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What is a weed?

• A plant that interferes with management objectives for a given area of land at a given point in time. (A plant out of place)

  » J.M. Torrell
Principal Weed Groups

- Grass
- Broadleaf
- Sedge
Grass

• Jointed hollow stems
• Parallel veins
• Fibrous root systems
• Leaf blade several times longer than wide
• Most seed heads similar to grains
• Example: Foxtail and quackgrass
Grass
Broadleaf

• Showy flowers
• Network of small veins originating from a principal vein that divides the leaf in half
• Strong main root or taproot
• Some have fibrous root systems
• Example: Dandelion and knotweed
Sedge

- Grass-like
- Three-cornered stems
- Leaves extend in three directions
- Neither true grasses or true broadleaves
Annuals

- Germinates from seed, grows, matures, and dies in less than 12 months
- Control with a preemergence herbicide
- Winter annuals grow in the fall and mature the following spring
- Summer annuals grow in the spring and mature in the fall
Annual broadleaf (left)
Annual grass (right)
Two Seasons of Annual Weeds

- **Summer**—these weeds grow and mature when the weather warms in the summer, and are dormant during the cool seasons.

- **Winter**—these weeds grow and mature during the cool season (usually spring and fall), and are dormant during the heat of the summer.
Summer annual (purslane)
Winter annual
(Tinella Mustard)
Biennials

• Take two years to complete life cycle
• Form rosette and store food first year
• Flower second year
• Effective control is applied in the first year
• Early season application before bloom is necessary for control in the second year
Perennials

- Live more than two years
- Effective control is applied to actively growing foliage
- Control early (30 to 40 days after spring growth begins) before plants become perennial
- For many plants spray in the fall
Perennial (field bindweed)
Cool Season

- Grow best during cool periods
- Mature or go dormant during the hottest part of the summer
- Winter annuals are cool season weeds
- Chemical control must be applied before plants set seeds
Cool season (Bur Buttercup)
Warm Season

- Remain dormant until temperatures warm
- Most start growing in April, May or June
- They remain dormant 45 days longer than bluegrass
- They turn brown 30 days before cool season grasses
Warm Season (spurge)
Identification Aids

- Pictures
- Distinctive characteristics
- Growth habits
- Annual, biennial, or perennial
- Cool or warm season
IPM Management of Weeds in Turf

- Mowing
- Fertilization
- Irrigation
- Seed and Sod Selection
- Traffic Management
Types of Weed Control

- Cultural Control
- Mechanical Control
- Chemical Control
Cultural Control

• Remember, all weeds need space, water and sunlight to survive.
Cultural Control

• The best weed control is healthy turf. Many weeds are poor competitors and grow best where turf is damaged
Cultural Control

- Fertilize lawns with the right amount, right nutrients and at the right time.
Cultural Control

• Plant-specific watering (drip irrigation) robs weeds of water.
Cultural Control

• Prevent weeds by not using manures that may contain weed seeds.
Mechanical Controls

- Hand-weeding—the best weed control in many situations.
Mechanical Controls

- String trimmers and mowers help control some kinds of weeds.
Mechanical Controls

• Tilling – works with some weeds prior to planting but never till rhizomatous or stoloniferis weeds as that spreads them.
Solar treatment

- Prior to planting, place clear plastic over weedy area through heat of the summer. This pasteurizes the soil, killing many annual weeds and weed seeds.
Chemical Control of Weeds

• Use chemicals only if other methods won’t work.
Chemical Control of Weeds

• Plant-killing chemicals are poisons. Use with care and treat them with respect.
Chemical Control of Weeds

• **Always read and follow label directions.** The labels on these chemicals are legal documents.
Non-selective Herbicides

- Name brand includes Round-Up. Contains glyphosate or other non-selective chemicals.
Non-selective Herbicides

- Will kill all plants—be very careful of drips, stray spray droplets. Protect beneficial plants with milk jugs, boxes or other devices.
Non-selective Herbicides

- Do not use on windy days. Mornings usually calmer.
- Chemical is rendered ineffective when it hits the soil.
- You can wear cotton gloves OVER rubber gloves, dip in herbicide and hand-rub weeds for spot treatment.
Broadleaf Weed Killers

• These chemicals will kill broadleaf weeds, but not grasses.
Broadleaf Weed Killers

- Typical products are Weed-Be-Gone, 2-4-D, Weed N Feed, etc.
Broadleaf Weed Killers

- Do not use when the temperatures are above 85 degrees, as they vaporize and harm desirable plants.
Broadleaf Weed Killers

Do not use these products around grapes, tomatoes or other sensitive plants.
Pre-Emergent Herbicides

- Chemicals that kill newly-germinated plants.
Pre-Emergent Herbicides

- Some chemicals are short lived, others last all season and some last several seasons so do not use them where you want to seed grass.
IPM Management of Weeds in Turf

- Mowing
- Irrigation
- Fertilization
- Seed and Sod Selection
- Traffic Management
Weed Control in the Lawn

- A healthy lawn is the best weed control. Grass will crowd/shade out most lawn weeds.
Weed Control in the Lawn

- Mow lawn 2.5-3 inches high. Taller grass shades the soil, blocks light and prevents germination of many weed seeds.
Weed Control in the Lawn

- Regular mowing helps control some weeds.
Weed Control in the Lawn

• Water deeply and infrequently. Some weeds thrive with excess water.
Weed Control in the Lawn

- Apply adequate water to keep grass from going dormant grass and allowing weeds to grow.
Weed Control in the Lawn

- Hand-pull weeds after soaking soil if possible, cutting roots off 2-4” below crown.
Weed Control in the Lawn

- Patch bare spots if needed with matching sod from another area of the lawn or with the same seed.
Weed Control in the Lawn

- If seeding lawn, choose seed mix that contains no undesirable grass seed.
Weed Control in the Lawn

• Post-emergent lawn weed killers (2-4-D, Weed-be-Gone), are designed to kill broadleaf plants, but not grass.
Weed Control in the Lawn

• *Do not use when temperatures are higher than 85 degrees or in wind.*
Fertilization

• Fertilization during the growing season strengthens the ability of the grass to compete with weeds

• Light frequent fertilization encourages the growth of the grass and enables it to outcompete the weeds
Watering

- Avoid overwatering or underwatering
- If grass goes dormant in mid summer from lack of water, some deep rooted perennials will appear
- Overwatered grass is invaded by barnyard grass annual bluegrass and other weeds
Seed and Sod

- Use weed free seed when planting
- Check the label for undesirable grass species
- Commercial sod is treated and inspected to reduce weeds
Mechanical Control

- Cut 2-4 inches below the crown on most weeds
- Pull out most species after deep watering
- Undercut around small grass patches with a spade
- Cut a matching replacement piece from an inconspicuous part of the lawn
Preemergence Weed Control

• Prevent germination
• Work best on annuals
• Have little effect on emerged seedlings
Postemergence Chemical Control

- Growth regulators
- Distort growth and rupture cells
- Impair food movement causing death
Liquid Applications
Gravity Flow

- Sprinkler Nozzle
  - Fits on gallon jug
- Cane Tube
  - Dispenser that releases right on weed
- Liquid Spreader
  - Like granular applicators
- Brush and Can
Liquid Application
Pressure Systems

• **Water Pressure or Hose End Sprayer**
  - Difficult to control

• **Air Pressure Sprayer**
  - Never use when wind speed is above 5 mph