



Level 1 Master Gardener Training

HERBACEOUS PLANTS ANNUALS & PERENNIALS



This Presentation

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Herbaceous Plants

Herbaceous plants die back to the ground each winter, and are not woody



Definitions

- **Annual** – Completes its life cycle in one year
- **Biennial** – Completes its life cycle in two years; usually a rosette of leaves the first year, then flowers the second year
- **Perennial** – Flower/reproduce for several or many years; often don't flower their first year

Flowering Habits

Names that give hints to a plant's flowering habits:

- **Grandiflora** – BIG flowers, but not many
- **Multiflora** – LOTS of flowers, but smaller
- **Floribunda** – Somewhere in between
- **Milliflora** – Lots of tiny little flowers



Flower Structure

Individual flowers and how they are clustered or arranged (inflorescence) help with identification and design.

Plants within a family have similar patterns.



Flower Structure A few examples



Tubular



Cruciform



Campanulate

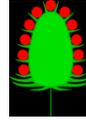


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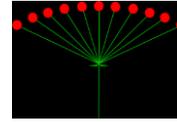


Funnelform

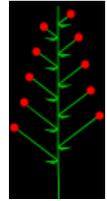
Common Inflorescences



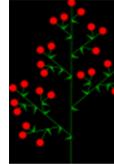
Head



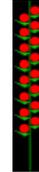
Umbel



Raceme



Panicle



Spike

Flower Structure

The Composite Family is likely to be one of the best represented plant families in your backyard



Garden Design

When designing gardens and plantings as part of your Master Gardener volunteer projects, consider both foliage and inflorescences of annual and perennial flowers.



ANNUALS



Why Use Annuals

- Provide "instant" color in spring and early summer
- Flower all summer
- Bred to be very showy



Annuals

- Adaptable to a wide range of soil and light conditions
- Many uses, including cut flowers, containers, mixed beds, fragrance, butterflies, etc.



Types of Annuals

- **Tender** – easily injured by light frosts (ageratum, celosia, impatiens, moss rose, nasturtium, cleome, zinnia)



- **Hardy** – can survive light frosts without damage (aster, cornflower, cosmos, pansy, marigold, petunia, strawflower, sweet alyssum)

Annual Flowers

- Direct seeded into the planting bed
- Started indoors and transplanted
- Purchased as transplants



Preparing the Planting Bed

- Soil test
- Loosen soil 6-8" deep
- Add organic matter
- Work in fertilizer or amendments based on soil test



Purchasing Transplants

- Look for stocky, sturdy plants
- Inspect for insects or diseases
- Avoid leggy, droopy plants and yellowed leaves
- The best annual flower transplants have not yet flowered!



Planting Annuals

- Plant annuals outdoors after danger of frost, except for those that can tolerate light frost (e.g., pansy, snapdragon)

Don't hurry — plants won't grow until soil and air are warm enough



Planting Annuals

- Harden-off for 1 – 2 weeks before planting if necessary
 - Protected from sun and wind
 - Gradually move to more & more exposed sites
 - Half days at first



Planting Annuals

- Best conditions are cool with low light
 - Cloudy day
 - Evening
- Shade but don't cover completely



Transplanting

- Carefully remove plant from pot or cell
- Gently tease open the root ball to encourage roots to grow into surrounding soil



Transplanting

- Prune away any damaged stems or roots
- Plant to same level as growing in container
- Firm soil around roots and stem
- Water thoroughly and frequently at first



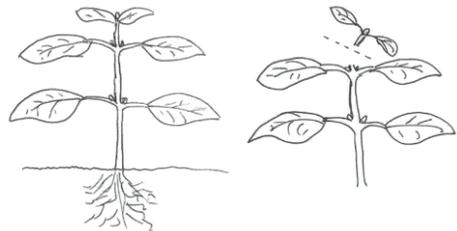
Maintaining Annuals

- Annuals need 1-2 inches of water per week
- Tall annuals may need to be staked
- Fertilize annuals more often than perennials, usually twice during growing season



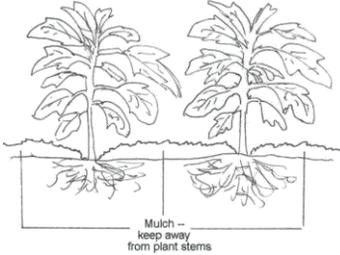
Maintaining Annuals

Pinching leads to bushier plants



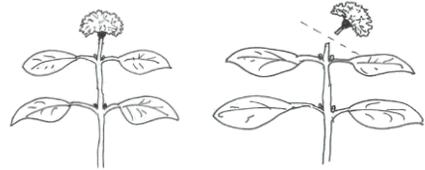
Maintaining Annuals

Mulch to reduce weeds, but keep mulch away from plant's stem



Maintaining Annuals

Deadheading is removing flowers after they start to fade and **BEFORE** seeds mature. It encourages more blooms.



Containers



MUST HAVE DRAINAGE!

Growing Medium



Varieties

- Patio types
- Determinate types
- Dwarf types



Water & Fertilization

- Less soil, needs watering more often, washes fertilizer away so needs fertilizing more often



Containers

- **Fertilize frequently**
 - Slow release twice per season or liquid every 3-4 weeks
 - Use a balanced fertilizer in soilless mixes (10-10-10 or 10-5-10)
- **Water**
 - Containers dry out faster
 - Water until runs through drainage hole, but don't let container stand in water
 - Soluble salt buildup can damage plant roots



Containers

- Planting mix (medium)
 - soilless is best; garden soil compacts
- Use “filler” in bottom of large
- Must have drainage hole(s)
 - perched water table



PERENNIALS



Why Use Perennials?

- Don't have to re-plant every year
- Changing interest throughout season
- Huge variety



Perennials

- Lower maintenance
- Can propagate to get more plants
- Can be solutions for tough sites
- Winter interest, wildlife food



Types of Perennials

- **Tender** – often grown as annuals
- **Half-hardy** – Die back to ground in our winters, but farther south, will leaf out on above ground stems (aka sub-shrubs)
- **Hardy** – die back to ground in winter but come back in spring



Selecting Perennials

Choose perennials based on:

- Soil and moisture conditions
- Light
- Bloom time
- Plant size
- Hardiness

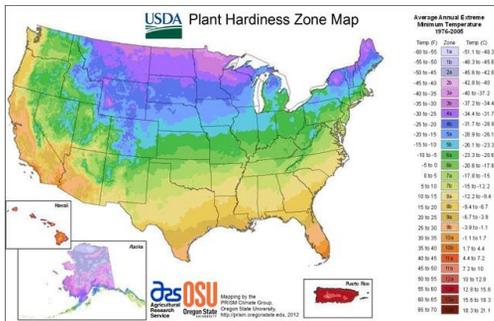


What Will Live Here?

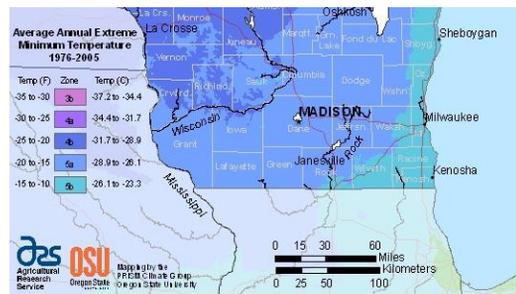
- Be sure to choose perennials hardy to your zone
- Zones can be pushed by planting in microclimates or protected sites, or by special winterization such as mulching



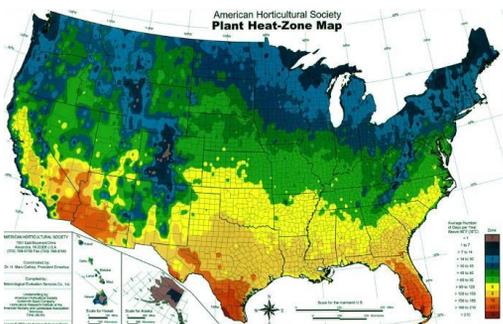
Cold Hardiness



Cold Hardiness

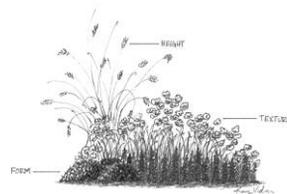


Heat Tolerance



Perennials

Because most perennials bloom for only a short period each year, choose them for their form, foliage, texture and structure



Perennials

- Coordinate bloom times with what's blooming or providing interest at the same time
- Perennials are available from ½-inch tall creeping thyme to 8-foot tall hibiscus



Perennials

- Started from seed, either direct seeded or started indoors, just like annuals
- Purchased as transplants in a wide variety of container sizes
- Purchased as bare root stock



Purchasing Perennials

- Purchase potted perennials that are bushy and compact
- Buy from reputable sources:
 - Local garden centers
 - Mail order companies, the more local the better;
 - if plants arrive too early, store in 50-degree conditions, keeping material moist; or a cold frame
- Potted perennials can be planted any time during the growing season, but try to provide at least a month before winter weather arrives

Preparing the Soil

- Same as for annuals, and be sure to add organic matter now—you can't add it later like you can for an annual bed
- Loosen soil deeper than for annuals, 8-12"



Planting Perennials

- Be sure to allow enough space for spread
- Plant to level growing in container
- Water thoroughly until established
- Beware of settling soil that could leave crown exposed



Maintenance of Perennials

- Weeding – use mulches, pre-emergent herbicides, hand weeding/cultivating
- Water during droughts – mulch to hold moisture
- Fertilizer may be helpful – in early spring, usually only nitrogen
- Tall plants may need staking
- Pinching – bushier
- Disbudding – remove secondary buds
- Deadheading - may re-bloom
- Monitor for diseases and insects
- Winter mulch new plantings after ground freezes



Dividing Perennials

- When flowering diminishes
- Invigorates older plants that may be dying out in the center (donuts) or flowering less
- Use elsewhere in garden – discover new combinations
- Donate to the SEWMG Plant Sale!!



Dividing Perennials

- Divide spring blooming perennials in fall
- Divide summer and fall blooming perennials in spring



Dividing Perennials

Dividing clumps such as daylilies ...



Dividing Perennials

and hosta



Separating



BULBS



Bulbs, Corms & Tubers

The term “bulb” often includes corms, tubers, and rhizomes



Why Grow Bulbs?

- For bright showy flowers, especially in early spring
- Easy to grow
- Relatively inexpensive
- Combine well with other plantings



Bulbs

“Bulbs” are underground food storage organs that contain large amounts of stored carbohydrates

- **Hardy bulbs** – can stay through winter
- **Tender bulbs** – must be stored inside over winter



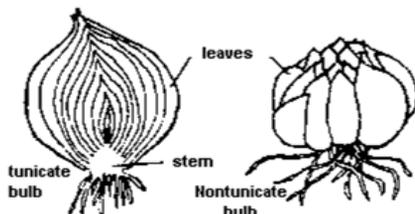
Bulbs

- Most bulbs are imported from the Netherlands and inspected by US Dept. of Agriculture to be disease and pest free
- Bulbs are useful in beds, containers, grassy plantings, cutting gardens, naturalized areas, rock gardens, and for forcing indoors



True Bulbs

- Have many leaves compressed in the bulb
- Have a flower primordium
- Include tulips, daffodils, and lilies



Corms

- Are swollen stems
- Have nodes, internodes and lateral buds growing from the nodes
- Include gladiolus and crocus



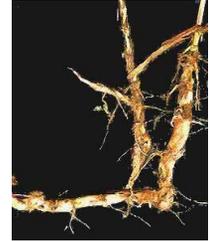
Tubers

- Swollen roots
- Have one to several eyes near the old stem
- Tubers without eyes will not grow
- Include dahlias and tuberous begonias



Rhizomes

- Swollen underground stems
- Include bearded iris and cannas



Purchasing Bulbs

Look for large bulbs

- The larger the bulb, the more food is available to develop blossoms
- Very small bulbs may not bloom the first year
- Bulbs are often graded and sold by circumference; bigger bulbs cost more



Purchasing Bulbs

- Avoid root plate damage, which may result in poor root growth
- Avoid moldy or shriveled bulbs, which may indicate poor quality, loss of stored water or food, or disease; bulbs should be firm
- Avoid soft, sour-smelling or lightweight bulbs, which may indicate a fungal disease and the bulb will not bloom

Purchasing Bulbs

- Purchase from a reputable source. Mail order is popular and you can find a wide variety of cultivars in catalogs
- Buy in quantity for better prices
- Be wary of sales. Late season sales may mean lower quality bulbs



Storing Bulbs

- Bulbs can be held temporarily at 60-65°F
- Don't store bulbs in produce bin of fridge or garages - fumes may damage
- Hold over winter if not planted
 - In refrigerator or in straw in Window well or box.



Planting Bulbs

- Hardy bulbs are usually planted at a depth of 2-3 times their height
 - In fall until the ground freezes
- Tender bulbs are planted close to the soil surface
- Mix in a slow-release fertilizer high in phosphates, such as bone meal



Growing Bulbs

- Most bulbs need well-drained soil
- Protect bulbs from wildlife
- Most bulbs require at least 6 hours of full sun each day
- Many soil types are tolerated, but most bulbs prefer soil rich in organic matter – dry in summer



Bulb Maintenance

- Fertilize with a complete fertilizer right after bulbs bloom



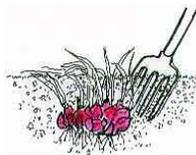
Bulb Maintenance

- Allow foliage of spring-blooming bulbs to die back on its own. The plants must perform photosynthesis to store food in bulb and form flower bud for next year. Called ripening.
- Once foliage is yellowed and dying back, you can remove it.



Bulb Maintenance

- Bulbs such as daffodils, snowdrops and grape hyacinths and some tulips multiply
 - divide when crowded
- Bulbs are best divided and transplanted when they are dormant, in late June or July or in September or October.
 - Label locations when flowering



Storing "Summer" Bulbs

Summer "bulbs", such as dahlias, tuberous begonias, gladiolus, caladiums and cannas, must be dug in fall and stored inside over winter

- Dig after foliage has yellowed or frozen back
- Rinse soil and let bulbs dry off
- Store glads and cannas in paper bags
- Store all others in slightly damp peat moss
- Temperatures of 55-65°F and slight humidity are best
- Check bulbs periodically over winter for mold or dryness

Forcing Bulbs

Spring bulbs can be forced indoors in containers to bloom during winter

- Plant bulbs in shallow containers in fall



Forcing Bulbs

- Water containers and place in complete darkness and 40-45°F temperatures
- Remove containers after 12-16 weeks (depending on type of bulbs) and place in bright location



Herbaceous Plants

For the most interesting gardens, combine trees, shrubs, perennials, annuals, and bulbs!

