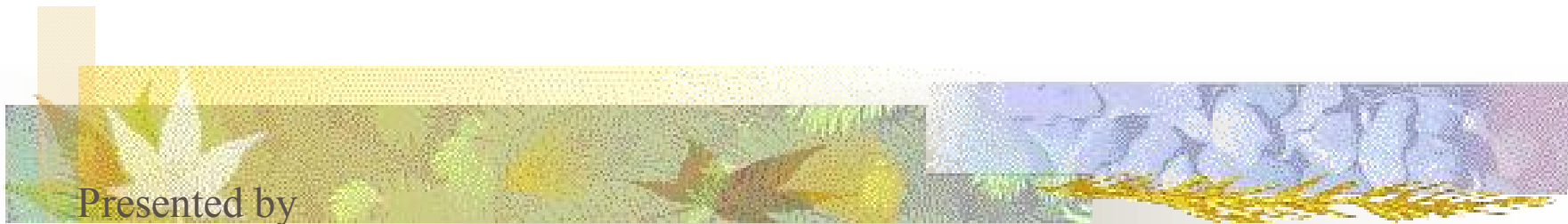


Bee Pollination including natives



Presented by

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December, 2005

Master Gardeners class



Why Are Bees Important?

■ Pollination

- Value to US Agriculture - \$40 billion/yr
- Worth 50-60 times the value of honey & wax

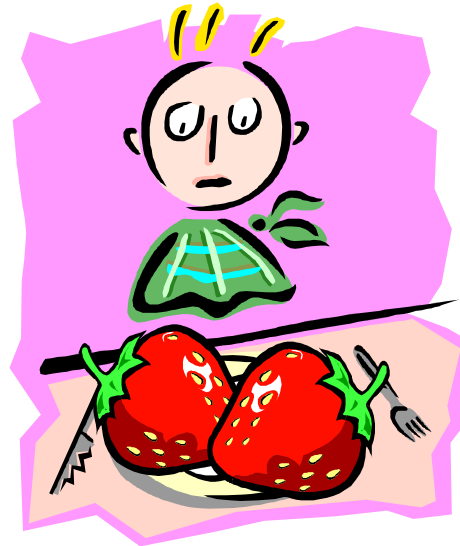


Loss of Honey Bees as Pollinators

- More than 50% of managed colonies have been lost in 50 years; 25% in just five years
- Populations of native pollinators also in steep decline – 70-90% of wild bees lost in many states
- More than 90% of flowering plants depend on pollinators to produce seed

Without bee pollination...

- Many flowers not visited, not pollinated
- Decreased fruit/vegetable size and quality
- Potentially significant yield reduction in many crops





Dependence of Selected Crops on Honey Bee Pollination

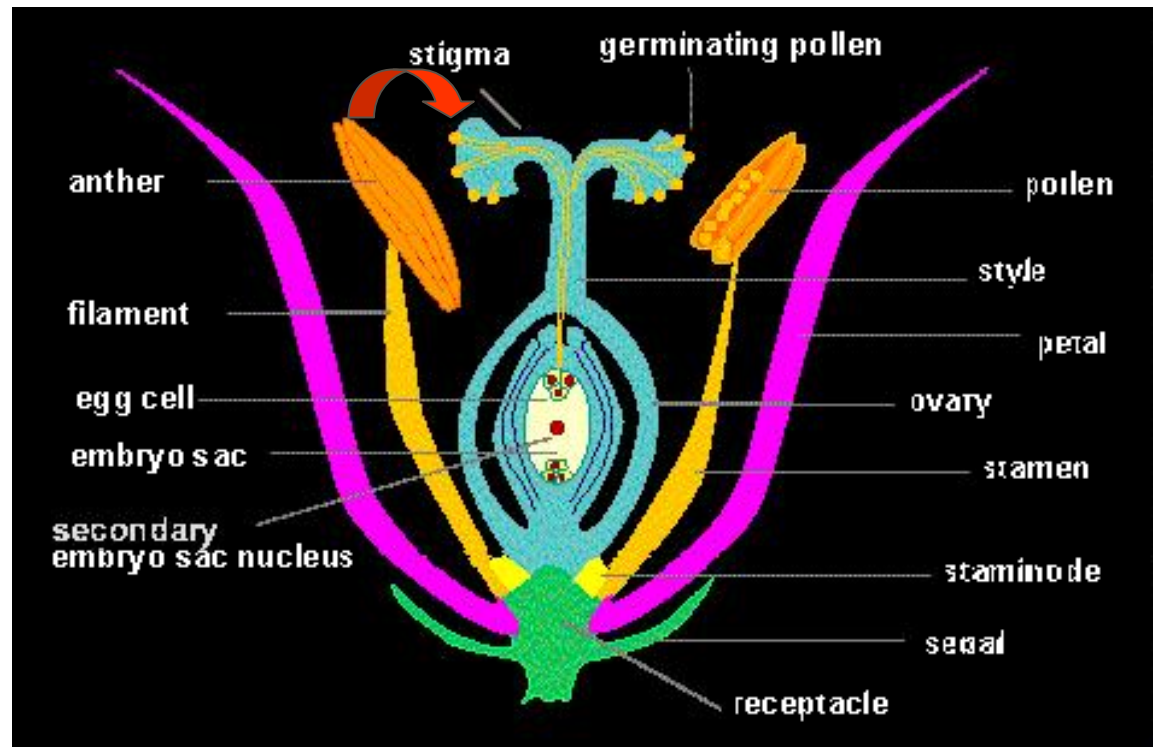
Crop	Crop Loss Without Honey Bee Pollination
Apples	80%
Cherries	60%
Pears	50%
Strawberries	30%
Asparagus	90%
Cabbage	90%
Carrots	60%
Sunflowers	80%
Watermelons	40%



Why honey bees are needed

- Thousands of field bees in each colony
- All typically only work one species of flower in a day
- Whether they are collecting nectar or pollen, body hairs transfer pollen
- Native pollinators can be more effective but not enough population to keep up

Pollination



Pollen needs to get from the anther to the stigma



Worker bee covered with pollen and carrying full pollen sacks.



Why natives are good

- Forage earlier, transfer more pollen/visit
- Tend to be heavier, shake plants
- Skirmish with honey bees, more shaking
- Can provide most pollination if wild habitat is close to crops



Important natives

- Orchard mason bee (*Osmia lignaria*)
- Sweat bees (*Halictidae* spp.)
- Leafcutter bees (*Megachile* spp.)
- Carpenter bees (*Xylocopa* spp.)

Blue orchard bee (mason bee)



Carpenter bee



Small carpenter bee (*Ceratina calcarata*)



Photo: www.discoverlife.org

So if you decide to use
honey bees for
pollination...



How many colonies do you need?





Crop pollination requirements

Crop	# of hives/acre
Apples	1-2 (3 for dwarf varieties)
Blueberries	4
Cucumbers	2-3
Squash	1
Strawberries, Raspberries	1
Cranberries	3
Melons	1

How can you get some bees?

- Contract for them
- Offer a beeyard location
- Become a beekeeper



As if I didn't already
have enough to do!!!

Contracting for pollination

- High honey prices=less contract pollinators
- Contract early
- Expect to pay \$30-40/colony or more
- Use a written contract



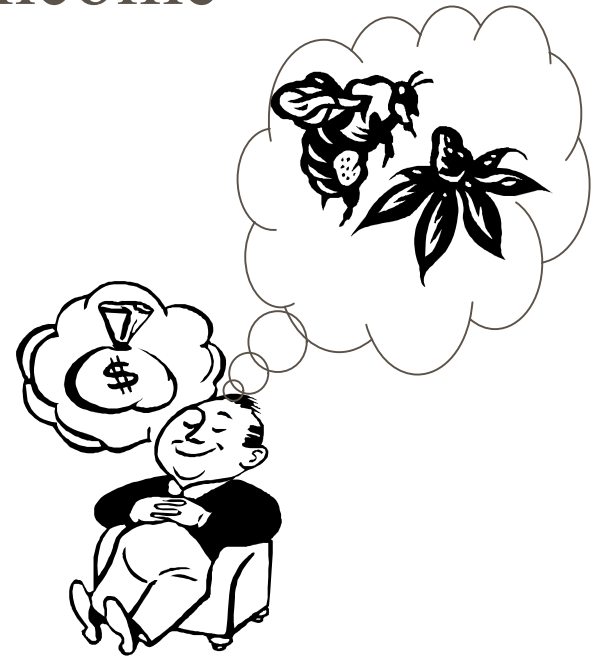
Offering a beeyard

- Good site location- southern exposure, easy access to road year 'round
- Possibly a honey marketing arrangement?



Becoming a beekeeper

- Start-up cost \$200-300 for first colony, \$150 or so for each subsequent
- May be offset by honey income
- Find a mentor
- Consider the workload
- Passive beekeeping?





Basic Equipment: Mesh helmet; folding veil; smoker with fuel and lighter; electric uncapping knife; hive tool; bee brush; sting-resistant gloves.



A typical brood set-up: Bottom board, two deep supers, 20 frames, an inner cover (not visible in this photo), and a telescoping outer cover.



A two-pound package of bees with syrup can.



Helpful Resources

- Insect Pollination of Cultivated Crops by S.E. McGregor
http://www.beeculture.com/content/pollination_handbook/index.html/
- Bee Culture magazine, <http://www.beeculture.com/>
- Wisconsin beekeeping supply companies
 - Lapp's Bee Supply, Reeseville, 1-800-321-1960
 - Dadant, Watertown, 1-877-232-3268
- Your local beekeepers organization
- Give me a call: 608-355-3250 or e-mail paul.dietmann@ces.uwex.edu