

Weed ID and Management

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What is a weed?

Any plant that you *don't want*
...but it's not always straightforward

Why bother?

Competition for:

Nutrients + Water

Space

Sunlight

Reservoir for pests + pathogens



Plant anatomy and biology

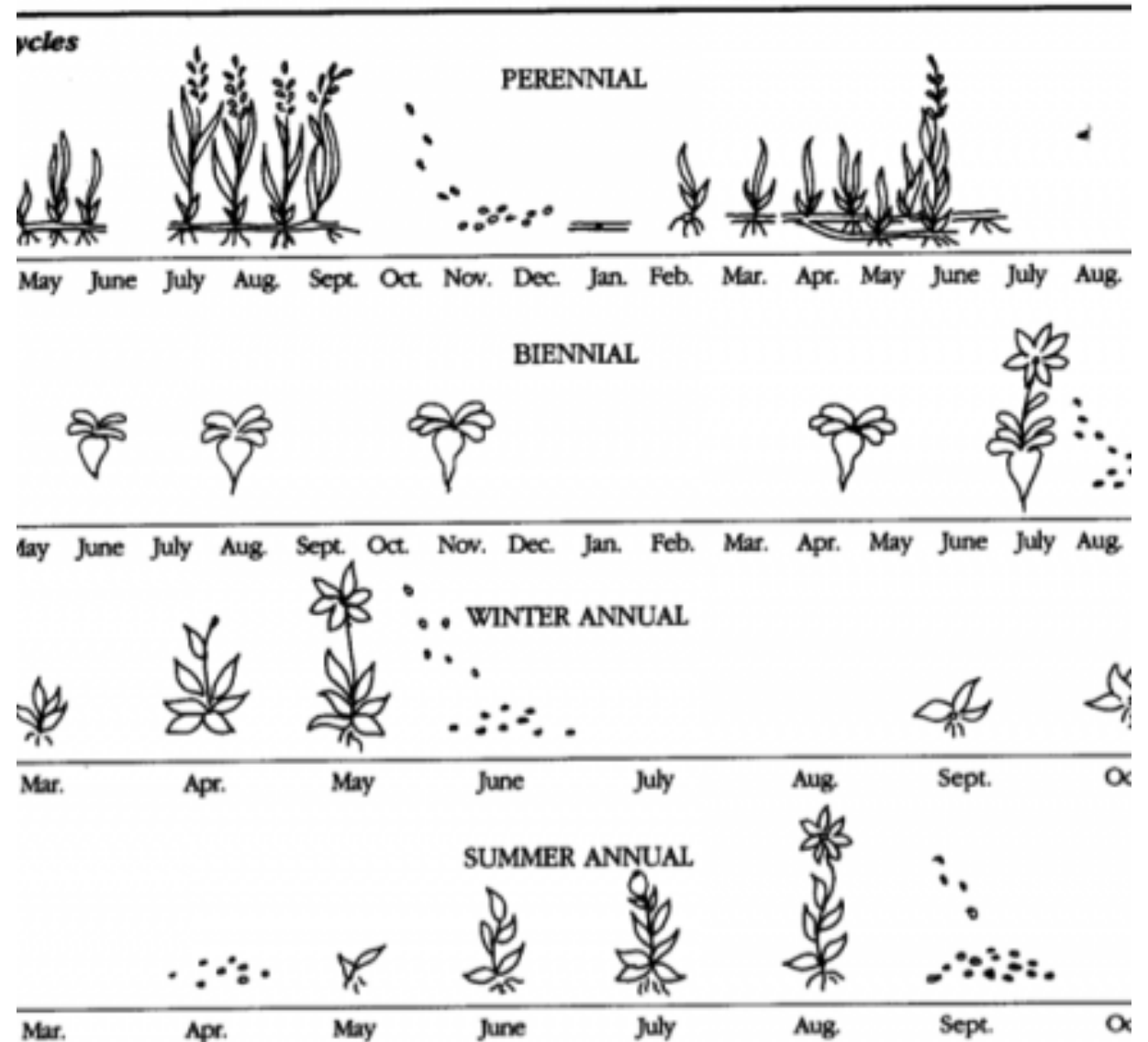
Weed biology:

Perennial

Biennial

Winter annual

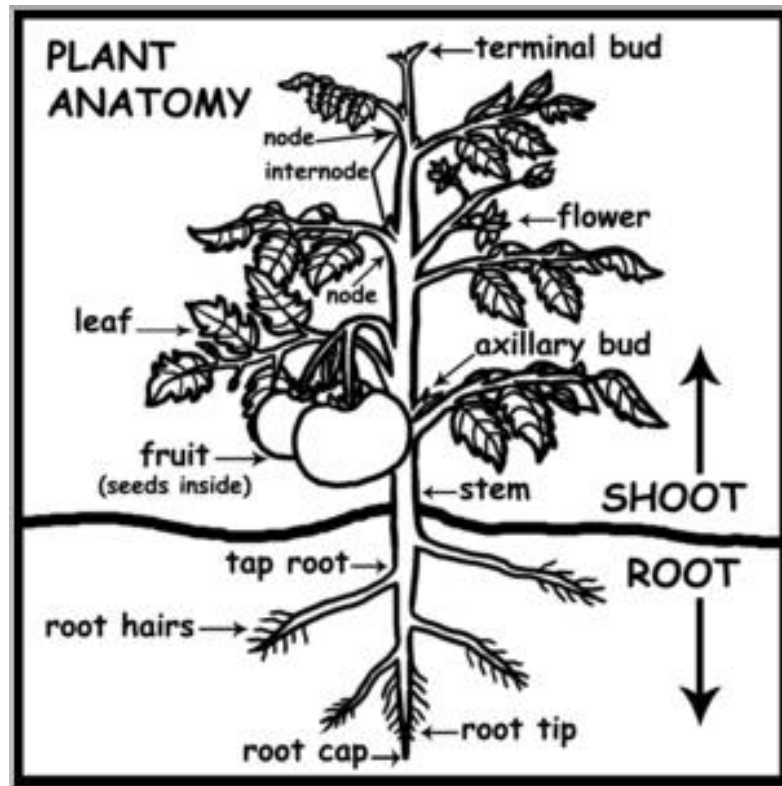
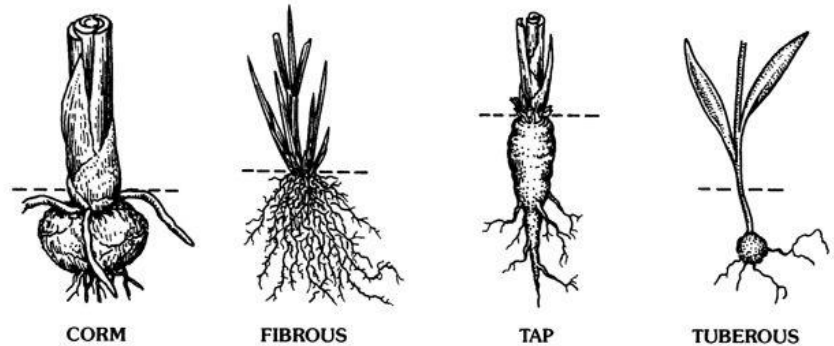
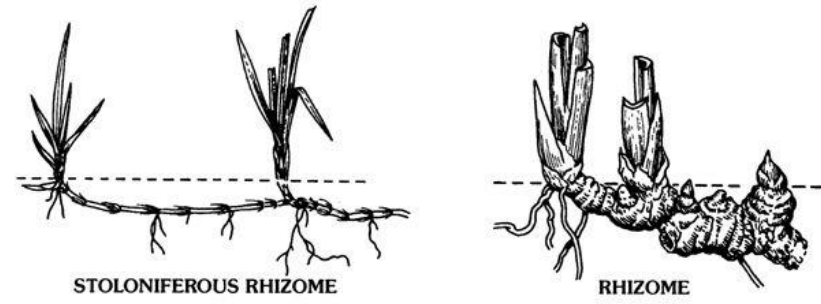
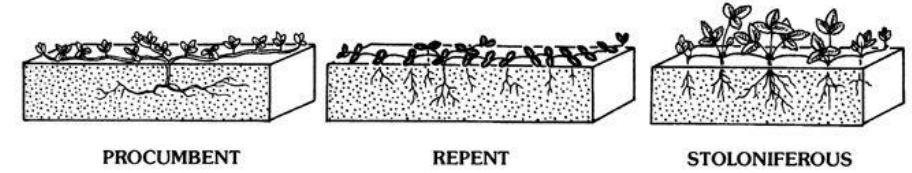
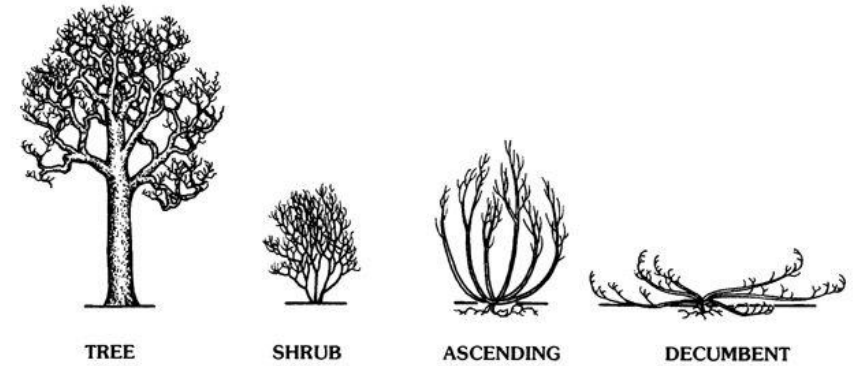
Summer annual



Weed ID

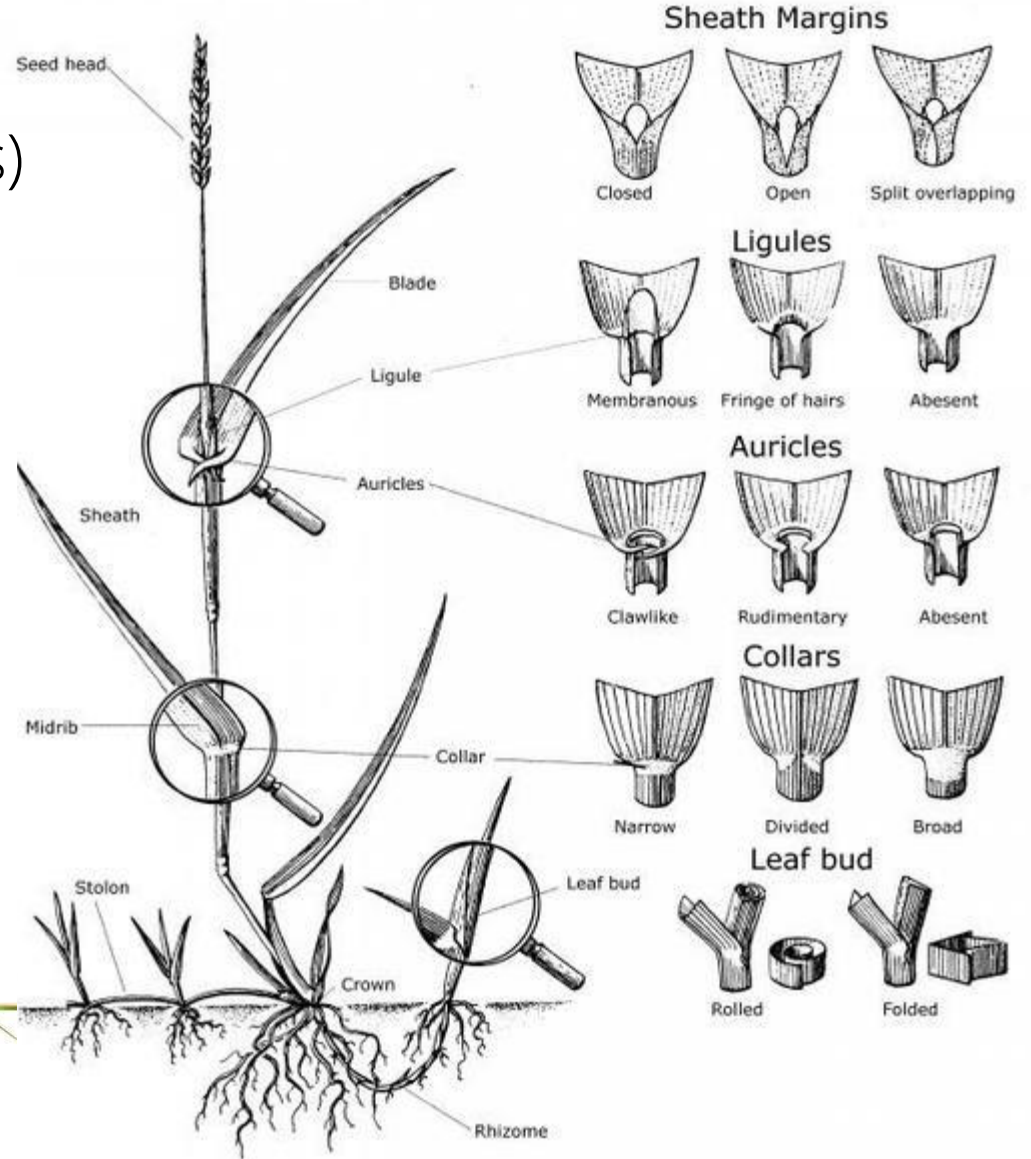
By:
 Taxa (Family)
 Morphology and Habit (rosette, stolon/rhizome, etc)
 Season

PLATE 1: STEM AND ROOT TYPES



Weed ID

Family: Cyperaceae (sedges) and Poaceae (grasses)



Weed ID

Family: Poaceae (grasses)

Species: crabgrass (large and smooth), quackgrass



Large crabgrass



Smooth crabgrass



Summer annual



Perennial

Weed ID

Family: Poaceae (grasses)

Species: barnyardgrass, orchardgrass, timothy



Summer annual



Perennial

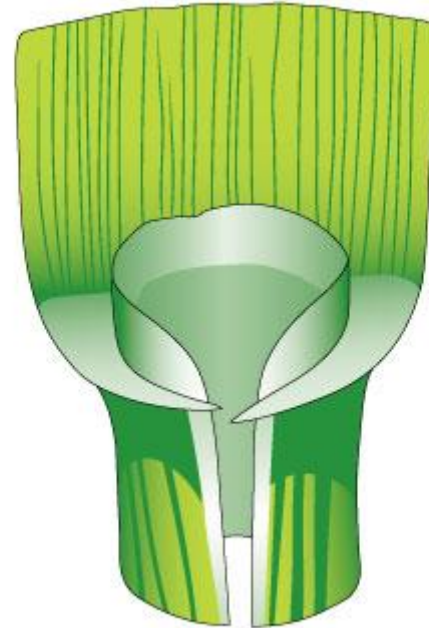
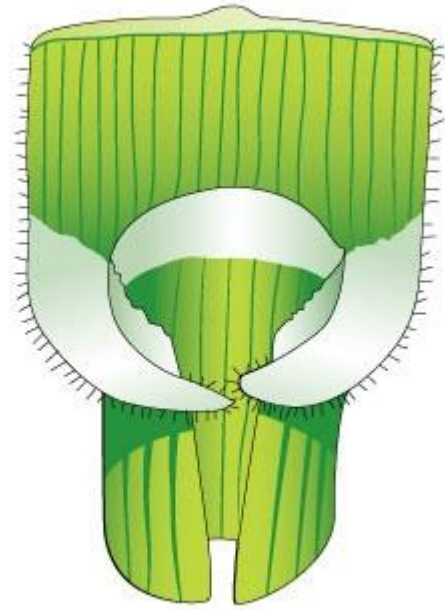


Perennial

Weed ID

Family: Poaceae (grasses)

Genus: *Festuca* (tall fescue, perennial ryegrass)



Perennial



Weed ID

Family: Poaceae (grasses)
Genus: *Poa* (bluegrass)

Roughstalk bluegrass →

Annual bluegrass ↓



Perennial



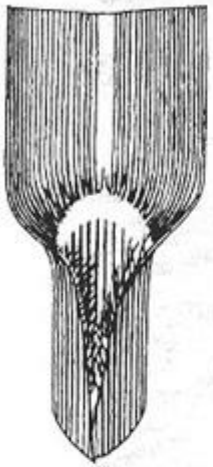
Summer annual



Weed ID

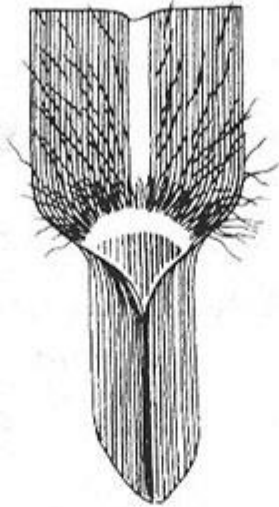
Family: Poaceae (grasses)

Genus: *Setaria* (foxtail)



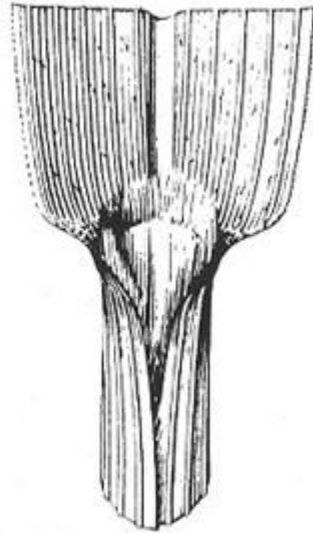
Green foxtail
collar region

Ciba-Geigy Corporation



Yellow foxtail
collar region

Ciba-Geigy Corporation



Giant foxtail
collar region

Ciba-Geigy Corporation



Green foxtail
seedhead

Ciba-Geigy Corporation



Yellow foxtail
seedhead

Ciba-Geigy Corporation



Giant foxtail
seedhead

Ciba-Geigy Corporation

Summer annual

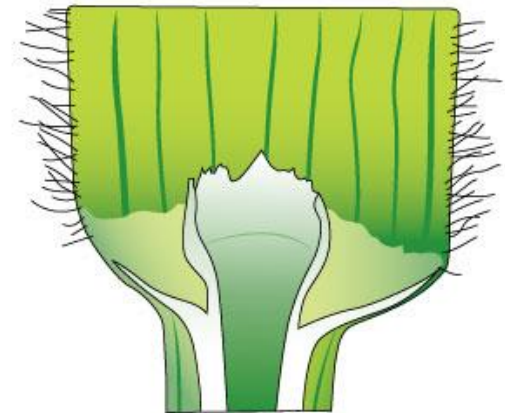
Weed ID

Family: Poaceae (grasses)

Genus: *Bromus* (downy brome, rye brome)



Winter annual

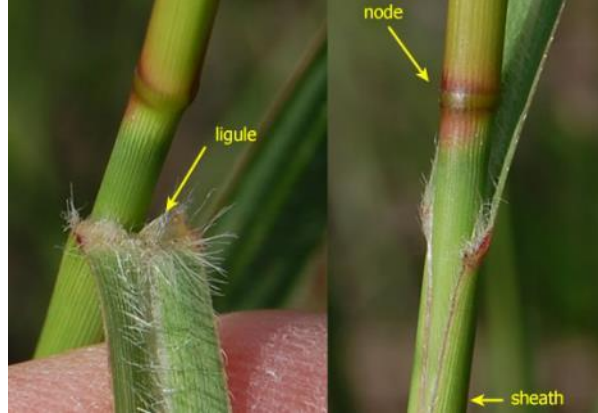


Summer annual

Weed ID

Family: Poaceae (grasses)

Genus: *Panicum* (witchgrass, fall panicum, wild proso millet)



Summer annual

Weed ID

Family: Asteraceae (lettuce)

Species: dandelion, chicory, and hawkweed



Perennial

Weed ID

Family: Asteraceae (lettuce)

Species: dandelion, chicory, and hawkweed



Perennial

Weed ID

Family: Asteraceae (lettuce)

Species: dandelion, chicory, and hawkweed



Perennial

Weed ID

Family: Asteraceae (lettuce)

Species: Sowthistle (annual, perennial, spiny)



Summer annual



Perennial



Summer annual

Weed ID

Family: Asteraceae (lettuce)

Species: Sowthistle (annual, perennial, spiny)



Summer annual



Perennial



Summer annual

Weed ID

Family: Asteraceae (lettuce)

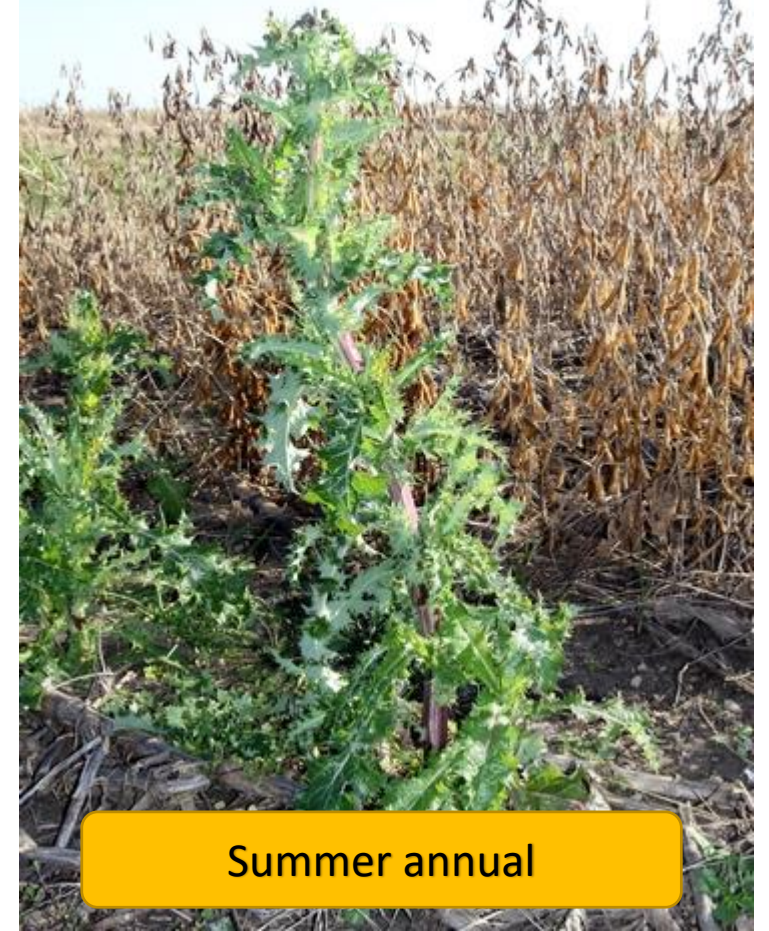
Species: Sowthistle (annual, perennial, spiny)



Summer annual



Perennial



Summer annual

Weed ID

Family: Asteraceae (lettuce)

Species: prickly lettuce



Summer annual

Weed ID

Family: Asteraceae (lettuce)

Species: thistle (bull, Canada, musk)



Biennial



Perennial



Biennial

Weed ID

Family: Asteraceae (lettuce)

Species: thistle (bull, Canada, musk)



Biennial



Perennial



Biennial

Weed ID

Family: Asteraceae (lettuce)

Species: thistle (bull, Canada, musk)



Biennial



Perennial



Biennial

Weed ID

Family: Asteraceae (lettuce)

Species: thistle (bull, Canada, musk)



Biennial



Perennial



Biennial

Weed ID

Family: Asteraceae (lettuce)

Genus: *Centaurea* (knapweed)



5496035

Key to the Knapweed Species

(Adapted from Roché and Roché 1993)

A1. Bracts that surround the flower head are spine-tipped, biennial or short-lived perennial

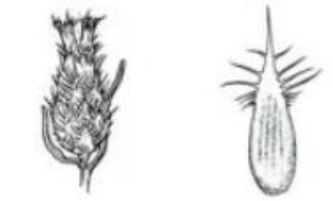
B1. Central, terminal bract bent backwards (curved)

Squarrose knapweed
(Centaurea virgata ssp. squarrosa)



B2. Central, terminal bract recurved

Diffuse knapweed
(Centaurea diffusa)

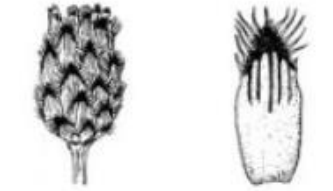


A2. Flower heads without spine-tipped bracts

C1. Edge of bract is comb-like fringe

D1. Fringes of bracts short, drawn out and rigid, bract with brown triangular tip

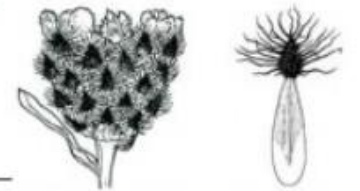
Spotted knapweed
(Centaurea stoebi)



D2. Fringes on bracts as long or longer than the width of the bract, not rigid

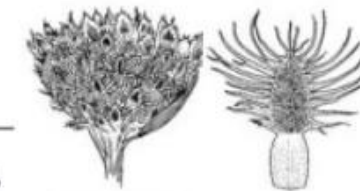
E1. Fringe on bract black

Black knapweed
(Centaurea nigra)



E2. Fringe on bract tan to brown

Meadow knapweed
(Centaurea pratensis)



C2. Bracts without comblike fringe, having a brown, papery, translucent tip

Brown knapweed
(Centaurea jacea)



Biennial

Weed ID

Family: Asteraceae (lettuce)

Species: daisy (horseweed, asters)



Summer annual



Perennial

Weed ID

Family: Asteraceae (lettuce)

Species: daisy (horseweed, asters)



Summer annual



Perennial

Weed ID

Family: Asteraceae (lettuce)

Species: daisy (horseweed, asters)



Summer annual



© 2009 Katy Chayka

Perennial

Weed ID

Family: Asteraceae (lettuce)
Species: common ragweed

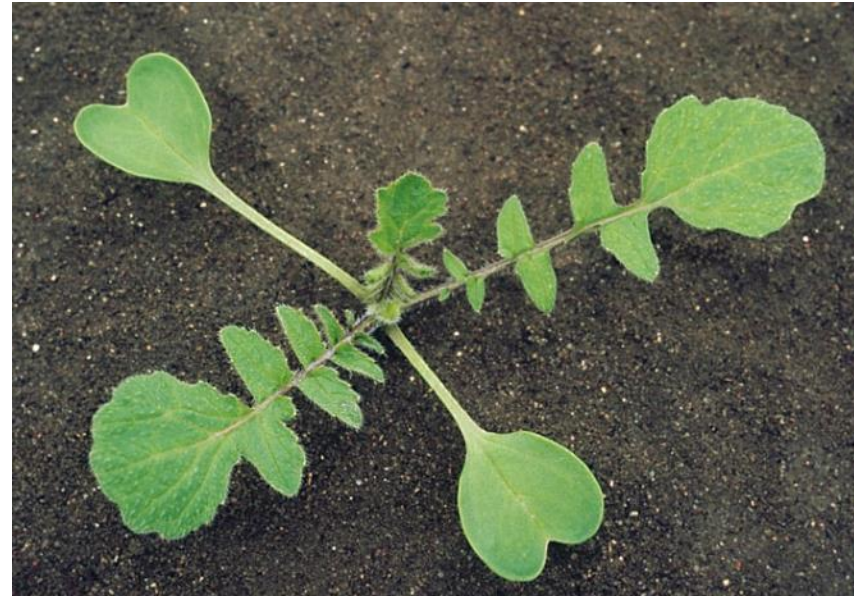
Summer annual



Weed ID

Family: Brassicaceae (mustard)

Species: wild mustard, wild radish, yellow rocket



Winter annual

Weed ID

Family: Brassicaceae (mustard)

Species: wild mustard, wild radish, yellow rocket



Winter annual

Weed ID

Family: Brassicaceae (mustard)

Species: wild mustard, wild radish, yellow rocket



Winter annual

Weed ID

Family: Brassicaceae (mustard)

Species: wild mustard, wild radish, yellow rocket



Winter annual

Weed ID

Family: Brassicaceae (mustard)

Species: shepherd's purse, field pennycress



Winter annual

Weed ID

Family: Brassicaceae (mustard)

Species: shepherd's purse, field pennycress



Winter annual

Weed ID

Family: Brassicaceae (mustard)

Species: pepperweed (field, virginia)



Winter annual

Weed ID

Family: Brassicaceae (mustard)

Species: pepperweed (field, virginia)



Winter annual

Weed ID

Family: Amaranthaceae (pigweed, lambsquarter)

Species: pigweed (powell amaranth, redroot pigweed, smooth pigweed)

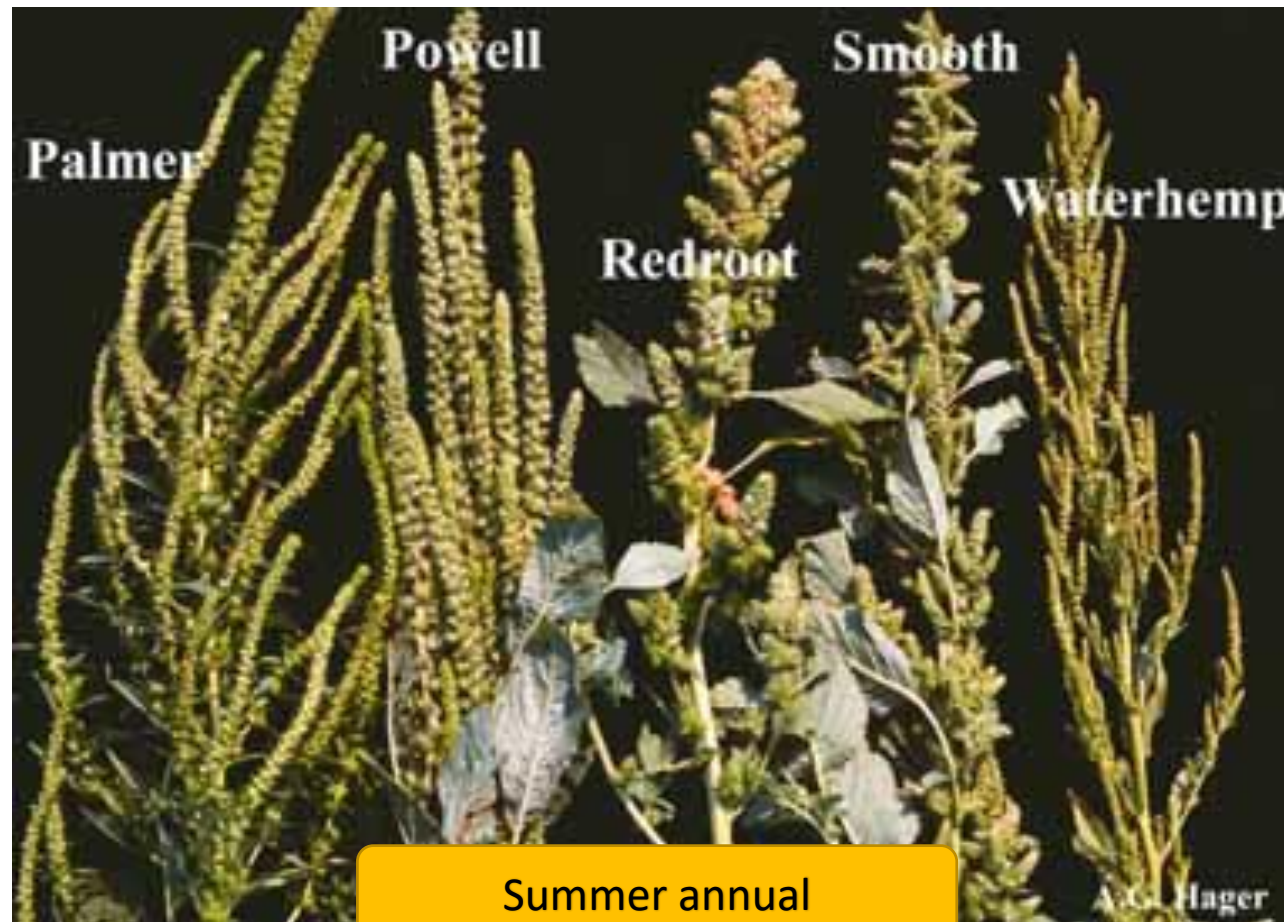


Summer annual

Weed ID

Family: Amaranthaceae (pigweed, lambsquarter)

Species: pigweed (powell amaranth, redroot pigweed, smooth pigweed)



Weed ID

Family: Amaranthaceae (pigweed, lambsquarter)

Species: lambsquarter



Summer annual



Weed ID

Family: Apiaceae (carrot)

Species: wild carrot, poison hemlock



Biennial

Weed ID

Family: Apiaceae (carrot)

Species: wild carrot, poison hemlock



Biennial

Weed ID

Family: Apiaceae (carrot)

Species: wild carrot, poison hemlock



Biennial

Weed ID

Family: Apiaceae (carrot)

Species: wild parsnip, giant hogweed



Biennial

Weed ID

Family: Apiaceae (carrot)

Species: wild parsnip, giant hogweed



Biennial



Perennial

Biennial

Weed ID

Family: Apocynaceae (hemp dogbane and milkweed)



Perennial

Weed ID

Family: Apocynaceae (hemp dogbane and milkweed)



Perennial

Weed ID

Family: Convolvulaceae (morning glory)

Species: bindweed (field, hedge)

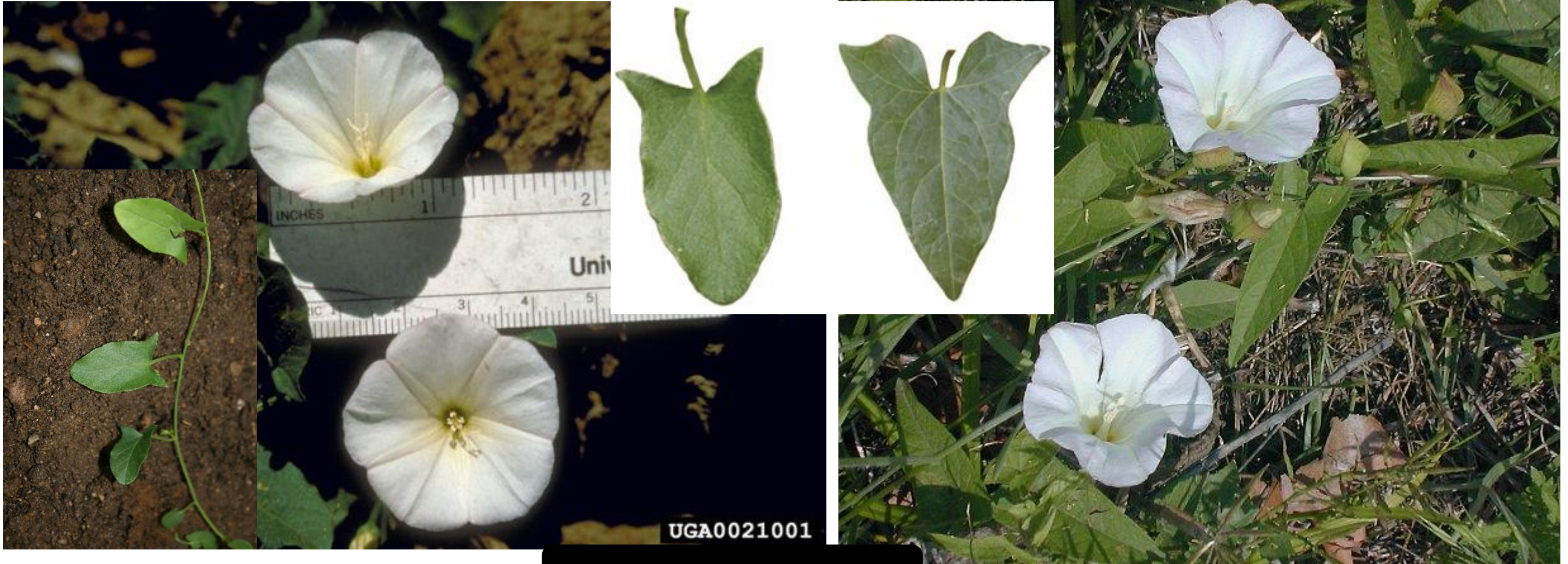


Perennial

Weed ID

Family: Convolvulaceae (morning glory)

Species: bindweed (field, hedge)



Perennial

Weed ID

Family: Fabaceae (legume)

Species: black medic, birdsfoot trefoil



Winter/Summer
Annual/Perennial



Perennial

Weed ID

Family: Fabaceae (legume)

Species: black medic, birdsfoot trefoil



Winter/Summer
Annual/Perennial



Perennial

Weed ID

Family: Lamiaceae (mint)

Species: purple deadnettle, henbit, ground ivy (creeping Charlie)



Winter annual



Winter annual



Perennial

Weed ID

Family: Malvaceae (mallow)

Species: common mallow, velvetleaf



Winter annual



Summer annual

Weed ID

Family: Oxalidaceae (wood sorrel)

Species: *Oxalis stricta*, yellow wood sorrel



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Perennial

Weed ID

Family: Plantaginaceae (plantain, broadleaf and buckhorn)



Perennial

Weed ID

Family: Polygonaceae (buckwheat)

Species: ladythumb/redshank, prostrate knotweed, Pennsylvania smartweed



Summer annual

Weed ID

Family: Polygonaceae (buckwheat)

Species: ladythumb, prostrate knotweed, Pennsylvania smartweed

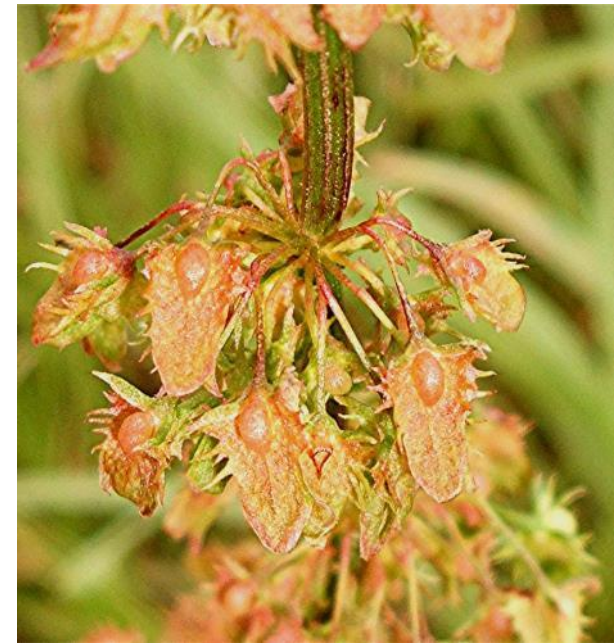


Summer annual

Weed ID

Family: Polygonaceae (buckwheat)

Species: dock (curly and broadleaf)



Perennial

Weed ID

Family: Polygonaceae (buckwheat)

Species: wild buckwheat and mile-a-minute



Summer annual

Weed ID

Family: Portulacaceae (common purslane)



Summer annual

Weed ID

Family: Rubiaceae (bedstraw)

Genus: *Galium* (smooth bedstraw, catchweed bedstraw)



Winter annual



Summer annual

Weed ID

Family: Solanaceae (tomato)

Species: *Solanum ptycanthum* (eastern black nightshade)



Summer annual

Short break (~5-10 mins)

Weed Management

By:

Season

by cropping system

by cultural strategy

Set your garden up for success from the beginning. Hand-pick weeds as a next-to-last resort, not the first

Try chemical means in very specific situations (new ground, out of control rhizomatous weeds, etc)



Weed Management

Managing points of entry



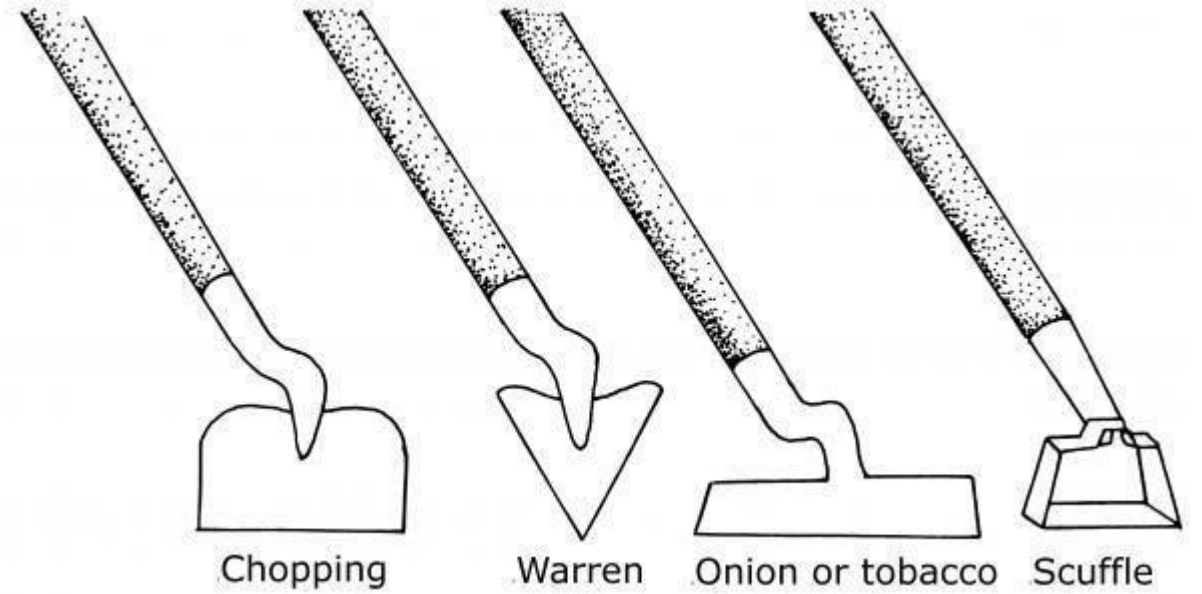
Weed Management

Managing points of entry
Mulching
Reduced tillage/no-dig
Solarization...?
Irrigation strategies



Weed Management

Managing points of entry
Mulching
Reduced tillage/no-dig
Solarization?
Irrigation strategies
Tools



Weed Management

Managing points of entry

Mulching

Reduced tillage/no-dig

Solarization?

Irrigation strategies

Tools

Acceptance! (grass strips)



Weed benefits...

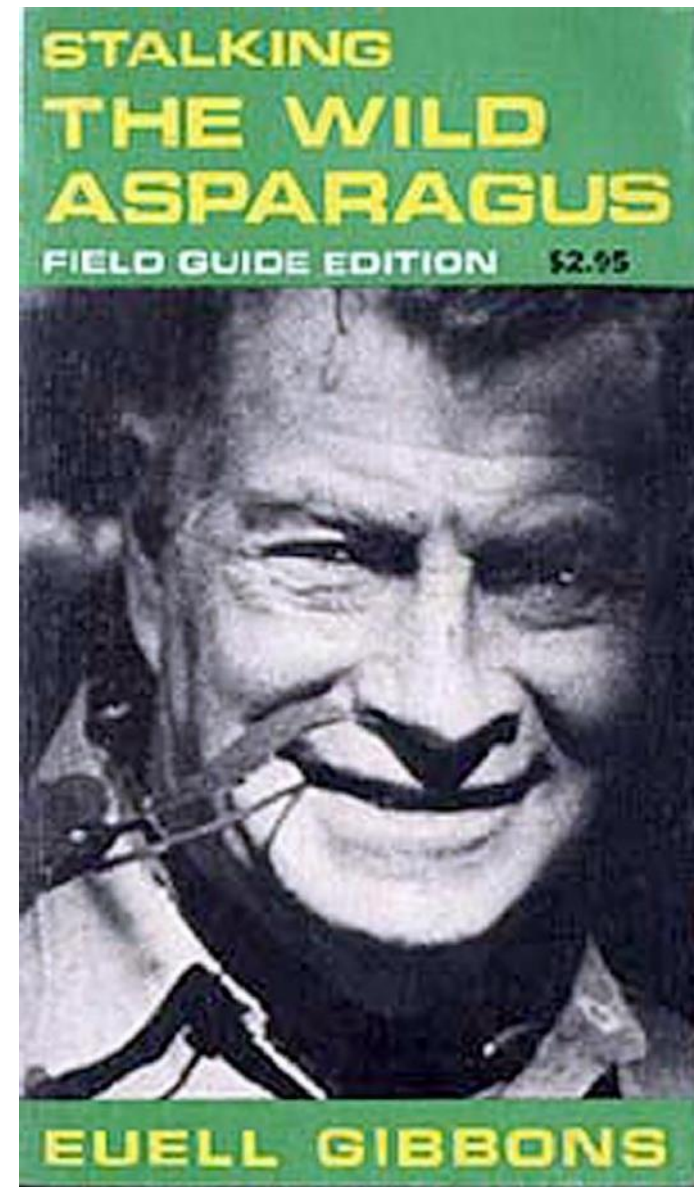
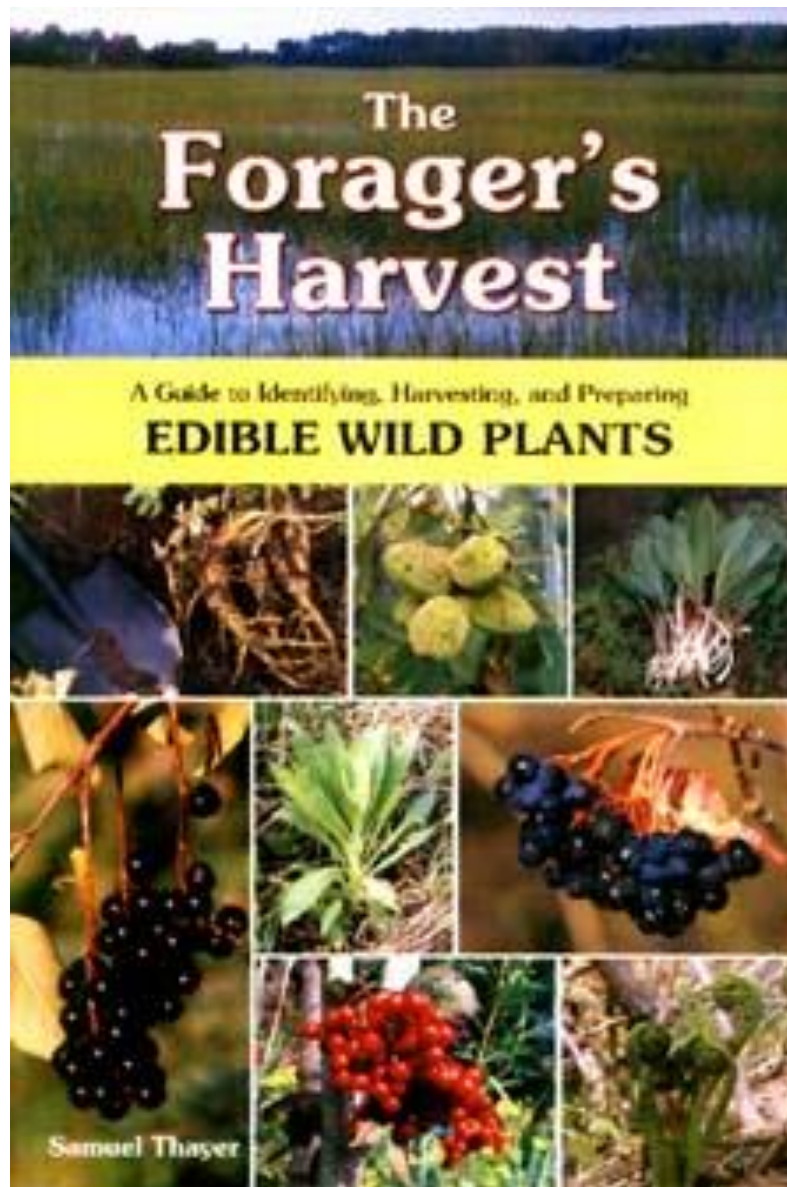
Pollinators (dandelion, chicory)

Harbor for beneficial insects

Trap crops

Indicators of fert, soil
type/issues, etc

FOOD!



Recommended reading

