



Grower Concerns Over Narrow Leaf Hawksbeard Generates Research

In 2010 Brian Fuhrman brought a plant to the MSU Extension office for identification. The plant was *Crepis tectorum* a.k.a. Narrow leaf Hawksbeard (NLHB) a member of the Asteraceae family. Brian was having trouble controlling it in his crops with glyphosate at 32 ounces per acre. That year we held a weed tour and introduced attendees to the new weed and the troubles it was creating in crop land. NLHB is a facultative winter annual that spreads by seed dispersed in the wind and transported by machinery and animals. Each plant is capable of producing almost 50,000 seeds that closely resemble dandelion seeds.

In just five years this weed has spread throughout Valley and Daniels Counties and now infests over 3 million acres. Currently MSU Extension is investigating control options in three research plots. Additional plot work is being conducted by Dow and DuPont chemical companies.

Two plots are devoted to the study of control options in Conservation Reserve Program (CRP) acres, which serves as an excellent seed source for future crop infestations. The other



Flowers of *Crepis tectorum* (Narrow leaf Hawksbeard) are bold and showy. Flowering occurs in late June to early July but can continue through October if conditions are favorable for the plant.



Peas—Herbicide treatment fall and spring on left, spring only at right.

plots delve into control measures within crop (wheat, peas, lentils, canola, durum, and flax).

Our research has determined that this plant is best controlled in the fall with a combination of glyphosate and a residual herbicide that works within a crop rotation system, followed by another pre-plant application in the spring. Failure to control the rosettes in the fall can result in a yield loss of up to sixty percent in peas.

MSU Extension will be presenting their research findings at MonDak Pulse Day in February 2016 and at the Pulse Plot tour in July 2016.

MonDak Pulse Day Collaborates with Northern Pulse Growers Association

Northern Pulse Growers Association has approached the committee for MonDak pulse day, a workshop dedicated to pulse production in the Montana-Dakota region, to collaborate on promoting pulse crop education. The partnership with NPGA will expand the event to include a trade show and will add additional funds (approximately \$10,000) to support the addition of nationally renowned speakers. Each year between 175 and 200 pulse producers, industry representatives and interested parties attend the one day workshop. Pulse production in northeastern Montana has increased in the past 10 years to make Montana the number one pea and lentil pro-



ducer in 2015. Montana produces 48% of the U.S. dry peas and 39% of U. S. lentils. In Valley County, 68,705 acres were devoted to pulse production in 2014, up from 20,998 planted just 10 years ago. 2016 looks to be a great year for lentil production as prices are up for pulse crops while wheat prices are in decline.

Workshops such as MonDak Pulse Day and the Pulse Plot tour have helped and continue to aid producers in pulse crop production. Seventy-eight percent of participants return to the meetings every year. On average, 84% said they have

learned something new at these seminars that they can use in their own production.

Positive Youth Development

4-H Camp



4-H camping experiences provide a multitude of benefits to youth ranging from increased confidence and greater self esteem to character development and improved decision making skills. The District IV 4-H camp brings together 4-H members from a five county region. Camp counselors train together

to provide guidance and education in a range of project areas, environmental topics, leadership and citizenship. Campers meet new friends enhancing their social skills and grow more independent as they become more adventurous and are willing to try new things in a safe environment.

Youth Teamwork

Effective team workshops, with mission-driven, goal-oriented teambuilding activities prove beneficial to youth groups. Elementary and high school aged youth gain skills which lead them toward the accomplishment of goals. Effective team building development and hands on exercises bring together diverse groups with different skill sets.



Together they learn strategies to accentuate their strengths to enable them to reach a new level of excellence by cooperating and maximizing their efforts in any endeavor they are faced with. These skills do not remain in the classroom but move with them toward team sports, club committees and leadership and into the work force.

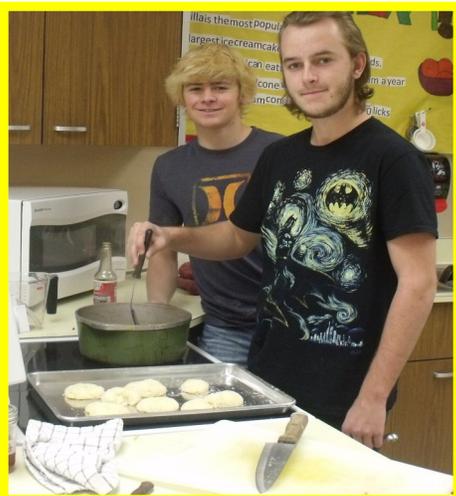
Empowering Youth through Poultry

Children have a natural sense of curiosity about living things in the world around them. Building on this curiosity, 4-H members and other community youth developed an understanding of biology concepts through direct experience with baby chicks, their life cycles and their basic needs. This program introduced science concepts surrounding poultry production in a hand's-on environment. Eleven families with 17 children made the decision to care for the project chickens weekly throughout the summer. This commitment yielded skills in responsibility, decision making, teamwork, cooperation and contribution to the group effort.



Classroom Food Safety

Classroom food safety is an innovative curriculum taught in the Family and Consumer Science classes at the Glasgow High School. The curriculum is designed to teach students the basic elements of food safety. Educating youth plays an important role in the application of food preparation techniques which prevent food-related illness. Students participate in 12 hours of food safety education and are tested to achieve the National Restaurant Association Food Handlers certification. As many young people work in food service positions, this gives them a very marketable skill as they apply for jobs and work in the public sector. Their knowledge of food safety will have a very direct impact on our ability to protect the public from food-related disease.



4-H Afterschool and Junior Master Gardeners

The 4-H Afterschool program provides a receptive audience for everything living and growing in the greenhouse all year. As youth explore the science behind plant growth they are introduced to nutrition and healthy choices as well as growing and tasting new foods. The school garden is the classroom for students in a safe afterschool setting where they take an active role in planting



seeds, caring for the seedlings and enjoying the harvest through the cooperation of the school lunch program.

Afterschool youth learn about pumpkins from the inside out.

Afterschool fun also includes lessons in citizenship, character, history, art and public speaking. Members are encouraged to practice their manners and apply the life skills they are acquiring in everyday situations.



Exploring new tastes is fun when you grow your own food.



Food art takes on a new meaning as youth explore painting their toast to learn about the color wheel, mixing colors to make new colors and tone and tints.

Family and Consumer Science

Arthritis Exercise

Program Benefits All

Relief from pain is the focus of this community based, recreational group exercise and education program. It is designed specifically for people with arthritis and related diseases. The multiple components help reduce pain and stiffness and help maintain or improve mobility, muscle strength and functional ability.



The exercise group reported increased ability to perform daily tasks ranging from manipulating the buttons on their clothing to ease of standing from a sitting position.

Food Preservation

Water bath canning, pressure canning and dehydration classes each stressed the importance of food safety and proper food preservation techniques to community members with the desire to preserve their own meats and garden produce.



Continuing Education Features Historical Unsolved Mystery



Observation skills were tested as participants gathered evidence to solve the crime.

MSU Extension Teacher Workshops provide the opportunity for teachers to enhance their teaching knowledge and methods close to home.

Local educators walked back through time to earn MSU Northern college credits or continuing education units as they became forensic scientists working toward solving a historical mystery. Using their powers of observation, reading comprehension and scientific research skills they gathered information to determine “whodunnit”. This two-day workshop focused on lessons elementary and high school teachers could apply in their own classrooms. Using the true account of Ellen Baumlér’s “The Bishop of All Outdoors” participants gathered historical information to piece together the details of this historical mystery.

Working together in teams, investigators applied what they had read in historical reports of the murder, weighed the scientific evidence, and use their public speaking skills as they presented their theory as to who they thought committed the crime.



Left: Teachers use forensic science to test unknown white powders. Above: teachers observe the crime scene.

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