

Genus Agastache: The Rodney Dangerfields of the Plant World

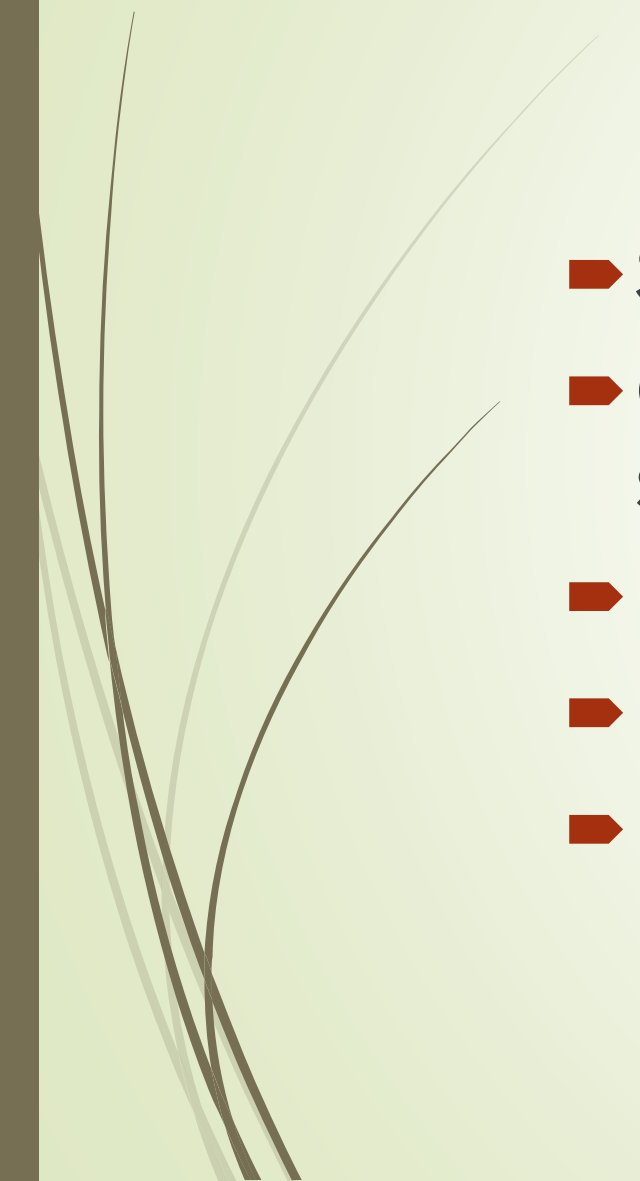


Charles E. Voigt





Why are *Agastache* species called “hyssops”?

- Similar terminal flower clusters?
 - Called “giant hyssops” because many tall in stature?
 - Extends the confusion
 - “Hummingbird mints” confuses with *Mentha sp.*
 - No detailed reason, or easy solution to confusion
- 

Hyssopus officinalis

Plants N.C. State



Hyssopus officinalis

Strictly Medicinal Seeds



Agastache 'Blue Boa'

Bluestone Perennials





Pink *Hyssopus officinalis*

Wikipedia

White *Hyssopus officinalis*

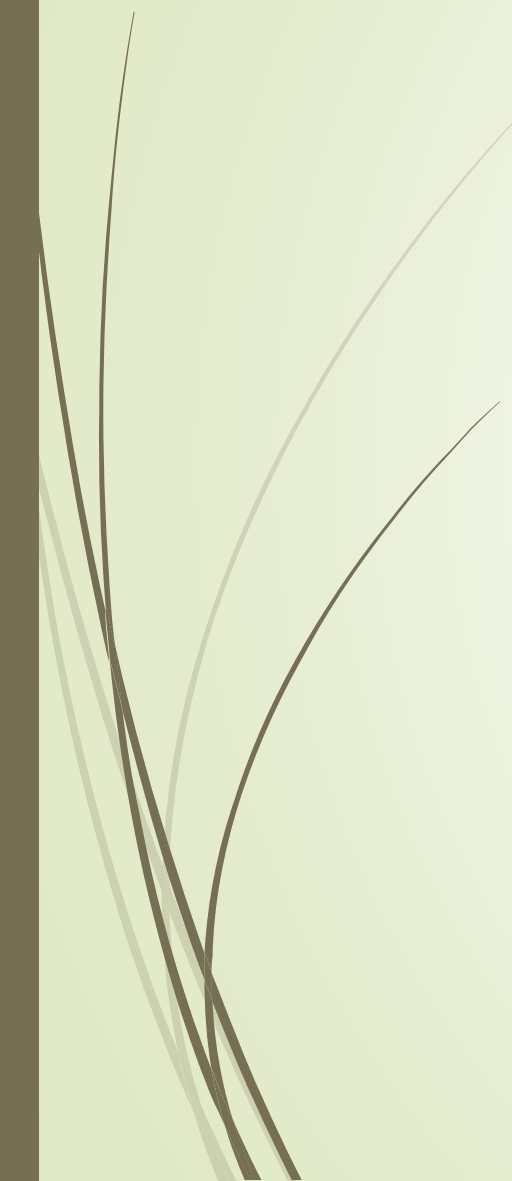
Outsidepride.com





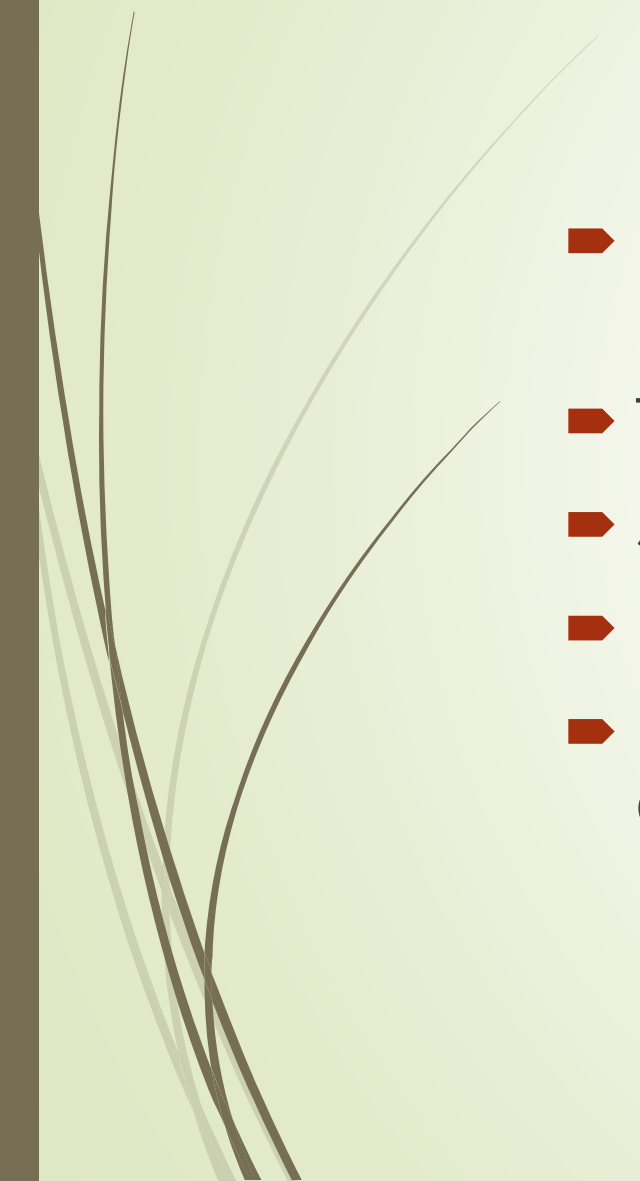
Binomial System to the Rescue!

- ▶ Although some despise
 - ▶ Universally recognized
 - ▶ Without multiple common names for same plant
 - ▶ Without multiple plants with same common name

 - ▶ So what about the genus *Agastache*?
- 



History

- From Greek word “agan” (very much) and “stachys” (spike)
 - These plants do have many flower spikes
 - Jan Frederik Gronovius first named the genus
 - In second edition of his *Flora Virginica*, published in 1762
 - Based on notes and specimens obtained from John Clayton
- 



Botany and Horticulture

- Family Lamiaceae, previously Labiatae
- Sub-family Nepetoideae, along with many tasty herbs
- In mint tribe (Mentheae), subtribe of catmints (Nepetinae)
- Genus most closely related in subtribe is likely *Glechoma*
- Includes Ground Ivy, *Glechoma hederacea*
- None of Agastache species as invasive as that one




Two Divisions within the Genus

- Agastache and Brittonastrum groups
- Agastache group occurs in more temperate, northern sections of North America, with a single species in Asia
- Brittonastrum group from southwestern U.S. and northern Mexico
- Generally Agastache group more cold hardy
- Brittonastrum group more drought tolerant



About the Genus

- 22 – 30 species in the genus (lumpers vs. splitters?)
 - Long-lasting flower spikes, withstand heat, early frost
 - Hummingbirds, bees, butterflies, and other insects find irresistible
 - On crisp morning, bees may be seen clinging, trying to re-heat and move
 - Lowered body temperature made them unable to fly home
 - Gradually regain mobility, collect more nectar
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Agastache rugosa

etsy.com





Agastache nepetoides

Prairie Moon Nursery



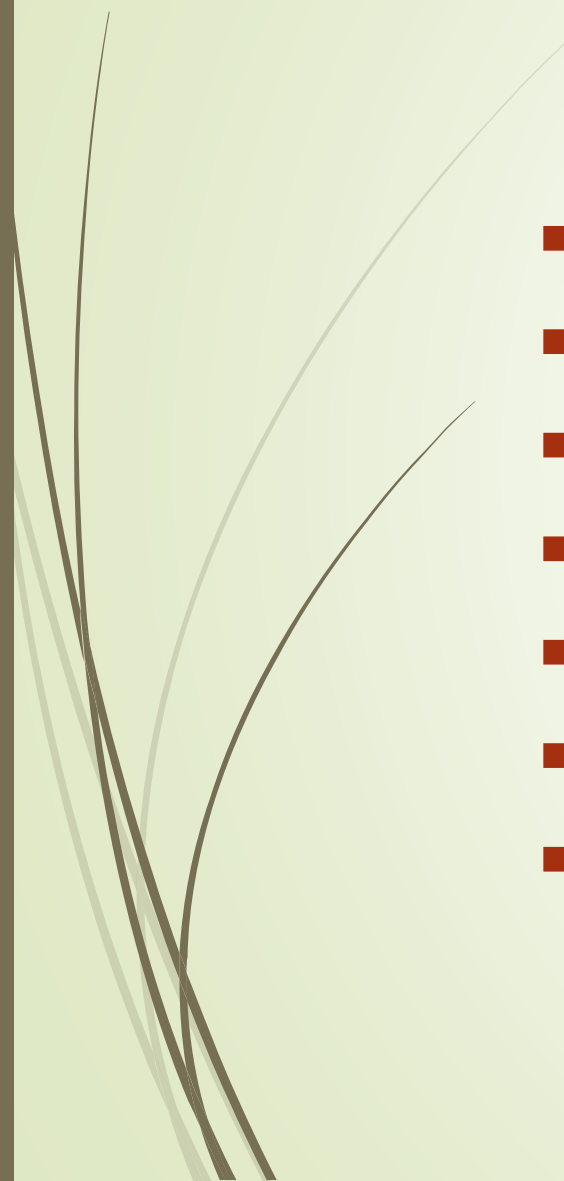


Agastache x 'Kudo's Gold'

Sooner Plant Farm



Flower Spikes

- 
- Composed of numerous tiny florets
 - Open over considerable period of time
 - Agastache group has small upper lip of corolla
 - Causes filaments to jut widely
 - Two of four stamens have curved filaments, cross other two
 - Brittonastrum group has larger upper corolla lip
 - Stamens parallel, entirely hidden or only anther visible



Agastache 'Purple Haze'

Digging Dog Nursery
SalmonCreekPhotography.com

Agastache rugosa

davesgarden.com



Close-up of *A. urticifolia* Flowers

Calscape



Agastache aurantiaca flowers

Wikipedia





Agastache aurantiaca

Lyn and Malcolm's Garden



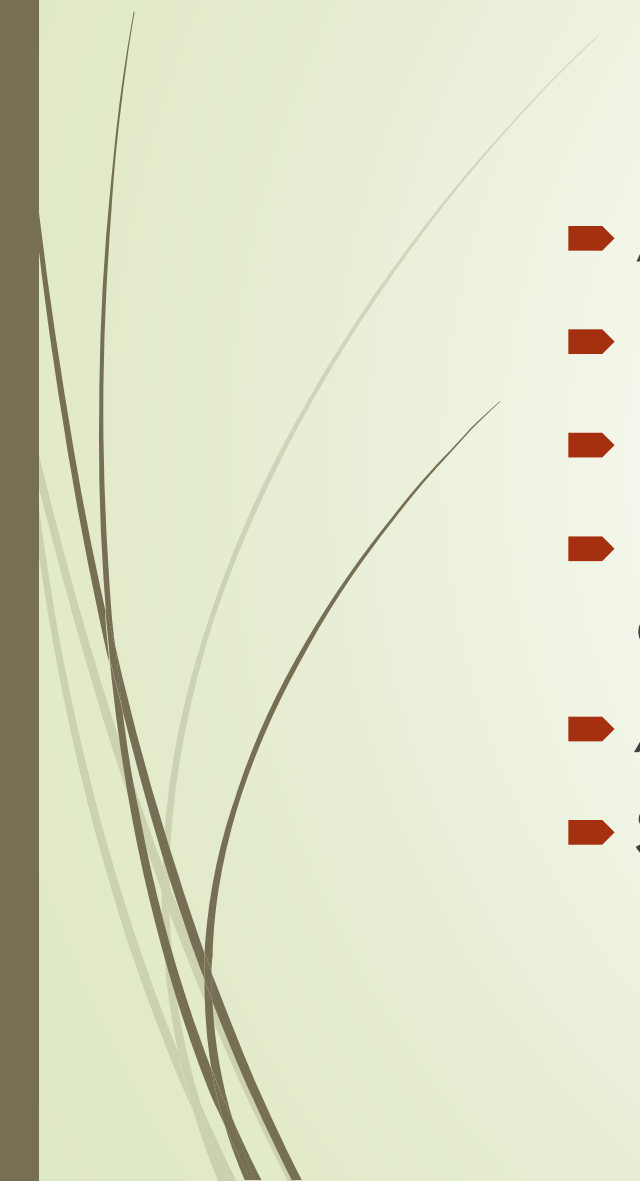
Agastache rupestris flowers

Heritage Gardens





More about Flowers

- Agastache group flowers tightly packed in verticillaster
 - Flowers seem to be in a whorl
 - Really a pair of opposite, axillary, usually sessile cymes
 - Bloom time of *A. foeniculum* and *A. rugosa* up to 80 days
 - *A. nepetoides* only 45 days, still quite long
 - Seeds tiny nutlets, fed upon by birds
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Agastache
rugosa 'Honey
Bee Blue'

Bluestone Perennials



Agastache nepetoides

2bnthewild.com



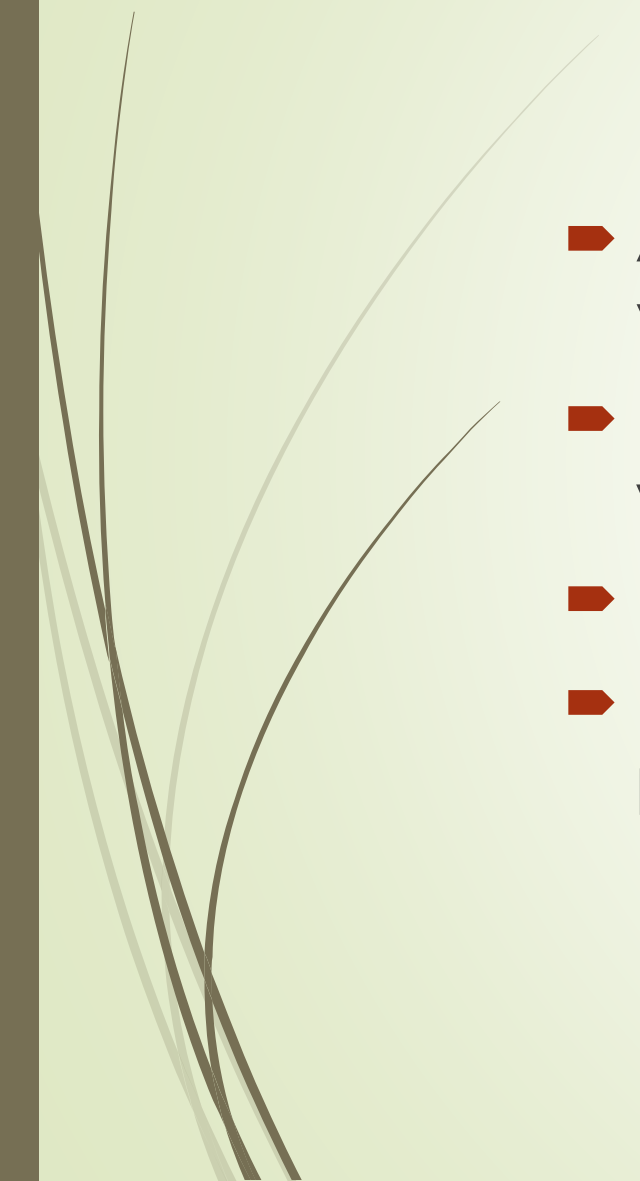
Agastache urticifolia seeds (nutlets)

Bend Seed Extractory





Corolla Colors

- Agastache section include white, pale yellow, rose, or violet
 - Brittonastrum section has hotter colors such as bright yellow, orange, pink, and red
 - Flowers backed with bracts of same or contrasting color
 - Interspecific hybrids add hot pinks and red apricots to palette
- 

Agastache urticifolia

alamy.com



 alamy stock photo

AMBD0Y
www.alamy.com

A. rugosa albiflora 'Alabaster'

Dorset Perennials





*Agastache
nepetoides*
Wikipedia

Agastache 'Astello Indigo'

Swallowtail Garden Seeds



Agastache 'Blue Boa'

Park Seeds





Agastache
'Champagne'

Bluestone Perennials



Agastache 'Apricot Nectar'

Washington Post



Agastache
neo-mexicana
'Bolero'
Frogmore Gardens



A. 'Red Fortune'

Amazon.com



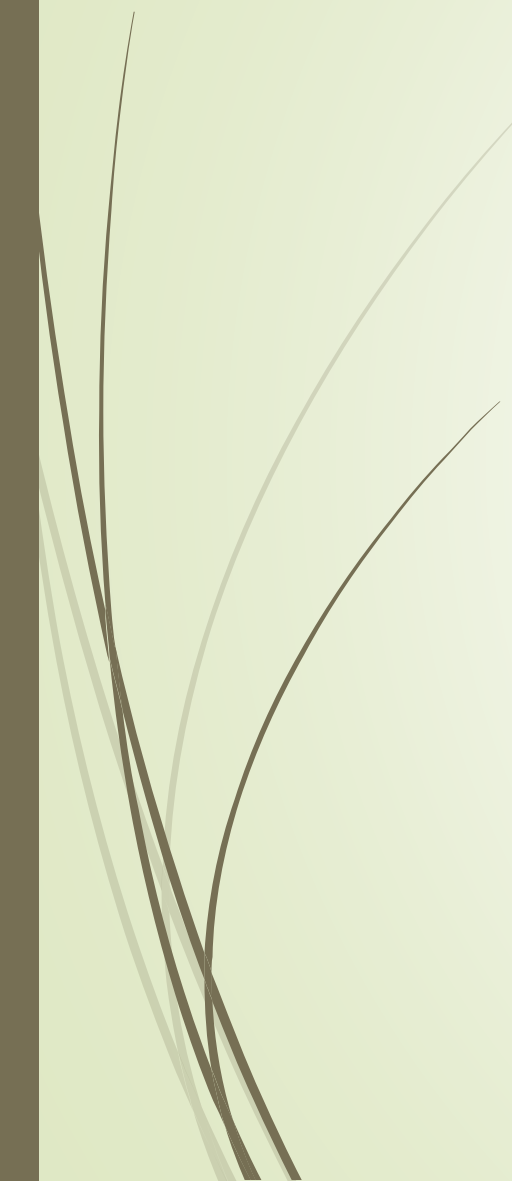
Agastache 'Raspberry Summer'

terranovanurseries.com





All *Agastache* Species

- Robust perennials with upright growth habit
 - Opposite, oval to triangular leaves
 - Most are short-lived herbaceous perennials
 - Readily reseed
 - Hardiness varies with home range
 - Southwestern species less cold hardy
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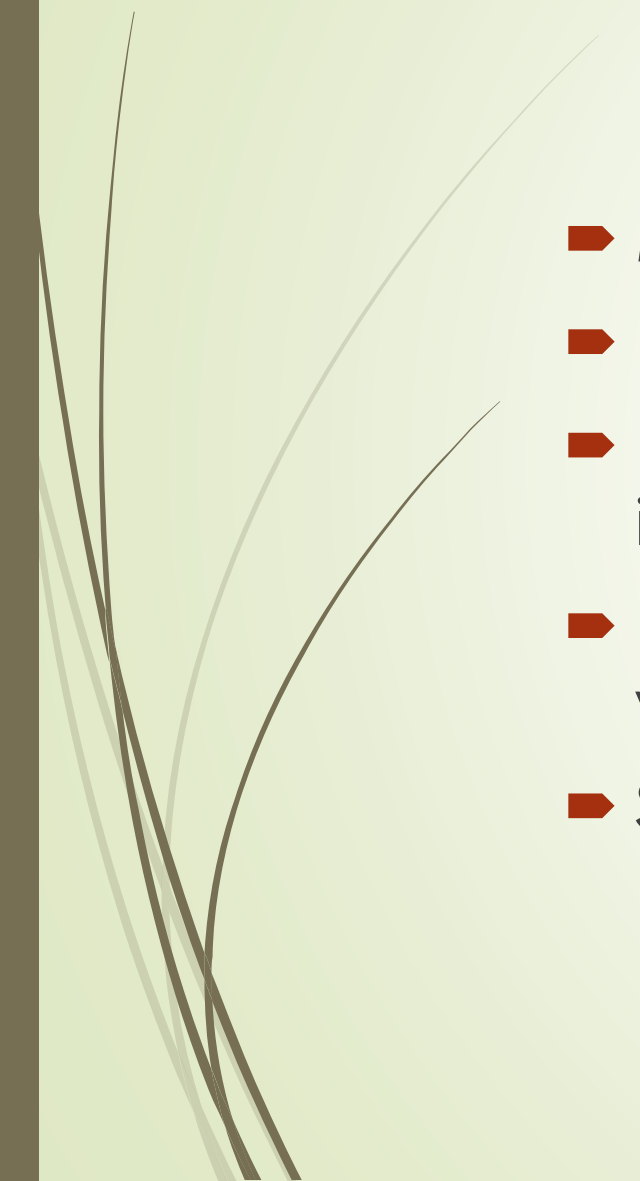
Agastache scrophulariifolia

gobotany.newenglandwild.org





Plant Description

- Mint family, *Agastache* species have squarish stems
 - Lack invasiveness of other Lamiaceae plants
 - Leaves of *Agastache* group from 1 to 6 inches long, 1/4 to 4 inches wide
 - *Brittonastrum* group leaves 3/4 to 2 inches long, narrow in width
 - Stems are mostly single, to sparsely branching
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Agastache rugosa

Wikipedia



Agastache rupestris foliage

Western New Mexico University






Agastache
nepetoides
CT Botanical Society



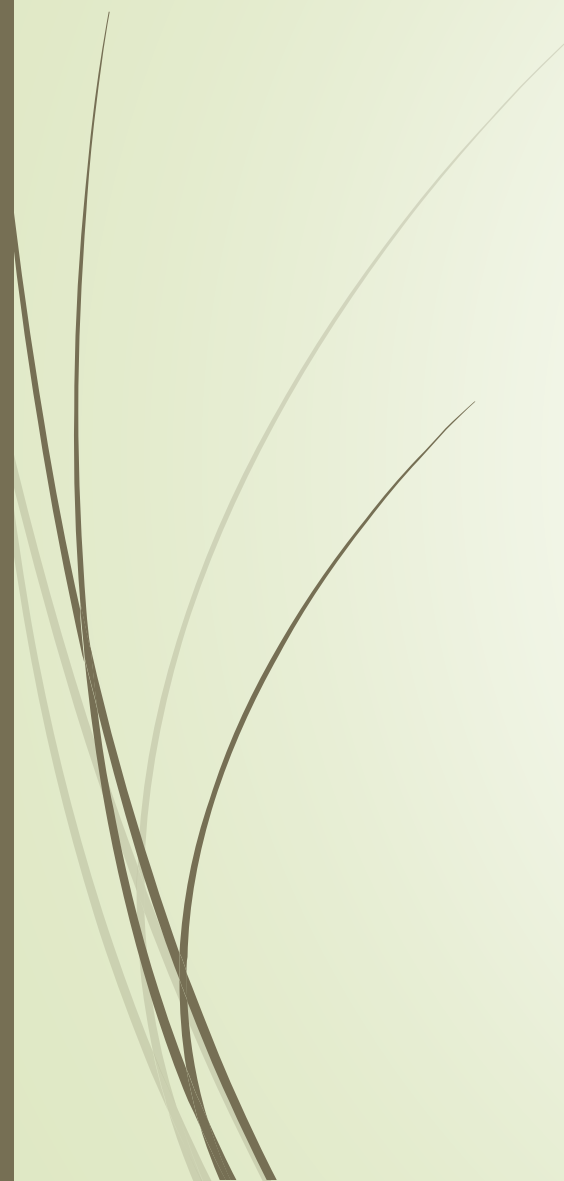


Leaf Hairs

- Essential oils synthesized and stored in glandular trichomes
 - Found in groups on leaf surface
 - Leaf blades also covered by non-secreting hairs
 - *A. foeniculum* has densest distribution of hairs on leaves
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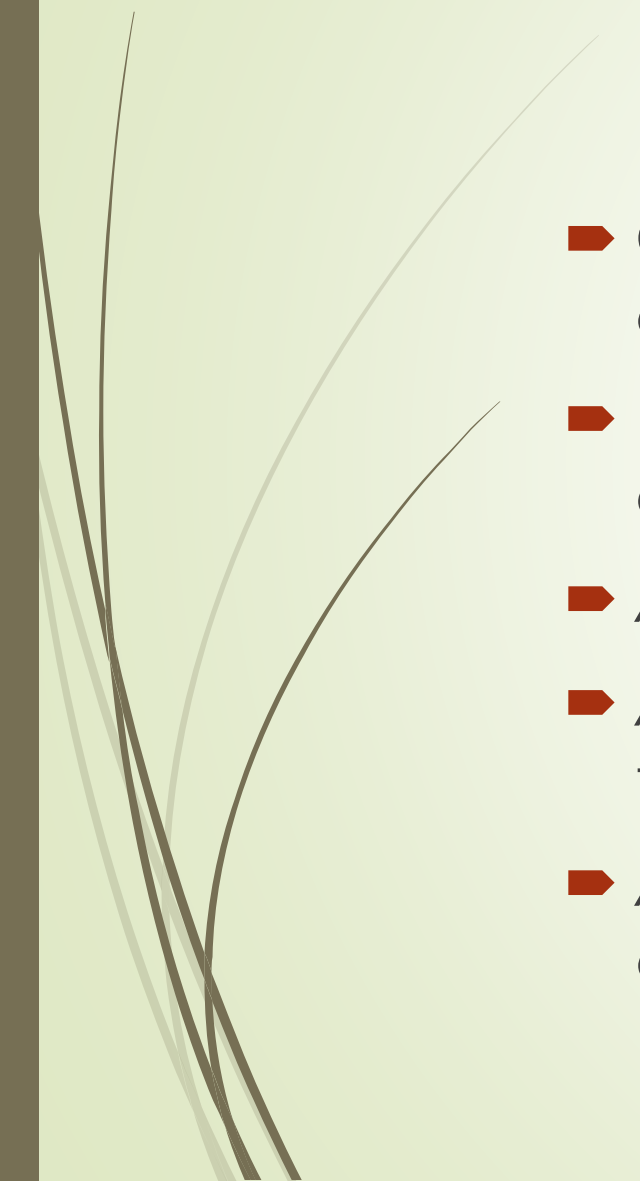
Agastache scrophulariifolia

Discover Life



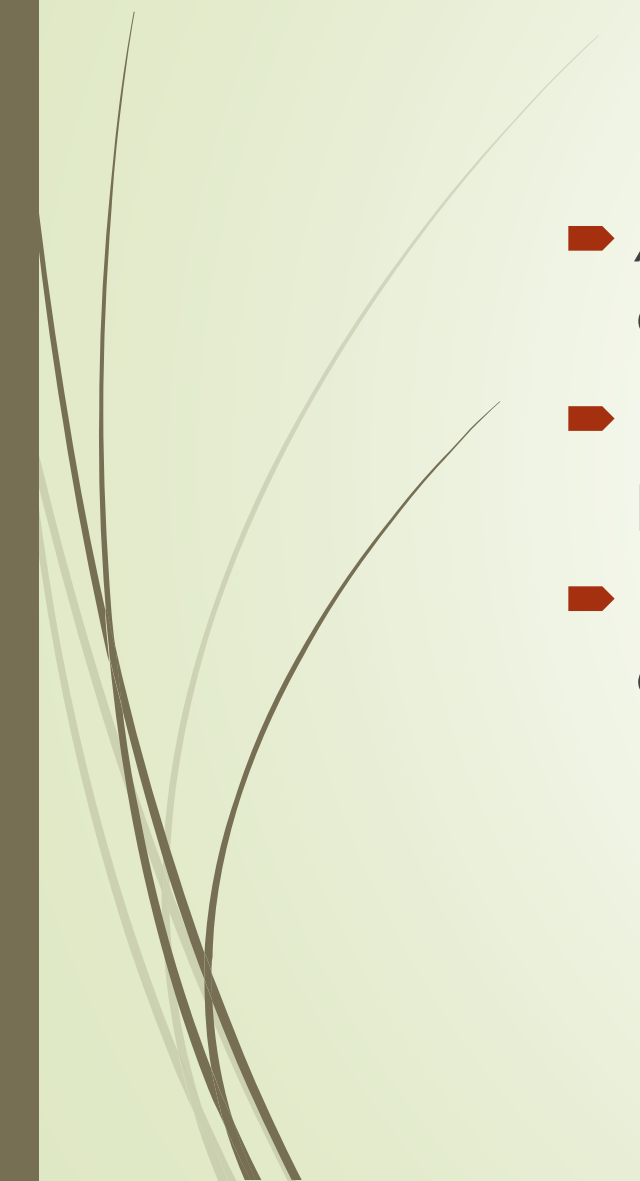


Essential Oils

- ▶ Content depends on time of harvest, environmental conditions, or methods of cultivation
 - ▶ Highest yield in *A. rugosa* and *A. mexicana* at beginning of bloom
 - ▶ *A. foeniculum* highest in middle of bloom
 - ▶ *A. rugosa* and *A. mexicana* higher yield in cooler summer temperature
 - ▶ *A. foeniculum* and *A. urticifolia* yield more in warm conditions
- 



More Essential Oil

- ▶ *A. scrophulariifolia* produced significantly more oil during flowering phase than in vegetative
 - ▶ Earlier sowing and nitrogen fertilization also increase oil production
 - ▶ Infection with cucumber mosaic virus changes oil chemistry
- 




Agastache
scrophulariifolia

floravera.com





Research

- ▶ Most research done on *A. foeniculum* and *A. rugosa*
 - ▶ *A. rugosa* resembles denser, smaller version of *A. foeniculum*
 - ▶ Selection, breeding, and interspecific crosses have developed colorful and floriferous cultivars
- 

Agastache rugosa in bloom

Shutterstock



shutterstock.com • 1236279535

*Agastache
foeniculum*
'Alba'

flowermedia.com





Agastache 'Golden Jubilee'

Lyn and Malcolm's Garden






Agastache 'Red Fortune'

[etsy.com](https://www.etsy.com)



Culture

- Usually started from seeds, divisions, or cuttings
 - Once established, will self-seed
 - Not perniciously invasive
 - Seed sown when soil temperature 55 – 64
 - Small seed size makes direct seeding less successful than starting in greenhouse and transplanting 6-8 weeks later
- 


Agastache urticifolia seedling

Applewood Seed Company






More Culture

- Moist chilling will improve total germination, as well as synchrony of germination
 - If direct seeded, weed control will be critical
 - Irrigation may also be necessary until plants well established
 - Once deeply rooted, most are drought tolerant, esp. SW types
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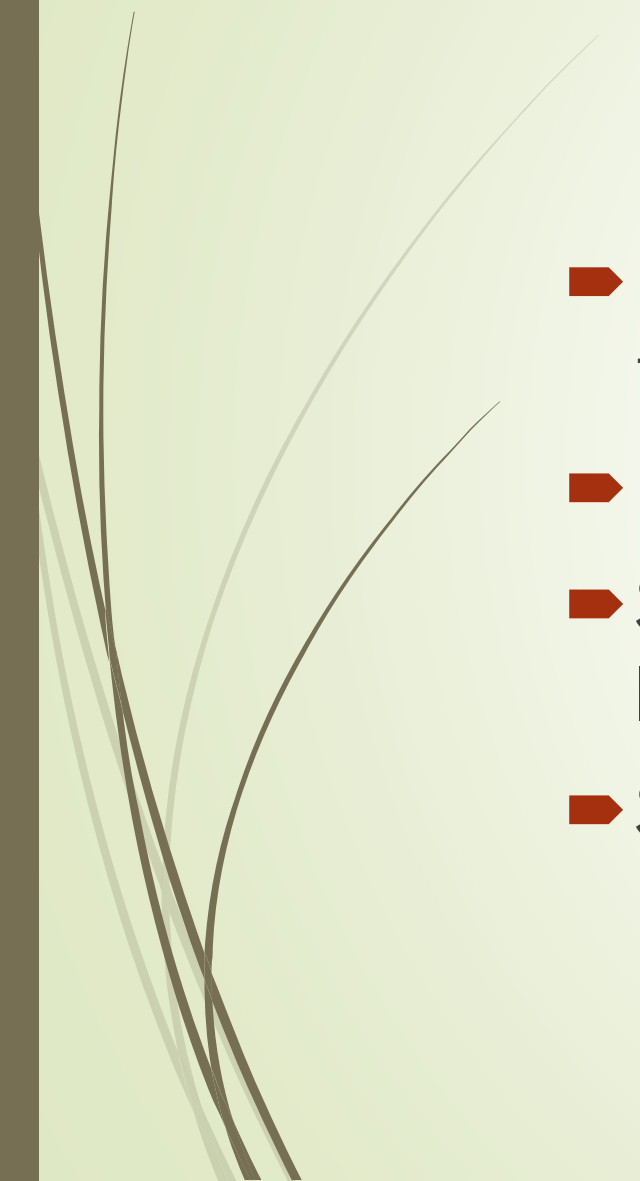


Vegetative Propagation

- Established plants may be divided in early spring, as growth starts
 - Semi-ripe tip cuttings root well in summer
 - Asexual reproduction necessary to maintain cultivars
 - Especially sterile interspecific hybrids
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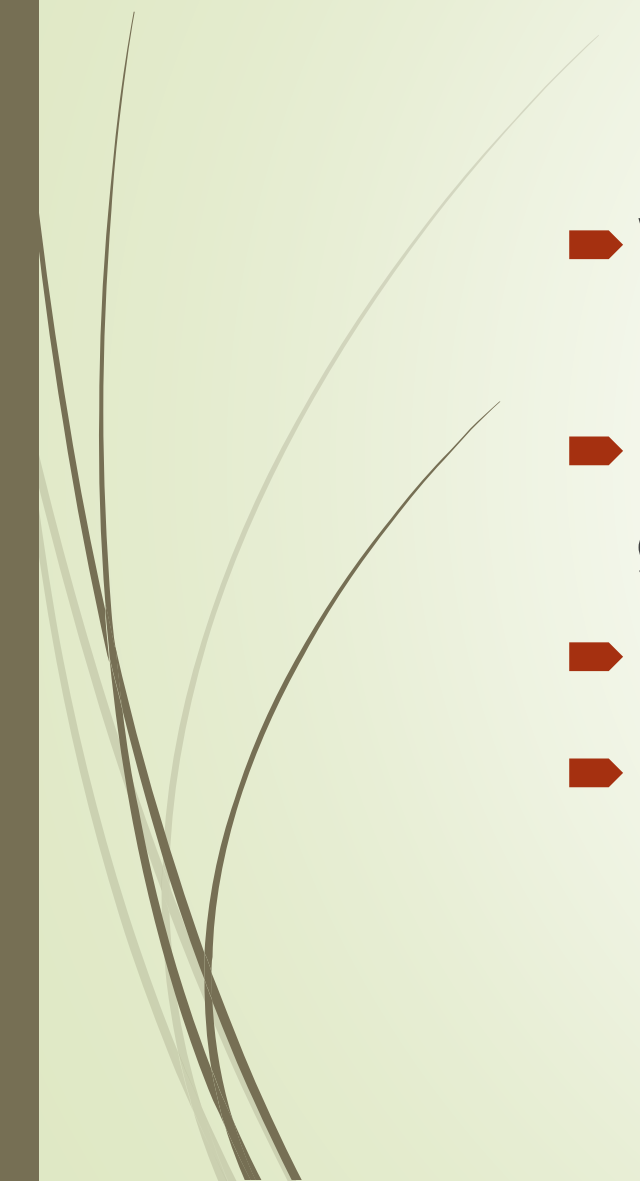


Growing

- Best in well-drained, fertile soil of neutral pH, in full sun
 - Less hardy types grown in containers as annuals
 - Southwestern types may benefit from addition of lime, to mimic native soils
 - Short lived perennials, many will die in 3-4 years
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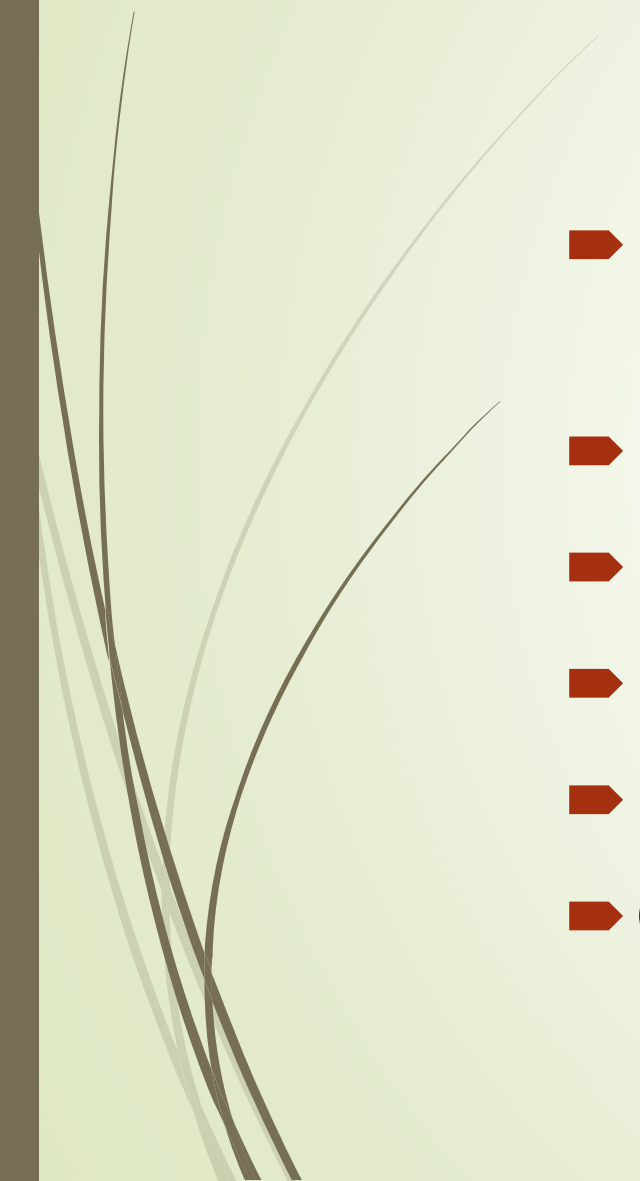


More Growing

- ▶ Well-aerated, humus-laden soils of low fertility may increase longevity
 - ▶ Do not prune back previous season's dead growth through winter
 - ▶ Increases chances of survival
 - ▶ Fertile types usually reseed themselves
- 



Ridge or Raised Beds

- Ridge culture with black plastic decreases manual weeding
 - Increases fresh yield
 - Probably due to increase in soil temperature
 - Decrease in evapotranspiration
 - Reduction of soil compaction
 - Common benefits of using ridge or raised beds
- 



Possible Problems

- Usually trouble-free, but powdery mildew and rust may occur in dry, humid weather
- Downy mildew and other fungal diseases much less common
- *A. rugosa* more susceptible to *Verticillium dahliae* than *A. foeniculum* and *A. nepetoides*
- Aphids can be a problem in the greenhouse
- Two-spotted cucumber beetles may infest plants in the garden

Agastache
rugosa 'Honey
Bee Blue'

Bluestone Perennials



Agastache foeniculum

garden.virtualindustry.org



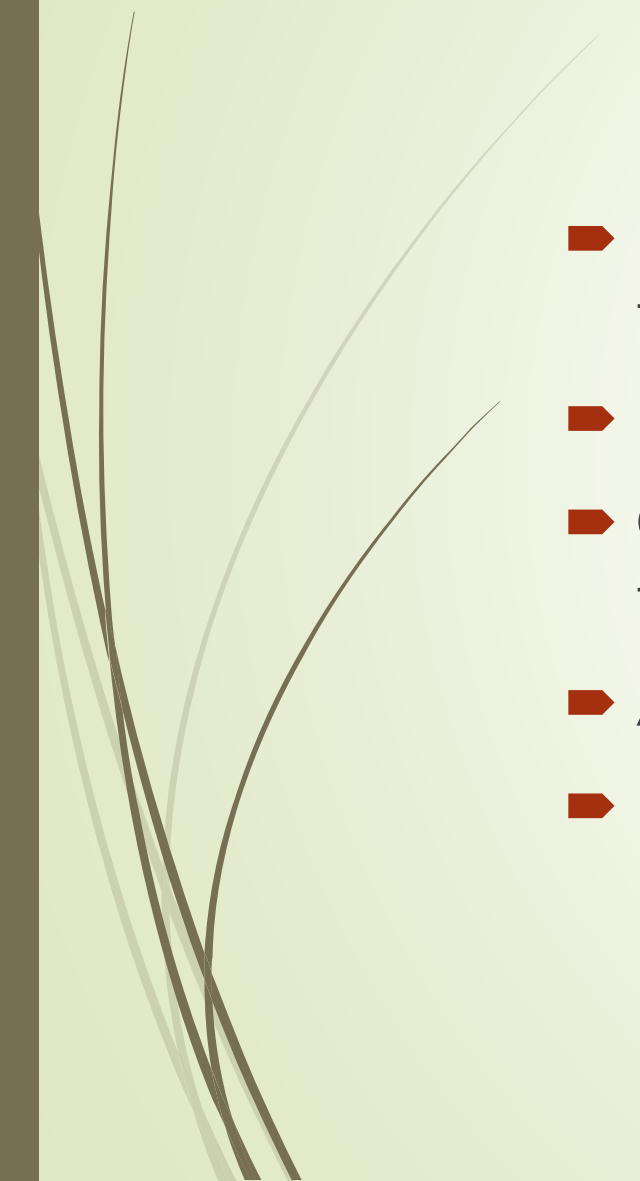


*Agastache
nepetoides*

Wikipedia




Culinary

- ▶ Best known Agastaches add licorice flavor to teas and tisanes
 - ▶ Used as French tarragon substitute
 - ▶ Contains estragole, the special component of French tarragon
 - ▶ Also known as methylchavicol, common in perfumes
 - ▶ Used as a flavoring in foods and liqueurs
- 

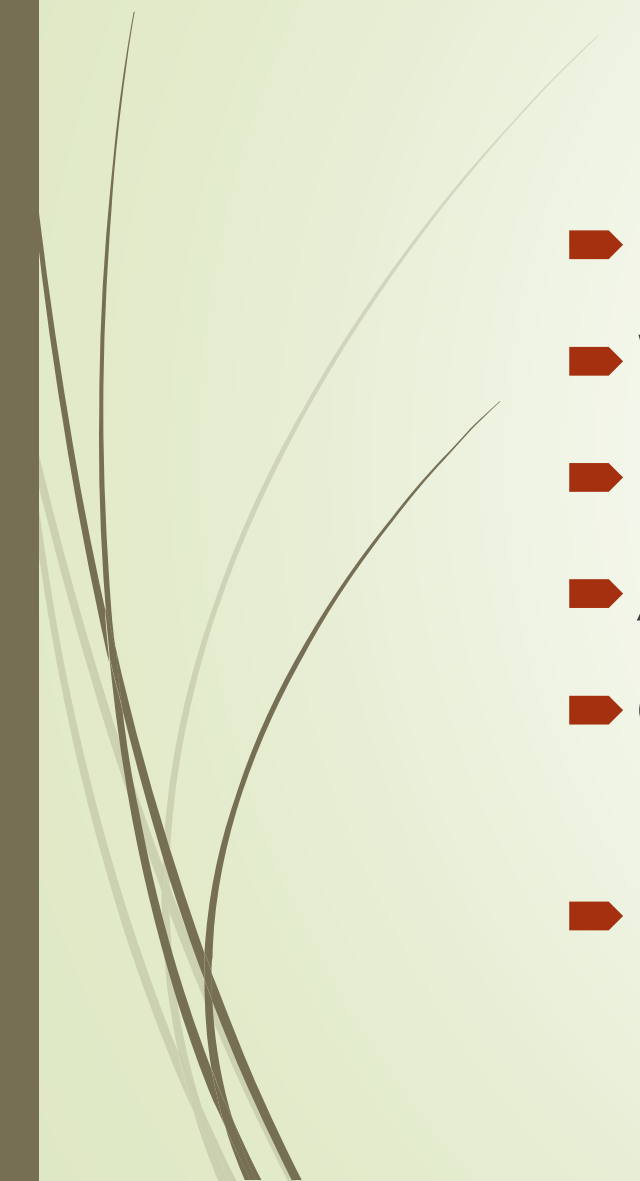


More Culinary

- ▶ Generally have scent of tarragon and basil
 - ▶ Also some overtones of peppermint and pennyroyal in varying proportions
 - ▶ Individual florets may be sprinkled in a salad for visual and taste sensation
 - ▶ Nik Alwerdt uses the tender leaves of *A. foeniculum* layered into lasagna
- 




Landscape Benefits

- Beautiful, long-lasting flower spikes
 - Wide range of colors
 - Upright habit, requiring little care or watering
 - Attract wildlife and humans alike
 - Great bee forage plants, abundant nectar for honey
 - Birds love to snack on seeds
- 



Ornamental Uses

- Increased demand for low-maintenance plants
 - Erect growth habit, little tendency to flop
 - Cut flowers have fairly long vase life, good in cutting garden
 - Dried spikes add winter interest in garden
 - Cut and dried in flower, work in dried arrangements
 - Add color, texture, scent, and volume to potpourri
 - **Largely deer-resistant plants!**
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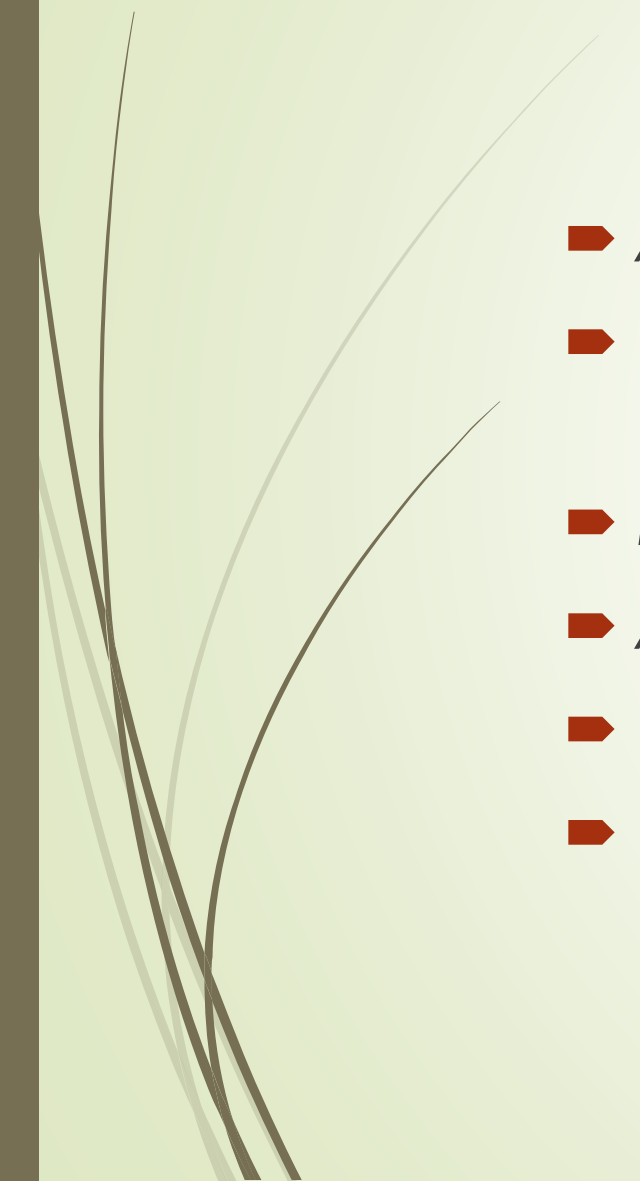
Collecting *A. nepetoides* seeds

Tom's Blog





Brittonastrum Group

- *A. mexicana* is best known
 - Its flowers usually deep orange-pink to deep magenta or bright red
 - May also come in pink or white
 - *A. rupestris* thrives in challenging climate of Colorado
 - Bold sunset orange flowers from August to frost
 - Especially good for xeriscapes
- 

A. mexicana
'Sangria'

Lyn and Malcolm's Garden



Agastache
mexicana
'Red Fortune'

Lyn and Malcolm's Garden



Agastache rupestris

Fine Gardening



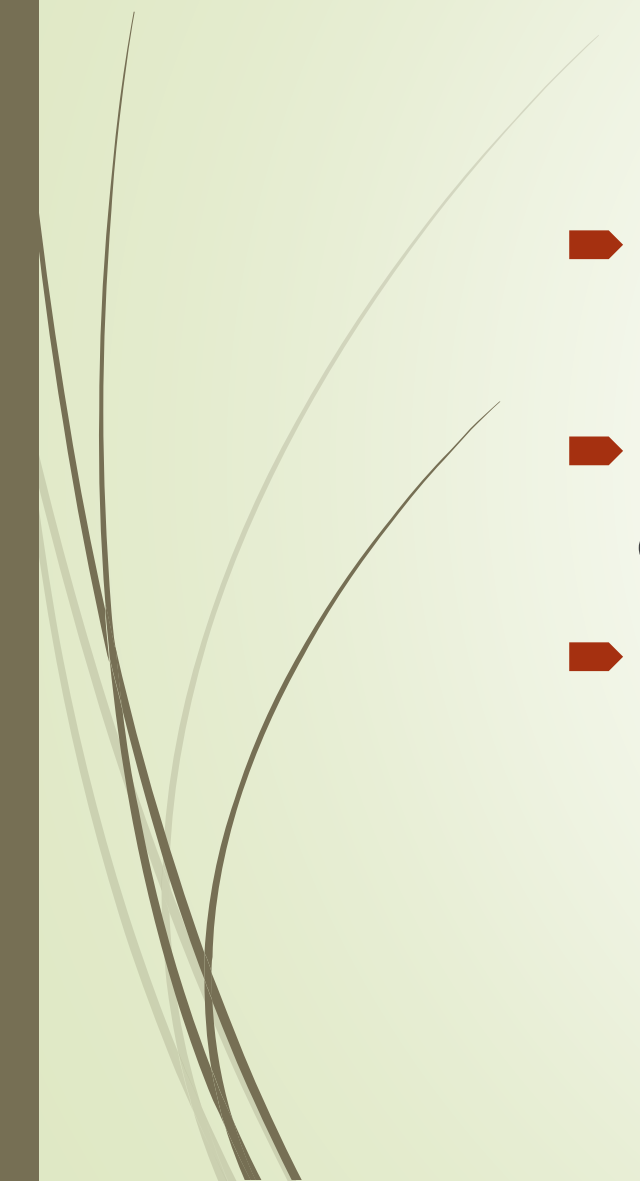


Agastache
rupestris 'Sunset'

Annie's Annuals and Perennials



Cultivars

- ▶ 'Blue Fortune' and 'Tangerine Dreams' Royal Horticultural Society Award of Garden Merit
 - ▶ 'Heather Queen', 'Tutti Frutti', and 'Firebird' U.S. cultivars
 - ▶ Exuberant cultivars like 'Tutti Frutti' should be cut back occasionally to renew and keep in bounds
- 



Agastache
'Blue Fortune'

Bluestone Perennials





Agastache 'Tangerine Dreams'

GAP Photos

Agastache barberi 'Tutti Frutti'

White Flower Farm



Agastache cana 'Heather Queen'

Seed Corner



Agastache
Hybrid
'Firebird'

Ditoplant Export B.V.





Chinese Medicine

- ▶ *A. rugosa* has history of uses in Chinese herbology
- ▶ Traditionally used to treat cancers, cholera, vomiting, fever, headache, colds, indigestion, and abdominal pain
- ▶ Also used as a mouthwash
- ▶ Institute of Chinese Materia Medica lists it as a specific emetic



Chinese Materia Medica

- Treatment for the following:
- Fever due to heat stroke
- Distention of the chest
- Poor appetite
- Nausea
- Diarrhea
- Tinea (fungus) on hands and feet (external use)

Agastache rugosa

Amazon.com



Korean mint





More Medicinal Uses

- ▶ Traditional Chinese, Korean, and Japanese medicines use *A. rugosa* in complex formulas
- ▶ Western medicine shows *A. rugosa*'s antiviral activity on rhino- and coxsackie viruses, in vitro
- ▶ Disruption of poliovirus infection in monkey cells
- ▶ Strength of antibacterial and antifungal activity only moderate

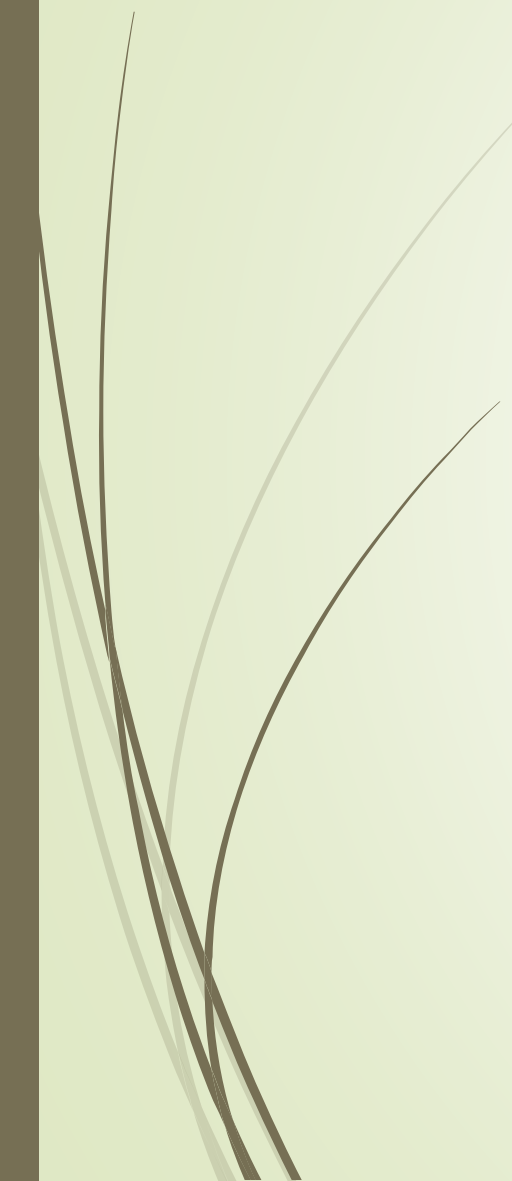


Anti-Cancer Activity

- Essential oil from *A. rugosa* flowers reported to induce anti-mutagenic activity on hamster ovary cells
- Reports of cytotoxic effects towards several cancer lines (lung, ovarian, central nervous system, and colon cancer) with extract of *A. rugosa* roots




Frequent Native American Use

- ▶ Northern Cheyenne used *A. foeniculum* to treat heart conditions and chest pain from coughing
 - ▶ Also in poultices and sweat baths to reduce fever and induce sweat
 - ▶ Cree made infusions to treat coughing blood
 - ▶ Also included flowers in medicine bundles
- 



More Native Medicine

- ▶ Ojibwa steeped roots to make medicine for coughs and chest pain
 - ▶ Vegetative parts for burn poultice
 - ▶ Cayuga tribe used *A. nepetoides* poultices to relieve poison ivy and other itching and burning of the skin
- 



Brittonastrum Used in Southwest

- Paiutes used *A. urticifolia* to reduce swelling
- Also to make infusions to treat indigestion and stomach pain
- Boiled tea for colds
- Navajo used *A. pallidiflora* for coughs, sores, cankers, and reduction of fevers
- Meskwaki made decoction of *A. scrophulariifolia* as a diuretic
- In Mexico, *A. mexicana* used to treat stomach pain, poor digestion, flatulence, anxiety, insomnia, and cardiovascular problems

Agastache urticifolia

alamy.com



 alamy stock photo

AMBD0Y
www.alamy.com

Agastache urticifolia,
Nettle Leaf Agastache Wikipedia



Agastache pallidiflora 'Pink Pop'

The National Gardening Association



Agastache scrophulariifolia

gobotany.newenglandwild.org




Agastache
mexicana
'Red Fortune'

Lyn and Malcolm's Garden





In Summary

- Genus *Agastache* valuable in culinary, ornamental, and medicinal uses
 - Provides superior forage for bees, birds, and other wildlife
 - These species largely ignored by all but most dedicated
 - Breeding and selection have yielded amazing results
- 

Agastache 'Golden Jubilee'

plantsinmygarden.wordpress.com





*Agastache
foeniculum*
'Alabaster'

Gardenia.net



Agastache
pallida x rugosa
'Globetrotter'

SalmonCreekPhotography.com



Agastache 'Apricot Sunrise'

SalmonCreekPhotography.com



©2011 SalmonCreekPhotography.com



A. cana hybrid
'Bolero'

SalmonCreekPhotography.com



Agastache 'Red Fortune'

King Nail

Agastache 'Blue Boa'

Bluestone Perennials





Agastache
x hybrida
'Asturo
White'

Swallowtail Garden Seeds

Agastache
rugosa
'Summer
Glow'

Urban Tree Farm



Photography of TERRA FlorViva, Harroze, Ltd.



Agastache
'Kudo's
Silver Blue'

California Flora Nursery





Agastache
'Morello'


bluestoneperennials.com



A. pallida x
rugosa
'Globetrotter'
Annie's Annuals and Perennials



Finally...

- ▶ Public just awakening to glories of species and cultivars of genus *Agastache*
 - ▶ Viewed as “exotic” when all but *A. rugosa* are species or interspecific hybrids of native North American plants
 - ▶ International Herb Association celebrating genus *Agastache* as Herb of the Year in 2019 provides opportunity to taste, smell, plant, study, and enjoy this wonderful group of plants
- 

Agastache cusickii, Cusick's giant hyssop

Amazon.com



Agastache cana

plantsofthesouthwest.com

