Weeds of Meadows and Their Control

10 September 2024

Kevin Jamison -- Agronomist Mark B. Fiely – Horticulturist



Educational Objectives

1. Learn a strategy to scout for a site's potential problem weeds.

2. Learn five rules of thumb for recognizing some of the worst weeds of meadows.

3. Learn names of some of the most common weeds of meadows.

4. Learn strategies for control of those weeds.

Never forget, meadows are not "set it and forget" landscapes.

You must monitor and control problem weeds.

If You Want This, Control The Weeds.



What is a weed?

A weed is a plant that is out of place.

1. Corn growing in alfalfa.

2. Ragweed growing in a vegetable garden.

3. Pokeweed growing in a residential meadow.

4. Canada thistle growing in a meadow.

When planting meadows remember: Do Not Feed The Weeds!

PSU Soils Lab Crop Code 1053

This code is for CRP Warm Season Grasses plantings, which is a proxy for meadows.

A pH of 5.5 works for most meadow species.

PSU Soils Lab Crop Code 1053

Avoid N as it feeds weeds!

Follow recommendations for:

P (15 to 30 ppm)

K (50 to 100 ppm)

Mg (60 ppm)

If You Want This, Do Not Feed The Weeds



How can you tell what weeds might be a problem on your site?

Places to look for problem weeds 1. Site's existing vegetation.

 Hedgerows and roadsides surrounding the site.
Upslope.

4. Upwind.

5. Upstream.

How do you distinguish the weeds from the meadow species?

Five rules of thumb for recognizing plants to control in a meadow: 1. Plants with spines (thorns)

2. Vines

3. Spiny vines

4. Plants whose leaves remind you of Chrysanthemum

5. Woody Species

In your landscape, if you did not retain species with these characteristics and your seed mix does not have species with these characteristics, then they are weeds.

What weeds will we address with those five rules?

Plants with Spines or Thorns

1. Brambles

2. Cocklebur

3. Horsenettle

4. Jimsonweed

5. Locust

Plants with Spines or Thorns

6. Multiflora Rose

7. Teasel

8. Thistle

Vines

1. Kudzu

2. Porcelain Berry

3. Poison Ivy

4. Virginia Creeper

5. Wild Grape

6. Morning Glory

Spiny Vines

1. Japanese Hops

2. Mile-A-Minute

Plants whose leaves remind you of Chrysanthemums

1. Mugwort

2. Oxeye Daisy

Woody Species

1. Autumn Olive

2. Tatarian Honeysuckle

3.Tree of Heaven

What weeds are not addressed with those five rules?

Other Common Weeds

1. Burdock

2.Common Mullein

3. Crownvetch

4. Curly Dock

5. Giant, Green, and Yellow Foxtail.

Other Common Weeds

6. Japanese Knotweed

7. Japanese Stiltgrass

8. Johnsongrass

9. Nutsedge

10. Pokeweed

Other Common Weeds

11. Ragweed

12. Sericea Lespedeza

13. Velvet Leaf

14. Wild Carrot

If You Want This, Control The Weeds



Weed Control

Weed Control

1. Assess the weeds on the meadow site and its surroundings.

2. Prior to planting, control preexisting weeds.

3. Post planting, monitor and hand pull or spot treat problem weeds.

Assessing Weeds On The Meadow Site

1. Identify persistent/aggressive annual weeds.

2. Identify difficult to control weeds.

Persistent/ Aggressive Annual Weeds

Example: Japanese Stiltgrass 1. Seeds are persistent for three years.

2. Where seeds are present, plants will volunteer where soil is bare or has been disturbed.

Persistent/ Aggressive Annual Weeds

Example: Japanese Stiltgrass 3. Keep "in check" by planting aggressive, fast establishing species.

4. Plant a wildflower only meadow. When JapaneseStiltgrass is observed, treat with a grass specific herbicide. Persistent/ Aggressive Annual Weeds

Examples: Japanese Hops

Mile-A-Minute

When present, plans must be made for annual pulling of these weeds.

Difficult To Control Perennial Weeds

These must be controlled before planting a meadow. 1. Johnson Grass

2. Poison Ivy

3. Mugwort

4. Rhizomatous thistles

5. Japanese Knotweed

Control of these species may take more than a full growing season.

Weeds not controlled prior to planting will be a problem later.

The root system must be killed or there will be regeneration.

Never forget, meadows are not "set it and forget" landscapes.

You must monitor and control problem weeds.

If You Want This, Control The Weeds


Hoeing/hand pulling of weeds is most successful when weeds are young.

Always read and follow herbicide labels.



Weed Control: Canada Thistle

Control by: Hoeing. Spot treat with 2,4-D Round-Up or Garlon.

For additional images see: <u>Canada thistle Cirsium arvense Weed Profile - Weed Identification (vt.edu)</u> <u>Thistle, Canada — Extension and Outreach — Department of Plant Science</u> (psu.edu) Canada thistle | Cornell Weed Identification

Perennial.

Native to southeastern Europe and eastern Mediterranean.

Grows in full sun in waste areas, pastures, hay fields, and other open areas. Dispersed by wind, hay, and manure.

Seeds may persist in the soil for 21 years.



Weed Control: Multiflora Rose

Control by: Hoeing. Spot treat with 2,4-D Round-Up or Garlon.

For additional images see: <u>multiflora rose Rosa multiflora Weed Profile - Weed Identification (vt.edu)</u> <u>Multiflora Rose (psu.edu)</u> <u>elibrary.dcnr.pa.gov/GetDocument?docId=3643152&DocName=MultifloraRos</u> <u>e.pdf</u>

Perennial.

Native to east Asia.

Grows in partial shade to full sun along roadsides, hedgerows, forest edges as well as in abandoned fields.

Seeds dispersed by birds.

Seeds persist in the soil for 20 years.



Weed Control: Brambles

Control by: Hoeing. Spot treat with Round-Up or Garlon.

For additional images see: <u>brambles Rubus spp. Weed Profile - Weed Identification (vt.edu)</u> <u>Brambles — Extension and Outreach — Department of Plant Science</u> (psu.edu)

Perennial.

Native to United States.

Grows in partial to full sun in dry fields, roadsides, clearings, thickets, and open woods.

Dispersed by wildlife.



Weed Control: Horsenettle

Control by: Hoeing. Spot treat with 2,4-D, Round-Up, or Garlon.

For additional images see: <u>horsenettle Solanum carolinense Weed Profile - Weed Identification (vt.edu)</u> <u>Horsenettle | Cornell Weed Identification</u> <u>Horsenettle | CALS (cornell.edu)</u>

Perennial.

Native to southeastern United States.

Grows in partial shade to full sun.

Dispersed by seeds passage through animal digestive tracts and tillage equipment.

Seeds persist in the soil at least three years.



Weed Control: Teasel

Control by: Hoeing. Spot treat with Round-Up or Garlon.

For additional images see: <u>CREP_WS_5_DIWSI (psu.edu)</u> <u>teasel.indd (wisc.edu)</u> <u>stelprdb5410129.pdf (usda.gov)</u>

Biennial.

Native to Europe. Grows on roadsides and meadows. Dispersed by water, mowing, or birds.. Seeds are persistent in the soil for several years.



Weed Control: Jimsonweed

Control by: Hoeing. Spot treat with Round-Up, 2,4-D, or Garlon.

For additional images see:

jimsonweed Datura stramonium Weed Profile - Weed Identification (vt.edu) Jimsonweed — Extension and Outreach — Department of Plant Science (psu.edu) Jimsonweed | Extension | West Virginia University (wvu.edu) Datura stramonium (Datura, Jamestown Weed, Jimsonweed, Stinkweed, Thorn-apple) | North Carolina Extension Gardener Plant Toolbox (ncsu.edu) Jimsonweed - Weeds (msu.edu)

Annual.

Native to North America, Central America, and Caribbean. Grows in waste lots, overgrazed pastures and cultivated fields.

Seeds can be shot 10' from plant. It is also spread by farm equipment and by floating on water.

Seeds persist in the soil for 40 years.



Weed Control: Cocklebur

Control by: Hoeing. Spot treat with 2,4-D Round-Up or Garlon.

For additional images see: <u>common cocklebur Xanthium strumarium Weed Profile - Weed Identification</u> <u>(vt.edu)</u> <u>Common cocklebur | CALS (cornell.edu)</u>

Annual.

Native to North, Central and South America. Grows in cropland, fallow fields, floodplains, and waste areas. Dispersed by seeds sticking to fur or clothing. Seeds can persist 9 years.



Weed Control: Kudzu

Control

Hoeing.

Young plants might be spot treated with Garlon or Round-Up. Additional control information may be found at Mississippi State link below.

For additional images see:

kudzu Pueraria montana var. lobata Weed Profile - Weed Identification (vt.edu) Cornell Cooperative Extension | Kudzu (ccenassau.org) Microsoft Word - pumo1.doc (usda.gov)

Invasive plant profile: Kudzu | UGA Extension Forsyth County Kudzu | Mississippi State University Extension Service (msstate.edu)

Perennial.

Native to Indian subcontinent, and Japan.

Grows in partial shade to full sun on forest edges, open fields, and roadsides. Plants spread primarily by rooting at the node. 46



Weed Control: Porcelain Berry

Control Hoeing. Spot treat with Garlon or Round-Up.

For additional images see: <u>Porcelain Berry: An Unwanted Beauty (psu.edu)</u> <u>Microsoft Word - ambr1.doc (invasive.org)</u> <u>elibrary.dcnr.pa.gov/GetDocument?docId=3643646&DocName=Porcelain</u> <u>berry.pdf</u>

Perennial.

Native to Japan and northern China.

Grows in partial to full sun streambanks, forest edges, and disturbed areas.

Dispersed by water and wildlife including birds.



Weed Control: Poison Ivy

Control: Hoeing. Spot treat with Garlon or Round-Up.

For additional images see: <u>eastern poison ivy Toxicodendron radicans Weed Profile - Weed Identification</u> (vt.edu) <u>Poison-Ivy (psu.edu)</u>

Perennial.

Native to the United States. Grows in partial to full sun in open wood, thickets, and fencerows. Dispersed by birds.



Weed Control: Virginia Creeper

Control: Hoeing. Spot treat with Garlon or Round-Up

For More images see: <u>Virginia creeper Parthenocissus quinquefolia Weed Profile - Weed</u> <u>Identification (vt.edu)</u> <u>https://plants.usda.gov/DocumentLibrary/plantguide/pdf/pg_paqu2.pdf</u>

Perennial.

Native to the United States.

Grows in partial shade to full sun on trees, fencerows, and borders of clearings.

Seeds are dispersed by birds.



Weed Control: Wild Grape

Control by: Hoeing. Spot treat with Round-Up or Garlon.

Perennial. Native to North America. Grows in fence rows and wooded areas. Dispersed by wildlife.



Weed Control: Japanese Hops

<u>Control</u> Hand pull. Spot treat with Garlon, 2,4-D, or Round-Up.

For additional images: <u>elibrary.dcnr.pa.gov/GetDocument?docId=3643007&DocName=Japanese</u> <u>Hops.pdf</u> <u>Japanese Hop (Humulus japonicus) (invasive.org)</u>

Annual.

Native to eastern Asia.

Grows in partial shade to full sun on forest edges, grasslands, hayfields, riparian areas, and roadsides.

Dispersed by equipment, vehicles, water, wildlife and wind.

Seeds persist in the soil at least three years.



Weed Control: Mile-A-Minute

<u>Control</u>: Hoeing. Spot treat with Garlon, 2,4-D, or Round-Up.

For additional images see: <u>Asiatic tearthumb Polygonum perfoliatum Weed Profile - Weed Identification</u> <u>(vt.edu)</u> <u>Mile-a-minute (psu.edu)</u> Mile-a-minute | Turfgrass and Landscape Weed ID (cornell.edu)

Annual.

Native to India and east Asia.

Grows in full sun in wetlands, streambanks, roadsides, and forest margins. Dispersed by equipment, water, and wildlife.

Seeds can persist in the soil for at least six years.



Weed Control: Mugwort

Control by: Hoeing. Spot treat with 2,4-D, Round-Up, or Garlon.

For additional images see: <u>mugwort Artemisia vulgaris Weed Profile - Weed Identification (vt.edu)</u> <u>Mugwort — Extension and Outreach — Department of Plant Science (psu.edu)</u> <u>Mugwort | Extension | West Virginia University (wvu.edu)</u> <u>Invasive Plant Factsheet: Common mugwort | Integrated Pest Management</u> <u>(uconn.edu)</u>

Perennial.

Native to Eurasia.

Grows in upland soils in full sun in disturbed habitats such as roadsides. **Seed is dispersed by wind and plants expand by rhizome.**



Weed Control: Oxeye Daisy

Control by: Hoeing. Spot treat with 2,4-D, Round-Up, or Garlon.

For additional images see: <u>ox-eye daisy.indd (wisc.edu)</u> <u>Oxeye daisy (umn.edu)</u>

Perennial.

Native to British Isles, Europe, and northern Asia. Grows on roadsides, railroad rights-of-ways, in meadows, and waste areas. Seeds are dispersed by wind.



Weed Control: Tatarian Honeysuckle

Control by: Hoeing. Spot treat with Round-Up or Garlon.

For additional images see: <u>Tatarian honeysuckle Lonicera tatarica Weed Profile - Weed Identification</u> <u>(vt.edu)</u> <u>Woody Plants Database (cornell.edu)</u> <u>PCA Alien Plant Working Group - Exotic Bush Honeysuckles (Lonicera spp.)</u> <u>(invasive.org)</u>

Perennial.

Native to central Asia.

Grows in full sun along roadsides, forest edges, and abandoned fields.. Seeds are dispersed by birds.



Weed Control: Tree of Heaven

Control by: Hoeing. Spot treat with Round-Up or Garlon.

For additional images see:

tree-of-heaven Ailanthus altissima Weed Profile - Weed Identification (vt.edu) <u>PCA Alien Plant Working Group - Tree-of-Heaven (Ailanthus altissima) (invasive.org)</u> <u>Tree-of-Heaven (psu.edu)</u>

Perennial.

Native to central China.

Grows in disturbed urban areas, roadsides, rights-of-way, and forests.

Seeds are dispersed by wind for 200 m. It also spreads 50 ft from parent plant by extensive roots.

This species is allelopathic.

Seeds persist in the soil at least 5 years.

(<u>How long do seeds of the invasive tree, Ailanthus altissima remain viable? –</u> <u>ScienceDirect</u>)



Weed Control: Green Foxtail

Control by

Trimming afflicted areas of meadow to half knee height. Treat with Fusilade (a.i. fluazifop) or Arrow (a.i. Arrow).

For additional images see: <u>Green foxtail | Integrated Crop Management (iastate.edu)</u> <u>Foxtails | CALS (cornell.edu)</u>

Annual.

Native to China.

Grows in crop fields, gardens, roadsides, and disturbed areas. Dispersed by animal fur, contaminated seed, manure, mowers, and shoes. Seeds can persist 39 years in soil.



Weed Control: Giant Foxtail

Control by:

Trimming afflicted areas of meadow to half knee height. Treat with Fusilade (a.i. fluazifop) or Arrow (a.i. Arrow)

For additional images see:

giant foxtail Setaria faberi Weed Profile - Weed Identification (vt.edu) Foxtail, Giant — Extension and Outreach — Department of Plant Science (psu.edu) Giant Foxtail // Mizzou WeedID (missouri.edu) Giant foxtail | Integrated Crop Management (iastate.edu) Foxtails | CALS (cornell.edu)

Annual.

Native to China.

Grows in full sun in cultivated areas, disturbed turfgrass, and along gravel driveways.

Dispersed by contaminated seed and manure.

Seeds can persist 39 years in soil.



Weed Control: Yellow Foxtail

Control by:

Trimming afflicted areas of meadow to half knee height. Treat with Fusilade (a.i. fluazifop) or Arrow (a.i. Arrow)

For additional images see:

<u>Foxtail, Yellow — Extension and Outreach — Department of Plant Science</u> (psu.edu) <u>Yellow foxtail | Integrated Crop Management (iastate.edu)</u> <u>Foxtails | CALS (cornell.edu)</u>

Annual.

Native to China.

Grows in disturbed areas, crop fields, gardens, and roadsides. Dispersed by animal fur, contaminated seed, manure, mowers, and shoes. Seeds can persist 39 years in soil.



Weed Control: Ragweed

Control by: Trimming afflicted areas to half knee height.

For additional images see:

<u>common ragweed Ambrosia artemisiifolia Weed Profile - Weed Identification</u> (vt.edu) <u>Ragweed, spp. — Extension and Outreach — Department of Plant Science</u> (psu.edu) <u>Common Ragweed | Cornell Weed Identification</u>

Common ragweed | CALS (cornell.edu)

Annual.

Native to eastern North America.

Grows in moderate to full sun on disturbed sites. Dispersed by hay, manure, and tillage equipment. Seeds persist in the soil for 40 years.



Weed Control: Japanese Stiltgrass

Control by: Hand pulling. Spot treat with Round-Up, Arrow, or Fusilade

For additional images see: <u>Nepalese browntop Microstegium vimineum Weed Profile - Weed</u> <u>Identification (vt.edu)</u> <u>Japanese Stiltgrass (psu.edu)</u> <u>PCA Alien Plant Working Group - Japanese Stiltgrass (Microstegium vimineum)</u> <u>(invasive.org)</u>

Annual.

Native to China, India, Japan, Korea, and Malaysia.

Grows in shade to full sun on moist to dry soils of woods, wetlands, utility corridors, upland meadows, thickets, roadsides, and ditches.

Dispersed by tire and shoe tread, logging equipment, mowers, wildlife hooves. Seeds persist in the soil for six years.



Weed Control: Wild Carrot

Control by:

Hoeing.

Spot treat with 2,4-D, Round-Up or Garlon

For additional images see: <u>Queen Anne's lace Daucus carota Weed Profile - Weed Identification (vt.edu)</u> <u>Carrot, Wild — Extension and Outreach — Department of Plant Science</u> <u>(psu.edu)</u> <u>Wild Carrot | Cornell Weed Identification</u> <u>Daucus carota: Beauty or Beast? // Missouri Environment and Garden News</u> <u>Article // Integrated Pest Management, University of Missouri</u>

Biennial.

Native to Eurasia.

Grows in pastures, orchards, low maintenance landscapes, and waste areas. Dispersed by wind, fur, and clothing.

Seeds persist in the soil for up to 7 years.

(https://www.canr.msu.edu/field_crops/uploads/archive/Controlling%20Wild %20Carrot.pdf)



Weed Control: Common Mullein

Control by: Hoeing. Spot treat with Round-Up.

For additional images see: <u>common mullein Verbascum thapsus Weed Profile - Weed Identification</u> <u>(vt.edu)</u> <u>PCA Alien Plant Working Group - Common Mullein (Verbascum thapsus)</u> <u>(invasive.org)</u> <u>Common Mullein, Verbascum thapsus – Wisconsin Horticulture</u>

Biennial.

Native to Europe, northern Africa, and Asia. Grows in disturbed soils in full sun. Dispersed mechanically near the parent. Seeds persist in the soil for 100 years.



Weed Control: Burdock

Control by: Hoeing. Spot treat with 2,4-D, Round-Up or Garlon.

For additional images see: <u>Burdock, Common — Extension and Outreach — Department of Plant Science</u> <u>(psu.edu)</u> <u>Common Burdock | Whitman County | Washington State University (wsu.edu)</u>

Biennial.

Native to Europe. Grows in pastures, roadside, and waste areas. Seeds are dispersed by animal fur.



Weed Control: Curly Dock

Control by: Hoeing. Spot treat with 2,4-D Round-Up or Garlon.

For addition images see:

Dock, Curly — Extension and Outreach — Department of Plant Science (psu.edu) curly dock Rumex crispus Weed Profile - Weed Identification (vt.edu) Dock, Curly — Extension and Outreach — Department of Plant Science (psu.edu) Curly dock | Cornell Weed Identification Docks | CALS (cornell.edu)

Perennial.

Native to Europe.

Grows in hayfields, pastures, orchards, nurseries and roadsides. Dispersed by wind, water, passage through livestock, infested hay and birds. **Seeds persist in the soil for 80 years.**



Weed Control: Pokeweed

Control by: Hoeing. Spot treat with Round-Up, 2,4-D, or Garlon.

For additional images see: <u>Pokeweed, Common — Extension and Outreach — Department of Plant</u> <u>Science (psu.edu)</u> <u>Pokeweed (purdue.edu)</u> <u>The duality of American pokeweed | Good Growing | Illinois Extension | UIUC</u> Common Pokeweed | Cornell Weed Identification

Perennial. Native to the United States. Grows in pastures, edges of woods, and waste areas. Dispersed by birds. Seeds can remain viable for decades.



Weed Control: Johnsongrass

Control by: Hoeing. Spot treat with Round-Up, Arrow, or Fusilade.

For additional images see: <u>Johnsongrass — Extension and Outreach — Department of Plant Science</u> <u>(psu.edu)</u> <u>Johnsongrass | CALS (cornell.edu)</u> <u>Johnsongrass | Mississippi State University Extension Service (msstate.edu)</u>

Perennial.

Native from southern Europe through India.

Grows in hayfields, rights-of-ways, and abandoned fields.

Dispersed by birds, passage through livestock, infested hay, machinery, and water.

Seeds can persist in the soil up to 6 years.



Weed Control: Japanese Knotweed

Control by: Hoeing. Spot treat with Round-Up, Garlon, or 2,4-D.

For additional images see: Japanese knotweed Polygonum cuspidatum Weed Profile - Weed Identification (vt.edu) Japanese Knotweed (psu.edu) Japanese Knotweed | Cornell Weed Identification

Perennial.

Native to east Asia.

Grows in partial shade to full sun in drainage ditches, along forest edges, stream corridors, and wetlands.

Spreads by rhizomes and seed.



Weed Control: Velvet Leaf

Control by Trimming or hand pulling. Spot treat with 2,4-D or Round-Up.

For additional images see: <u>velvetleaf Abutilon theophrasti Weed Profile - Weed Identification (vt.edu)</u> <u>Velvetleaf — Extension and Outreach — Department of Plant Science</u> <u>(psu.edu)</u> <u>Velvetleaf | Cornell Weed Identification</u> Velvetleaf | CALS (cornell.edu)

Annual. Native to China and India. Grows in crop fields. Dispersed by birds, manure, and tillage equipment. Seeds persist in the soil for 50 years.



Weed Control: Sericea Lespedeza

Control by: Hoeing. Spot treat with Round-Up or Garlon

For additional images see: <u>sericea lespedeza Lespedeza cuneata Weed Profile - Weed Identification</u> <u>(vt.edu)</u> <u>PCA Alien Plant Working Group - Chinese Lespedeza (Lespedeza cuneata)</u> <u>(invasive.org)</u> CHINESE LESPEDEZA (usda.gov)

Perennial. Native to eastern Asia. Grows in full sun in fields, prairies, and open woodlands, Dispersed by animals including birds. Seeds remained viable after 55 years in cold storage.



Weed Control: Crownvetch

Control by: Hoeing. Spot treat with 2,4-D, Round-Up, or Garlon.

For additional images see: <u>crownvetch Coronilla varia Weed Profile - Weed Identification (vt.edu)</u> <u>Crown vetch (umn.edu)</u>

Perennial.

Native to Europe, southwest Asia and northern Africa. Grows along woodland edges, roadsides, and disturbed areas. Dispersed by wildlife and planted by people. Seeds persist in the soil for 15 years.



Weed Control: Nutsedge

Control by: Spot treating with a Round-Up with Garlon

For additional images see: <u>yellow nutsedge Cyperus esculentus Weed Profile - Weed Identification</u> <u>(vt.edu)</u> <u>Nutsedge, Yellow — Extension and Outreach — Department of Plant Science</u> <u>(psu.edu)</u> <u>Yellow Nutsedge Control (purdue.edu)</u>

Perennial.

Native to North America.

Grows in agricultural fields and sites converted from agricultural fields.

Dispersed by movement of infested soil.

Tubers can remain dormant in soil for 10 years.
For images of other weeds:

 Virginia Tech: https://weedid.cals.vt.edu/

2. Penn State: https://plantscience.psu.edu/out reach/plant-id

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ERNST SEEDS



Kevin Jamison kjamison@ernstseed.com

Mark Fiely mark@ernstseed.com