



Right Plant, Right Place, Right Purpose!

Plant selection by Julie Weisenhorn, Extension Horticulture Educator

SUSTAINABLE LANDSCAPE DESIGN ...

- Emphasizes plant health and longevity.
- Is important regardless of budget or maintenance level.
- Unsustainable landscapes:
- Lack of soil preparation
- Improper plant selection.

THE 5 CONSIDERATIONS OF SUSTAINABLE DESIGN

- Functional - What you do in your landscape.
- Maintainable - How you take care of your landscape.
- Environmentally sound - Landscaping to minimize long-term impact.
- Cost effective - Doing things the right way to and your wallet.
- Visually pleasing - What do you want to see in your landscape?

BINOMIAL NAMING SYSTEM

- Genus – the first word in a plant's scientific name, capitalized; associates plant with others
- Species – second word, descriptive; give a nod to discoverer/breeder; lowercase
- A species occurs naturally in nature

AVOID RELYING ON COMMON NAMES TO SELECT PLANTS

Common name can be adopted by people to refer to various plants.

- Varieties
 - A variety occurs in nature.
 - Seedlings will most likely come true to type.
 - Will have same unique qualities as parent plant
 - *Geranium sanguineum* var. *striatum*
 - Resource: Haynes, C. "Cultivar vs. Variety", ISU Hort News, Feb. 6. 2008
- Cultivars
 - A "cultivated variety" – selected by humans for plant qualities
 - May be chance seedlings ("sports") or mutations
 - Seldom breed true to type as seed requires recombination of parental genes.
 - Propagated by vegetative cuttings, grafting tissue culture (cloning).
- Hybrids
 - Offspring of two plants of the same or closely related species differing in one or more genes.
 - Plants are hybridized in hopes of creating a new plant with desirable parental traits.
 - Flower color, growth habit, disease resistance
 - Parent plants are chosen with specific traits in mind.

IN SUSTAINABLE DESIGN, PLANTS ARE SELECTED BASED ON:

- Design use - *The plant's design purpose in the landscape – tree, key, specimen, accent, group, mass*
- Plant elements of design - *A plant's characteristics and optimal growing conditions.*

Design use: Trees

- Purpose: Structure – the “bones” of the landscape
- Create shade / sun areas.
- Influence all other plants you will choose.

Design use: Key

- Purpose: To rounded to soften architectural features and hardscape.
- Visible
- Planted individually or groups of three – “key group”.
- Combine large and small key plants.
- Help transition from building to ground.
- No pyramidal plants.

Design use: Accent

- Purpose: To guide a visitor through a landscape.
- Form specific
- Year-round emphasis
- One or three plants
- Often evergreen
- Lots of texture
- Foliage color and bark
- A focal point (not always a plant)
- If used incorrectly, accent plants draw attention to the harsh edges of a building...

Design use: Specimen

- Purpose: To provide seasonal interest in flowers, foliage, and fruit.
- Planted individually.
- May go in / out of season.
- May be a key plant as well.

Design use: Species /cultivar group

- Purpose: To provide a backdrop to highlight other plants.
- Same species or cultivar.
- Help transition.
- Odd number
- Individual plants are distinguishable.

Design use: Mass

- Purpose: To create unity through repetition.
- Same species
- Individuals indistinguishable.
- Read as one element.
- Finest texture

IN ADDITION TO DESIGN USE, PLANTS ARE SELECTED BASED ON PLANT ELEMENTS OF DESIGN.

Type of plant

- Woody plants - Trees, shrubs, groundcovers, woody vines
- Herbaceous plants - Annuals, perennials, biennials, wildflowers, ferns, herbs, groundcovers

Size

- Always select for mature size
- Measure your space available for a plant.
- Plants too large for space will:
- Grow into neighboring plants, buildings, over windows, block doorways, walkways, paths, patios, and power lines.

Texture - Coarse, Medium-coarse, Medium, Medium-fine, Fine

- Texture of a plant can change depending on how elements are combined.
- The finer the texture of the plant, the greater the number required.

Form – round, mounded, upright, vase-shaped, arching, spreading, etc.

Seasonal interest /color: Spring - early, mid, late; Fall - early, mid, late; Summer - early, mid, late; Winter

Cold Hardiness <http://planthardiness.ars.usda.gov/PHZMWeb/>

- 13 US zones based on average annual extreme temperature.
- Zone 1 (-60 to -55 ° F) to Zone 13 (65 to 70° F)

Soil

- The foundation of every landscape
- Provides nutrients, water and oxygen critical to healthy plant growth.
- Sustainability is lost through poor soil preparation and improper plant selection.
- U of M Soil Test Lab <http://soiltest.cfans.umn.edu/>
- Common soil terms / classifications
 - Compacted, dry, wet, well-drained, poorly drained, salt-tolerant, high organic matter, pH (alkaline, neutral, acidic), coarse, medium, fine, texture (fine, medium, coarse)
 - Most plants can survive in a wide range of soil conditions when given proper care.
- Drought tolerance
- Moisture tolerance

Sun and shade

- Full Sun - 6+ hrs sun
- Part Sun - 3-6 hrs sun
- Light Shade (dappled)
- Part Shade - 3-6 hrs shade
- Full Shade
- Less than 3 hrs sun
- Heavy Shade – almost no sun
- Winter Sun /shade

Pest resistance: Insects, diseases, wildlife, weeds

- Choose plants with disease resistance, not favored by insects / animals.
- Locate plants in optimal growing conditions.
- Keep plants healthy.
 - Out-compete weeds, tolerate / recover from some pest damage.
 - Understand cosmetic vs. life-threatening damage.
- **Insect resistance**
 - Emerald Ash Borer - No longer plant ash trees
 - Japanese beetles - Ornamental grasses
 - Bronze birch borer - River birch
 - Elm leaf beetle - Discovery elm

- **Disease resistance**

- Downy mildew - Bounce series, Beacon (2020)
- Apple scab - Donald Wyman, Firebird®, Jewelberry, Tina, Prairiefire, etc.
- Dutch Elm Disease - Homestead, Triumph, Discovery, Accolade, Cathedral
- *Rhizosphaera* needle cast - Norway spruce, white spruce, other evergreens - firs, pines

- **Wildlife**

- Rabbits - Potentilla, ferns, peony, salvia, germander
- Deer - Juniper, cedar, grasses beautybush, potentilla, pine, spirea, wisteria, geranium, lavender, daffodil, salvia, germander, wild phlox, catmint, peony, aster, Jacob's ladder, vervain, barren strawberry, scabiosa
- Select plants for beneficial insects, birds, bats.
 - Pollinator friendly plants
 - Fruit and nesting sites for birds, attract insects.
 - Night-blooming fragrant flowers for bats

TAKE-HOME MESSAGES

- Think about the five considerations of sustainable design when planning a landscape project.
- Study your landscape site: sun, shade, available space.
- Have your soil tested so you can amend it properly before planting.
- Choose plants that grow in your site conditions.

RESOURCES

University of Minnesota Extension Yard and Garden <https://extension.umn.edu/yard-and-garden>

Plant Elements of Design <http://landscapeplants.extension.umn.edu/>

Minnesota Department of Natural Resources <http://www.dnr.state.mn.us/nr/>

US Department of Agriculture <http://plants.usda.gov/>

U of MN WROC Annual Flower Research Results <http://wcroc.cfans.umn.edu/flower-research-results>

Public gardens

Minnesota Landscape Arboretum <http://www.arboretum.umn.edu>

Noerenberg Gardens <https://www.threeriversparks.org/parks/noerenberg-gardens.aspx>

Como Park Zoo & Conservatory <http://www.comozooconservatory.org/>

Public Gardens of Minnesota <https://mngardens.horticulture.umn.edu/>

American Public Garden Association <http://www.publicgardens.org/>

Botanic Gardens <http://www.botanicgardens.org/pageinpage/home.cfm>

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