An Introduction to Common Native Pollinators on Farms in Ontario

Rural Agri-Innovation Network (RAIN)


IMAGINE

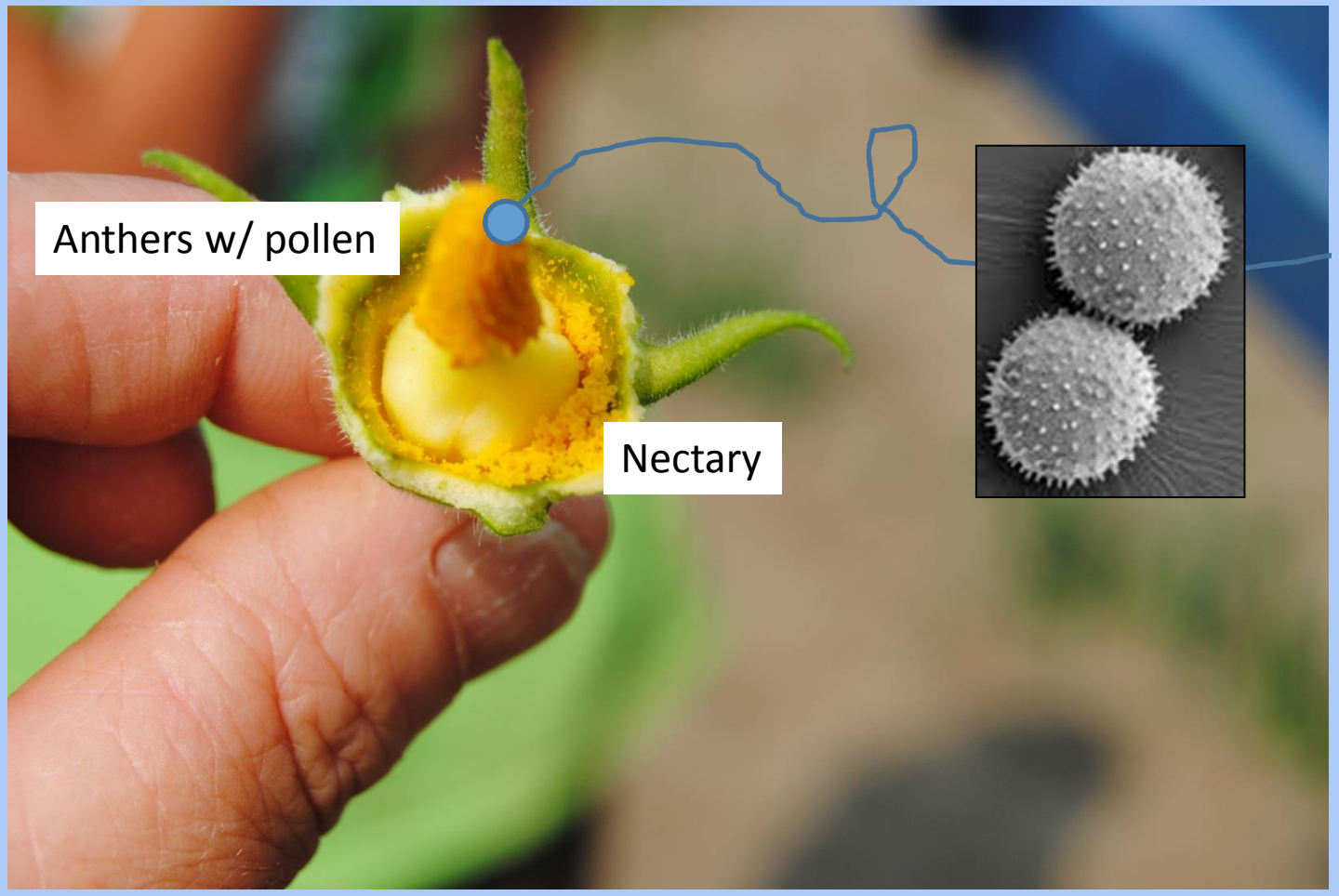
Native Bees in Agriculture

- 51 species—watermelon, sunflower, tomato in California
- 67 species—berry crops in Nova Scotia
- 3X production of cherry tomatoes in California
- Improve efficiency of honey bees in hybrid sunflower crops.

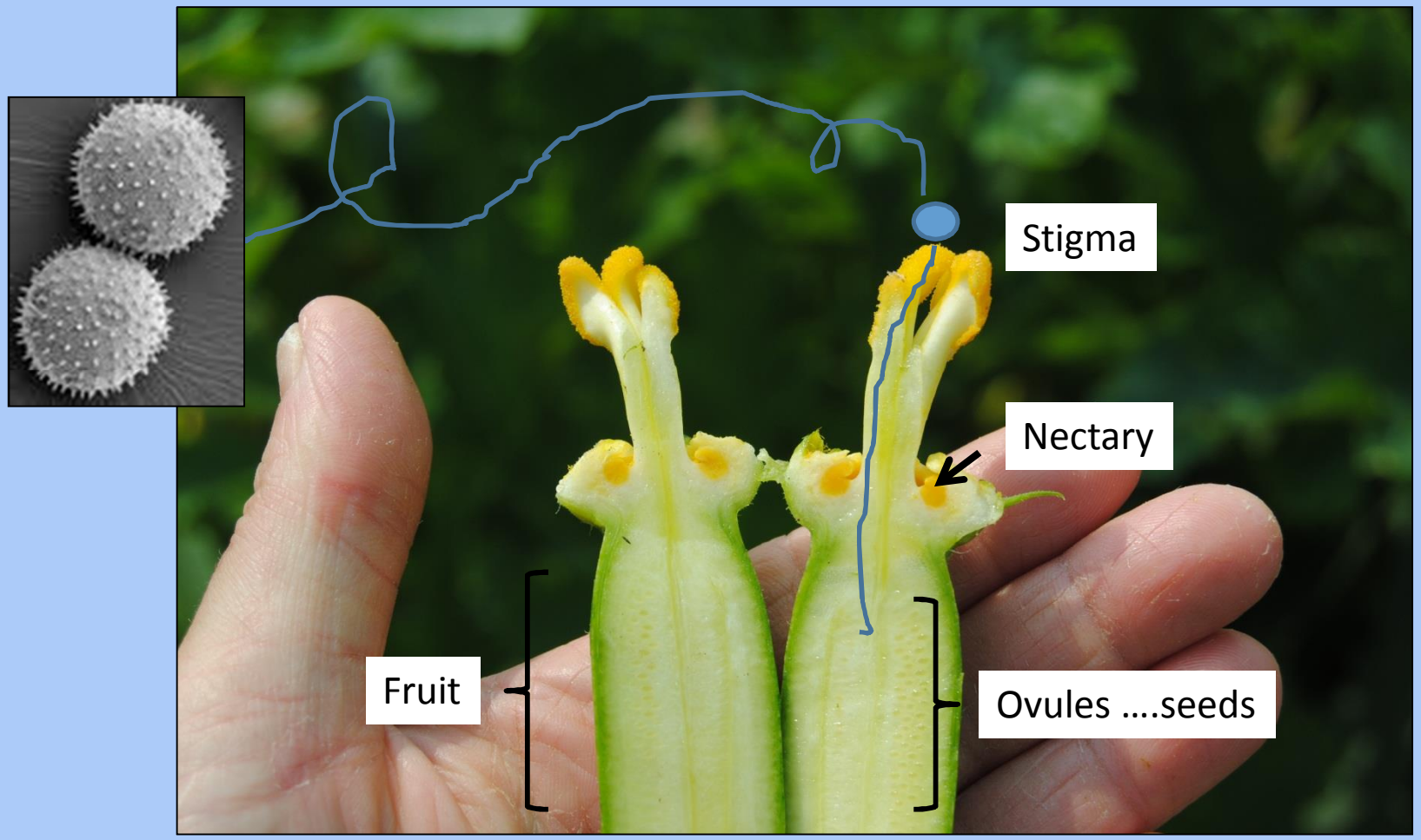
Benefits of Pollinators

- Increased Yield—all crops
- Increased Quality—oil seed crops
- Decreased Non-marketable Crop—cucumbers, small fruit, apples
- Larger Fruit—pumpkin, squash, tree fruit, small fruit

Male Parts of a Flower



Female Parts of a Flower



Common Pollinating Agents in Ontario

ÅWIND

ÅINSECTS:

400+

1

Common Myths About Bees

Å Bees sting

Å Bees swarm

Å Bees make honey

Å Bees live in colonies

Timing/Special Relationships

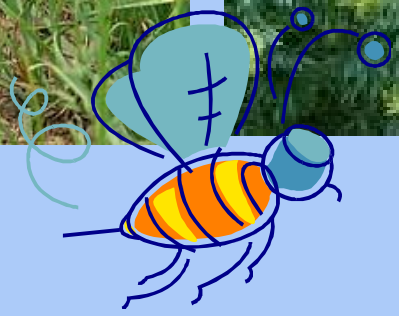
Specialized plant structures

Bad weather

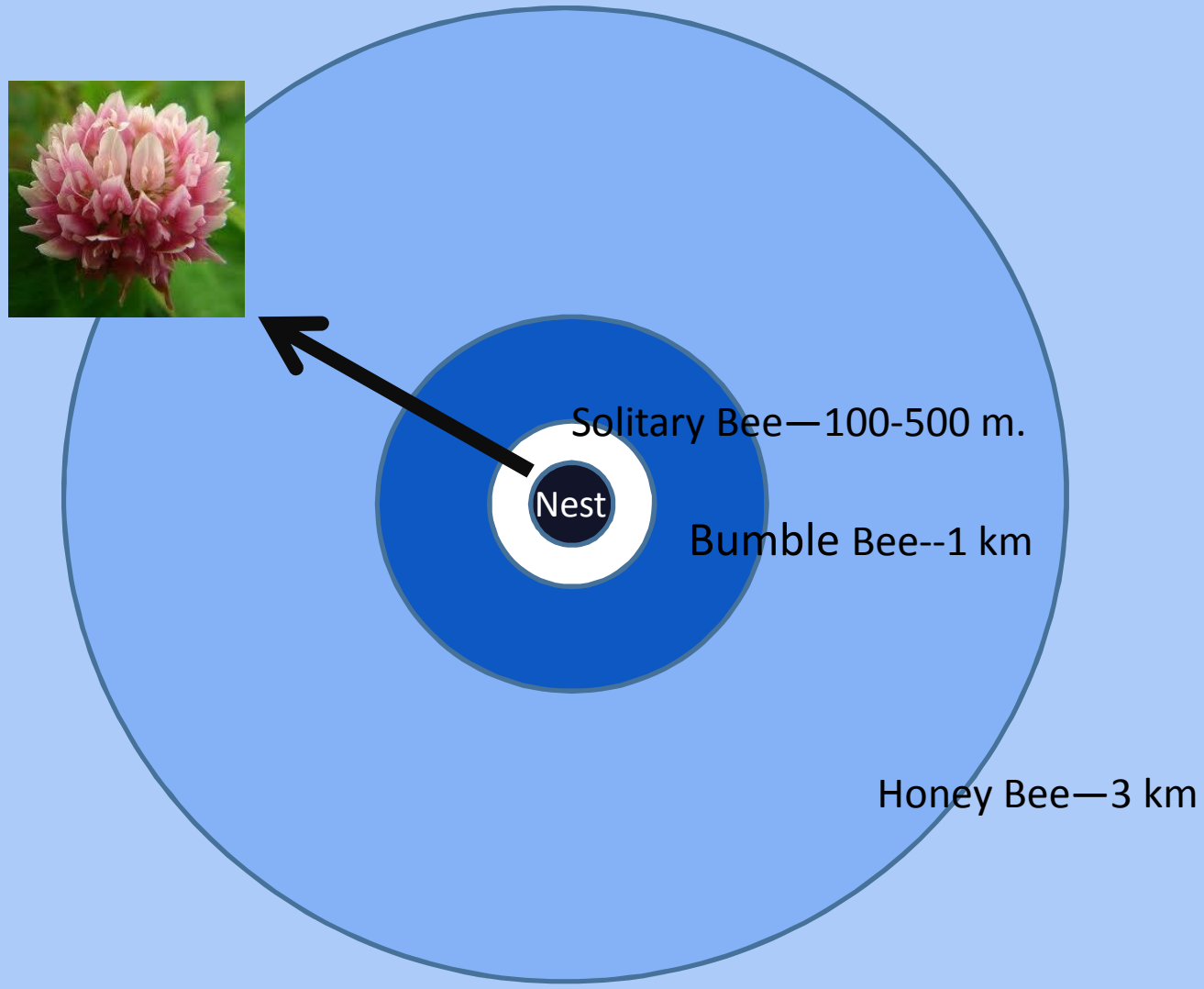
Native Bees Need…

Nesting Habitat

Foraging Habitat



Nest-Forage Distances



Foraging Habitat

Å Continuous flowering

Å Diversity of flower colour and shape

Å Plants for specialist bees

Å Flowering crops

Å Diverse location

Å Competition with crop pollination needs

Plant in Clumps

9-12 different species together

Bloom over time,

3 species in bloom at a time

Continuous Flowering

April	May	June	July	Aug	Sept	Oct
Willow	Marsh Marigold	Raspberry	Brassicas	Goldenrod	Goldenrod	
Red Maple	Red Maple	Chives	Clovers	Clover	Aster	Aster
Crocus	Red Chokeberry	Service berry	Borage	Thistle	Thistle	Sneeze weed
Scilla	Tulip	Hawthorn	Milkweed	Borage	Borage	Borage
Silver Maple	Oak	Apple	Liatris	Verbena	Verbena	
Alder		Bloodroot	Mountain Mint	Chicory	Witch hazel	Witch hazel
		Currants	Monarda	Sunflower	Sunflower	

Search Plant

Ontario

Select Season

Select Sub-Season

Search

Welcome to the online floral calendar for Ontario's beekeepers. Using the dropdown menu, you can quickly determine which plants are in bloom and the value of each blooming plant as nectar or pollen resources for bees.

Floral calendars are an essential tool for beekeepers. They provide information on the yearly cycles in the flow of nectar for honey production and availability of pollen. This helps beekeepers maximize honey production while maintaining colony health. This is the first time this type of information has been made available for Canadian beekeepers in an electronic and easy-to-access format.

This resource was created by the Canadian Pollination Initiative (NSERC-CANPOLIN) with financial support from the Ontario Ministry of Agriculture and Rural Affairs and the University of Guelph through the Knowledge Translation and Transfer (KTT) program. Seeds of Diversity is generously hosting the website.

NSERC-CANPOLIN
CANADIAN POLLINATION INITIATIVE

Ontario

Seeds of Diversity

Zoom in (Ctrl+Plus)

Information and Sources of Planting Materials
for Ecological Restoration in Ontario

6th Edition

Native Plant Resource Guide Ontario

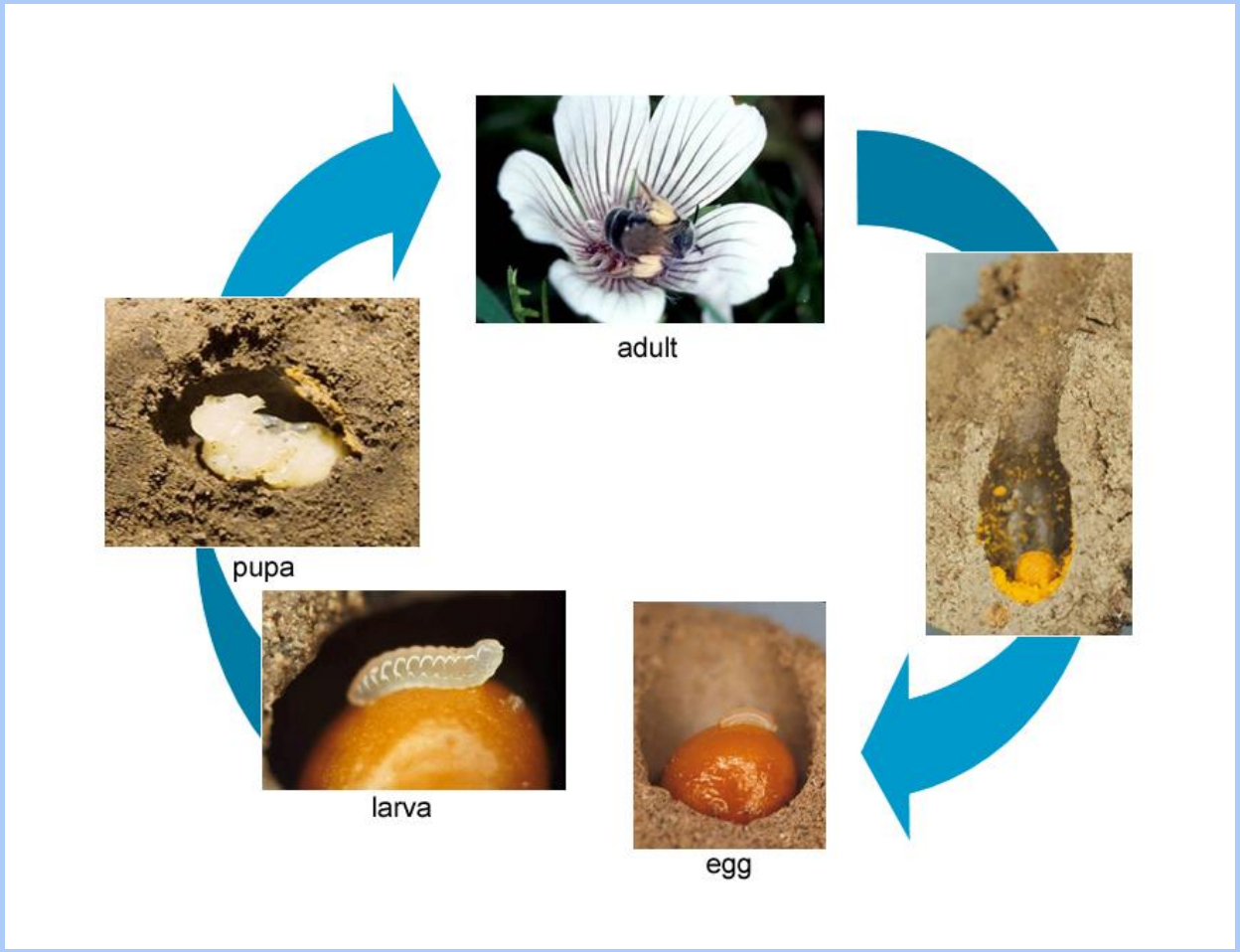




Society for Ecological Restoration – Ontario Chapter
www.serontario.org

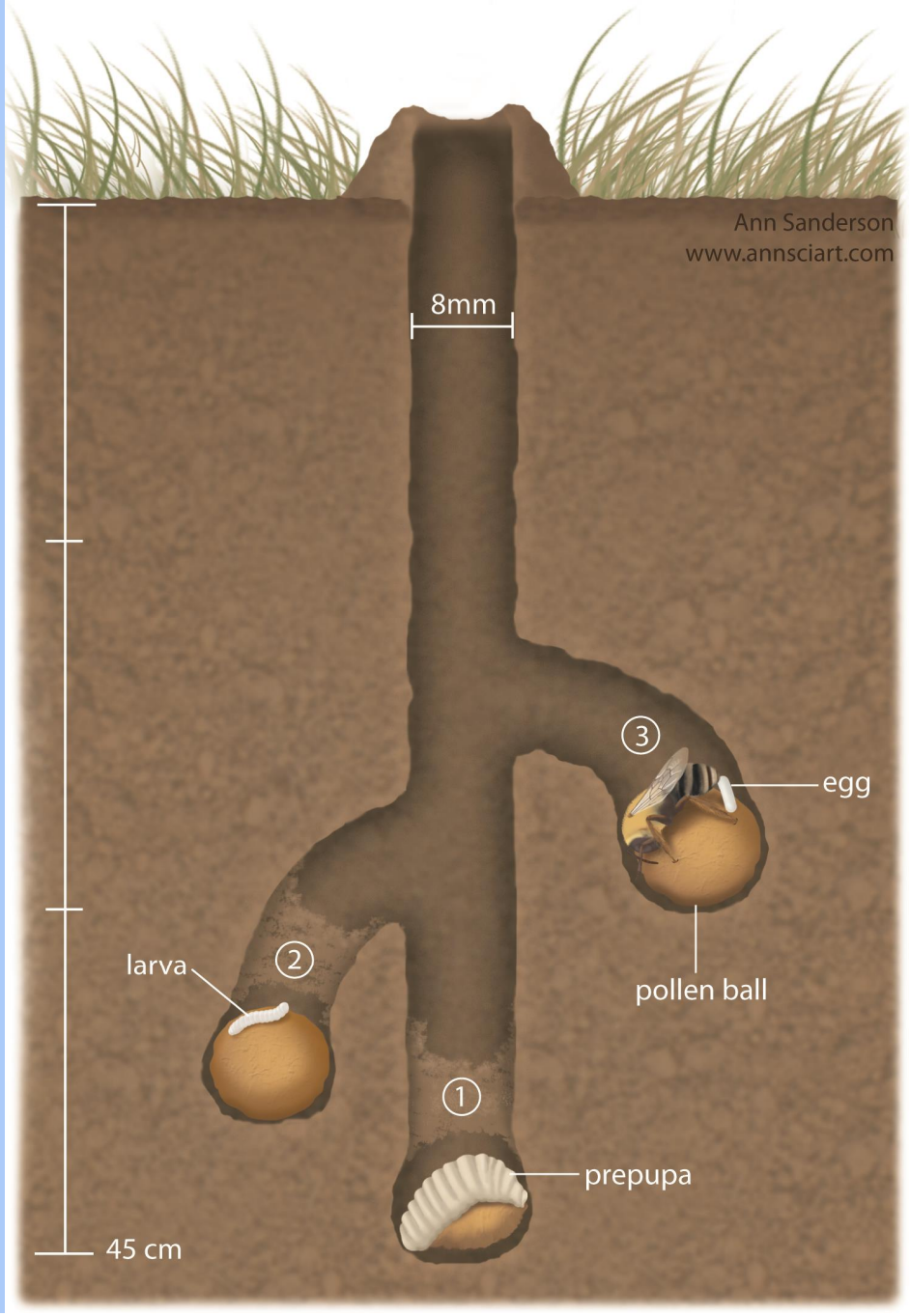
Pollen from Wind-pollinated Woodlot Plants is Vitally Important in the Early Spring

Life Cycles of Native Solitary Bees

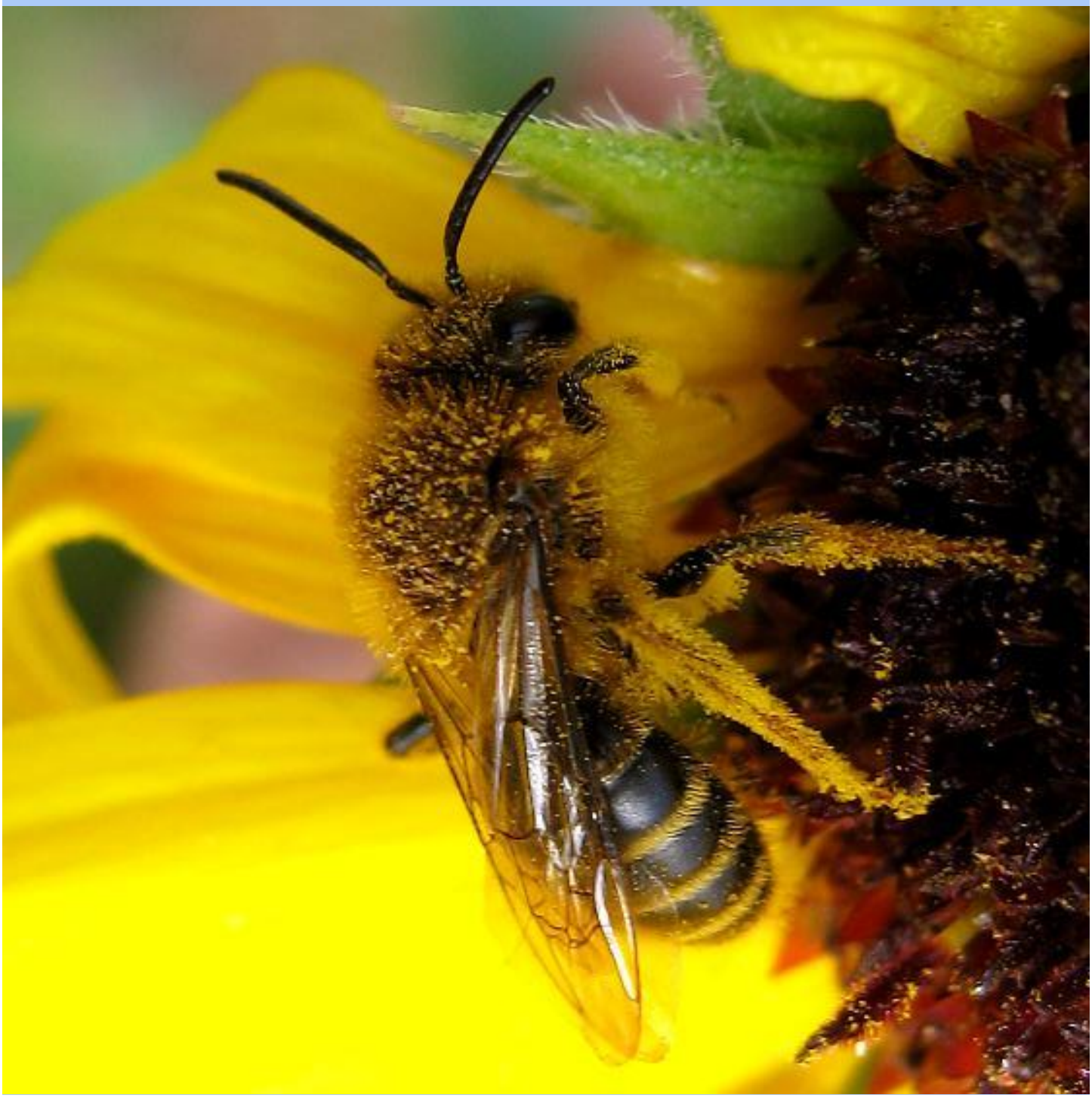


GROUND

NESTS


Ann Sanderson
www.annsciart.com
8mm
3
egg
pollen ball
larva
2
1
prepupa
45 cm

Andrenid Bees



Miner bees

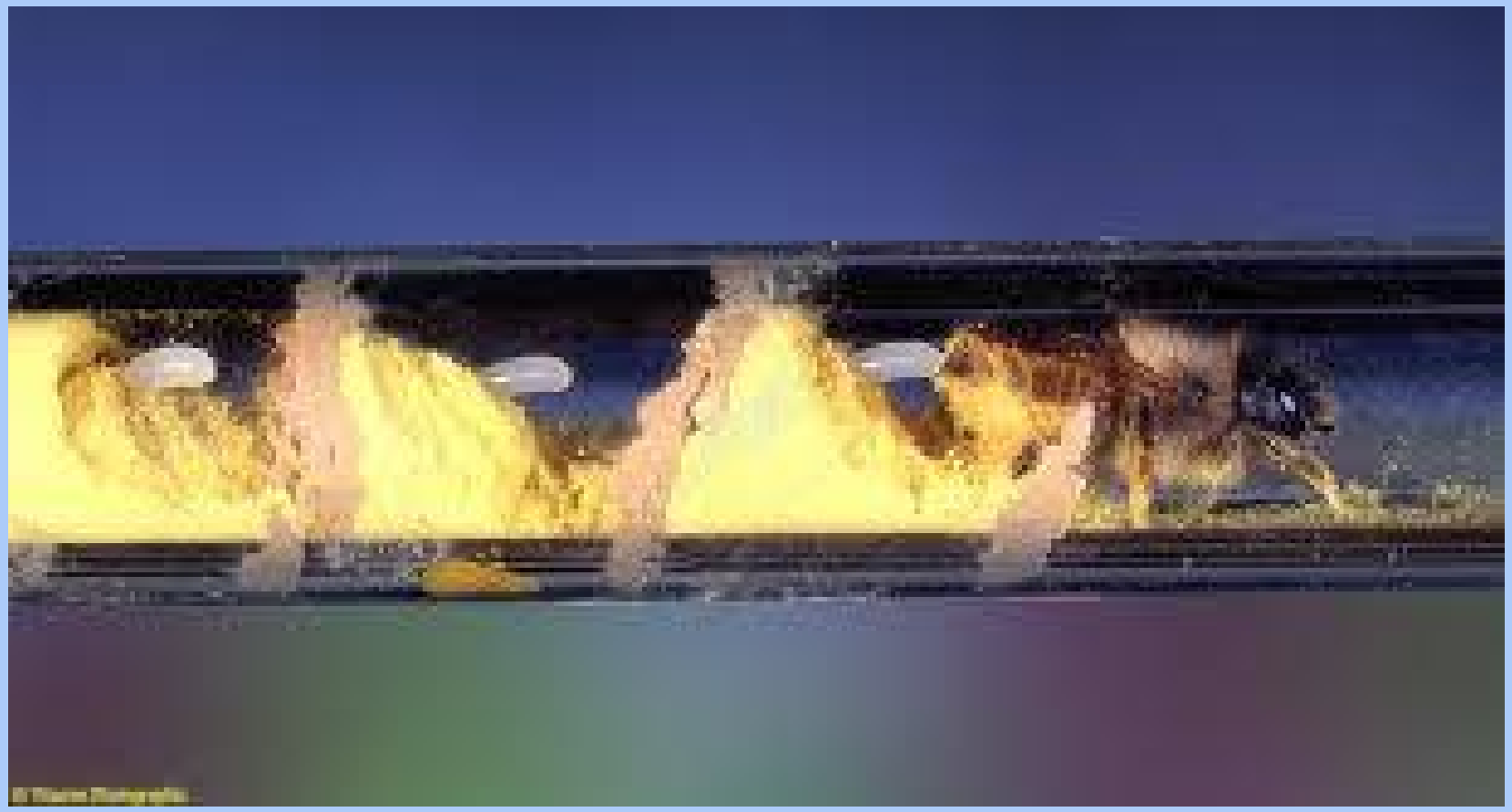
Halictid Bees

Squash Bees

Colletes

www.discoverlife.org

Solitary bee laying an egg on a pollen ball



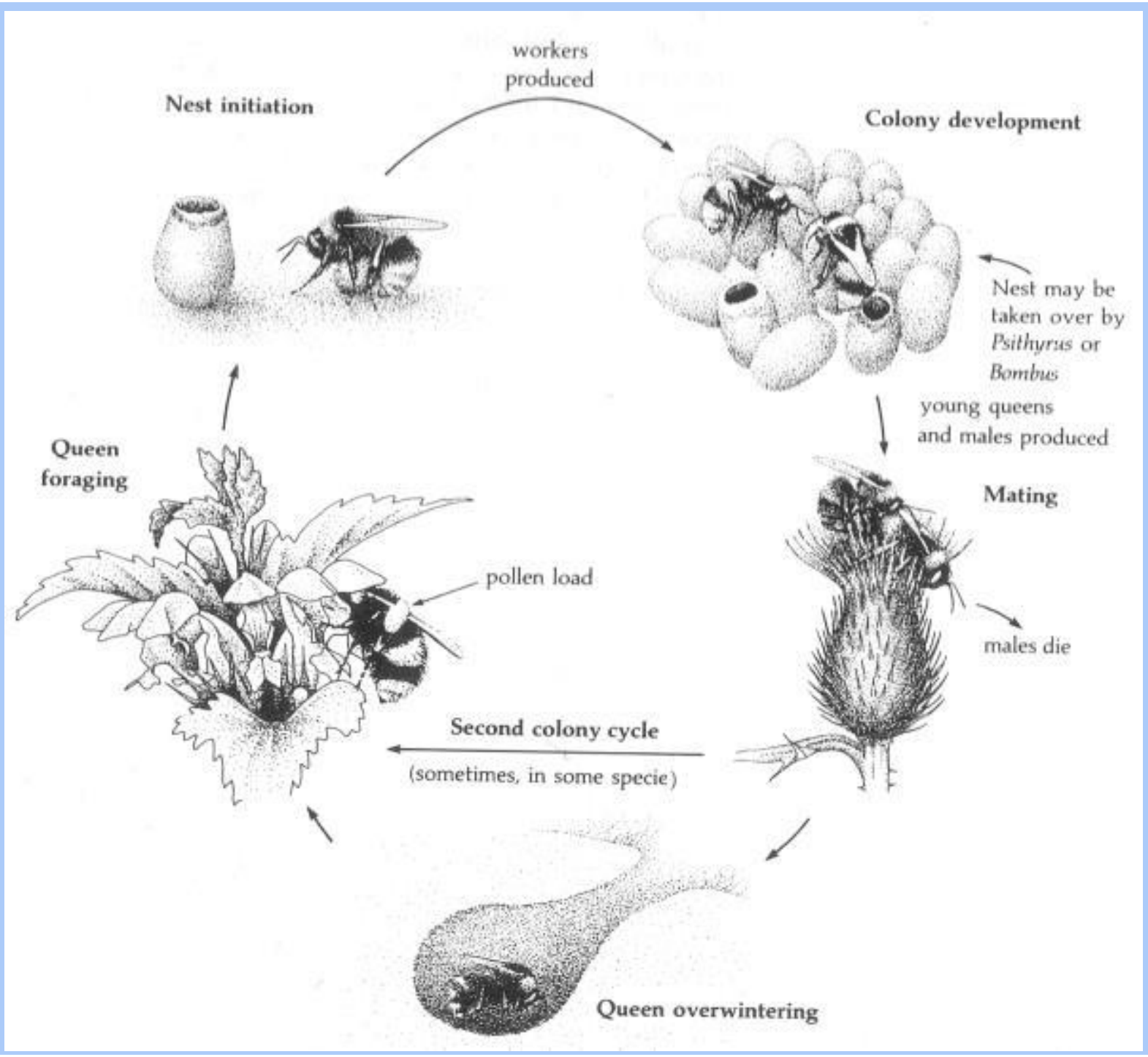
Mason Bees

Ceratina

Raspberry Cane Borer

Ceratina nest


Leafcutter Bees


workers
produced
Nest initiation
Colony development
Nest may be
taken over by
Psithyrus or
Bombus
young queens
and males produced
Mating
males die
Queen
foraging
pollen load
Second colony cycle
(sometimes, in some specie)
Queen overwintering

Bombus impatiens

Common Eastern Bumble Bee

Great Northern Bumble Bee

bugguide.net

Brown-belted Bumble Bee


Bombus ternarius:
Tri-coloured bumble Bee

SYSTEMIC INSECTICIDES

Neonicotinoids: Use in Ontario

- Å Corn
- Å Soyabean
- Å Canola
- Å Field Crops
- Å Vegetables
- Å Fruit
- Å Turf
- Å Herbs
- Å Ornamentals
- Å Trees

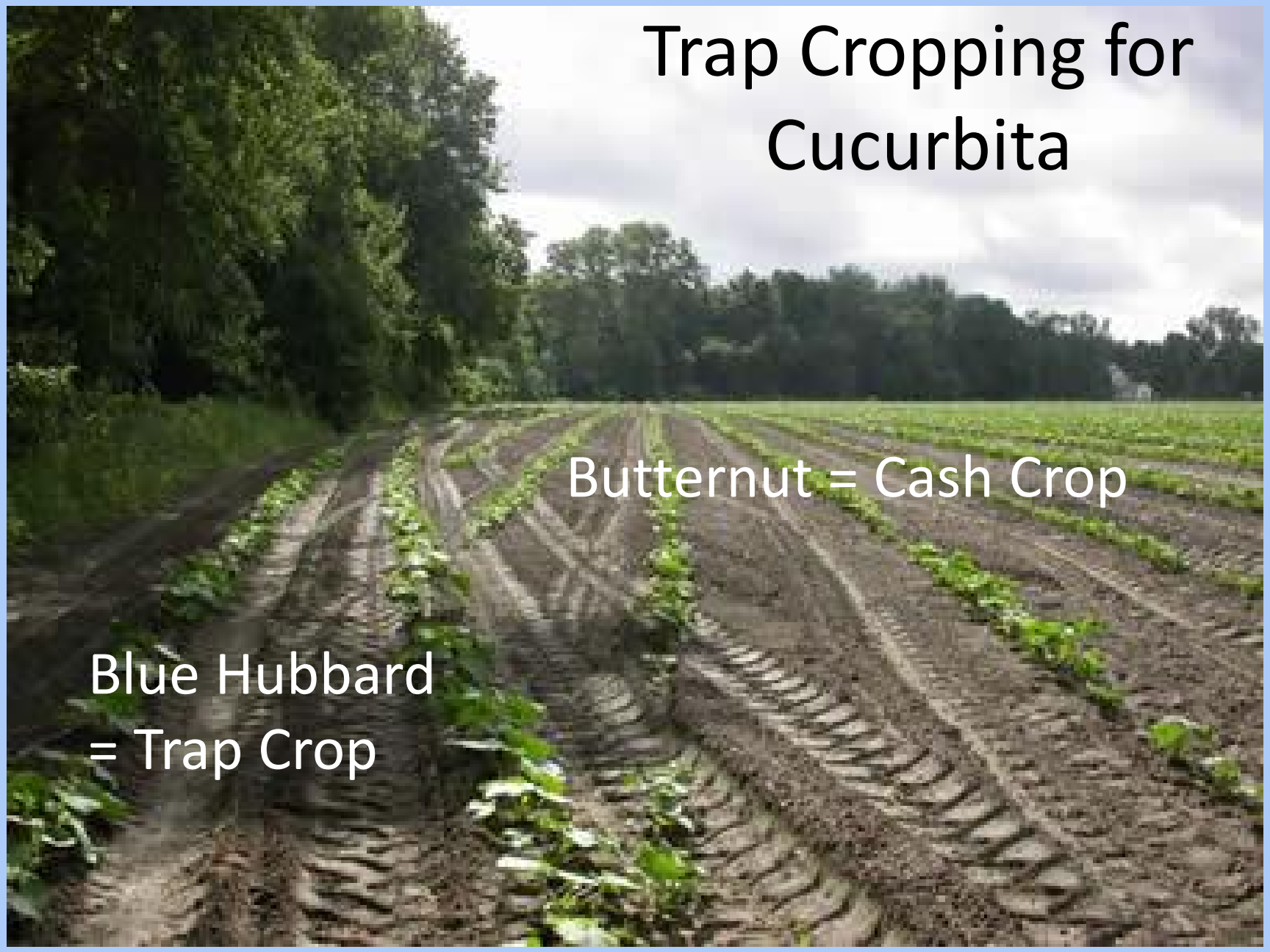
Neonicotinoids

- Neurotoxins
- Prophylactic
- Systemic
- Persistent
- Water Soluble

Alternatives to Insecticides

- Habitat to attract bees will also attract other beneficial insects (predators & parasitoids)
- Beetle banks will attract predacious ground beetles
- Use physical barriers (row cover)
- Use allelopathic cover crops in rotations (ryegrass, vetch)
- Use trap crops (see http://www.aces.edu/timelyinfo/entomology/2011/February/feb_14_2011.pdf)
- Reduce wind to reduce wind-dispersed pests
- Use resistant varieties

Trap Cropping for Cucurbita



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