Plants For Bees

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First…A Little Honeybee Trivia…

- How many flowers must a honeybee tap to make a pound of honey?
  2 million
- How far will a bee fly in search of forage (nectar/pollen)?
  up to 3 miles
- How fast does a honeybee fly?
  approximately 15 miles per hour
- *How long have bees been producing honey from flowering plants?*
  10-20 million years
- How many flowers does a honeybee visit during one collection trip?
  50-100

February 24, 2014

- *"Honey bee pollination supports an estimated $15 billion worth of agricultural production, including more than 130 fruits and vegetables that are the foundation of a nutritious diet. The future security of America's food supply depends on healthy honey bees,"* said Agriculture Secretary Tom Vilsack. *"Expanded support for research, combined with USDA's other efforts to improve honey bee health, should help America's beekeepers combat the current, unprecedented loss of honey bee hives each year."*

Here's the dilemma…

Often…if left to there own schedule, bees would peak their numbers *after* the peak of the nectar flow because they don't increase their numbers *until* the major nectar flow starts.

The result…the beekeeper has a strong workforce of bees after…not during the time they are needed….

A classic labor/work load mismatch…

Crops Pollinated by Honeybees

- Almond, asparagus, buckwheat, cherry, cole crops, lavender, lespedeza, muskmelon, pear, pepper, persimmon, plum, pumpkin and squash, quince, radish, raspberry, sunflower, turnip, vetch.
- Alfalfa, apples, blackberries, clover, cotton, crabapples, cucumbers, eggplant, grapes, paw paw, lima beans, okra, peach, nectarine, peanut, strawberry, tomato, watermelon.

Plant selection basics…

- select plants that need similar growing conditions …sun/shade, moisture etc…
- select plants which are disease and pest
  free and resistant to future pests where possible
- consider variety and a long season of bloom
- fill empty spaces with short season cover crops
- don't fret about a few weeds
- mix annuals with perennials, woody with herbaceous
- plants don't have to have fine pedigrees to be good forage plants…

What Attracts a Bee to a Flower???

- *Early flowers allowed nectar to be stolen by any passerby…*

- *Later flowers evolved to allow nectar to be removed only in "exchange" for pollination.*

- *Saucer shaped flowers* (poppy/wild rose) have petals that are all alike… they offer little nectar but do have a bounty of pollen that is easily accessible to beetle and bee alike.
- *Bell shaped flowers* enclose the nectar and require the bees to enter to gather nectar and coat themselves with pollen in the process…this enhances the chance of cross pollination and genetic variability.

Tube shape flowers are "insect selective".

What Attracts a Bee to a Flower???

- ***Flower shape and color*** guide bees from a distance and scent provides a stimulus to alight. Bees are attracted to flowers with the highest sugar concentration…nectar with a high water content is not worth the energy spent to collect it! The Biggest flowers do not always have the most or best nectar.

- Bee pollinated flowers tend to be brightly colored in ***blues*** and ***yellows***.

- Bees see red as grey or as the absence of color.

- If bees are visiting a *red* flower, they are probably drawn by ***ultraviolet markings*** which are invisible to us. These markings often serve as directional pointers to show the bee the best route to the most nectar.

FREE NECTAR…THIS WAY→

Honey plant	February	March	April	May	June	July	Aug.	Sept.	Oct.
Alfalfa		X	X	X	X				
Aster						X	X	X	X
Basswood				X	X				
Birdsfoot Trefoil			X	X	X	X	X	X	X
Brambles				X	X				
Brassicas				X	X				
Buckthorn			X	X	X				
Clover				X	X				
Cotton						X	X	X	
Cucurbits					X	X	X		
Dandelion		X	X	X					
Elm		X	X						
Fruit trees			X	X					
Goldenrod						X	X	X	X
Hawthorn			X	X					
Honeysuckle			X	X	X	X			
Locust				X	X				
Maple	X	X	X						
Milkweed				X	X	X	X		
Persimmon				X					
Poplar		X	X						
Privet				X	X				
Redbud			X						
Soybean						X	X	X	
Sumac		X	X	X	X	X			
Sunflower					X	X	X		
Tulip poplar				X	X				
Vetch				X	X				
Willow	X	X	X	X	X				

Field Plants

Alfalfa (*Medicago sativa*)

- **Alfalfa is a perennial herbaceous legume with blue flowers that grows from a semiwoody base or crown.**
- **Often referred to as the "queen" of forages it is probably the most important forage crop in the United States, accounting for about half of all the hay produced. More than 27 million acres.**
- **Alfalfa blooms throughout the summer and is ranked as the most important honey plant in most of the western states.**

Unfortunately modern forage production does not allow for much bloom to form before harvesting.

pH 6.5-7.0

15 to 20lb of seed / acre for pure stand-seeding rate

Sow early spring or late summer

Apply 1.5-2 lb/acre of elemental boron each year

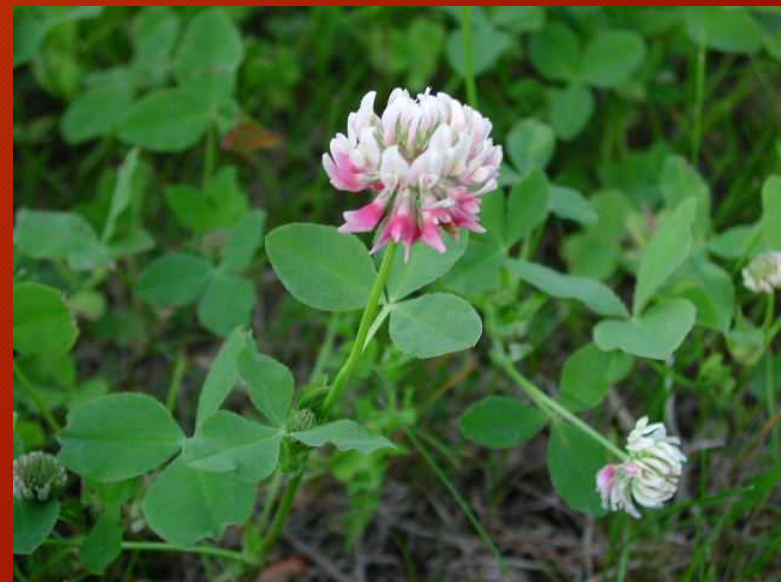
http://www2.ca.uky.edu/agc/pubs/agr/agr76/agr76.htm

Alsike Clover (Trifolium hybridum)

- **This is an outstanding honey plant. It grows 12 to 24 inches high and has a bloom that is white with some reddish/pinkish color in it. Alsike clover grows well in clay soil and in northern regions of the United States and Canada. It has a long blooming period and can be found along road sides, railroad right of ways, and meadows.**
- ***Very heavy yields have resulted when bees are located near a Alsike clover field.***

pH 5.5-6.5

http://umaine.edu/publications/2261e/



Buckwheat (*Fagopyrum esculentum*)

- It is a short crop which means that three seedings can be made in one year on the same ground. It flowers about 20 days after planting. A field of buckwheat looks like a white blanket of snow. The bees eagerly work it and produce large amounts of honey from it.

- *Can tolerate a pH down to 5*
- http://extension.missouri.edu/p/G4306
- 50 lbs nitrogen/acre
- http://www.extension.iastate.edu/alternativeag/cropproduction/buckwheat.html

Clover (*Trifolium species*)

- **Honey bees are said to gather little red clover honey because the flower tube is so deep but when the weather is dry and plant growth somewhat retarded, honey bees have been known to gather great amounts of honey from red clover.**

- **White Clover blooms very early in the season and blossoms dry up as hot weather arrives**

- **Crimson Clover-not hardy…grown as an annual**

- **Red Clover 6.0-6.7**

  White Clover 5.5-6.5
- http://umaine.edu/publications/2261e/

Sweet Clover (*Melitotus species*)

- This is an extremely valuable honey plant. There are several species grown in the United States (Yellow Sweet Clover - *Melitotus officinalis* and White Sweet Clover *Melitotus alba)*.
- The yellow sweet clover plant blooms in June and is followed several weeks later by white sweet clover.
- It is a biennial. It is used to improve the quality of soil.
- It grows especially well where other clovers will not.

Trees

Black Locust
(Robinia pseudo-acacia)

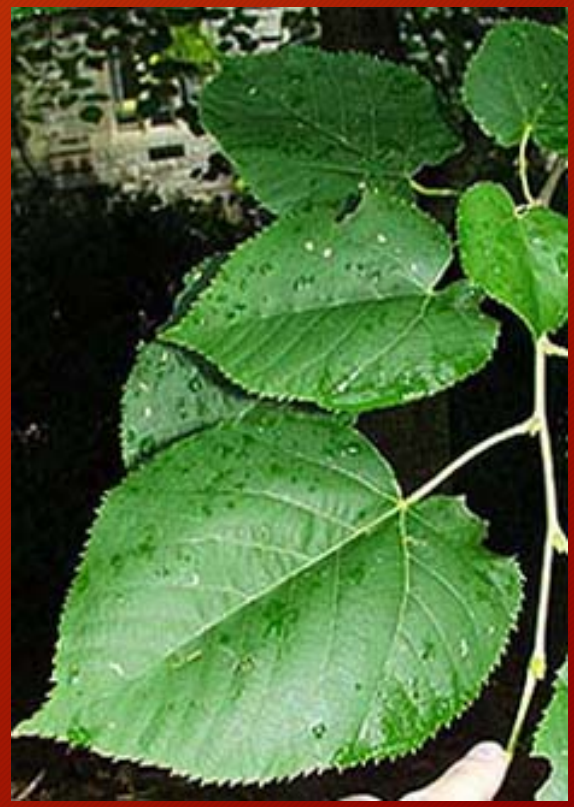
- **This is an outstanding honey tree. It grows best in hilly and waste land areas. The tree blossoms in April -May The flowers are white pea shaped hanging in a pendent cluster. When in full bloom, the fragrant smell is quite noticeable. Its blooming period is short (about 10 days).**

- **It does not consistently produce a honey crop year after year. Weather conditions can have quite an effect on the amount of nectar collected. *We generally can count on a good honey locust flow in one out of five years.***

Linden or Basswood (*Tilia Americana*)

- At one time this tree was a major source of honey in the Eastern States. The blooming period is approximately 10 days but during those blooming days, it is covered with honey bees yielding large quantities of nectar. Honey crops produced by Basswood are a hit or miss affair.

- Hot clear weather contributes to a fine honey crop. It blooms in early summer, usually late June early July.



Maple (*Acer species*)

- This is a valuable honey plant. It is one of the first major nectar/pollen sources for bees in the spring. It begins to bloom in the south in February and continues to the north into early April.

- The blooming period last for several weeks.

Tulip Tree (*Liriondendron Tulipifera)*

- Large timber and ornamental tree.
- In southern states the tree comes into bloom in late April and extends its blooming period into the north till mid-June.
- The tree has a two week blooming season during which it produces large amounts of nectar.
- When the blossoms are late in opening and the weather is warm and dry, the honey flow is very much heavier than when the bloom is early

Willow (*Salix varieties*)

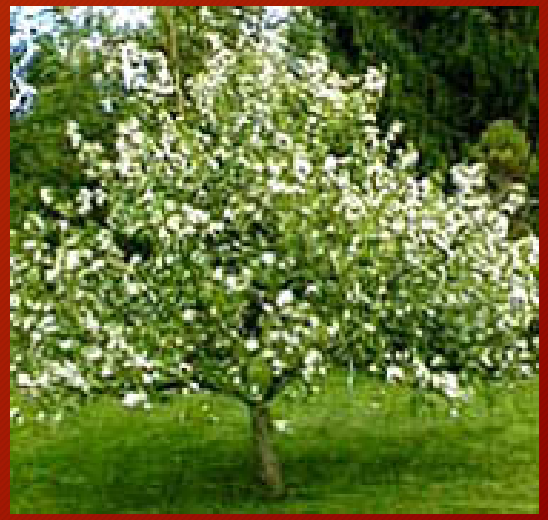
- Reported to be over 160 species of willows. Range in form from small shrub to large tree. Tend to be found in moist soils esp along streams and rivers.

- In the North, weeping willow and pussy willow (*Salix discolor*) are among the earliest of blooming plants and the nectar and pollen gathered is used for feeding brood.

Fruits and Vegetables

Apples (*Malus species*)

- **Apple trees species include the many varieties of trees from cultivated fruit orchard trees to the hundreds of varieties known as crab-apples. The blooming season extends over two to three weeks in early spring. *Crab-apples have even a greater blooming season and are found growing in fence rows, abandoned fields, and way sides.***



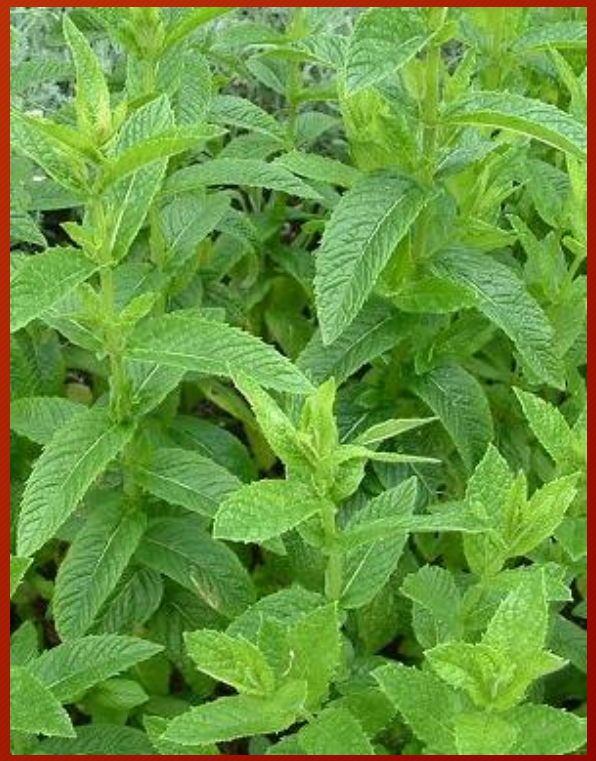
Blackberries, dewberries and raspberries (*Rubus species*)

- These are all closely related plants and are good sources for honey. It is a member of the *Rosaceae family.*
- All can be found growing in waste land, along stream and creek beds, and can become a very evasive pest.

- This plant blooms from April thru June depending on climate zones.

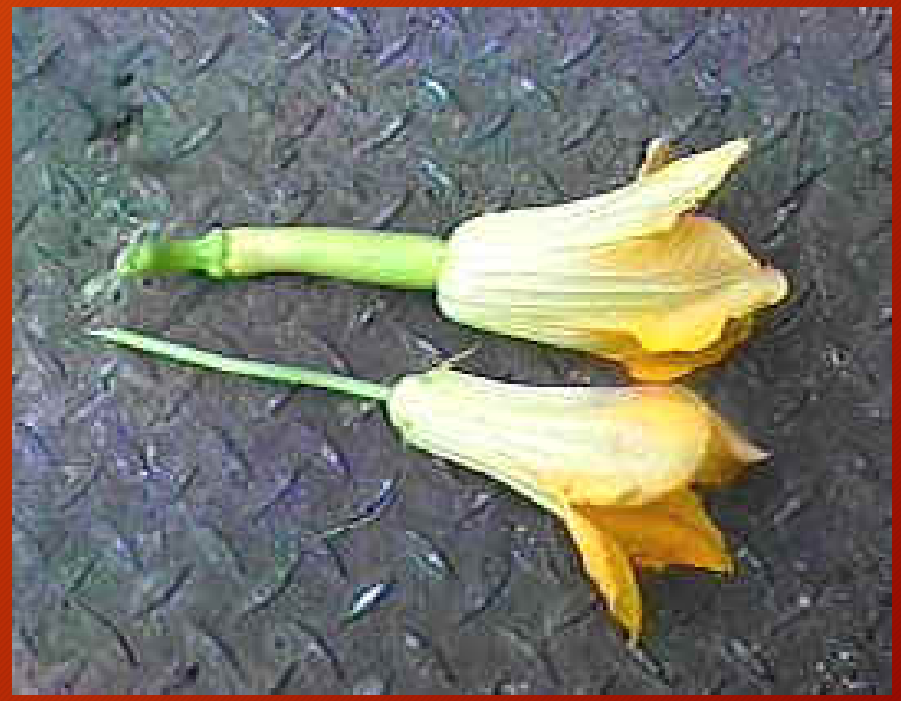
Mints (*Mentha species*)

- A valuable honey plant in areas where grown.
- Many mints are now found growing wild and have hybridized. Many gardeners started various kinds of mints (over 600 varieties) and these have also naturalized themselves. Mints spread rapidly because of their invasive root system.
- Blooms from July to August. Bees are highly attracted to the blooming plants



Squash/Pumpkins/pickles (Cucurbita *species*)

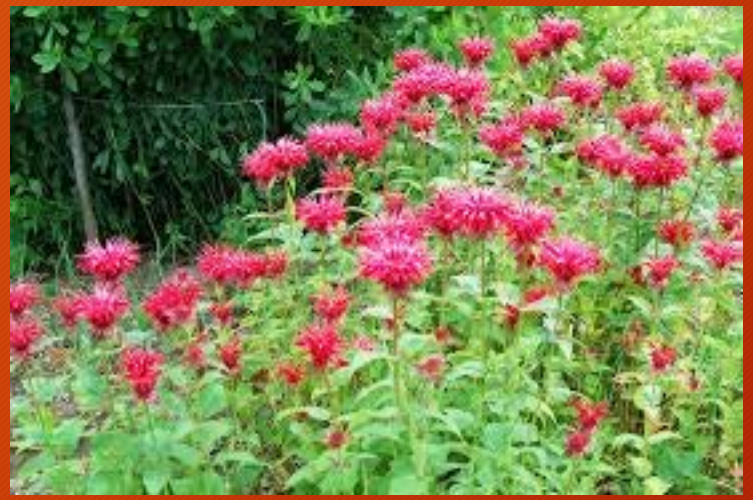
- Cultivated crops grown in areas from the south to the north. This means that in the North, the plants are usually not put into the ground until July and bloom continuously from late July to September. Bees gather both pollen and nectar in large amounts.



Landscape Plants

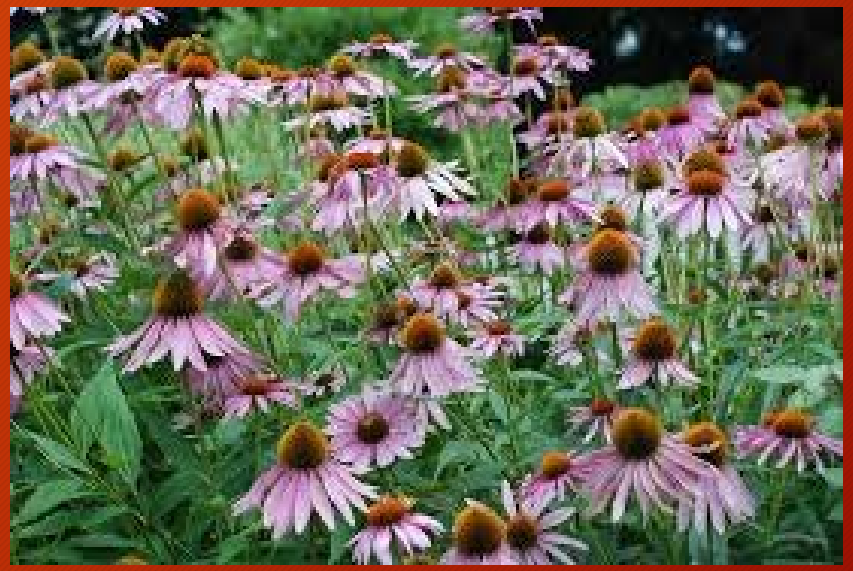
Bee Balm- (*Monardra didyma*)

- Bloom time: early to late summer
- Full sun to part shade
- 2-4 feet tall
- 1.5-3 feet spread



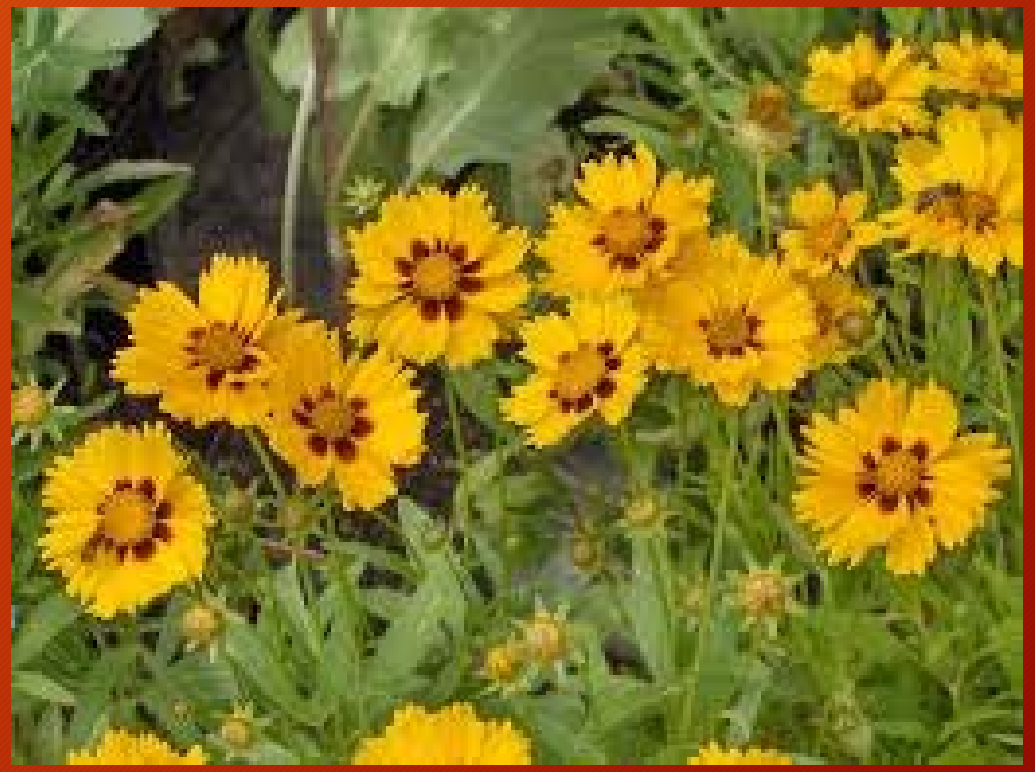
Purple Coneflower- (*Echinacea purpurea*)

- Bloom time: June to August
- Full sun to part shade
- 2-5 feet tall
- 1.5-2 feet spread



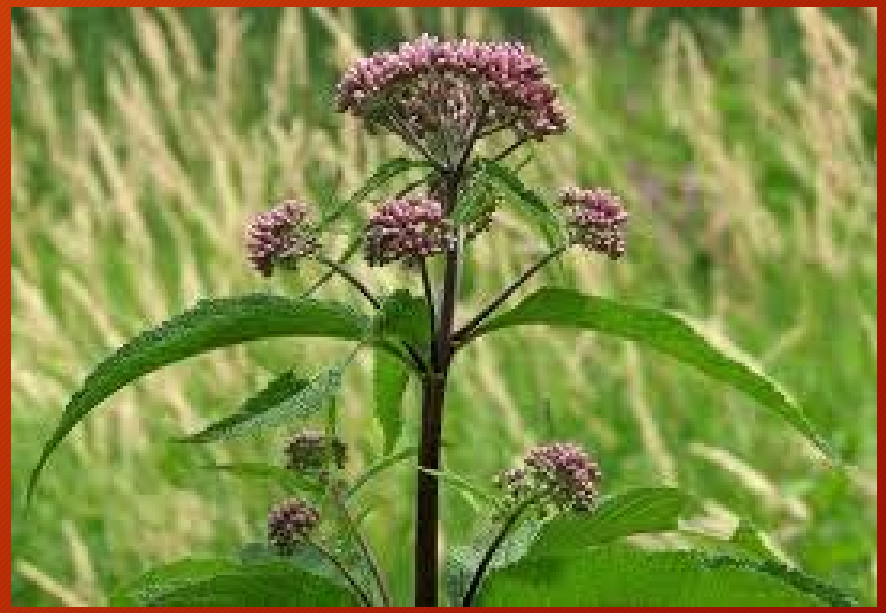
Lanceleaf Coreopsis- (*Coreopsis lanceolata*)

- Bloom time: May to July
- Full sun
- 1-2 feet tall
- 1-1.5 feet spread



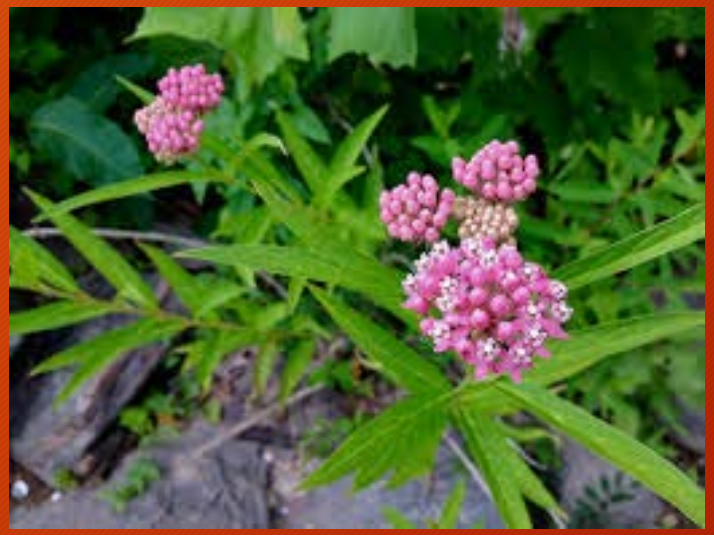
Joe-Pye weed- (*Eutrochium purpureum*)

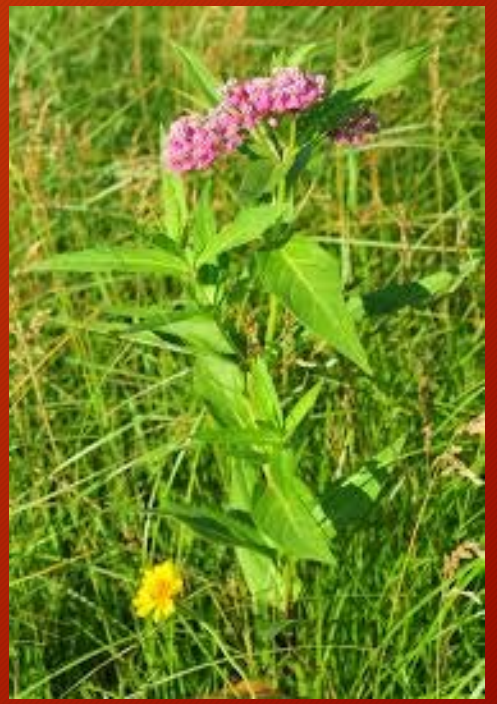
- Bloom time: July to September
- Full sun to part shade
- 5-7 feet tall
- 2-4 feet spread



Swamp milkweed- (*Asclepias incarnate*)

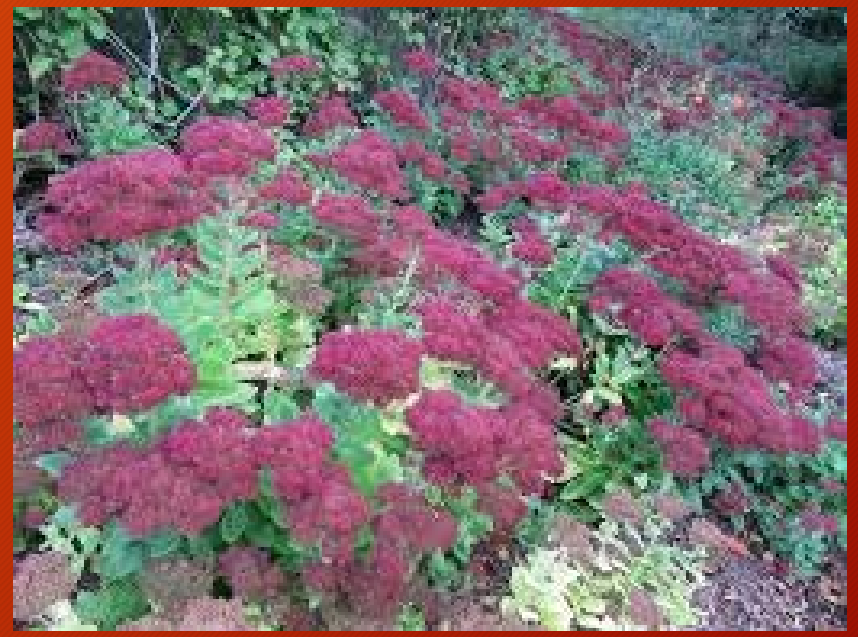
- Bloom time: July to August
- Full sun
- 4-5 feet tall
- 2-3 feet spread





Autumn Joy Sedum- (Sedum x ‘Autmn Joy’)

- Bloom time: Late summer to fall
- Full sun to part sun
- 1.5-2 feet tall
- 1.5-2 feet spread



Weeds/Wooded Areas

Dandelion (*Taraxacum officinale)*

- Not a native plant of the Americas. Its blooming period is short. It is found in abundance along road sides and in waste areas and my lawn. Abundant pollen and nectar.

- Most of this honey is consumed in the production of early brood.

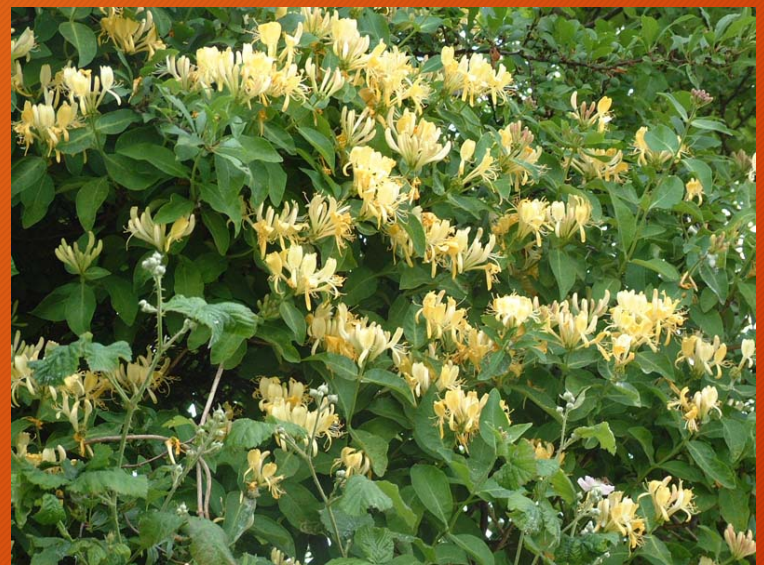
Goldenrod (*Solidago varieties)*

- **There are over 160 varieties of goldenrod growing in the United States, Canada, and Mexico. It blooms over three or four weeks and grows in many road side areas, along waste land near streams and fence rows, and in nature preserves.**

- **Goldenrod is a late blooming plant. Provides good crops in September and because of the late flow, it is used for winter stores.**

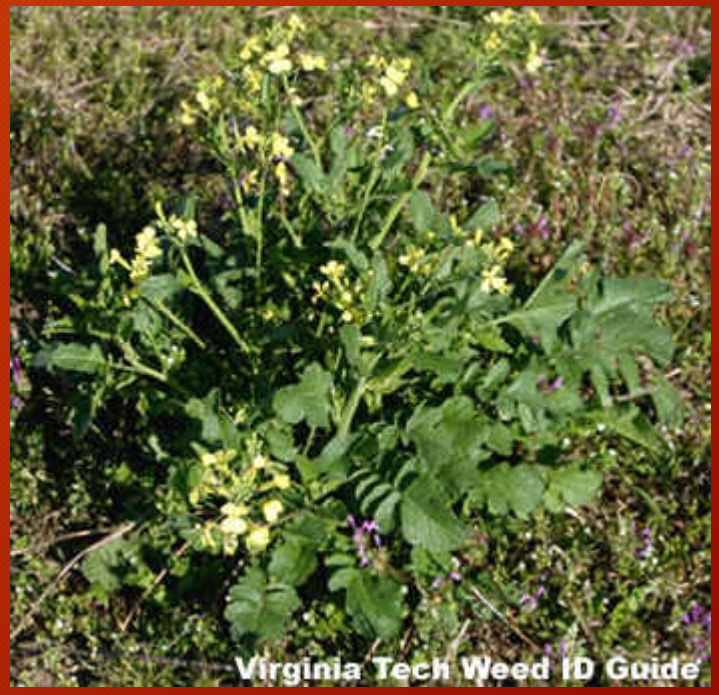
Honeysuckle (Diervilla Lonicera)

- There are more than 150 species of honeysuckles in the Northern Hemisphere. Many of these have deep corolla tubes that are only accessible to humming birds and insects with long proboscises. The bush honeysuckle is a valuable honey plant. Some varieties are considered invasive.



Mustard (*Brassica capestris*)

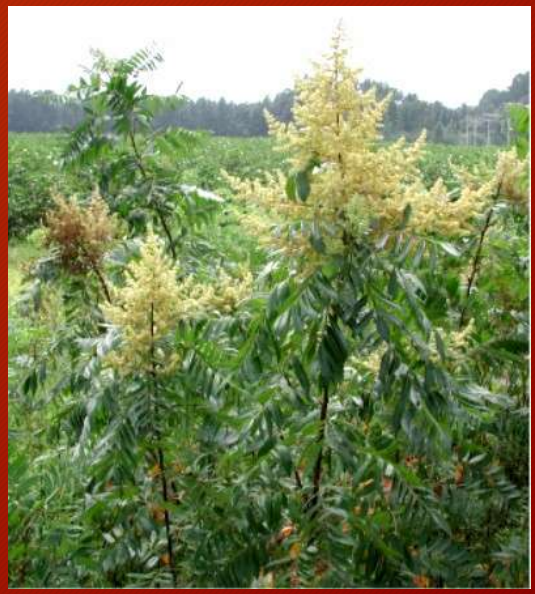
- **Common yellow mustard is common all over the United States and Canada. It is a member of the *Cruciferae* family. Common mustard bloom early in the spring in many cases before farmers are able to plow fields.**



Sumac (*Rhus species*)

- There are 14 species of sumac found in the United States.
- Sumac is rather shrub like. It grows along the borders of woods, along railroad right of ways, along highways, and in waste areas. It is an important honey plant.

- It is a mid summer flowering plant -- June and July.
- Staghorn and Smoothbarked Sumacs have the most nectar.



Resources

- University of Minnesota Bee Squad/Bee Lab
  - www.beelab.umn.edu