Plants For Bees Section Overview

One of the most fun classes for plant people! Our bees work all day to gather pollen and nectar, but what are the sources? Will they work that crepe myrtle in the backyard? Will bees work mint? What are the major nectar producers in the North Carolina Piedmont and when do they bloom? We will also cover what plants and herbs you can plant around your bees that they might enjoy.

Class Notes

Pre-Class Preparation

Course Text

First Lessons in Beekeeping, Keith S. Delaplane (2007)
Management for Honey Production and Pollination, Pp 78-84.

Course Notebook Section

Nectar Sources of North Carolina, Pp 1-29

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HONEY PLANTS OF NORTH CAROLINA

Knowledge of the plants honey bees use is important to every beekeeper. Plants provide the nectar for honey production and pollen for brood production. Coincidently, the bees pollinate the plants allowing seed and fruit to develop.

The type and availability of nectar sources in an area determines, not only the potential honey production for that locality, but also the flavor, color and quality of the honey crop. Pollen is collected by bees and provides the essential protein for brood development. For these reasons, a beekeeper who knows his local flora will be better able to develop a management system which fully utilizes those potential honey and pollen plants.

North Carolina is a large state and exhibits considerable variety in honey plants as one travels from the sea to the mountains. This note lists the average blooming dates of some of the important nectar sources in the state's three main geographical areas. The figure in parenthesis following each blooming date indicates the average number of days flowering may be expected. There are others which you should learn.

Some good older references are:

Honey Plants Manual by H.B. Lovell. 1966. A. I. Root Company, Medina, OH 44256

American Honey Plants by Frank C. Pellett. (5th Edition) 1976. Orange Judd. N..

Manual of the Vascular Flora of the Carolinas by Radford, Ahles and Bell. 1968. UNC Press, Chapel Hill, NC`

Flowering Nectar & Pollen Plants in NC

https://www.ncbeekeepers.org/resources/flowering-plants

Information on common floral sources in North Carolina.

Piedmont Region		*Average Piedmont Bloom Period*			*Pollen*
Plant Name	**Scientific Name**	**Starts**	**Days**	**Ends**	
Red Maple	*Acer rubrum*	1-Feb	40	12-Mar	C0B095
Sugar Maple	*Acer saccharum*	5-Mar	25	30-Mar	DAF7A6
Dandelion	*Taraxacum officinale*	15-Mar	60	14-May	F29D4B
Sumac	*Rhus spp.*	3-Apr	151	1-Sep	F6BB43
Alsike Clover	*Trifolium hybridum*	4-Apr	102	15-Jul	
Blackberry	*Rubus spp.*	10-Apr	20	30-Apr	D3D3D3
Crimson Clover	*Trifolium incarnatum*	10-Apr	25	5-May	
Ladino, White Clover	*Trifolium repens*	14-Apr	102	25-Jul	859D6C
Tulip Poplar	*Liriodendrum tulipifera*	25-Apr	29	24-May	FCF3CF
Black Gum	*Nyssa sylvatica*	26-Apr	14	10-May	F7DC6F
Black Locust	*Robinia pseudoacacia*	27-Apr	10	7-May	DAF7A6
Vetch	*Vicia spp.*	28-Apr	46	13-Jun	
Holly	*Ilex spp.*	30-Apr	15	15-May	F7DC6F
Raspberry	*Rubus spp.*	30-Apr	20	20-May	DCDCDC
Privet	*Ligustrum spp.*	8-May	23	31-May	DAF7A6
Persimmon	*Diospyros virginiana*	20-May	13	2-Jun	FAD749
Sweet Clover	*Melilotus spp.*	28-May	37	4-Jul	
Sourwood	*Oxydendrum arboreum*	10-Jun	20	30-Jun	FCF3CF
Heartsease, Smartweed, Knotweed	*Polygonum spp.*	4-Jul	126	7-Nov	FCF3CF
Goldenrod	*Solidago spp.*	8-Aug	67	14-Oct	FAD749
Aster	*Aster spp.*	25-Sep	35	30-Oct	F8CD76

Mountain Region		*Average Mountain Bloom Period*			*Pollen*
Plant Name	**Scientific Name**	**Starts**	**Days**	**Ends**	
Red Maple	*Acer rubrum*	5-Mar	35	9-Apr	C0B095
Sumac	*Rhus spp.*	8-Apr	146	1-Sep	F6BB43
Dandelion	*Taraxacum officinale*	1-May	50	20-Jun	F29D4B
Black Gum	*Nyssa sylvatica*	5-May	10	15-May	F7DC6F
Holly	*Ilex spp.*	8-May	15	23-May	F7DC6F
Black Locust	*Robinia pseudoacacia*	15-May	14	29-May	DAF7A6
Raspberry	*Rubus spp.*	17-May	17	3-Jun	DCDCDC
Persimmon	*Diospyros virginiana*	22-May	15	6-Jun	FAD749
Tulip Poplar	*Liriodendrum tulipifera*	25-May	23	17-Jun	FCF3CF
Ladino, White Clovers	*Trifolium repens*	29-May	51	19-Jul	859D6C
Sweet Clover	*Melilotus spp.*	8-Jun	53	31-Jul	
Basswood, Linden	*Tilia spp.*	20-Jun	23	13-Jul	FFCE19
Sourwood	*Oxydendrum arboreum*	25-Jun	25	20-Jul	FCF3CF
Aster	*Aster spp.*	30-Aug	40	9-Oct	F8CD76

Coastal Region		*Average Coastal Plain Bloom Period*			*Pollen*
Plant Name	**Scientific Name**	**Starts**	**Days**	**Ends**	
Red Maple	*Acer rubrum*	20-Jan	45	5-Mar	C0B095
Sugar Maple	*Acer saccharum*	25-Feb	25	21-Mar	DAF7A6
Blackberry	*Rubus spp.*	1-Mar	46	16-Apr	D3D3D3
Dandelion	*Taraxacum officinale*	5-Mar	55	29-Apr	F29D4B
Sumac	*Rhus spp.*	1-Apr	153	1-Sep	F6BB43
Huckleberry	*Gaylussacia spp.*	5-Apr	32	7-May	
Tulip Poplar	*Liriodendrum tulipifera*	17-Apr	30	17-May	FCF3CF
Tupelo Gum	*Nyssa aquatica*	20-Apr	30	20-May	
Raspberry	*Rubus spp.*	20-Apr	40	30-May	DCDCDC
Holly	*Ilex spp.*	24-Apr	16	10-May	F7DC6F
Black Gum	*Nyssa sylvatica*	27-Apr	24	21-May	F7DC6F
Gallberry	*Ilex glabra & coriacea*	12-May	28	9-Jun	DAF7A6
Sourwood	*Oxydendrum arboreum*	1-Jun	20	21-Jun	FCF3CF
Pepperbush	*Clethra alnifolia*	1-Aug	20	21-Aug	F7DC6F
Goldenrod	*Solidago spp.*	1-Aug	85	25-Oct	FAD749
Aster	*Aster spp.*	30-Sep	40	9-Nov	F8CD76

A few notes on plants. Consider all information presented here as approximate. Plants are COMPLICATED. Species within a genus may differ wildly in their pollen colors and blooming times, despite being apparently identical plants. Weather and microclimate may entirely alter bloom time to what is normally expected.

Pollen shown white without a number means the color is unknown. The numbers refer to hex codes, useful for displaying color electronically. The color name can be found here by inserting the color Hex code into the "#" widow: <https://www.colorblindness.com/color-name-hue/>. For example, Tulip Poplar pollen's code FCF3CF is identified as Color Name Varden and the hue is yellow.
Colors (again approximate) were compiled from:
<https://en.wikipedia.org/wiki/List_of_pollen_sources>
<http://www.sheffieldbeekeepers.org.uk/tools/pollen-chart/>

Pollen source and/or nectar source indicated:
Lindtner, Peter. 2014. Garden Plants for Honey Bees. Wicwas Press. 396 pp.

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Beekeeping Insect Note 2B

Landscape Planting for Bees

Prepared by:
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Dated 1/93
Placed on the Web 3/95 by the Center for Integrated Pest Management

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Increased urbanization of our rural areas has destroyed native forage vegetation in many places. In addition, many of our hobby beekeepers living in the suburbs enjoy watching bees work the flowers. With this in mind and because honey bees are so important for pollinating agricultural, horticultural, and wild plants, there is at least one small thing we can do to support our state insect.

Most houses and yards are landscaped, so by merely making certain choices, nectar or pollen producing plants can be used with little or no additional cost. Though they have only a tiny effect on a single hive, every little bit contributes and the more people use these plants, the more significant will be the total benefit. Below are listed some plant material which can be used around homes, parks or city streets. All are highly attractive to bees except where noted. Attractiveness may vary in different regions. Most of the berry and seed bearing plants also produce good forage for birds.

This list is not complete and all plants may not thrive in all parts of the state. Consult any reference on landscape plants or your Cooperative Extension agent for further information about how to use some of these. You may also want to visit local gardens or plantings for ideas.

Ground Covers

- Ladino clover - blooms late spring-summer
- Crimson clover - blooms late spring
- Ajuga - blooms spring
- Graph Hyacinth - blooms spring
- Strawberry - blooms spring
- *Ampelopsis brevipedunculosa* - blooms late spring

Shrubs

- Barberry (*Berberis* sp.) - blooms spring: evergreen*
- Vitex - blooms most of summer: deciduous
- Privet (*Ligustrum*) - blooms late spring: may produce bitter nectar

- Abelia - blooms summer/fall; evergreen; mildly attractive
- Quince (*Chaenomeles*) - blooms spring
- Blueberry (*Vaccinium*) - blooms spring
- Silverberry (*Eleagnus*) - blooms late spring; deciduous; fragrant*
- Nandina - blooms summer; mildly attractive
- Pieris (*Pieris japonica* - blooms spring; evergreen
- Holly (*Ilex*) especially *I. burfordi, I. cornuta, I. rotunda*; blooms spring; almost all species excellent nectar source; may require pruning*
- Euonymous - blooms summer; variable attractiveness among species
- Silverling (*Baccharis halimifolia*) - blooms fall; native aster shrub in coastal plain and piedmont
- Pepperbush (*Clethra alnifolia*) - blooms late spring; native coastal plain shrub, survives piedmont; evergreen*

Small Trees

- Red Bud (*Cercis*) - blooms early spring; native or cultivated varieties
- Apple, Crabapple (*Malus*) - blooms early spring; usually requires pruning*
- Pussy Willow (*Salix*) - blooms early spring; most *Salix* spp. good
- Golden Rain Tree (*Koelreuteria paniculata*)_ - blooms summer
- Sourwood (*Oxydendron arboreum*) - blooms midsummer; irregular nectar production
- Sumac (*Rhus*) - blooms summer/fall; shrub or small tree; deciduous*
- Holly (*Ilex*) - blooms spring; many species achieve tree status if unpruned*
- Beebee Tree (*Evodia danielli*) - blooms late summer
- Hercules Club (*Aralia spinossa*) - blooms late summer

Large Trees

Maple (*Acer* spp.), especially *A. rubrum, A. ginnala* - blooms early spring; good nectar production

- Linden, Basswood (*Tilia* - blooms in spring; excellent nectar production
- Black Locust (*Robinia pseudoacacia*) - blooms spring; inconsistent nectar production
- Tulip, Yellow Poplar (*Liriodendron tulipifera*) - blooms spring; fast growing; excellent nectar production
- Black Gum, Tupelo (*Nyssa*) - blooms spring; Tupelo requires moist soil
- Persimmon (*Diospyros*) - blooms late spring

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*Also provides food/cover for birds.

Suggested References

Honey Plants Manual. H.B. Lovell. 1966. A.I. Root Co., Medina, OH 44256.

American Honey Plants. F.C. Pellett. 1947. Orange Judd, NY.

"Bee Forage of North America." Ayers & Harman, in *Hive and Honey Bee*. 1922. Dadant & Sons, Hamilton, IL.

"Pollinator Paradise" Garden at Chatham Mills

Created by Debbie Roos, North Carolina Cooperative Extension

226 species, 85% of them native to North Carolina

More info at www.carolinapollinatorgarden.org

Common Name	Scientific Name	Origin
Perennial Flowers		
Yarrow	*Achillea millefolium* 'Moonshine'	NC
Yarrow	*Achillea millefolium* 'Paprika'	NC
Anise hyssop	*Agastache* x 'Blue Fortune'	hybrid of U.S. native
Licorice hyssop	*Agastache rupestris*	southwest U.S.
Small-leaf white snakeroot	*Ageratina aromatica*	NC
Nodding onion	*Allium cernuum*	NC
Arkansas bluestar	*Amsonia hubrichtii*	Arkansas, Oklahoma
Bluestar	*Amsonia tabernaemontana*	NC
Bluestar	*Amsonia tabernamontana* 'Storm Cloud'	NC
Tall anemone	*Anemone virginiana*	NC
Eastern wild columbine	*Aquilegia canadensis*	NC
Golden columbine	*Aquilegia chrysantha*	southwest U.S.
Clasping milkweed	*Asclepias amplexicaulis*	NC
Poke milkweed	*Asclepias exaltata*	NC
Swamp milkweed	*Asclepias incarnata*	NC
Purple milkweed	*Asclepias purpurascens*	NC
Red milkweed	*Asclepias rubra*	NC

Common Name	Scientific Name	Origin
Common milkweed	*Asclepias syriaca*	NC
Butterfly weed	*Asclepias tuberosa*	NC
Redring milkweed	*Asclepias variegata*	NC
Whorled milkweed	*Asclepias verticillata*	NC
Green comet milkweed	*Asclepias viridifolia*	NC
Dwarf Tartarian aster	*Aster tataricus* 'Jin Dai'	exotic
Wild indigo	*Baptisia* x 'Carolina Moonlight'	NC
Wild indigo	*Baptisia* x 'Purple Smoke'	NC
White wild indigo	*Baptisia alba*	NC
Wild indigo	*Baptisia alba* x *sphaerocarpus*	NC
Dwarf wild indigo	*Baptisia minor*	NC
Downy wood mint	*Blephilia ciliata*	NC
Carolina doll's daisy	*Boltonia caroliniana*	NC
Bush's poppy mallow	*Callirhoe bushii*	central U.S.
Fringed poppy mallow	*Callirhoe digitata*	central U.S.
Prairie poppy mallow	*Callirhoe involucrata*	central U.S.
Pink turtlehead	*Chelone lyonii*	NC
Maryland golden aster	*Chrysopis mariana*	NC
Field thistle	*Cirsium discolor*	NC
Curlyheads	*Clematis ochroleuca*	NC
Wild ageratum/mistflower	*Conoclinium coelestinum*	NC
Palmleaf thoroughwort	*Conoclinium greggii*	southwest U.S.
Lobed tickseed	*Coreopsis auriculata*	NC
Lanceleaf tickseed	*Coreopsis lanceolata*	NC
Swamp tickseed	*Coreopsis palustris* 'Summer Sunshine'	NC
Tickseed	*Coreopsis pubescens* 'Sunshine Superman'	NC
Tall tickseed	*Coreopsis tripteris*	NC
Whorled tickseed	*Coreopsis verticillata*	NC
Wild oregano	*Cunila origanoides*	NC
White prairie clover	*Dalea candida*	central & southern U.S.
Purple prairie clover	*Dalea purpurea*	central & southern U.S.

Common Name	Scientific Name	Origin
Pale purple coneflower	*Echinacea pallida*	NC
Purple coneflower	*Echinacea purpurea* (+ various cultivars)	NC
Robin's plantain	*Erigeron pulchellus*	NC
Rattlesnake master	*Eryngium yuccifolium*	NC
Boneset	*Eupatorium perfoliatum*	NC
Roundleaf thoroughwort	*Eupatorium rotundifolium*	NC
Flowering spurge	*Euphorbia corollata*	NC
White wood aster	*Eurybia divaricatus*	NC
Coastal plain joe-pye weed	*Eutrochium dubium*	NC
Purple joe-pye weed	*Eutrochium purpureum* 'Little Red'	NC
Lanceleaf blanketflower	*Gaillardia aestivalis* 'Burgundy'	NC
Lanceleaf blanketflower	*Gaillardia aestivalis* 'Grape Sensation'	NC
Lanceleaf blanketflower	*Gaillardia aestivalis* 'Torchlight'	NC
Indian blanket	*Gaillardia pulchella*	NC
Beeblossom	*Gaura lindheimeri* 'Summer Breeze'	Texas
Hardy geranium	*Geranium* 'Dilys'	exotic
Hardy geranium	*Geranium* 'Rozanne'	exotic
Common sneezeweed	*Helenium autumnale* 'Helena Red Shades'	NC
Common sneezeweed	*Helenium autumnale* 'Salsa'	NC
Purple-head sneezeweed	*Helenium flexuosum*	NC
Swamp sunflower	*Helianthus angustifolius* 'Mellow Yellow'	NC
Schweinitz's sunflower	*Helianthus schweinitzii*	NC
Oxeye daisy	*Heliopsis helianthoides* 'Summer Nights'	NC
Red rose mallow	*Hibiscus coccineus*	NC
Velvet mallow	*Hibiscus grandiflorus*	NC
Quaker ladies	*Houstonia caerulea*	NC
Stiff-leaf aster	*Ionactis linarifolius*	NC
Seashore mallow	*Kosteletzkya virginica*	NC
White-flowered seashore mallow	*Kosteletzkya virginica* 'Immaculate'	NC
Ontario blazing star	*Liatris cylindracea*	mid-west U.S.
Blazing star	*Liatris ligulistylis*	mid-west U.S.

Common Name	Scientific Name	Origin
Dwarf gayfeather	*Liatris microcephala*	NC
Shaggy blazing star	*Liatris pilosa*	NC
Prairie blazing star	*Liatris pycnostachya*	mid-west U.S.
Gayfeather	*Liatris spicata*	NC
White gayfeather	*Liatris spicata* 'Alba'	NC
Scaly blazing star	*Liatris squarrosa*	NC
Appalachian blazing star	*Liatris squarrulosa*	NC
Cardinal flower	*Lobelia cardinalis*	NC
Great blue lobelia	*Lobelia siphilitica*	NC
Piedmont Barbara's buttons	*Marshallia obovata* var. *obovata*	NC
Patridge-berry	*Mitchella repens*	NC
Wild bergamot	*Monarda bradburiana*	central & southern U.S.
Lemon bee balm	*Monarda citriodora*	southern U.S.
White bergamot	*Monarda clinopodia*	NC
Bee balm	*Monarda fistulosa* 'Claire Grace'	NC
Spotted bee balm	*Monarda fruticulosa*	Texas
Eastern horsemint	*Monarda punctata*	NC
Sundrops	*Oenothera berlandieri* 'Siskiyou'	southwest U.S.
Southern sundrops	*Oenothera fruticosa*	NC
Biennial beeblossom	*Oenothera gaura*	NC
Prairie goldenrod	*Oligoneuron album*	NC
Wild quinine	*Parthenium integrifolium*	NC
Foxglove beardtongue	*Penstemon digitalis* 'Husker Red'	NC
Small's beardtongue	*Penstemon smallii*	NC
Narrow-leaf Carolina phlox	*Phlox carolina* spp. *angusta*	NC
Woodland phlox	*Phlox divaricata* 'Tika'	NC
White moss phlox	*Phlox nivalis* 'Snowdrift'	NC
Garden phlox	*Phlox paniculata* 'Delta Snow'	NC
Garden phlox	*Phlox paniculata* 'Jeana'	NC
Downy phlox	*Phlox pilosa*	NC
Obedient plant	*Physostegia virginiana*	NC

Common Name	Scientific Name	Origin
Narrowleaf silkgrass	*Pityopsis graminifolia*	NC
Mountain Indian-physic	*Porteranthus trifoliatus*	NC
Mexican hat	*Ratibida columnifera*	NC
Orange coneflower	*Rudbeckia fulgida*	NC
Black-eyed susan	*Rudbeckia hirta*	NC
Green-head coneflower	*Rudbeckia laciniata*	NC
Brown-eyed susan	*Rudbeckia triloba*	NC
Carolina wild petunia	*Ruellia caroliniensis*	NC
Azure blue sage	*Salvia azurea*	NC
Mealycup sage	*Salvia farinacea* 'Victoria Blue'	southwest U.S.
Lyreleaf salvia	*Salvia lyrata*	NC
Hoary skullcap	*Scutellaria incana*	NC
Large-flower skullcap	*Scutellaria integrifolia*	NC
Tall sedum	*Sedum* x 'Autumn Joy'	exotic
Woodland stonecrop	*Sedum ternatum*	NC
Whitetop aster	*Sericocarpus linifolius*	NC
Fire pink	*Silene virginica*	NC
Starry rosinweed	*Silphium asteriscus*	NC
Cup plant	*Silphium perfoliatum*	NC
Blue-eyed grass	*Sisyrinchium angustifolium*	NC
White goldenrod	*Solidago bicolor*	NC
Bluestem goldenrod	*Solidago caesia*	NC
Slender goldenrod	*Solidago erecta*	NC
Early goldenrod	*Solidago juncea*	NC
Gray goldenrod	*Solidago nemoralis*	NC
Sweet goldenrod	*Solidago odora*	NC
Downy ragged goldenrod	*Solidago petiolaris*	NC
Small's goldenrod	*Solidago pinetorum*	NC
Rough-leaf goldenrod	*Solidago rugosa* 'Fireworks'	NC
Goldenrod	*Solidago shortii* 'Solar Cascade'	NC
Showy goldenrod	*Solidago speciosa*	NC

Common Name	Scientific Name	Origin
Wand goldenrod	*Solidago stricta*	NC
Indian pink	*Spigelia marilandica*	NC
Dwarf betony	*Stachys minima*	exotic
Stokes' aster	*Stokesia laevis* 'Divinity'	NC
Stokes' aster	*Stokesia laevis* 'Peachie's Pick'	NC
Eastern silvery aster	*Symphyotrichum concolor*	NC
Blue wood aster	*Symphyotrichum cordifolium*	NC
Heath aster	*Symphyotrichum ericoides* 'Snowflurry'	NC
Georgia aster	*Symphyotrichum georgianum*	NC
Large-flowered American aster	*Symphyotrichum grandiflorum*	NC
Smooth aster	*Symphyotrichum laeve* 'Bluebird'	NC
New England aster	*Symphyotrichum novae-angliae*	NC
New England aster	*Symphyotrichum novae-angliae* 'Purple Dome'	NC
New England aster	*Symphyotrichum novae-angliae* 'September Ruby'	NC
Aromatic aster	*Symphyotrichum oblongifolium* 'October Skies'	NC
Aromatic aster	*Symphyotrichum oblongifolium* 'Raydon's Favorite'	NC
Skyblue aster	*Symphyotrichum oolentangiense*	NC
Clasping American aster	*Symphyotrichum patens*	NC
Frost aster	*Symphyotrichum pilosum*	NC
Short's aster	*Symphyotrichum shortii*	NC
Walter's aster	*Symphyotrichum walteri*	NC
Goatsrue	*Tephrosia virginiana*	NC
Skunk meadowrue	*Thalictrum revolutum*	NC
Carolina lupine	*Thermopsis villosa*	NC
Foamflower	*Tiarella cordifolia* 'Running Tapestry'	NC
Spiderwort	*Tradescantia* x 'Purple Profusion'	NC
Ohio spiderwort	*Tradescantia ohiensis*	NC
Forked bluecurls	*Trichostema dichotomum*	NC
Garden heliotrope	*Valeriana officinalis*	northern U.S.
Blue vervain	*Verbena hastata*	NC
Hoary vervain	*Verbena stricta*	NC

Common Name	Scientific Name	Origin
Yellow crownbeard	*Verbesina occidentalis*	NC
Stemless ironweed	*Vernonia acaulis*	NC
Tall ironweed	*Vernonia altissima* 'Purple Pillar'	NC
Threadleaf ironweed	*Vernonia lettermanii*	southern U.S.
Ironweed	*Vernonia noveboracensis*	NC
Speedwell	*Veronica umbrosa* 'Georgia Blue'	exotic
Culver's root	*Veronicastrum virginicum*	NC
Bird's foot violet	*Viola pedata*	NC
Adam's needle	*Yucca filamentosa* 'Golden Sword'	NC
Heartleaf golden alexander	*Zizia aptera*	NC
Golden alexander	*Zizia aurea*	NC
Perennial Herbs		
Chives	*Allium schoenoprasum*	exotic
Lesser calamint	*Calamintha nepeta*	exotic
Georgia savory	*Clinopodium georgianum*	NC
Bronze fennel	*Foeniculum rubrum*	exotic
Grosso lavender	*Lavendula* x *intermedia* 'Grosso'	exotic
Spanish lavender	*Lavandula stoechas* 'Anouk'	exotic
Catmint	*Nepeta* 'Walker's Low'	exotic
Greek oregano	*Origanum vulgare*	exotic
Ornamental oregano	*Origanum* 'Herrenhausen'	exotic
Ornamental oregano	*Origanum* 'Rosenkuppel'	exotic
Ornamental oregano	*Origanum* 'Pilgrim'	exotic
Appalachian mountain mint	*Pycnanthemum flexuosum*	NC
Mountain mint	*Pycnanthemum incanum*	NC
Loomis' mountain mint	*Pycnanthemum loomisii*	NC
Short-toothed mountain mint	*Pycnanthemum muticum*	NC
Southern mountain mint	*Pycnanthemum pycnanthemoides*	NC

Common Name	Scientific Name	Origin
Narrow-leaf mountain mint	*Pycnanthemum tenuifolium*	NC
Whorled mountain mint	*Pycnanthemum verticillatum*	NC
Virginia mountain mint	*Pycnanthemum virginianum*	NC
Rosemary	*Rosmarinus officinalis* 'Tuscan Blue'	exotic
Thyme	*Thymus vulgaris*	exotic
Society garlic	*Tulbaghia violacea*	exotic
Vines		
Climbing aster	*Ampelaster carolinianus*	NC
Groundnut	*Apios americana*	NC
Wooly Dutchman's pipe	*Aristolochia tomentosa*	NC
Spurred butterfly-pea	*Centrosema virginianum*	NC
Anglepod	*Gonolobus suberosus*	NC
Honeysuckle	*Lonicera sempervirens* 'Cedar Lane'	NC
Honeysuckle	*Lonicera sempervirens* 'John Clayton'	NC
Honeysuckle	*Lonicera sempervirens* 'Major Wheeler'	NC
Passion flower	*Passiflora incarnata*	NC
Yellow passionflower	*Passiflora lutea*	NC
Trees and Shrubs		
Bottlebrush buckeye	*Aesculus parviflora*	NC
Apple serviceberry	*Amelanchier* x *grandiflora* 'Autumn Brilliance'	hybrid of two NC natives
Dwarf indigo bush	*Amorpha herbacea*	NC
American beautyberry	*Callicarpa americana*	NC
New Jersey tea	*Ceanothus americanus*	NC
Buttonbush	*Cephalanthus occidentalis*	NC
Redbud	*Cercis canadensis* 'Ace of Spades'	NC
Redbud	*Cercis canadensis* 'Ruby Falls'	NC
White fringetree	*Chionanthus virginicus*	NC

Common Name	Scientific Name	Origin
Pepperbush	*Clethra alnifolia* 'Ruby Spice'	NC
Dwarf Fothergilla	*Fothergilla* 'Mount Airy'	NC
Oak-leaf hydrangea	*Hydrangea quercifolia*	NC
Shrubby St. John's Wort	*Hypericum frondosum* 'Sunburst'	NC
Sandhills St. John's wort	*Hypericum lloydii*	NC
Possumhaw	*Ilex decidua*	NC
Inkberry/Winterberry	*Ilex glabra*	NC
Virginia sweetspire	*Itea virginica*	NC
Spicebush	*Lindera benzoin*	NC
Eastern ninebark	*Physocarpus opulifolius* 'Diablo'	NC
Fragrant sumac	*Rhus aromatica*	NC
Staghorn sumac	*Rhus typhina* 'Tiger Eye'	NC
Blueberry	*Vaccinium corymbosum*	NC
Possumhaw viburnum	*Viburnum nudum*	NC
Blackhaw viburnum	*Viburnum prunifolium*	NC
Grasses		
Splitbeard bluestem	*Andropogon ternarius*	NC
Purple love grass	*Eragrostis spectabilis*	NC
Eastern bottlebrush grass	*Elymus hystrix*	NC
Pink muhly grass	*Muhlenbergia cappilaris*	NC
Pink muhly grass	*Muhlenbergia cappilaris* 'Pink Flamingo'	NC
Switchgrass	*Panicum virgatum* 'Northwind'	NC
Little bluestem	*Schizachyrium scoparium* 'Blue Heaven'	NC
Little bluestem	*Schizachyrium scoparium* 'The Blues'	NC
Little bluestem	*Schizachyrium scoparium* 'Twilight Zone'	NC
Prairie dropseed	*Sporobolus heterolepis*	NC

Selected Resource List on Pollinator-Supportive Native Plants & Bees

Pollinator info

Attracting Pollinators to Your Garden Using Native Plants:

http://www.fs.fed.us/wildflowers/pollinators/documents/AttractingPollinatorsV5.pdf

Pollinator Conservation Resources – Mid-Atlantic Region:

http://www.xerces.org/publications/plant-lists/pollinator-plants-mid-atlantic-region

Bee Basics An Introduction to Our Native Bees:

http://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb5306468.pdf

Bumble Bees of the Eastern United States:

http://www.xerces.org/publications/identification-and-monitoring-guides/bumble-bees-of-eastern-united-states

Native Plants for Native Bees PDF Posters by Heather Holm

http://www.pollinatorsnativeplants.com/plant-lists--posters.html

Streamlined bee monitoring protocol for assessing pollinator habitat:

http://www.xerces.org/publications/id-monitoring/streamlined-bee-monitoring-protocol

Pollinator Partnership: https://www.pollinator.org

Pollinator-Supportive Native Plant Sources and Resources:

NC Native Plant Society: http://www.ncwildflower.org/

List Drought-Tolerant North Carolina Wildflowers, Grasses & Shrubs:

https://ncbg.unc.edu/2018/06/04/gardening-for-a-drought-north-carolina-native-plants-to-the-rescue/Going

Native Urban Landscaping for Wildlife with NC Native Plants: http://ncsu.edu/goingnative/

Chatham Mills "Pollinator Paradise" Garden:

http://growingsmallfarms.ces.ncsu.edu/growingsmallfarms-pollinatorgarden/

Debbie Roos' list of top 25 bee plants for the Piedmont of NC:

https://growingsmallfarms.ces.ncsu.edu/wp-content/uploads/2018/03/2018-Top-25-Pollinator-Plants.pdf?fwd=no

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Chatham Mills "Pollinator Paradise" Plant List of 160 species:

https://growingsmallfarms.ces.ncsu.edu/wp-content/uploads/2019/07/Pollinator-Garden-Plant-List-2019.pdf?fwd=no

Gardening for Pollinators: http://www.fs.fed.us/wildflowers/pollinators/gardening.shtml

Selected Plants for the Pollinators Southeastern Forest Province:

http://pollinator.org/PDFs/Guides/SoutheastMixedForestrx5FINAL.pdf

Catherine Bollinger's Piedmont Gardener Blog: http://piedmontgardener.com

Bayer Crop Science Free Wildflower Flower Seed: http://feedabee.com

Pollinator Conservation in Yards and Gardens: http://xerces.org/pollinator-conservation/yards-and-gardens

USDA Plants for Pollinators:

https://www.nrcs.usda.gov/wps/portal/nrcs/detailfull/national/plantsanimals/pollinate/?cid=NRCS143_022326

Attracting Pollinators to Your Garden, U.S. Fish & Wildlife Service:

https://www.fws.gov/pollinators/pdfs/PollinatorBookletFinalrevPrint.pdf

National Wildlife Federation's Garden for Wildlife: Pollinators and Monarchs:

http://www.nwf.org/Garden-For-Wildlife/About/National-Initiatives/Pollinators.aspx

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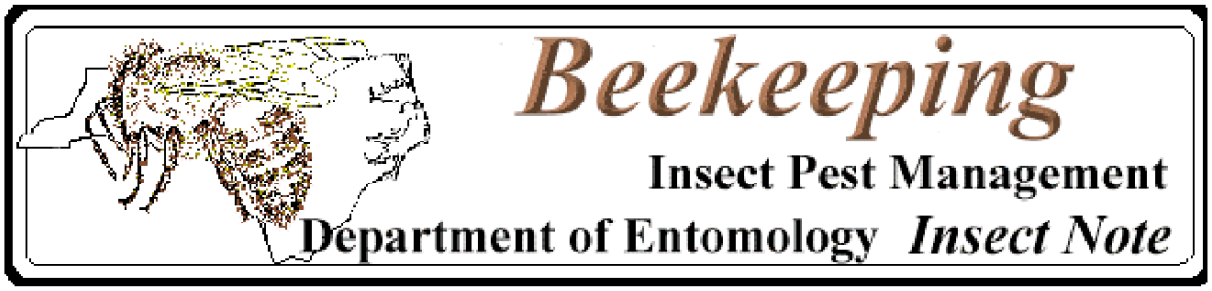

Note 1.05
(Previously Note #2A)

AN HERB GARDEN FOR THE BEES

In addition to "merely" keeping bees, the successful beekeeper must often branch out into many other areas of expertise, such as botany, carpentry, wholesale/retail marketing mechanics, accounting, etc. All of these related areas are important but a working knowledge of botany is probably one of the most important. As beekeepers, we are intrinsically botanists, for bees and plants are interdependent and the nature and productivity of the plant population plays a major role in the success or failure of any beekeeping operation.

One frequently stated need of many beekeepers is how to increase nectar availability in an area. Herbs provide a direct means for the beekeeper to improve and expand the honey flow in this area. An herb is defined as any nonwoody plant that dies down to the ground after flowering. More commonly, herbs are defined as plants that are used for such purposes as medicinal treatment, nutritional value, food seasoning, coloring or dying. Herbs are extremely versatile plants and, unlike trees and shrubs, most will bloom the same year that they are planted. With sufficient variety, an herb garden can have plants in bloom for 10 months of the year.

With a little planning, herbs can provide both excellent nectar and pollen sources for honey bees. These plants can supply valuable bee pasture during periods of dearth, but careful planning must precede planting. Most herbs will grow anywhere, and most will bloom profusely, but not all will attract honey bees. Strict attention must be paid to varieties, ecotypes, soils, climate, fertilization, and watering.

Varietal selection is most important. Some plants, such as feverfew, simply will not attract honey bees. Ecotypes are an even more subtle difference that play an equally important role. Ecotypes are species of plants that are adapted to a particular environment. This is to say that a

catnip plant native to Iowa may not grow, or bloom, or produce nectar the same if it were transplanted to a location in North Carolina. Thus, the herb gardener with an eye towards nectar production should be very careful in ordering plants from areas with different climates, for the plants will
look the same, but their systems may well be altered due to the change in environment,and they may perform differently. To add a tempering note, plants touted as honey plants in other parts of the country may fail miserably in North Carolina, but other "unknowns" can fill the niche and perform very well under North Carolina conditions. Fertilization, water, and soils are things the herb gardener can control, and normal gardening practices would be followed in these areas.

Designing an Herb Garden

An herb garden can be as simple or complex as the gardener desires. Herbs can be grown in established borders, among low growing shrubbery, or in a vegetable garden. The simplest way, in terms of organization and care, is to designate a certain space for herbs and herbs only. The design one chooses can range from formal gardens to simple displays. Care should be taken to segregate tall growing herbs such as the bee balms from low spreading herbs like the mints and thymes to minimize unwanted shading. Planting herbs of the same family (i.e. the mints) in groups also eases care and identification.

The authors recommend planting herbs in a raised bed bordered with railroad cross ties, or similar materials, to keep the herbs in and the weeds out. After filling the bed with soil (preferably a light soil to promote early growth and provide good drainage), have a soil test run to insure a pH of 6.5-7, and add organic matter in whatever form is convenient. Soil fertility should be kept at a low to moderate level, as heavy fertilization will extend the vegetative portion of a plant's life cycle, causing a later reproductive, or flowering phase.

The next step is to apply a mulch. Black plastic provides an excellent mulch for herbs. It serves to warm the soil in the spring, prevent evaporative moisture loss from the soil, completely control weeds, and if the herbs are planted in pot sized holes in the plastic, control the spread of those herbs which would other wise take over the herb garden. Water can be applied to the base of the plants when needed, and holes can be punched in the plastic with a nail to facilitate drainage of rain water. An additional "cosmetic" mulch of pine bark, or sawdust can be spread on the plastic if desired.

The beekeeping herb gardener usually has more than enough things to do, so the herb garden should be designed for minimal maintenance. Congruent with the concepts of a raised bed, moisture saving mulch, and "container-sized" planting holes, is the use of perennial herbs wherever possible. Perennials die back each fall but return the following spring and will last for many years, if properly cared for. Herbs can be propagated from seeds, cuttings, or layering. Layering is generally easiest, the procedure being to cover a portion of the plant stem with a mound of soil, and roots will shortly

form on the portion covered by the soil. This new plant can be cut off from the mother plant and planted in a new location. Any plants started from seed should be planted indoors or in a cold frame early in the spring and transplanted to a permanent site with the onset of warm weather.

The following list of herbs is based upon the results of a two year research project conducted by the authors at N. C. State University. The listed herbs were selected primarily on their attractiveness to honey bees, but ease of growing and long term maintenance were also contributory factors.

Herb	Growth Habit	Propagation	Use	Attractiveness to Bees
Basil	annual, 12"	seed	culinary herb	moderate
Bee Balm	perennial, 24"	seed, division	mint teas	high
Borage	annual, 10"	seed	garnish foods	high
Catnip *Musini*	perennial, 20"	seed	sedative teas	high
Catnip *Catara*	perennial, 20"	seed	sedative teas	high
Chives	perennial, 12"	seed, bulbs	culinary herb	slight
Comfrey	perennial, 36"	division	medicinal herb	slight
Hyssop (Anise)	perennial, 36"	seed	teas	high
Lavender	perennial, 24"	seed	sachets	slight
Marjoram	perennial, 12"	seed	culinary herb	moderate
Mints	perennial, 10"	cuttings, division	mint teas	high
Sage	perennial, 12"	seed, division	culinary herb	moderate
Salvia, blue	annual, 24"	seed	ornamental	high
Salvia, white	annual, 24"	seed	ornamental	high
Spider Plant	annual, 24"	seed	ornamental	high
Teasel	perennial, 36"	seed, division	ornamental	moderate
Thistle, Globe	perennial, 48"	seed	ornamental	moderate
Thymes	perennial, 6"	seed, cuttings	culinary herb	high
Yarrow	perennial, 24"	seed	tea	slight

Notes: 1. Some of the herbs such as the mints may impart a very distinctive flavor to the honey that the bees produce.

2. The above "uses" of the herbs are listed for informational purposes only and is not meant to be an endorsement of any particular use.

References:

Clarkson, Rosetta E. 1970. Herbs, Their Culture and Uses. MacMillian Publishing Company, New York, N.Y.

Foley, Daniel F. 1971. Herbs for Use and Delight. Dover Publications, Inc. New York. N.Y.

Lust, John. 1974. The Herb Book. Bantam Books, New York, N.Y.

Meyer, Joseph E. 1960. The Herbalist. Meyerbooks, Glenwood, Ill.

Stary, Franfised and Valclav Jirasek. 1973. Herbs, A Concise Guide in Color. Hamlyn Publish Group Ltd., New York, N.Y.

Seed Sources: The following list is for informational purposes only and the inclusion of a firm does not constitute endorsement nor does the exclusion of a firm suggest non-endorsement.

Pellet Gardens Catalog of Honey Plants, Atlantic, Iowa 50022.
Nichols Herb and Rare Seeds, 1190 N. Pacific Hwy., Albany, Oregon 97321. Parks Seeds, Greenwood, South Carolina 29647.
A World Seed Service, J. L. Hudson, P.O. Box 1058, Redwood, California 94064

Prepared by: W. G. Lord, Research Technician

Bee Friendly Culinary and Aromatic Herb Fact Sheets by G. Leister

1. Cilantro (*Coriandrum sativum*)
2. Borage (*Borago officinalis*)
3. Catnip (*Nepeta cataria*)
4. Sweet Basil (*Ocimum basilicum*)
5. Mountain Mint (*Pycnanthemum pilosum*)
6. Sweet Marjoram or Oregano (*Origanum vulgare*)
7. English Lavender (*Lavandula angustifolia*)
8. Lemon Balm (*Melissa officinalis*)
9. Rosemary (*Salvia rosmarinus*)
10. Thai Basil (*Ocimum basilicum* var. *thyrsiflora*)
11. English Thyme (*Thymus vulgaris*)
12. Anise Hyssop (*Agastache foeniculum*)

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Plants for Bees Resource Listing

Books

The Hive and the Honey Bee - Dadant & Sons, available at www.dadant.com
The latest edition of the classic book on beekeeping. Completely rewritten, revised and enlarged. The best reference book on honey bees and beekeeping. 22 chapters, 33 world-famous authors, hundreds of photos and drawings, clothbound with attractive gold stamped cover and spine, and many special features: new 52-page U.S. and Canadian honey plants table, updated Africanized honey bee information, parasitic bee mites management, business practices, marketing, hive products, bee behavior, pesticides, and more.

Honey Plants of North America - John H. Lovell, ISBN: 0936028203
Root Publishing has issued this reprint of a beekeeping standard. Written in 1926, the comprehensive and detailed information about nectar and pollen sources as well as the intricacies and intimacies of the honey bee/plant relationship is still wonderfully pertinent and timely. The only book of its kind still in print.

Online Resources

Growing Small Farms Web Resources: Pollinator Conservation

Apiculture & Beekeeping • https://entomology.ces.ncsu.edu/apiculture/

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Plants for Bees Class Review

Please rate the level with which you agree with the following statements:

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
This class was interesting and stimulated my interest in the subject matter	○	○	○	○	○
The instructor answers questions carefully and completely	○	○	○	○	○
The class materials reflected the subject matter	○	○	○	○	○
The quality of the visual aids were good and appropriate to the subject matter	○	○	○	○	○
I was able to follow along and keep up with the subject matter	○	○	○	○	○
This class met my expectations	○	○	○	○	○

What did you like about this class?

What didn't you like about this class?

What topics should have been covered and were not?

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