The Most Deer Resistant Plants for Central NC

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Review these slides and explore online resources to learn more about:

- Repellents
- Deer biology
- Fencing
- More plants!

http://go.ncsu.edu/managingdeer
Minimizing Deer Damage

- Understanding Deer Behavior
- Repellents and Fencing
- Deer Resistant Plants
- Deer Favorites
Understanding Deer Behavior

- **Browsers, not grazers**
  - Prefer woody and broadleaf plants, not grasses
  - Reach up to 6’

- **Creatures of habit**
  - Previous damage often indicates future damage potential
  - Follow established trails

Browse line on *Thuja*
Deer Behavior

- Prefer woodland edges (edge habitat)
  - Thrive in urbanizing areas – No predators
  - Home range ~ 1 square mile
  - Want cover (woods) close by when feeding
- Acute sense of smell

Landscape damage more common in wooded communities
Deer Behavior

No sharp upper teeth

- Jerk stems – ragged, torn edges
- May strip leaves from stems
- May pull up newly planted annuals, perennials
Deer Behavior

Picky Eaters

- Prefer to eat some plant species over others
- Favor irrigated and fertilized plants and crops!
- Love flower buds and tender new growth

Deer will happily pick around plants to find their favorites!
Deer Behavior

Deer Can Jump!
- Especially when chased
- At least 9’ high, 20’ span
- Don’t like to if they cannot see landing area – poor depth perception
- Prefer to go around or under rather than over
Deer Behavior

Use knowledge of behavior to minimize damage

- Fencing
- Repellents
- Landscape Design
- Plant Selection

Deer Paradise:
Lush, irrigated, fertilized landscape full of their favorite flowers and shrubs
Relatively open but with cover nearby
Deer Fencing

- Most effective method but most expensive
  - Best in high pressure areas
  - Vegetables and fruit
  - Must provide complete enclosure – will search for openings!

- At least 8’ tall if not electric
  - Well anchored at bottom!

- Lower fences – plant shrubs on inside so deer can’t see landing area

- Less likely to jump solid fence?
Fencing

- **Electric most effective** – deer prefer to climb under rather than jump over
- **Offset and slanted designs** take advantage of poor depth perception
- **Design diagrams:**
  - Controlling Deer Damage
  - Wildlife Damage Mgmt
Deer Repellents

- Repel by smell or taste
- Spray on plants, ground level to 6’
- **Must reapply often** (every few weeks to months)
- Work best when **applied before deer** problems become serious!
- **Alternate products for best results**
- See webpage links for details
<table>
<thead>
<tr>
<th>Active Ingredient</th>
<th>Mode of Action</th>
<th>Use on Edibles</th>
<th>Longevity</th>
<th>Trade Names</th>
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</thead>
<tbody>
<tr>
<td>Salts/fatty acids of ammonia</td>
<td>Odor</td>
<td>Yes</td>
<td>Up to 4 weeks depending on the amount of rainfall</td>
<td>- Hinder</td>
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<td>- Deerbusters Deer and Rabbit Repellent</td>
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<td>- GD Deer and Insect Repellent</td>
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<td>- Garlic Barrier</td>
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<tr>
<td>Garlic oil</td>
<td>Odor</td>
<td>Yes</td>
<td>Reapply after a heavy rain</td>
<td>- Miller’s Hot Sauce</td>
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<td>- Scoot Deer</td>
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<tr>
<td>Capsaicin Castor Oil</td>
<td>Taste</td>
<td>Yes</td>
<td>Up to 30 days depending on the amount of rainfall</td>
<td>- Miller’s Hot Sauce</td>
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<td>- Scoot Deer</td>
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<tr>
<td>Predator Urines</td>
<td>Odor</td>
<td>Not Directly</td>
<td>± 30 days</td>
<td>- Coyote, wolf urine—many products available</td>
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<td>- Coyote, wolf urine—many products available</td>
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<td></td>
<td></td>
<td>- Coyote, wolf urine—many products available</td>
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<tr>
<td>Fish and/or beef by-products</td>
<td>Odor/taste</td>
<td>Not within 8 weeks of consumption</td>
<td>± 30 days during dormant season, every 10 to 14 days during the growing season</td>
<td>- Bobbex</td>
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<tr>
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<td>- Deerbusters Plant Growth Stimulant</td>
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<td>- Deerbusters Plant Growth Stimulant</td>
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<td>Putrescent egg-based products</td>
<td>Odor</td>
<td>No</td>
<td>1 to 3 months or more</td>
<td>- Deer Away BGR</td>
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<td>- Rejex</td>
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<td>- It Deer Chaser</td>
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<tr>
<td>Thiram fungicide-based products</td>
<td>Taste/odor</td>
<td>No</td>
<td>1 to 3 months or more</td>
<td>- Bonide Chew-Nott</td>
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<td>- Deerbusters Deer Repellent and Turf Fungicide</td>
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<td>- Shotgun Deer &amp; Rabbit Repellent</td>
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<td>Blood-based products</td>
<td>Taste/odor</td>
<td>No</td>
<td>1-3 months or more</td>
<td>- Plantskydd</td>
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<td></td>
<td>- Repellex</td>
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<tr>
<td>Denatonium benzoate or bitrex</td>
<td>Taste</td>
<td>No</td>
<td>1-3 months or more</td>
<td>- Tree Guard</td>
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<td></td>
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<td>- Ropel, Repel</td>
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<td>Egg, garlic, fish oil, hot pepper, bitrex or some combination</td>
<td>Taste/odor</td>
<td>No</td>
<td>1-3 months or more</td>
<td>- Deerbusters Deer I</td>
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<td></td>
<td>- Deer Stopper II</td>
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<td></td>
<td></td>
<td>- Deer Off</td>
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<td></td>
<td></td>
<td>- Bobbex</td>
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<td></td>
<td>- Liquid Fence</td>
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<td>- MGD Deer Repellent</td>
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<td></td>
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<td>- Not Tonight Deer</td>
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<td></td>
<td></td>
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<td>- Deer Blocker</td>
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An Overview and Cost Analysis of Deer Repellents

Based on 2010 Pricing

<table>
<thead>
<tr>
<th>Repellent Name</th>
<th>Cost/100 sq. ft. area</th>
<th>Cost/100 sq. ft. area/year</th>
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<tbody>
<tr>
<td>Bobbex</td>
<td>$3.27/ 100 sq. ft.</td>
<td>$19.62/ 100 sq. ft.</td>
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<tr>
<td>Buck Off</td>
<td>$1.09/ 100 sq. ft.</td>
<td>$13.08/ 100 sq. ft.</td>
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<tr>
<td>Deer Off Squirrel, Rabbit, &amp; Deer Repellent</td>
<td>$0.91/ 100 sq. ft.</td>
<td>$5.46/ 100 sq. ft.</td>
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<td>Deer Out</td>
<td>$0.25/ 100 sq. ft.</td>
<td>$1.00/ 100 sq. ft.</td>
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<tr>
<td>Deer Pharm</td>
<td>$0.09/ 100 sq. ft.</td>
<td>$2.16/ 100 sq. ft.</td>
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<td>Deer Scram Deer &amp; Rabbit Repellent</td>
<td>$1.18/ 100 sq. ft.</td>
<td>$14.16/ 100 sq. ft.</td>
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<tr>
<td>Deer Stopper Plotsaver Deer Barrier System Kit</td>
<td>$1.00/ 100 sq. ft.</td>
<td>$4.00/ 100 sq. ft.</td>
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<tr>
<td>Deer Stopper Repellant</td>
<td>$0.31/ 100 sq. ft.</td>
<td>$3.72/ 100 sq. ft.</td>
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<tr>
<td>Deerbusters Brand Deer Repellent</td>
<td>$0.55/ 100 sq. ft.</td>
<td>$2.20/ 100 sq. ft.</td>
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<td>Hinder</td>
<td>$0.86/ 100 sq. ft.</td>
<td>$10.32/ 100 sq. ft.</td>
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<tr>
<td>Liquid Fence Deer &amp; Rabbit Repellent</td>
<td>$0.39/ 100 sq. ft.</td>
<td>$5.07/ 100 sq. ft.</td>
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<td>Miller Hot Sauce</td>
<td>$19.93/ 100 sq. ft.</td>
<td>$518.18/ 100 sq. ft.</td>
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<tr>
<td>No Deer Zone*</td>
<td>$5.99/ 100 sq. ft.</td>
<td>$23.96/ 100 sq. ft.</td>
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<td>Plant Pro-Tec Repellents</td>
<td>$17.55/ 100 sq. ft.</td>
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<td>Plantskydd</td>
<td>$0.35/ 100 sq. ft.</td>
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<td>Shake-Away Deer Repellent Granules</td>
<td>$2.49/ linear ft.</td>
<td>$59.76/ linear ft.</td>
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<td>Spotrete F</td>
<td>$0.09/ 100 sq. ft.</td>
<td>$1.07/ 100 sq. ft.</td>
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<tr>
<td>Tree Guard*</td>
<td>$4.80/ 100 sq. ft.</td>
<td>$14.40/ 100 sq. ft.</td>
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</tbody>
</table>

*Indicates ready-to-use products

**Calculated for reapplication every 2 weeks
Zoning the Landscape

Divide landscape into zones based on management intensity

**High Management Zone**
- Typically area closest to home
- Grow plants deer most likely to damage
- Enclose with fencing or protect with frequent applications of repellents
Zoning the Landscape

Low Management Zone

- Little actively done to reduce feeding
- Plant only deer resistant species
- Plant diverse range of species
- Essential next to woods
Deer Resistant Plants

- **Factors that increase feeding pressure**
  - Population density
  - Season
    - Greatest pressure fall and early spring
    - New growth in spring prone to damage
  - Weather
  - Food availability elsewhere within range
Deer Resistant Plants

- Deer Resistant ≠ Deer Proof!
  - Deer resistant plants are those deer prefer not to eat
    - May nibble but usually will not demolish
  - Will eat most anything rather than starve!
  - Feeding preferences vary from season to season and regionally

Juvenile deer more likely to taste a wide range of plants than adults
Deer Resistant Plants

Some Common Characteristics

- Thorny stems
- Prickly or hairy leaves
- Tough, fibrous leaves
- Bitter taste
- Strong aromatic scent, herbs
- Ornamental grasses

Panicum ‘Northwind’
Deer rarely bother ornamental grasses
Deer Resistant Plants

Recommendations based upon:
- Personal observation
- Gardener/landscaper feedback
- Published lists – deer don’t read these!

Focus:
- Evergreen shrubs
- Perennials
- Adapted to central NC

Diversity is key to a healthy landscape!
Trees

- Most likely to damage when young
  - Protect with cages, repellents
- Deer cannot reach once lowest foliage is over 6’ high
- Trees with upright branching grow out of range faster

Ginkgo trees have upright branching
Rubbing

- Very damaging, especially to young trees
- Most common in fall-winter
- No way to repair damage – Permanent, sometimes fatal
Prevention: Protect Trunks

Remember to remove as trees grow!
Evergreen Shrubs

- Frequently damaged in winter
- Palms are very deer resistant. Hardy shrub palms:
  - **Dwarf palmetto**
    - native
  - **Needle palm**
  - Both grow 4’-5’ tall and wide; prefer part shade and moist soil
Low Growing Evergreens

- **Dwarf Yaupon**
  - Very small leaves

- **‘Carissa’ Holly**
  - Larger leaves, single spine on tip
  - Both 3’-4’ tall, 4’-5’ wide, sun – part shade, drought tolerant
Japanese Plum Yew
*Cephalotaxus harringtonia*

- Shade or sun
- Well drained soil
- ‘Duke Gardens’ grows 3’-4’ x 4’-5’
- ‘Fastigiata’ is an upright, columnar variety, 10’ x 4’
‘William Penn’ Barberry

- *Berberis* x ‘William Penn’
- 4’ x 4’
- Sun, well drained soil
- Drought tolerant
- Very thorny!
- Bronze-purple in winter
- Yellow flowers, spring
- New growth flushed burgundy
- *Wintergreen barberry, Berberis juliana* similar but larger
‘William Penn’ Barberry
Rosemary

*Rosmarinus officinalis*

- Blue flowers Feb-April
- Full sun, well drained soil
- Very drought tolerant
- Ornamental and culinary
- Upright and weeping cultivars available
- **Upright types** grow 4’-6’ tall and wide!
- **Weeping types** grow 2’-3’ tall and 4’-6’ wide
Gardenia

- Sun – part shade
- Well drained soil
- Most varieties 5’ x 5’ or larger
- Extremely fragrant

New Variety:
- ‘Crown Jewel’
  - 3’ x 4’
  - Developed at Oakmont Nursery, Chatham County
‘Frostproof’

‘August Beauty’, ‘Veichii’, ‘Mystery’

Gardenia hips

‘Daisy’, ‘Kleim’s Hardy’
Loropetalum
*Loropetalum chinense var. rubrum*

- Evergreen, purple leaved shrubs
- Fringy pink spring flowers
- Best in part shade, moist, acid soil
- Many varieties – range from 3’ to 15’ tall depending on cultivar
- Prettiest when not over-pruned!
Cleyera

- *Ternstroemia gymnanthera*
- Sun to full shade
- 8’+ tall x 6’+ wide
- Well drained soil
- Drought tolerant
- Tolerates heavy pruning but more attractive when grown natural
False Holly, Holly Osmanthus

- *Osmanthus heterophyllus*
- Large – 8’-10’ or more depending on cultivar
- Very prickly leaves!
- Sun - part shade, moist but well drained soil
- Flowers in fall – extremely fragrant
Deer Resistant Perennials

- Flowers are deer favorites!
- Deer usually avoid plants with silver leaves, hairy leaves, and/or aromatic/herbal fragrances

**Catmint, Nepeta x faassenii**
This deer resistant, drought tolerant, summer flowering perennial has silver, aromatic leaves
Helleborus, Lenten Rose

- *Helleborus* hybrids
- White, pink or maroon nodding flowers in late winter
- 1’ x 2’
- Evergreen foliage
- Shade
- Well drained soil
Artemisia ‘Powis Castle’

- 2’-3’ x 3’-4’
- Mounds of silver, finely cut foliage
- Sun
- Drought tolerant
- Evergreen but cut back in early spring to prevent legginess
Yucca, Adam’s Needle

- *Yucca filamentosa*
- Evergreen
- Sun – part shade
- 2’ x 2’, summer flower spikes to 5’
- Broken roots regenerate new plants
- Very drought tolerant
Arkansas Blue Star

- *Amsonia hubrichtii*
- 3’ x 3’
- Sun
- Long lived
- Flowers in spring
- Yellow autumn color
- Attractive, ferny foliage all season
- Long lasting cutflower
False Indigo

- *Baptisia* - hybrids and species
- Many cultivars – blue, purple, yellow, white flowers
- 3’ - 4’ x 2’ - 3’
- Sun to light shade
- Bloom late April - May
- Very long lived
Gaura

- *Gaura lindheimeri*
- Sun – light shade
- Drought tolerant!
- Many varieties – white or pink flowers
- 1’ – 4’ tall depending on cultivar
- Blooms from late spring through late summer – if trim back each time finishes blooming
Coreopsis, Tickseed

- Several species
- Sun lovers
- Threadleaf Coreopsis
  - *C. verticillata*
  - Long live
  - Summer blooming
  - Drought tolerant
  - ‘Zagreb’ – 2’ x 2’
Salvias

- Sun to light shade
- Drought tolerant
- **Texas Sage**
  - *Salvia greggii*
  - Blooms spring and fall, trim after blooming
  - 2’ – 3’ tall and wide
- **Mexican Bush Sage**
  - *Salvia leucantha*
  - Blooms fall
  - 4’ - 5’ tall and wide!
Lantana

- Sun
- Drought tolerant
- Many varieties – some are annuals
- Perennials:
  - ‘Miss Huff’, 4’-5’ x 4’-6’
  - ‘Chapel Hill Yellow’, 2’x 3’
- Excellent nectar source
- Bloom mid-summer till frost
Butterfly Weed

*Asclepias tuberosa*

- Native
- Orange flowers
  - Summer - attract many pollinators
- Sun to part shade
- Well drained soil
- Very drought tolerant
- Late to emerge in spring
Support Monarchs – Plant Asclepias!
Turk’s Cap, Wax Mallow

- *Malvaviscus drummondii*
- Sun – light shade
- 4’-5’ tall and wide
- Red blossoms summer – fall
- Great for hummingbirds, butterflies
- Drought tolerant
Joe Pye Weed

*Eupatorium dubium*

- Native
- Sun to light shade, wet to moist soil
- 4’-5’ tall x 3’-4’ wide
- Great butterfly nectar source!
- *E. fistulosum* much taller
Ornamental Grasses

- As a group, ornamental grasses are highly deer resistant
- Low maintenance – cut back in Jan/Feb
- Most need full sun
- Most are drought tolerant

Pink Muhly Grass, *Muhlenbergia capillaris*
Hardy Ferns

- Deer rarely browse ferns
- Most prefer moist, shady areas

Evergreen ferns:

- Holly Fern
  - *Cyrtomium falcatum*
- Autumn Fern
  - *Dryopteris erythrosora*
- Christmas Fern
  - *Polystichum acrostichoides*
Plants to Avoid in Low Management Zone

Deer Favorites
Deer Favorites: Trees

- Maples
- Serviceberry
- Crabapple
- Dogwood
- Redbud
- Fringe Tree
- Foster Holly
- Fruit Trees
Deer Favorites: Shrubs

- Roses
- Indian Hawthorn
- Pittosporum
- Euonymous
- Aucuba
- Azaleas
- Itea
- Viburnum
- Hydrangea
Deer Favorites: Annuals and Perennials

- Sweet Potato Vine
- Impatiens
- Pansies
- Daylilies
- Hosta
- Phlox
- Hibiscus
- Sedum
- Rudbeckia ‘Goldsturm’
- Ivy
- Clematis

Ornamental Sweet Potato
Extension Plants Database:
Learn more about recommended plants

http://plants.ces.ncsu.edu/
Plant Profiles:

- Height
- Hardiness
- Soil
- Exposure
- Description
- Images
- More!
Learn More:
Going Native Website

http://www.ncsu.edu/goingnative/

Searchable database of NC natives allows you to select for deer resistant plants
Learn More:
http://go.ncsu.edu/managingdeer

Visit http://ces.ncsu.edu to find your local Extension center