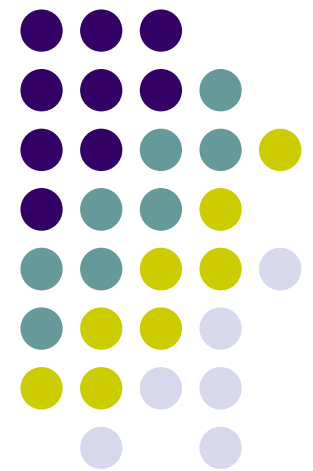


# Trap Crops and Farmscaping



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University of Georgia

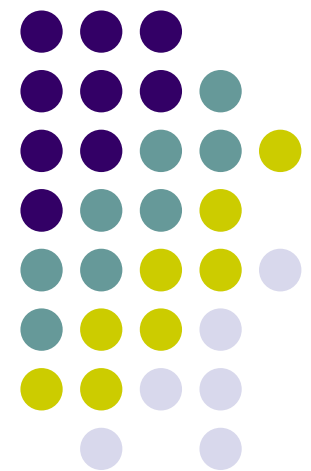


# Presentation Overview

- What are “trap cropping” and “farmscaping”?

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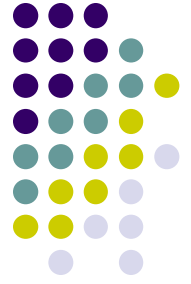
- Principles and examples of trap cropping
- Principles of farmscaping
- Examples of farmscaping plants
- Review of farmscaping principles





# Definitions

- Trap Crop: “A crop or portion of a crop intended to attract pests so they can be destroyed by treating a relatively small area or by destroying the trap crop and the pests together” (UC-IPM)
- Farmscaping: “A whole-farm, ecological approach to pest management. It can be defined as the use of hedgerows, insectary plants, cover crops, and water reservoirs to attract and support populations of beneficial organisms such as insects, bats, and birds of prey” (ATTRA, <http://attra.ncat.org/attra-pub/farmscape.html>)



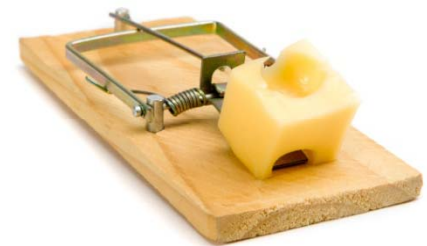
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# Trap Crops: Key Concepts

- Must select planting that is more attractive to key pest(s) than the economic crop
- Trap crop must be attractive during target protection periods
- Trap crop must be a sink, not a source --
- Must have population management strategy:  
Biological control? Hand picking?  
Insecticide? Vacuuming?





# Trap cropping

- Grain sorghum or millet for beans/peas
  - Target pest: Stink bugs/leaf-footed bugs
  - Grain attractive
  - Hand pick
  - Can ratoon



May also use buckwheat gone to seed,  
and ratooning

# Trap cropping

- Alfalfa and strawberries
  - Target pest: Plant bugs
  - Perennial system
  - Alfalfa every 9 rows
  - Vacuum 2x weekly



# Farmscaping: Key Concepts



- Hippocratic Oath: “Abstain from doing harm”
  - Don’t make your pest situation worse
  - Don’t compromise production goals
  - Don’t introduce weeds
- Know what your targets are
- Plan timing – Resource overlaps
  - Know flowering timing for nectar resources
  - Mowing or ratoonning to prolong resources?
  - Staggered or mixed plantings?

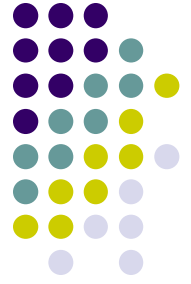


# Farmscaping: Key Concepts

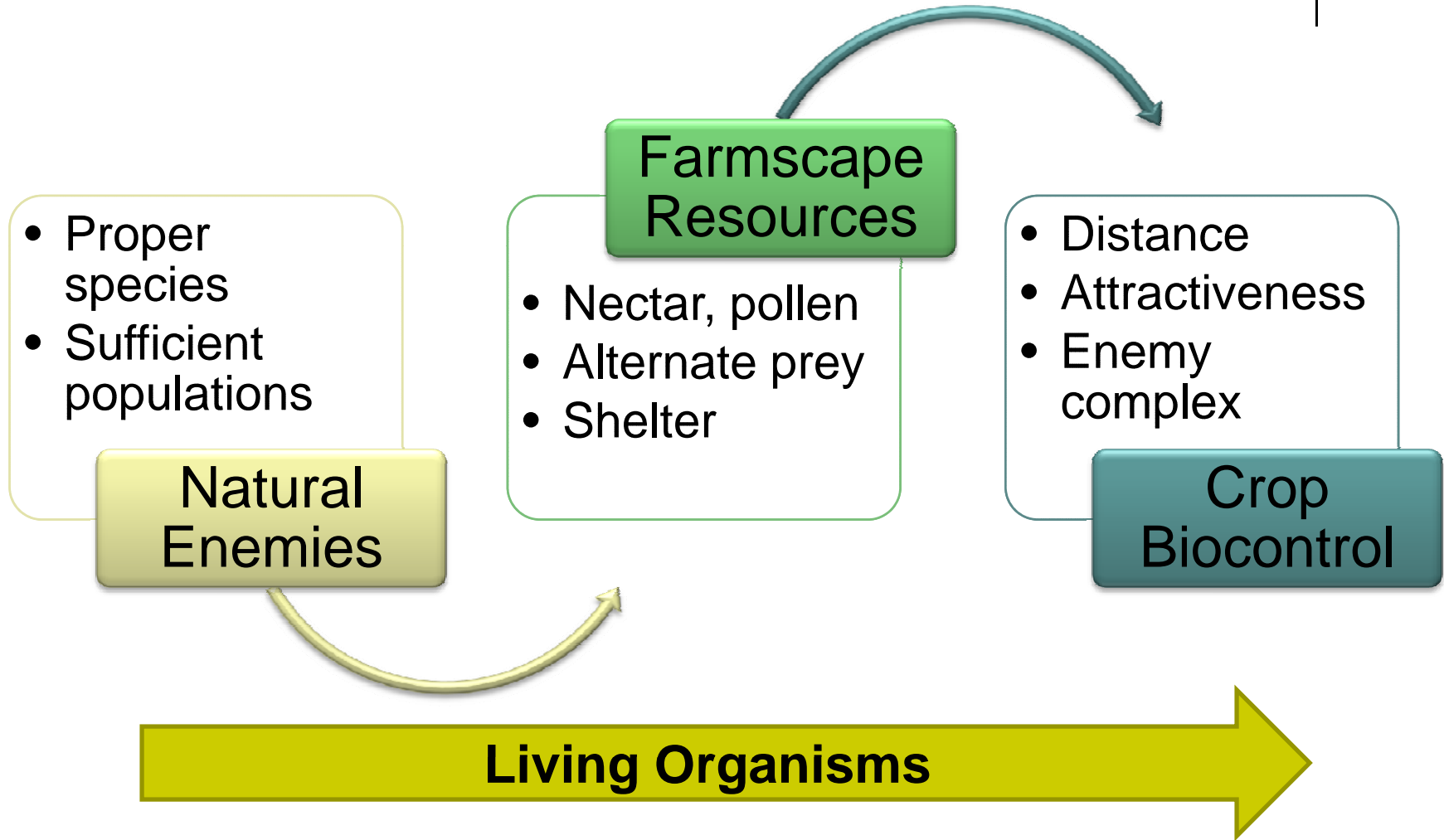


- Select appropriate plantings
  - Flowering timing
  - Weediness concerns?
  - Persistence
  - Compatible with land-use goals
- Know the needs of the farmscape
  - Spacing of farmscape plants and relative to crop
  - Fertilization needs relative to crop
  - Watering and soil quality





# Farmscaping Cascade





# Farmscaping Approaches

- Field margin management
  - Weed/conservation borders
  - Floral planting
- Within-field management
  - Cover crops
  - Conservation tillage
  - Intercropping
  - Agroforestry





# Intercropping

- Tansy and Potatoes/Tomatoes
  - Target pest: Colorado potato beetle
  - Tansy is somewhat repellent
    - (attracts Cabbageworms...)
  - Interplant row for row

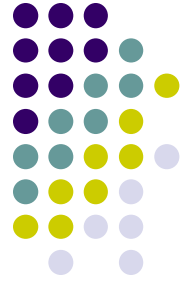




# Farmscape Plants

- Plants with extrafloral nectar (e.g., faba beans, vetch)
- Plants that provide shelter or protective cover (e.g., crimson clover)
- Plants that provide alternate hosts or prey (e.g., crape myrtle and crape myrtle aphid)





# Farmscape Plants

- Buckwheat (*Fagopyrum esculentum*)
- Phacelia (*Phacelia tanacetifolia*)
- Cilantro (*Coriandrum sativum*)
- Borage (*Borago officinalis*)
- Sunflower (and other asters)
- Clovers (*Trifolium* spp. - crimson, subterranean, red)
- Fennel (*Foeniculum vulgare*)



# Buckwheat

- Non-native; good cool to warm season plant
- Blooms over 3-4 weeks ca. 4 weeks after planting
- Easily planted (scatter and rake, or grain drill)
- Readily available seed
- Not too demanding for conditions
- Terrific source of nectar





# *Phacelia tanacetifolia*

- Native annual plant, weedy tendency
- Cool to warm season cover
- Flowers 6-8 weeks after planting ( $\geq$  13 hrs light; late April to late September), and flowers for 5-7 weeks
- Seed increasingly available
- Good nectar producer
- May blend well with buckwheat
- Sowing rates 3-20 lbs/A
- **\*\*Can compete for pollinators \*\***



# Cilantro (Coriander)



- Rapid-growing annual
- Non-native
- Cool to warm season
- Seed available, costly
- Edible (before bolting)
- Susceptible to nematodes

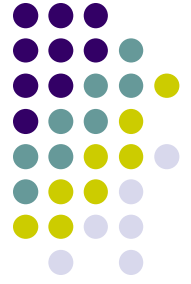


# Borage

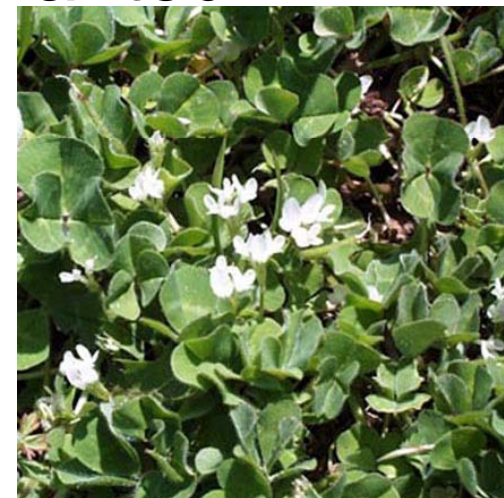
- Rapid-growing annual
- Non-native
- Cool to warm season
- Flowers 5-8 weeks after planting, for 3-5 weeks
- Seed available, costly
- Tends to be invasive

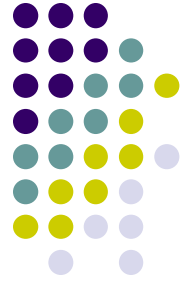


# Clovers



- Cool to cold season; perennial
- Source of nectar, good cover crop
- Abundant alternate hosts/prey (aphids) – pests?
- Readily available seed, easily planted
- Good nitrogen supplier





# Fennel

- Cool to warm season perennial; non-native
- Rapid growth, flowers after 4-6 weeks
- Readily available seed
- Can be invasive
- Allelopathic





# Farmscape Pre-Mixes

- Border Patrol®
- Beneficial Insect Mix®
- Good Bug Blend®
- Contain blends of various flowering plants that flower at different times; efficacy unclear

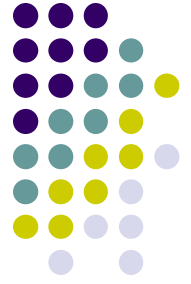




# Farmscape Benefits for BC

- The greatest potential benefits of farmscaping are for aphid and caterpillar pests – enemies of bug pests are not as common
- The extent to which natural enemies spill over from farmscape plantings into the crop is not clear – variable results
- Attracts variety of natural enemies – Pests?

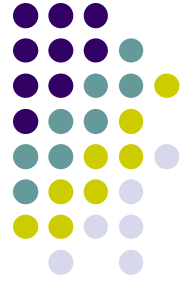
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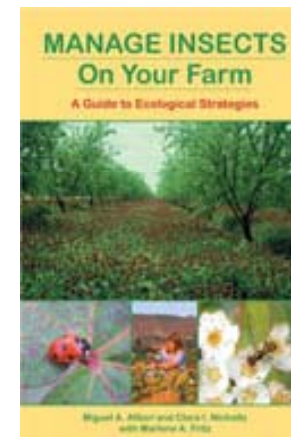
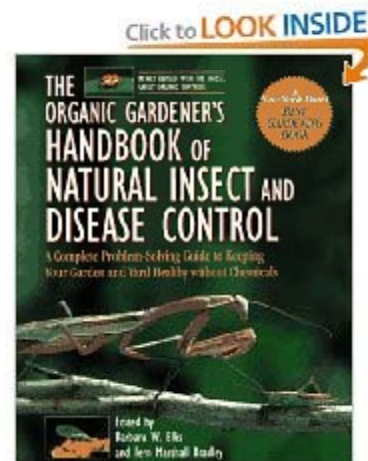
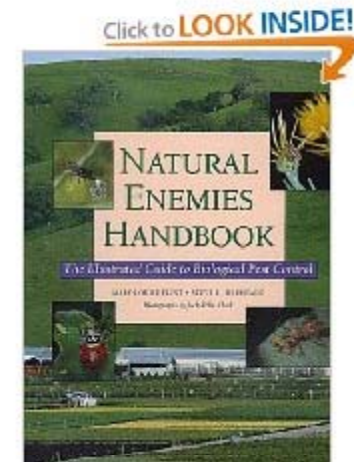
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# Useful References

- ATTRA: <http://attra.ncat.org/attra-pub/farmscape.html>
- “Natural Enemies Handbook”
- “Manage Insects on Your Farm”
  - <http://www.sare.org/publications/insect.htm>
- “Handbook of Natural Insect and Disease Control”





**Thank you for hanging in there!**