an animal or human, or another method.

Idea: Select a weed that is especially troublesome in your community, and have students develop a public service/ educational campaign to encourage people in the area to eradicate it. Use an audio podcast, Prezi or Glogster to share.

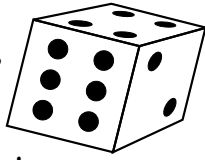
Idea: Discuss plant adaptations. Research how each weed is spread and sustained without a “gardener” to feed and water it. What allows that weed to thrive on its own? How is it transported and reseeded?

Idea: Use global positioning systems to map a weedy area. Trunks with GPS supplies and instructions may be checked out through county offices of the NDSU Extension Service.

Idea: Have students complete a service learning project, possibly keeping up a flowerbed at a nursing home, pulling weeds out of a public right of way or educating the public on what they can do to prevent the spread of noxious weeds.

North Dakota Noxious Weeds Board Game

Have students create their own board games to learn about North Dakota's weeds.



Students may create their own boards or use one from the Web. Search "blank game board." Here are ideas to intersperse on the board:

Your pet ate a noxious weed and got sick

– Go back 1 space

Absinth wormwood spreads more rapidly than you could control

– Go back 1 space

You help your dad spray the lawn for dandelions

– Go ahead 1 space

Weeds took over your field because you forgot to spray for them

– Go back 2 spaces

You accidentally spread weeds on your boots

– Go back 1 space

You picked all of the weeds in your garden

– Go ahead 2 spaces

You turned your sheep out into a pasture to eat the leafy spurge

– Go ahead 1 space

You forgot to tie the dog up and he spread dandelion seed all over the yard

– Go back 2 spaces

Each player rolls the die and moves to a square according to the number thrown. Students must throw the exact number to finish the journey through the state and become the official weed whacker.

Resources

Websites

North Dakota Department of Agriculture – www.nd.gov/ndda

United States Environmental Protection Agency – www.epa.gov

North Dakota State University Extension Service – www.ag.ndsu.edu/extension

Department of Primary Industries and Fisheries, Queensland Government – www.daff.qld.gov.au

The Kids Garden – www.thekidsgarden.co.uk

Landcare Research, Manaaki Whenua – www.landcareresearch.co.nz

Books

A Weed Is a Flower: The Life of George Washington Carver by Alike
ISBN-10: 0671664905 or ISBN-13: 978-0671664909

Invasive Species in a Changing World by Harold A. Mooney
Best for age 15 to adult, ISBN 1-55963-782-x, \$37.50

Saving the Planet with Pesticides and Plastics by Dennis Avery
Best for age 14 to adult and teacher reference, ISBN: 0-55813-069-1, \$19.95

Science with Plants by Helen Edom and Jane Felstead
Best for ages 7-12, ISBN13: 978-0-7945-1485-3, \$5.99

Science Projects About Plants by Robert Gardener
Best for ages 8-14, ISBN13: 978-0-89490-952-5, \$23.95

From Seed to Plant by Gail Gibbons
Best for K to Grade 2, ISBN-10: 0823410250, \$7.99

Plant Adaptations (My Science Library, Levels 1-2) by Julie K. Lundgren
ISBN-10: 1617419370, \$6.99

Online Resources

Look Closer at Biotechnology from the Council for Biotechnology Information
18-page booklet with information and activities that include how biotechnology helps plants be more resistant from pests, including weeds
www.whymbiotech.com/resources/Kids-Biotech-Basics-Activity-Book.pdf

Plants Learning Spot Lessons Download by Carson-Dellosa, \$9.99
www.carsondellosa.com/cd2/Products/Plants/LearningSpotLessonsDownload/109032WB

SMART board lessons about plants, but none specifically about weeds
<http://exchange.smarttech.com>

North Dakota Weed Control Association – an easy weed research website for students
<http://ndweeds.homestead.com/EducationActivities.html>

North Dakota Noxious Weed Law Enforcement Procedures – view the actual law
www.nd.gov/ndda/files/resource/2011NoxWdEnfManual.pdf

TeacherTube – www.teachertube.com

Search for:

– Parts of a Plant

– A Weed Is a Flower: The Life of George Washington Carver

– Muskthistle

North Dakota Agriculture in the Classroom Activities

This **Ag Mag** is just one of the North Dakota Agriculture in the Classroom Council (AIRC) projects. Each issue of the Ag Mag focuses on an agricultural commodity or topic and includes fun activities, bold graphics, interesting information and challenging problems. See past issues at www.ag.ndsu.edu/agmag/agmag.htm.

Send feedback and suggestions for future Ag Mag issues to:

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Another AIRC teacher resource is **Project Food, Land & People (FLP)**. Using the national FLP curriculum, N.D. Ag in the Classroom provides 600-level credit workshops for teachers to instruct them in integrating hands-on lessons that promote the development of critical thinking skills so students can better understand the interrelationships among the environment, agriculture and people of the world. Teachers are encouraged to adapt their lessons to include North Dakota products and resources.

FLP is a 55-lesson curriculum developed for K-12 educators to integrate easily into the classroom. The instructional units address core content and North Dakota state standards and benchmarks with inquiry-based learning activities.

Participants receive the entire curriculum on CD plus North Dakota materials.

See the schedule and syllabi at www.ndfb.org/edusafe/flp. Some stipends are available.

For information, contact:

Gail Bakko
N.D. Farm Bureau Foundation
(701) 371-0361
gails@ndfb.org

The N.D. Geographic Alliance conducts a two-day **Agricultural Tour for Teachers**. The tour includes farm and field visits, tours of processing plants and discussions with people involved in the global marketing of N.D. farm products.

For information, contact:

Marilyn Weiser
N.D. Geographic Alliance
(701) 858-3063
marilyn.weiser@gmail.com

Educators may apply for **mini-grants for up to \$500** for use in programs that promote K-12 agricultural literacy. Individuals or groups such as teachers, 4-H leaders, commodity groups and others interested in teaching young people about the importance of North Dakota agriculture may apply.

The proposed project must be targeted to young people 5-18 years of age and should enhance student knowledge of the contribution made by agriculture. Applications asking for funds for equipment or curriculum as well as those that involve innovative approaches to promoting agricultural literacy will be given preference. Examples of programs that may be funded: farm safety programs, purchase of agriculture curriculum, celebration of agriculture festivals, agricultural-based books for the local library, farm safety days, startup funds for a small greenhouse project, etc. Visit www.ndaginclassroom.org for ideas that can be used to support your project. Applications are due every year in early September.

For information, contact:

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Kirk Olson – McKenzie County Farm Bureau
Wendi Mizer Stachler – North Dakota State University

Statutory Member: Superintendent of Public Instruction **Kirsten Baesler** (Bob Marthaller, representative)



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