

The background features a light blue and white color scheme. At the bottom, there are several dandelion plants with thin stems and fluffy heads. Scattered across the upper and middle sections are several solid blue circles of varying sizes. A horizontal band of light blue is visible in the upper third of the image.

WEED CONTROL AND PREVENTION

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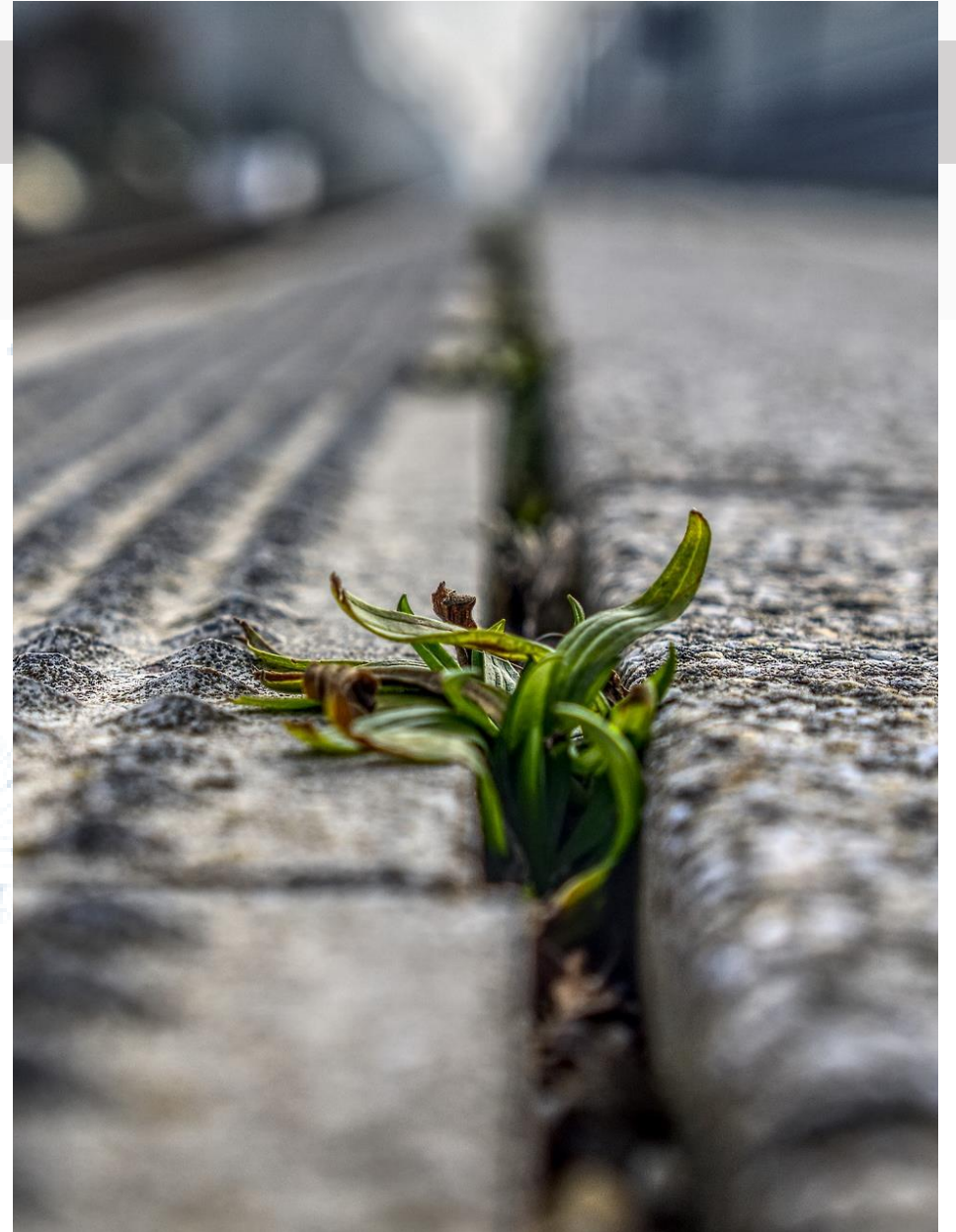
COURSE OBJECTIVES

- What is the definition of a weed
- Why are weeds so difficult to control?
 - Annuals vs. biennials vs. perennials
 - Methods of spread
 - Noxious weeds
- How to control
 - Methods of control
 - Tips to win the weed war
- Common weeds and how to beat them!



WHAT IS A WEED?

- A plant out of place
- An undesirable plant
- An interfering plant
- “A plant whose virtues have not yet been discovered.” Ralph Waldo Emerson
- A plant that has mastered every survival skill except how to grow in rows
- A plant that someone will spend time and money to kill!



WHAT IS A WEED?

- Any plant that interferes with the management objectives for a given area of land at a given point in time.



WEEDS ARE SUCCESSFUL SURVIVORS!

- Excellent reproducers
- They grow FAST
- They are hardy generalists and can live just about anywhere



MULTIPLE WAYS OF SPREADING!

- By seed production
 - Seeds remain viable for YEARS!
 - Produce copious seeds
- Runners or rhizomes/stolons
- They have adapted to being spread in creative ways
 - Animal fur
 - Wind
 - Bird, deer, lizard digestion
 - Wheels



Photo: Missoula County Weed District and Extension

ANNUAL VS BIENNIAL VS PERENNIAL WEEDS

- What is an annual?
 - Plant that performs its entire lifecycle from seed to flower to seed in a single growing season
 - Dormant seed bridges the gap from one generation to the next



ANNUAL VS BIENNIAL VS PERENNIAL WEEDS

- Annual weeds spread by seed only
 - Spurge
 - Crabgrass
 - Purslane
 - Mallow
 - Pigweed
 - Knotweed
 - Henbit



SUMMER ANNUALS

- Summer annuals emerge as soil warms in the spring
 - Germinate and continue to grow throughout the summer
 - Killed by frost in the late fall
- Examples:
 - Crabgrass
 - Knotweed
 - Spurge



WINTER ANNUALS

- Winter annuals germinate and emerge in the late summer or early fall
- Live through the winter, flower the following spring, die back in the summer
- Examples:
 - Shepherd's purse
 - Chickweed
 - Blue mustard



ANNUAL VS BIENNIAL VS PERENNIAL WEEDS

- What is a biennial?
 - Biennial weeds require two years to complete their lifecycle
 - First year they produce a rosette of leafy growth
 - Second year they produce flower and seed, followed by entire plant death



ANNUAL VS BIENNIAL VS PERENNIAL WEEDS

- Biennial weeds tend to spread by seed
- Deep taproots
- Examples:
 - Queen Anne's lace
 - Burdock
 - Mullein



ANNUAL VS BIENNIAL VS PERENNIAL WEEDS

- What is a perennial?
 - Perennials persist for MANY growing seasons.
 - Generally the top portion of the plant dies back each winter and regrows the following spring from the crown and root system
 - First year, establishes root system and vegetative structures
 - Second and subsequent years will flower



ANNUAL VS BIENNIAL VS PERENNIAL WEEDS

- Perennial weeds tend to spread by seed, runners, roots, or multiple ways
- Examples:
 - Dandelion (seed *simple perennial*)
 - Plantain (seed *simple perennial*)
 - Canada thistle (rhizomes/seed)
 - Field bindweed (rhizomes/seed)
 - Bermudagrass (stolon/seed)
 - Quackgrass (rhizome/seed)
 - Clover (seed/stolon)



WHAT IS A NOXIOUS WEED?

- A plant designated by law as undesirable and requiring control
- Non-native and invasive plants
- If you have these weeds on your property you are **REQUIRED BY LAW** to treat!
- Utah's noxious weed list:
<https://ag.utah.gov/farmers/plants-industry/noxious-weed-control-resources/state-of-utah-noxious-weed-list/>
- Field guide available online:
<https://extension.usu.edu/fieldguides/ou-files/Noxious-Weed-Field-Guide-for-Utah.pdf>

NOXIOUS WEED FIELD GUIDE FOR UTAH

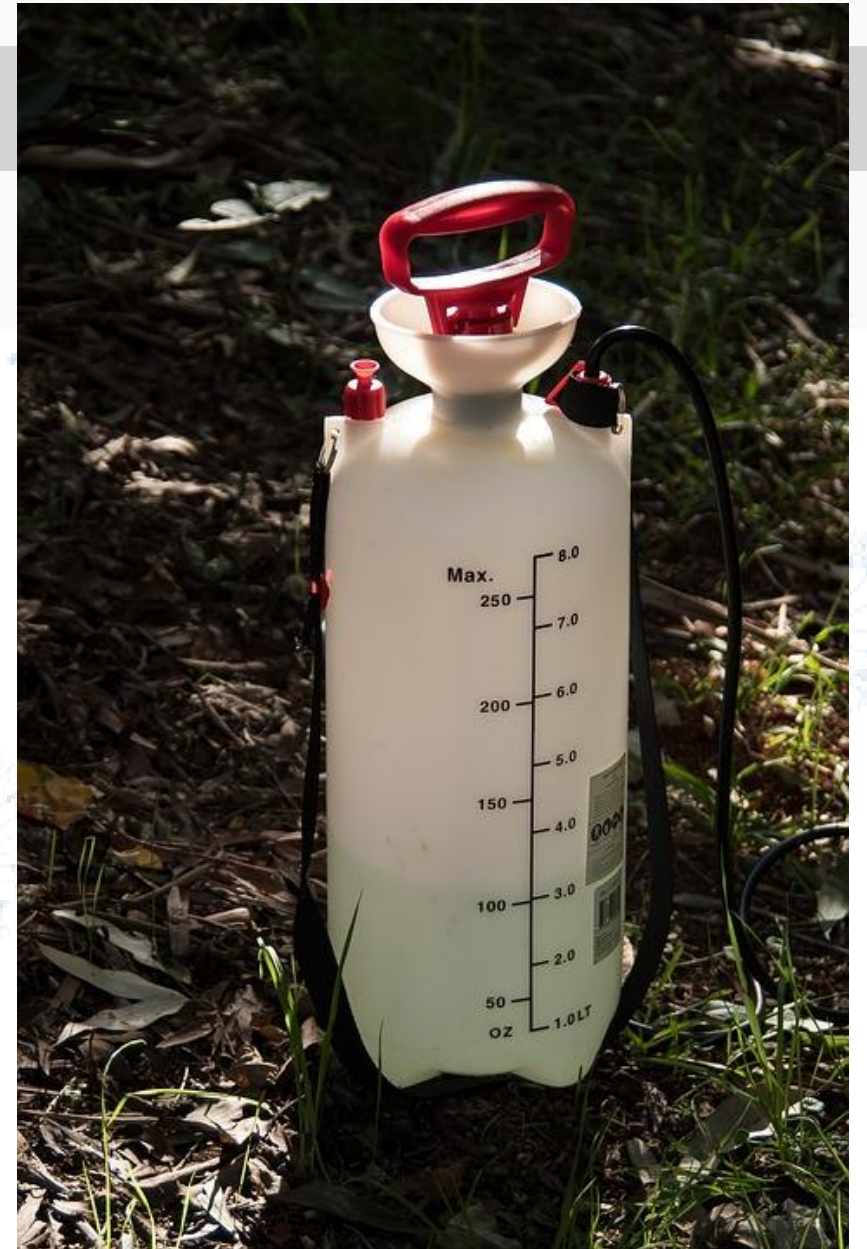


SOME OF UTAH'S NOXIOUS WEEDS

- Bermudagrass*
- Field Bindweed
- Hoary Cress
- Johnson Grass
- Diffuse Knapweed
- Russian Knapweed
- Spotted Knapweed
- Squarrose Knapweed
- Purple Loosestrife
- Medusahead
- Perennial Pepperweed
- Quackgrass
- Leafy Spurge
- Yellow Starthistle
- Canada Thistle
- Musk Thistle
- Scotch Thistle
- Dyer's Woad

CONTROLLING WEEDS

- Understanding life cycle, modes of spread, and how aggressive the plant is will help you treat effectively
- IPM practices should be implemented
- **ALWAYS** follow label directions for any chemical application!!!



COMMON CONTROL METHODS

- Cultural controls (organic)
 - Mulch
 - Solarization
 - Plant competition (cover crops)
 - Improving turf health
 - Weed barrier



COMMON CONTROL METHODS

- Mechanical controls (organic)
 - Hand pulling
 - Tillage
 - Cultivation
 - Flaming



PRE EMERGENT HERBICIDES

- Granular formulations that are usually 'watered in'
- Create a chemical barrier, control for 60-90 days
- As seeds germinate they are killed
- Works well for annual weed control and prevents perennial seed germination
- Lambsquarters, crabgrass, purslane, spurge, etc.
- *Corn gluten meal acts as an organic pre-emergent*



POST EMERGENT HERBICIDES

- Chemical control
 - Selective chemicals
 - Only kills specific weeds
 - Broadleaf control in turf
 - 2,4-D, Triclopyr, MCPA, Dicamba, etc.
 - **WATCH TEMPERATURES AND WIND**
 - Non-selective chemicals
 - Kills everything!
 - Grass-type weed control
 - Glyphosate

ALWAYS READ THE LABEL
BEFORE APPLICATION!



COMMON HERBICIDES

*Table lists common herbicides, not a complete list

Target weeds	Classification	Active ingredient	Tradenames	Notes
Broadleaf weeds	Selective	2,4-D	Weed One, Turlon	Temp. restrictions
Broadleaf weeds	Selective	Mecoprop (MCP)	Weed-B-Gon, 2 Plus 2 Ortho	Temp. restrictions
Broadleaf weeds	Selective	Dicamba	Trimec	Temp. restrictions, avoid tree drip line
Broadleaf weeds (4-way products)	Selective	2,4-D, MCP, Dicamba, Carfentrazone-ethyl	Speedzone	Temp. restrictions
Grassy weeds	Selective	MSMA	Bayer Advanced Lawn	
Grassy, broadleaf weeds	Pre-emergent	Dithiopyr	Dimension	Season long control
Grassy, broadleaf weeds	Pre-emergent	Prodiamine	Barricade, Yard Mastery Prodiamine	Season long control
Grassy, broadleaf weeds	Pre-emergent	Trifluralin	Preen, Monterey Weed Stopper 2	Aquatic, pet toxicity
Broadleaf weeds	Pre-emergent	Isoxaben	Gallery, Galleria	
All weeds	Non-selective	Glyphosate	Roundup, Killzall	

DRIFT AND VOLITILIZATION

- Look for temperature limitations
- 2,4-D and many broadleaf herbicides should NOT be used above 80-85 F
- Do not spray when windy!
- Certain plants are more susceptible to drift (oaks)
- Herbicides (like dicamba) can also move through the soil profile



HOME REMEDIES

- Not always effective
 - Vinegar
 - Salt
 - Soapy water
 - Boiling water
- Bottom line is these methods aren't labeled for weed control.
- Often burn the leafy growth of the weed, but don't kill the roots.
- Can cause additional problems (salt in soil!!!)



9 TIPS TO WINNING THE WEED WAR

1. Change your mindset
 - Pulling weeds can be a meditative practice and stress reliever.
2. Keep supplies handy
 - Keep your weeding tools together in an easy to access place.
3. Have a spare minute? Pull a few weeds
 - Taking on small sections at a time when you have time makes an overwhelming task manageable!



9 TIPS TO WINNING THE WEED WAR

4. Weed throughout the season
 - Weeding is never a one-and-done task. Weeding once a week will make the job easier.
5. Timing is key!
 - Pull when the ground is soft, but not soaked.
6. Start with the right tools
 - Tools that are easy for you to work with and make the job faster are key.

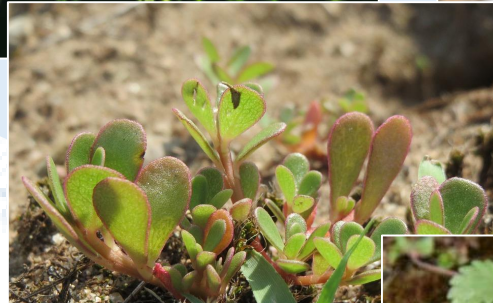


9 TIPS TO WINNING THE WEED WAR

7. Enlist some help
 - Get your kids and spouse helping.
 - Have a neighborhood round-robin party – weed each other's yards, make it social and bring some treats.
8. Keep plantings healthy
 - Healthy plants outcompete weeds.
9. Call on chemicals
 - When the job needs them, use them. Just make sure to read labels and use correctly!



TOP 13 COMMON WEEDS IN YOUR YARD



DANDELION

LIFECYCLE

- Simple herbaceous perennial

MEANS OF SPREAD

- Spreads only through seed
- Deep taproot

CONTROL

- Keep your lawn healthy, mow high
- Mechanical removal, hand-pull
- Broadleaf weed killer (spring and fall)



FIELD BINDWEED AKA MORNING GLORY

LIFECYCLE

- Perennial

MEANS OF SPREAD

- Seed
- Rhizome

CONTROL

- Maintain healthy lawn
- Mulch, cover crops
- Mechanical removal
- Solarization
- Chemical control (pre- and post-emergent)
- Do not cultivate (rhizome spread)



SPOTTED SPURGE

LIFECYCLE

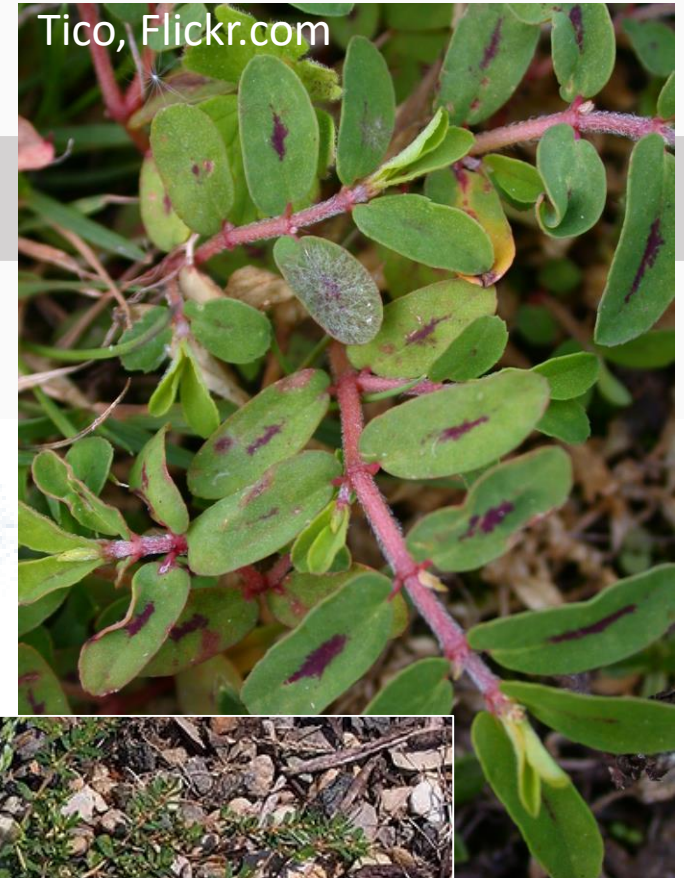
- Annual

MEANS OF SPREAD

- Seed

CONTROL

- Hand-pull
- Mulch
- Pre-emergent herbicide
- Post-emergent selective herbicide



CLOVER

LIFECYCLE

- Cool-season perennial

MEANS OF SPREAD

- Seed

CONTROL

- Hand-pull
- Proper fertilization (More N, less P)
- Keep turf healthy
- Post-emergent herbicide
 - 2,4-D is not always effective
 - Glyphosate (non-selective), MCPP, dicamba, or triclopyr



COMMON MALLOW

LIFECYCLE

- Annual, biennial, or perennial

MEANS OF SPREAD

- Seed
- Wicked taproot!

CONTROL

- Hand-pull
- Mulch
- Healthy turf
- Post-emergent herbicide



PURSLANE

LIFECYCLE

- Annual

MEANS OF SPREAD

- Seed (produced 3 weeks after flowering)

CONTROL

- Hand-pull
- Mulch
- Pre-emergent herbicide
- Post-emergent herbicide



CRABGRASS

LIFECYCLE

- Annual

MEANS OF SPREAD

- Seed (germinate at 55F)

CONTROL

- Healthy turf
- Hand-pull before flowering
- Mow to prevent seed head formation
- Pre-emergent BEFORE seed germination



QUACKGRASS

LIFECYCLE

- Cool-season perennial

MEANS OF SPREAD

- Seed
- Rhizome

CONTROL

- Healthy turf
- Hand-pull before flowering
- Mulch
- Do not cultivate or till (rhizome spread)
- Post-emergent systemic herbicide
 - glyphosate



The Ohio State University, Bugwood.org

PERSIAN SPEEDWELL

LIFECYCLE

- Summer or winter annual

MEANS OF SPREAD

- Seed

CONTROL

- Healthy turf
- Hand-pull
- Mulch
- Pre-emergent herbicide
- Post-emergent herbicide



Robert Videki,
Bugwood.org

HAIRY AND BITTERSWEET NIGHTSHADE

LIFECYCLE

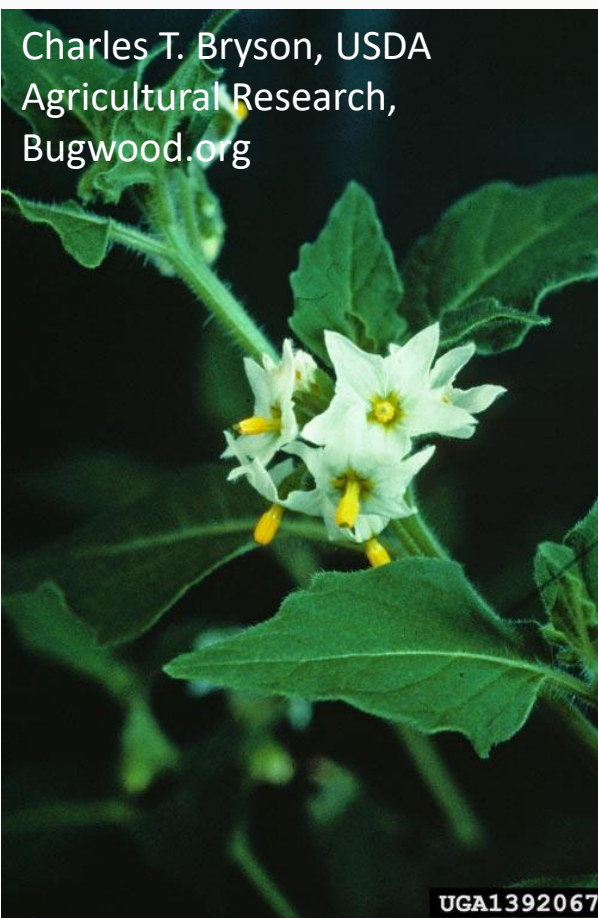
- Woody perennial vine

MEANS OF SPREAD

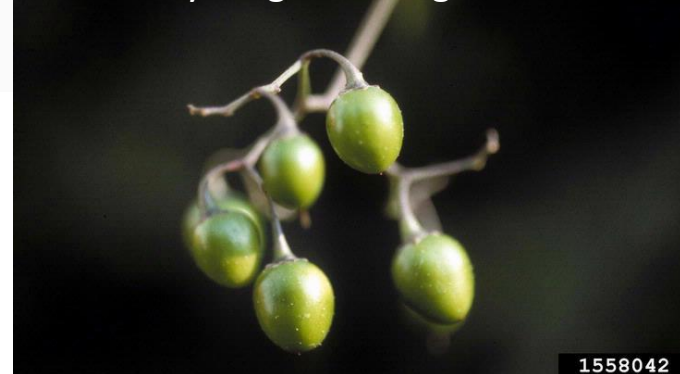
- Seed (from berries)

CONTROL

- Hand-pull
- Post-emergent herbicides (spot treat leaves)



Ohio State Weed Lab, The Ohio State University, Bugwood.org



David Cappaert, Bugwood.org



PUNCTUREVINE

LIFECYCLE

- Summer annual

MEANS OF SPREAD

- Seed

CONTROL

- Hand-pull and sweep up any burrs
- Reduce soil compaction
- Mulch
- Pre- and post-emergent herbicides

**Anyone that complains
about stepping on Legos**



**Has never stepped on
one of these**



WOODSORREL OR OXALIS

LIFECYCLE

- Perennial

MEANS OF SPREAD

- Seed

CONTROL

- Healthy turf
- Hand-pull before flowering
- Pre-emergent herbicide
- Post-emergent herbicide



Evelyn Simak, Geograph.org.uk



Buce Ackley, The Ohio State University, Bugwood.org

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THISTLES

LIFECYCLE

- Biennial or perennial

MEANS OF SPREAD

- Seed, rhizomes

CONTROL

- Mowing (prohibit flowering)
- Mulching
- Hand-pulling, digging
- Removal of vegetative growth
- Herbicides, multiple applications



UGA1459747



Bonsak Hammeraas, NIBIO - The Norwegian Institute of Bioeconomy Research, Bugwood.org

5417146

QUESTIONS?

- Plant/pest diagnostic lab
Tuesday and Thursday 9-Noon
April 1st – October 1st
USU Botanical Center
80 East 725 South
Kaysville, UT

435-919-1336

usudavishotline@gmail.com

A photograph of a red garden trowel lying on the ground. The trowel is positioned diagonally, with its handle pointing towards the bottom right. The background is a blurred green lawn. Overlaid on the image is a quote in white text.

I always arise
from weeding
a different person
from the one
who first
knelt down.

- Bronwyn Lea

ilovedevotionals.com

ADDITIONAL INFORMATION

- A guide to weed lifecycles. (2011). University of Massachusetts Amherst. The Center for Agriculture, Food and the Environment.
<https://ag.umass.edu/turf/fact-sheets/guide-to-weed-life-cycles>
- Activity – weeds, weeds everywhere! (2009). PennState Extension.
<https://extension.psu.edu/activity-weeds-weeds-everywhere>
- Lowry, B.J., Whitesides, R.E., Dewey, S.A., Ransom, C.V., and Banner, R.E. Common weeds of the yard and garden. Utah State University Cooperative Extension, Logan, Utah. <https://extension.usu.edu/fieldguides/common-weeds-of-the-yard-and-garden>