

**EARTHWISE FARM FORAGE FOR POLLINATORS  
TOOL KIT**

Earthwise Society  
September 2015

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## **Earthwise Farm Forage for Pollinators**

### **Background**

Healthy pollinator populations are critical for the long term sustainability of agriculture. Habitat loss and fragmentation are key contributors to recent declines in bee populations. Farmers have an important role to play in helping to enhance pollinator habitat by planting appropriate plants to provide a continuous source of pollen and nectar throughout the growing season.

Over the past eighteen months, Earthwise Society implemented and monitored pollinator enhancement projects to demonstrate strategies suitable for use in rural settings, including farms. The goal of the project was to determine easy and effective insectary plantings for farms to complement other habitat enhancement measures such as hedgerows. Strategic, well-chosen plantings are especially important to increase the availability of pollen and nectar into the late summer and fall, when there is a dearth of flowering plants.



**Pollinator forage at the Earthwise Farm**

In designing the project, Earthwise Society took into account the following barriers cited by farmers as limiting their ability to provide pollinator forage on farms:

- 1) Lack of available space that would not interfere with operative requirements
- 2) Lack of knowledge regarding what or how to plant
- 3) Cost, including time requirements for planting and maintenance.

The time period of the project, from April 2014 until September 2015, encompassed two of the driest growing seasons on record for the Lower Mainland. While this presented challenges for the success of the plantings, it also provided valuable data on survival rates.



**The bee yard at the Earthwise Farm with perennial forage strips**

### **Plant perennial forage strips for pollinators**

Farmers can take steps for enhancing pollinator value on their farms without impacting production areas or increasing maintenance or cost. The following recommendations are based on our observance at test sites over an eighteen month period from April 2014 until September 2015.

- 1) Plant forage strips of recommended perennials to provide pollen and nectar from March to October. See the Appendix for detailed plant lists. The listed perennials are effective at providing food for pollinators, both native and domesticated and offer a good succession of bloom. Other comments on the lists are provided to help make choices based on drought tolerance and winter survival rates. It should be kept in mind that sites vary, as do maintenance regimes, so plants that did not perform as well in our test plots could succeed in other situations.
- 2) Plant early in the season, ideally in March



**Nepeta flowers from spring to fall**

or April, so the young plants can benefit from seasonal rainfall during their establishment. Most of our test sites did not receive supplemental water.

- 3) Locate perennial forage strips wherever there is available space. It is not necessary to incorporate these plantings into production areas. Driveway, field edges, ditch margins and hedgerows are ideal. Because the forage strips flower throughout the season, they work very well in conjunction with retail or other public areas that are associated with farm operations.



**Native asters feed western bumble bees in Sept.**

- 4) Size doesn't matter. Strips as small as 30' x 5', with the right plantings, can contribute valuable forage as part of a wider flight territory for pollinators. Where space is limited, we recommend concentrating on later summer forage to assist pollinators during the dearth period. Asters, goldenrod, nepeta, and sedum provide excellent bee forage into the fall.

- 5) Plant established perennials from one gallon containers (15 cm) so that the plants have sufficient root area to become established without supplemental water. Plants will benefit from being placed in a well prepared bed, but we had success in our trials with a variety of less than optimal planting conditions. Make sure that plants are watered at the time of planting or plant in the rain.

### **Include late season native herbaceous perennials in hedgerows.**

Most recommendations for hedgerow plantings rely on native woody plant material for ease of establishment. However, the material most frequently used is finished blooming by mid-summer. In order to increase forage value for bees in these plantings, farmers could incorporate native

perennials into established hedgerows to address the dearth period late in the season. Specifically, goldenrod and aster will provide a sequence of bloom from early August until frost and are suitable for inter-planting with shrubby woody material. These plants are native and easily controlled if they self seed in farmed areas. **Consider using goldenrod in hedgerow projects** Alternatively plants could be mowed after flowering to prevent the spread of seed.

## Other strategies

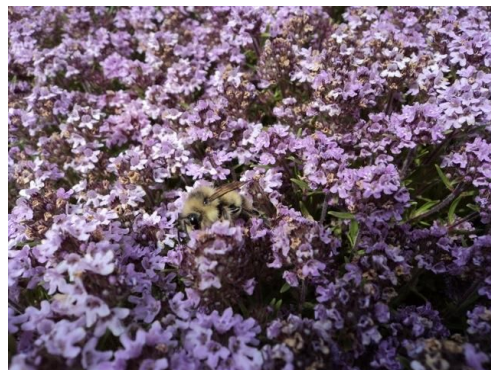
1) Plant flowers at the edges. Introduce flowering herbs or sunflowers as edge plantings in fields.

Perennial herbs, borage or sunflowers are recommended as supplemental crops for market gardens and are highly attractive to pollinators. Borage, sunflowers, and rosemary extend the availability of forage into the fall and winter

2) Include flowers in cover crop planting. Incorporate flowering insectary plants such as borage, phacelia, or clover into field rotations. Alternately, use flowering ground cover such as clover to suppress weeds between crop rows.



**Sunflowers along the edges of fields at the Earthwise Farm feed bees up until frost**



**Bee foraging on perennial thyme**

3) Save seed. Allow a percentage of leaf vegetables to flower. Save seeds and feed the bees. Kale flowers are useful for forage for bees in early spring.

4) Diversify your crops. Add flowers or herbs to your market garden for farmer's markets or CSAs. Lavender and borage flowers add value to salad mixes, while perennial herbs such as thyme, sage, and rosemary can be bunched and sold, helping to offset the initial planting costs. Choosing perennial herbs reduces labour costs of annual planting.

**APPENDIX: RESOURCE LIST  
PERENNIALS FOR FARM FORAGE STRIPS**

The following list contains perennials that were used in the Farm Forage for Pollinators project, along with comments and recommendations. All of the plants listed here are recommended as highly valuable bee forage.

These plants represent a short list of potential pollinator species that were carefully selected for the test plots based on ease of establishment, drought tolerance, non-invasiveness, and insectary value.

Plant name	Bloom time	Drought tolerance	Survival rate	Comments
<i>Achillea millefolium</i> (yarrow)	Mid-summer, repeating until frost	excellent	90%	Native, suitable for hedgerows
<i>Aster subspicatus</i> or other species	Late summer to frost dearth period	Good	80%	Native, non-invasive, good or hedgerows
<i>Digitalis purpurea</i> (foxglove)	Mid spring	Good	70%	Biennial, self seeds
<i>Echinacea purpurea</i>	Mid summer	Fair	70%	Not easy to establish
<i>Eryngium planum</i> (sea holly)	Mid summer	excellent	50%	Will self seed but no invasive
<i>Eupatorium maculatum</i> (joe pye)	Late summer dearth period	Prefers moisture	40%	Great for wet sites
<i>Geranium endressii</i>	Spring to summer	Excellent	85%	

<i>Geranium macrorhizum</i>	Spring to summer, repeats	Excellent	95%	Can self seed but easy to control
<i>Lupin polyphyllus</i> (or other)	Spring	Good	30%	Maybe better from seed
<i>Nepeta</i> spp (catmint)	Spring to fall	Good	70%	Longest bloom time of all – very effective
<i>Sedum</i> “Autumn Joy”	Late summer to fall dearth period	Excellent	90%	Drought tolerant season extender
<i>Solidago canadensis</i> (goldenrod)	Late summer dearth period	Good	95%	Easy and valuable native, good for hedgerows