The Intentional & the Accidental:
The Role of Cultivated and Uncultivated Flowers in Supporting Plant Diversity and Insect Abundance on Farms.

Little Seed Gardens Report

Farmer-Ecologist Research Circle
Feb. 2026

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Farm Description

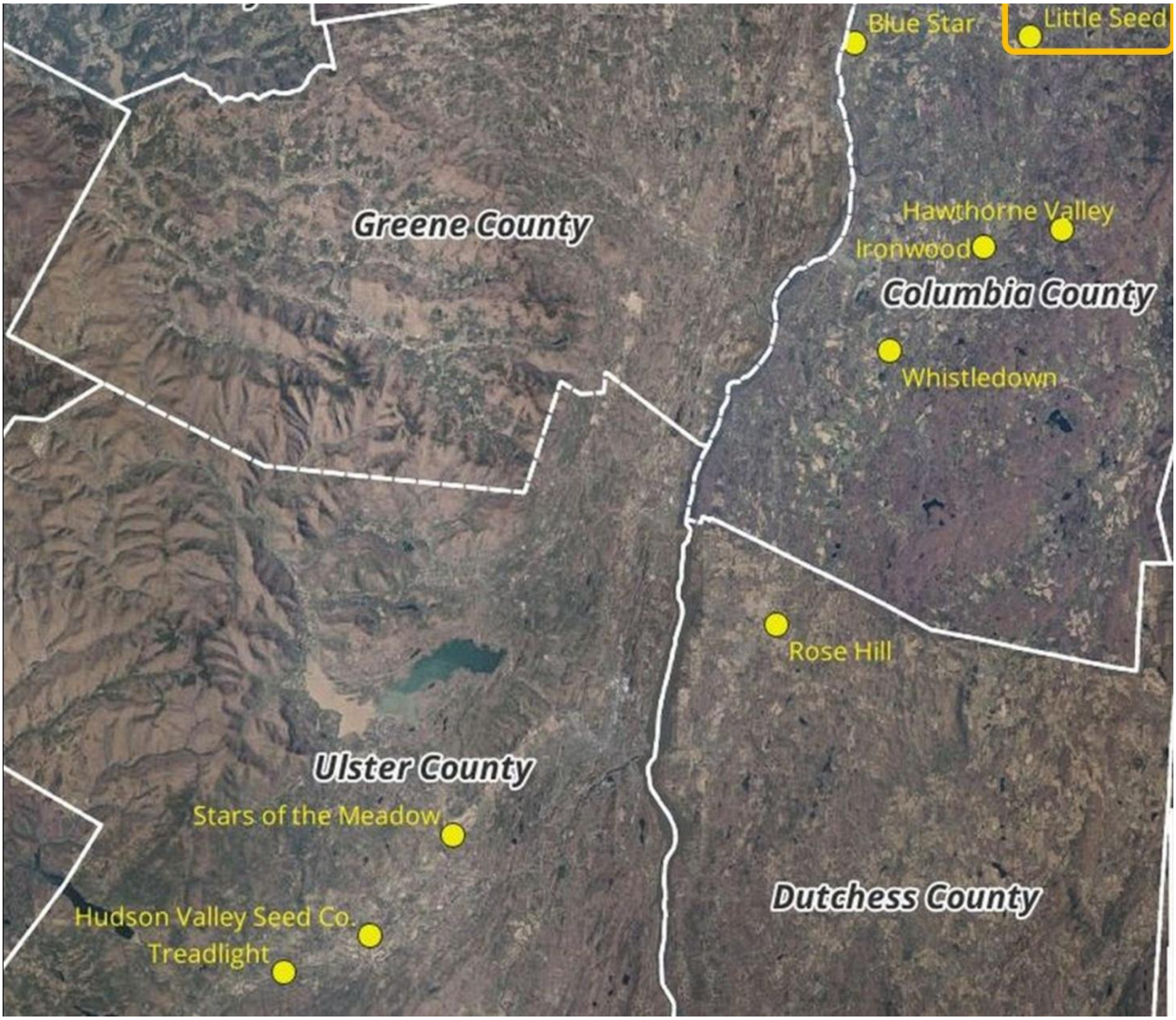


Figure 1. Little Seed Gardens is located in northern Columbia County.

Little Seed Gardens is a roughly 100-acre organic produce and livestock farm in Chatham NY. It produces market vegetables, melons, herbs, and grass-fed beef. You-pick cut flowers are included in their CSA share. We studied approximately 3.3 acres of this farm. Our study area extended west from the green houses and included several beds (in vegetables, flowers, and various stages of rotation and cover crops), as well as fencelines, mature field edges, mature fallow, and a wilder area of herbaceous and shrubby vegetation around some old equipment (Fig. 2).

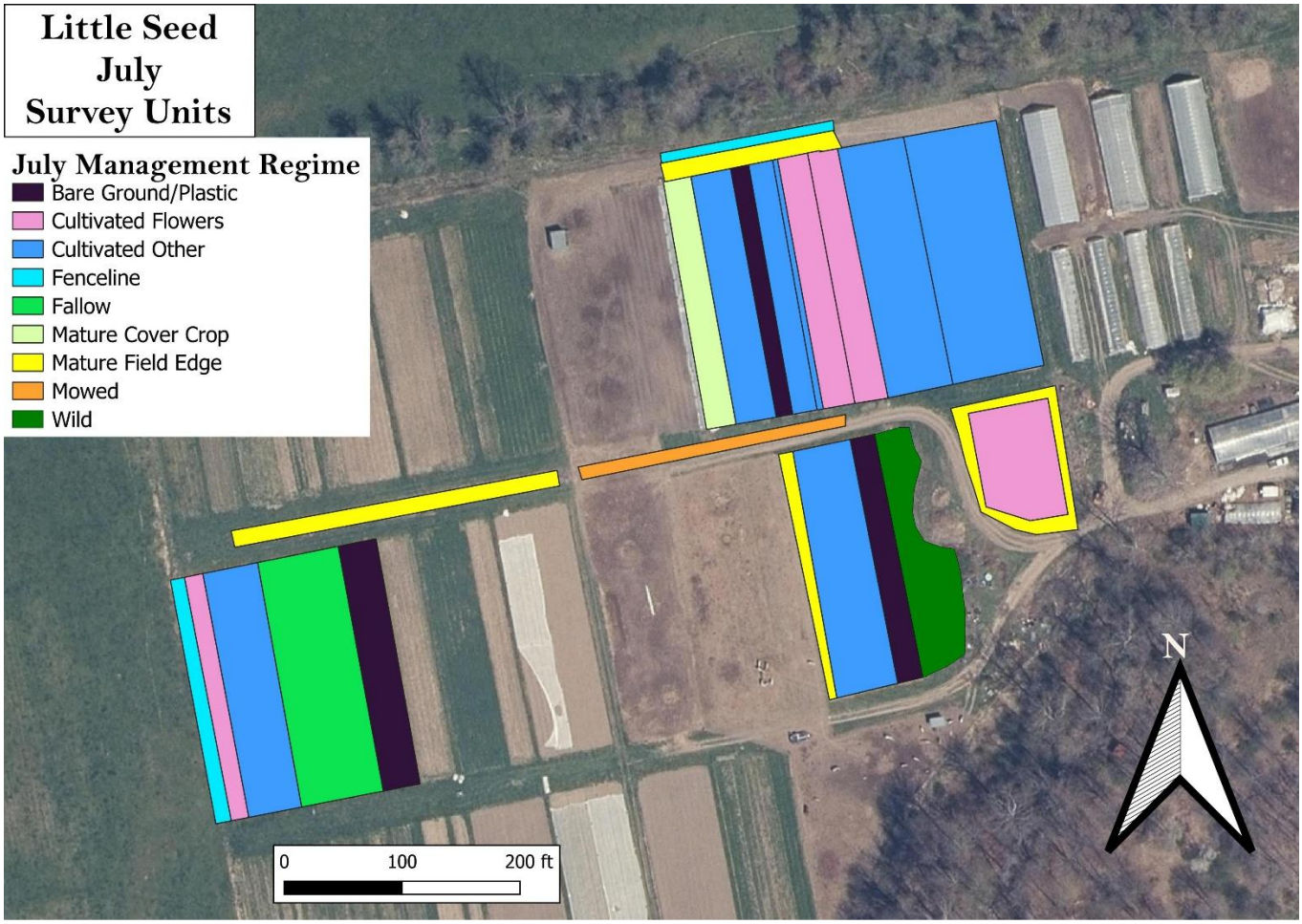


Figure 2. Generalized management regimes in the Little Seed Gardens survey units during July.

Botany

A total of 105 different flowers were found within the area studied at Little Seed Gardens (see Appendix). Please remember that this does NOT represent a full botanical inventory of the studied portion of this farm – it only includes those plants actually seen in flower during our three survey outings. The plant list in the Appendix includes all species we have observed in bloom during our 2025 inventories in the survey units on June 19 ("June"), July 30 ("July"), and Sept. 1 ("Aug/Sept"). The list is organized alphabetically by common name. It also includes rows with (1) the scientific name of each species, (2) its native status (when known), (3) its regional rarity, (4) its ubiquity across the survey units at Little Seed Gardens during its flowering season, (5) duration of its flowering season at this farm, and (6) the specific months when we saw it flowering. Please see the caption of the Appendix for more details.

Within the study area, we found only two regionally relatively uncommon native plant species in bloom. Giant Ragweed flowered in Aug/Sept. in mature field edges and in the wild area of

herbaceous and shrubby vegetation around the old equipment. Wild Pepperweed flowered in July in a mature field edge and a mowed cover crop.

Overall, at Little Seed Gardens we observed only three unique flower species (3% of the total of 105 flower species) which were not found at any of the other farms.

Figure 3 shows the number of flowering species at Little Seed Gardens during our three monthly visits in 2025. The species were grouped into four categories: wild-growing, native species; wild-growing, non-native species and wild-growing species we were unable to identify with certainty as native; cultivated native species; and cultivated non-native species.

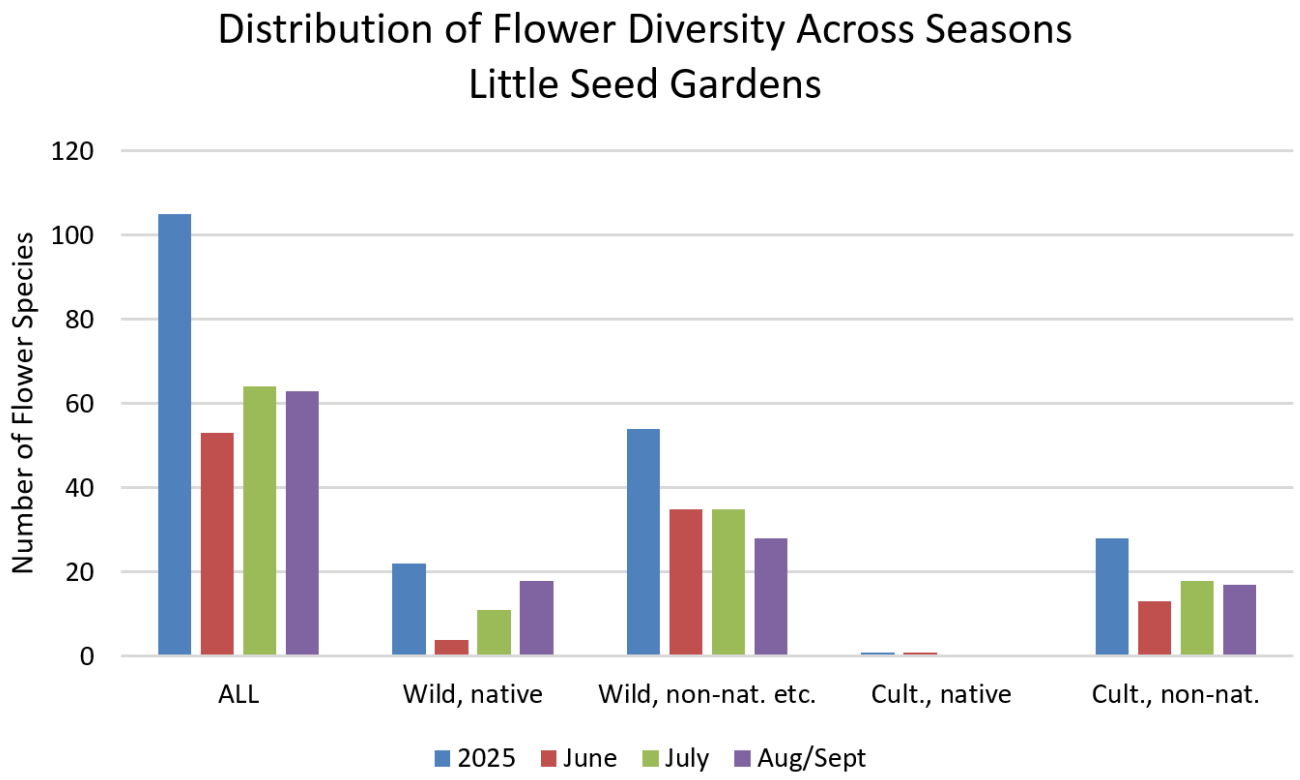


Figure 3. Distribution of flower diversity across the season at Little Seed Gardens

Most of the plants that bloomed from June to Aug/Sept at Little Seed Gardens were wild-growing plants. In contrast to most farms we studied in 2025, where the diversity of all plants in bloom tended to increase from June to Aug/Sept, at Little Seed Gardens, the diversity of all plants in bloom peaked in July and was somewhat lower in late summer. However, the wild-growing native flowers did increase in diversity across the season. Wild-growing non-native flowers were equally diverse in early and mid summer, but less so in Aug/Sept, while cultivated non-native flowers were least diverse in June, but almost equally diverse in mid and late summer.

Figure 4 illustrates how much more wild-growing plants (compared to cultivated plants) contributed to the flower diversity in the survey units at Little Seed Gardens across the season. A single survey unit in June had slightly more cultivated plant species in bloom than wild-growing species.

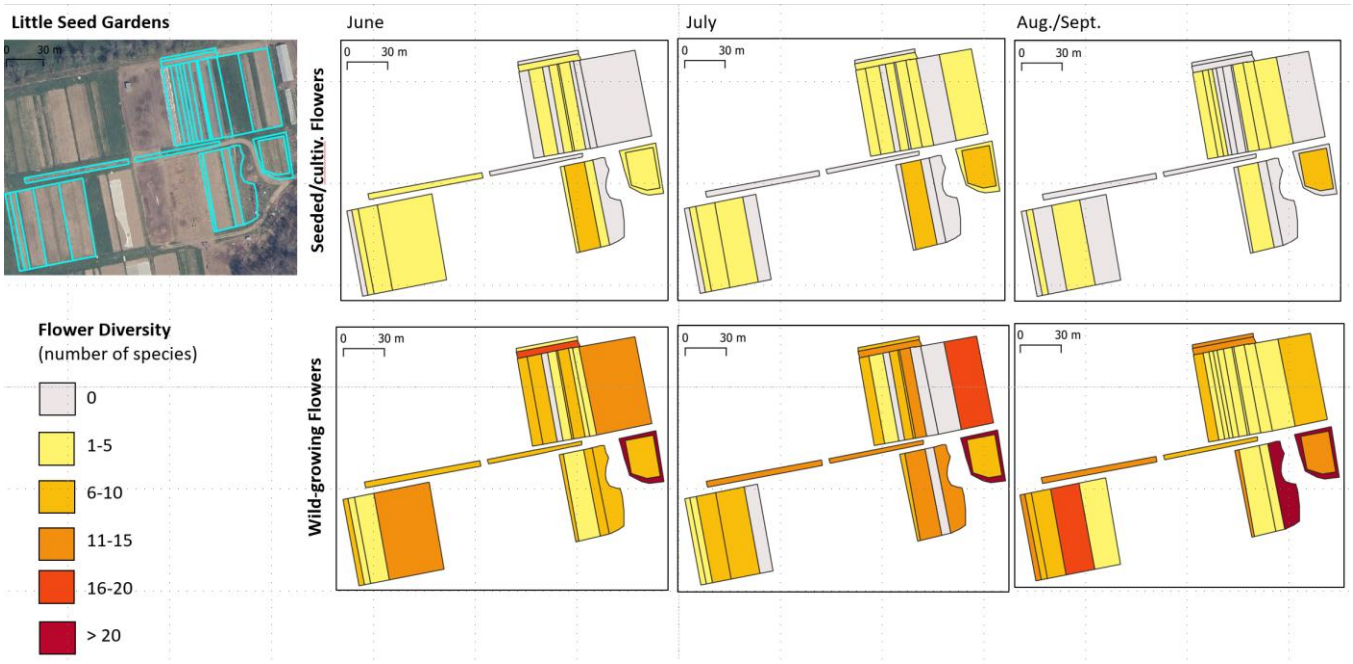


Figure 4. Comparative diversity of seeded/cultivated flowers (above) and wild-growing flowers (below) in the survey units at Little Seed Gardens.

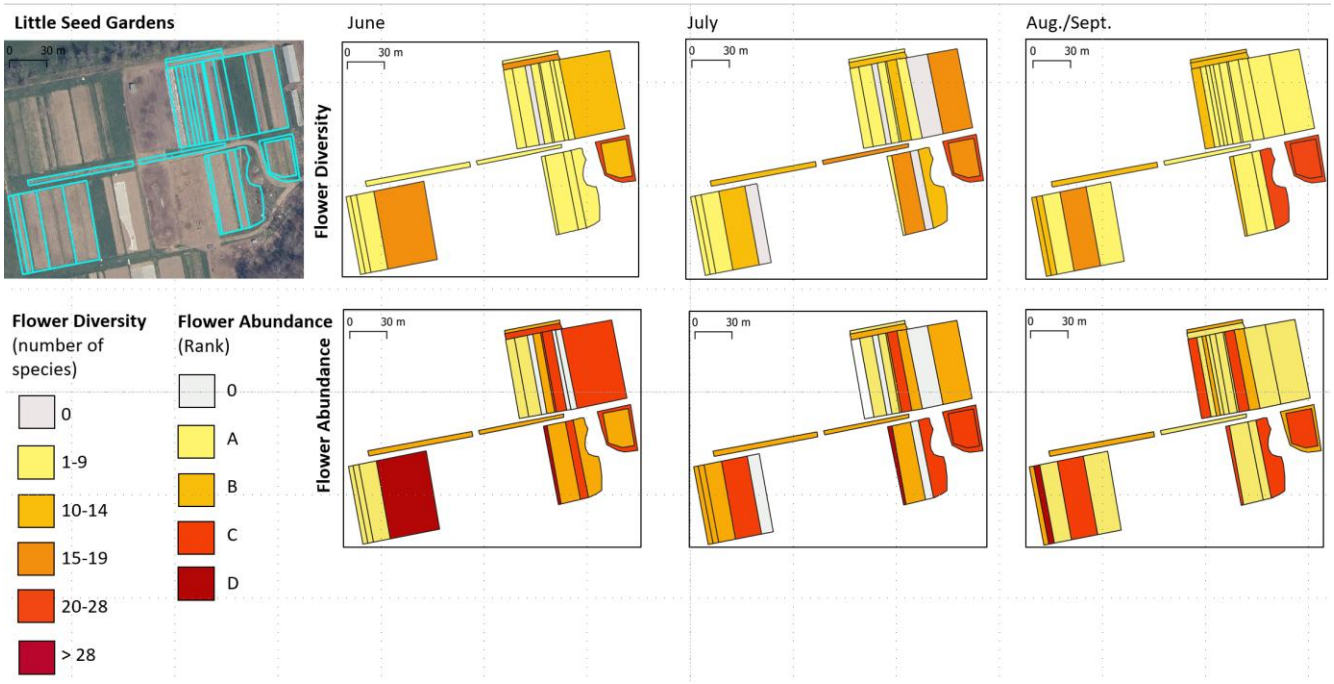


Figure 5. Comparative diversity of seeded/cultivated flowers (above) and wild-growing flowers (below) in the survey units at Little Seed Gardens.

Figure 5 illustrates that flower diversity and abundance change quite independently of each other between survey units and across time. Survey units can have a high abundance of the flowers of a few species. They can also have a lot of species with few flowers each.

Flower Visitor Community.

Little Seed Gardens had below average rates of observation for four of our insect groups, especially bumble bees, honey bees and wasps; other bees and hover flies were slightly above average (Figure 6).

In our somewhat anecdotal but more detailed data on who the 'other' bees were, Little Seed Gardens seemed to have relatively high numbers long-horn bees, no doubt due to the rows of sunflowers that were included in our study area. We also observed a few *Triepeolus*, a nest parasite of those long-horn bees.

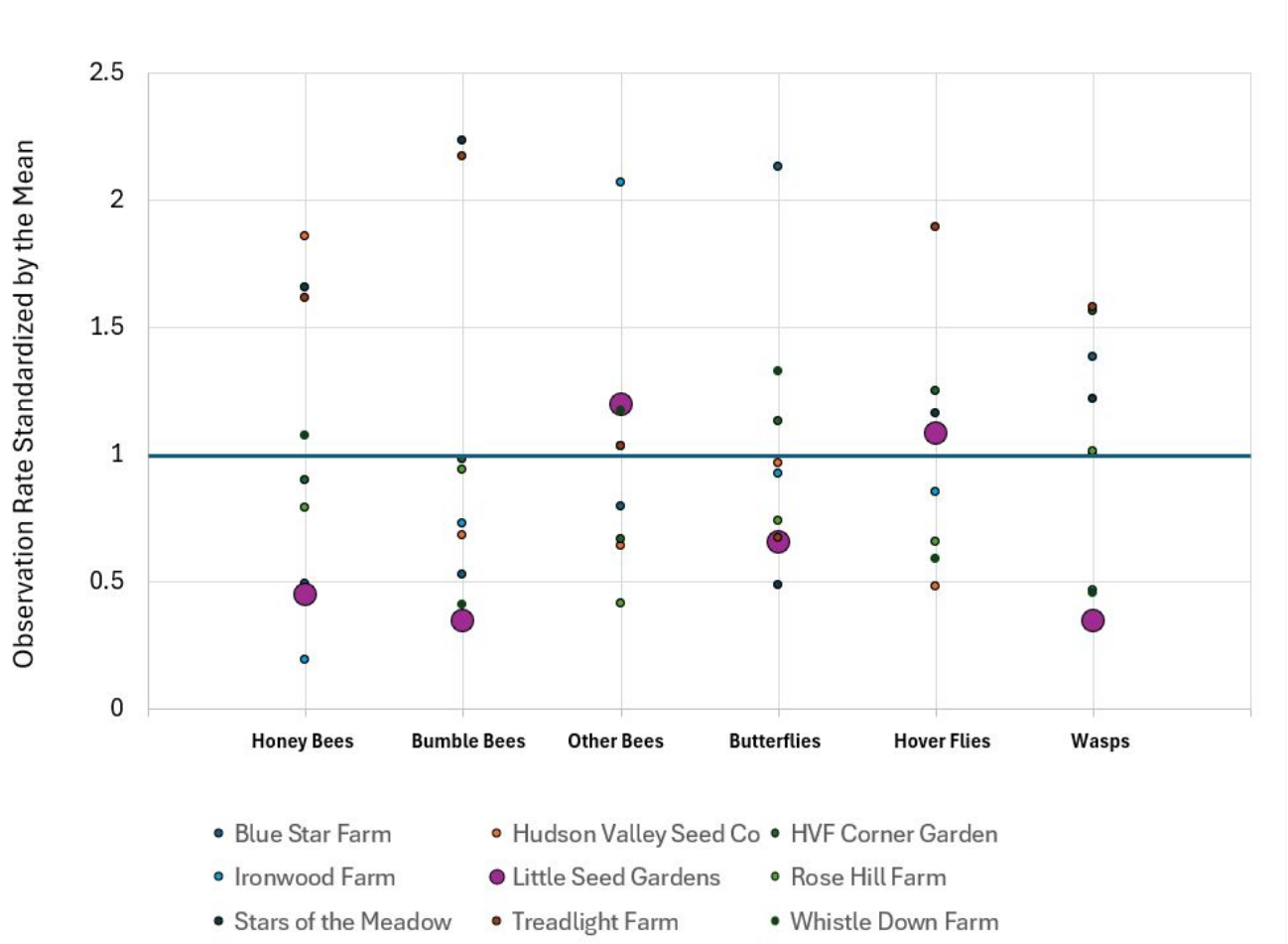
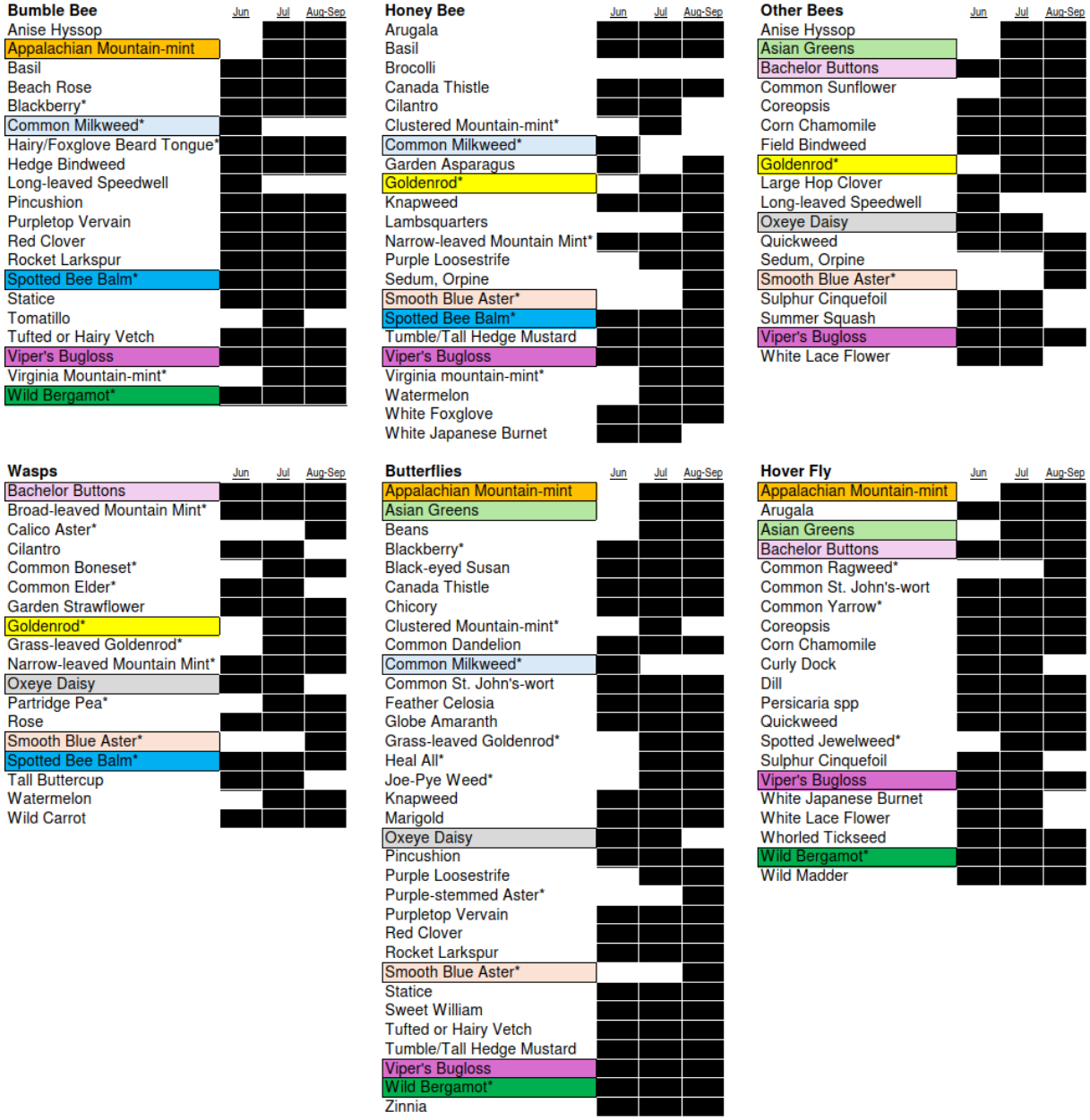


Figure 6. The standardized Little Seed Gardens observation rates for the various insect groups relative to the mean for all farms (the solid line at 1).

Table 1. Most favored plants by our six insect groups, based on data from all farms and all outings. Lists are alphabetical and only include those flowers with notably higher than average visitation rates by the given groups. Plant species native to the Hudson Valley are marked with an asterisk. Colored boxes highlight those species found on three or more lists. Black blocking indicates flowering times observed during the season.



Flower-favorability Data & Maps

For convenience, the flower favorability table from the main blog is repeated here (Table 1 above), even though those data are a summary of observations across all farms and outings.

Figures 7A-F show the flower favorability maps for Little Seed Gardens. By glancing over the following maps, one gets the impression, confirmed by Fig. 8, that by our calculations Little Seed Gardens presented ample flower resources for most of the insect groups we studied. Furthermore, those resources appeared to be relatively well distributed across the season.

Why then did Little Seed Gardens seem to have relatively low levels of insect activity? We have no 'smoking gun', and before placing too much weight on these results, another year of data collection might be appropriate. Insect populations are notoriously variable at various time scales, and, over the long haul, these insects may not actually be as uncommon as our 2025 observations suggest. But if their numbers really are low, then why? If Bt is being used, then that could help explain low butterfly numbers. But why were Honey Bee, bumble bee and wasp sightings so low? Honey Bee hives were present and said to be relatively healthy, so one possibility is that Honey Bees (and other insects) simply had better places to be. Our survey area was relatively small and may not have contained the prime foraging habitat on the farm. For bumble bees, other important resources besides flowers include nesting and hibernation sites. Bumble bees need 'messy' areas where they can find year-around uncultivated ground and natural cavities. Site selection by hibernating bumble bees is not well understood, and they may in fact avoid warmer sunlit spots such as cultivated fields. Nesting sites are also likely not in plowed fields, but rather in forested or brushy areas (think of where you see the queen bees searching for holes in the spring). While forests are not extensive at Little Seed, the lands immediately surrounding the fields would, at first glance, appear suitable for bumble bee use. However, this should be evaluated, and there is the possibility that bumblebees, and possibly other insects, are also limited by a low abundance of early-season flowers. Wasp sighting rate was relatively low, but so too was estimated flower favorability.

Landscape context might also be relevant, although, at least from the air, the surrounding landscape seems to be relatively diverse.

Management Considerations

It seems largely premature to suggest possible management without first better understanding the quandary described above. However, in the case of wasps, limited flower resources, especially in early and mid summer (Fig. 7D) may be playing a role in their markedly low sighting rates, and so augmenting wasp-friendly flowers (see Table 1) might be appropriate.

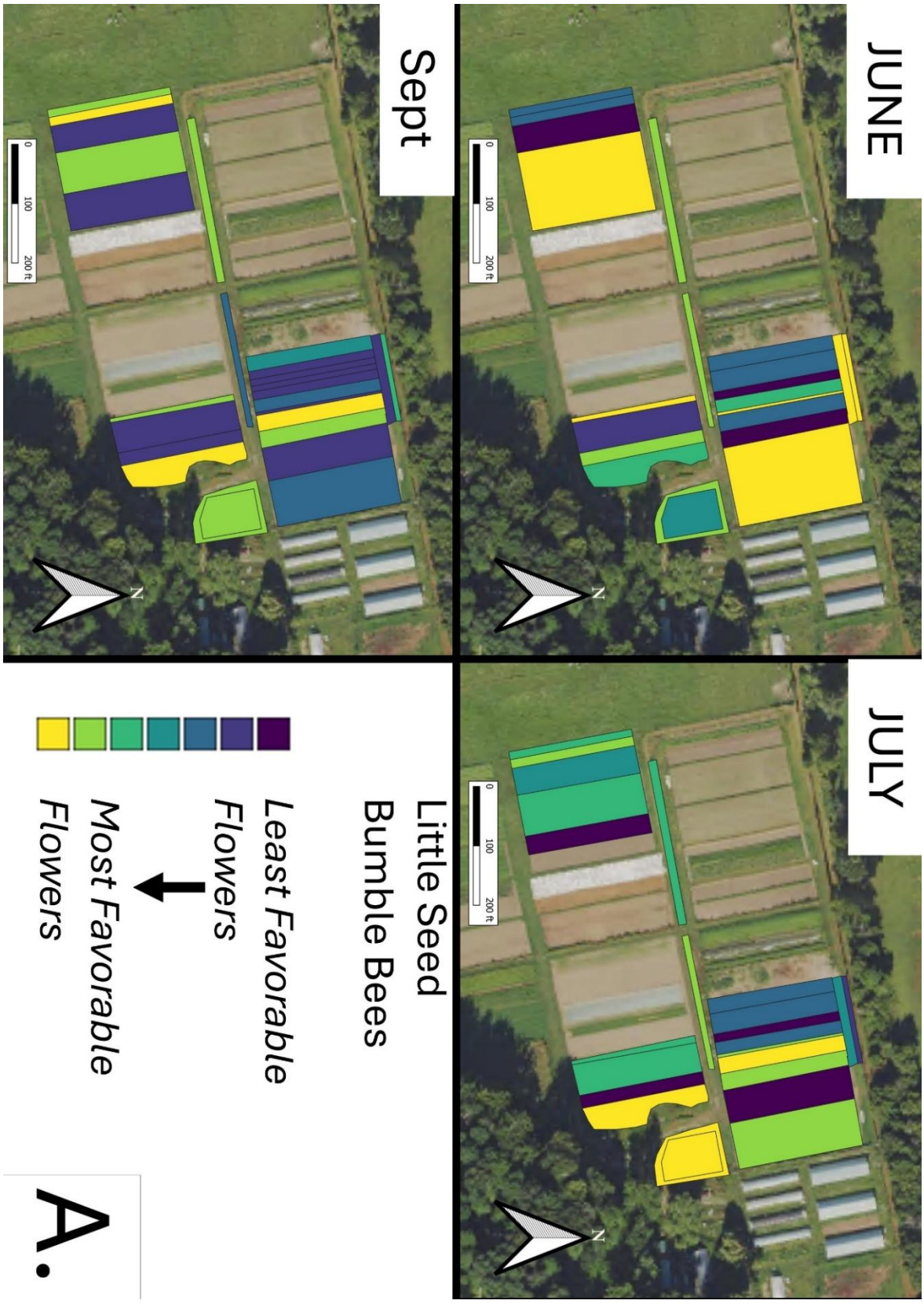


Figure 7A. Flower favorability for bumble bees in the different survey units and different months at Little Seed Gardens. Generally, darker signifies less favored flowers, and lighter colors mean more favored.

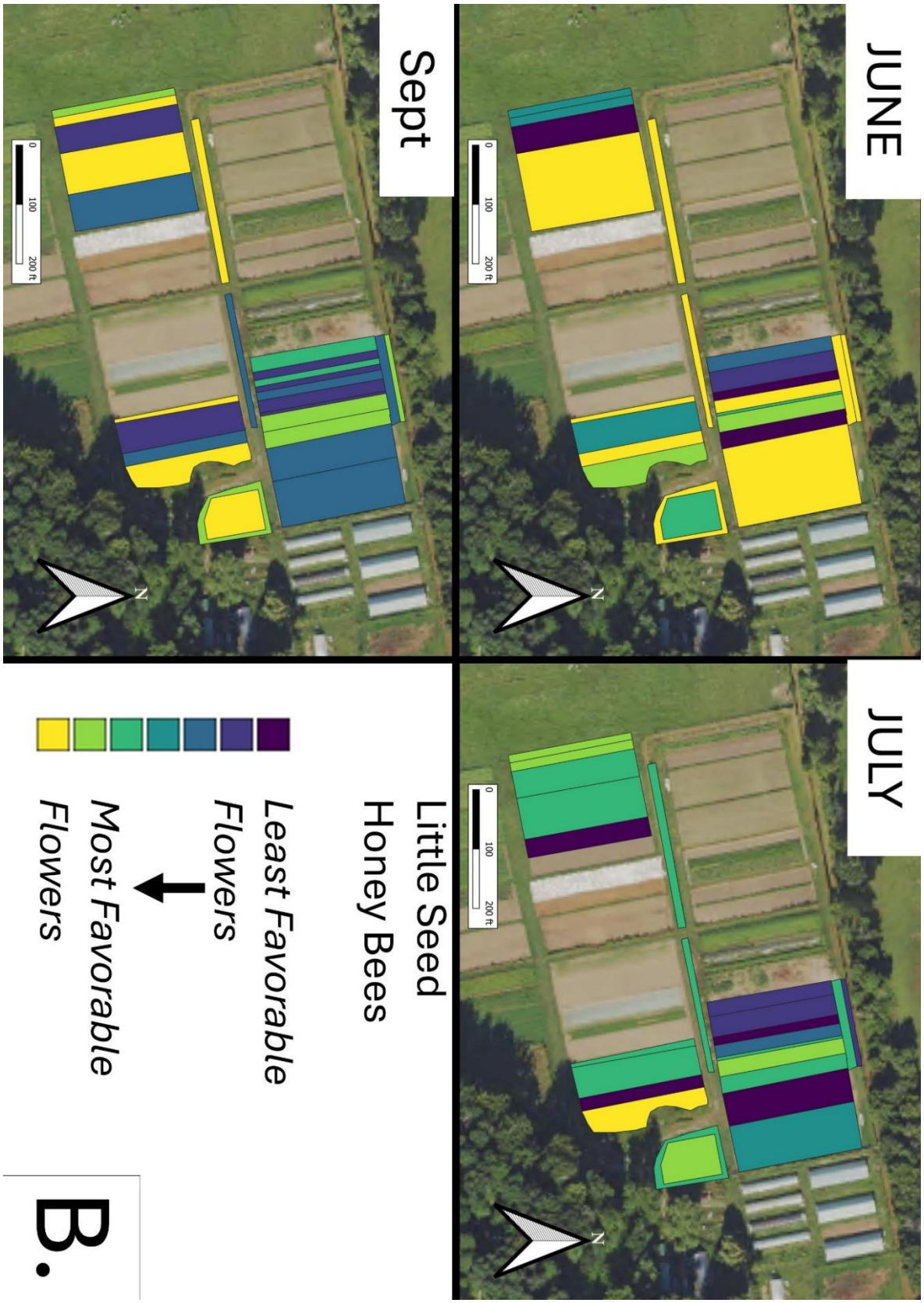


Figure 7B. Flower favorability for Honey Bees in the different survey units and different months at Little Seed Gardens. Generally, darker signifies less favored flowers, and lighter colors mean more favored.

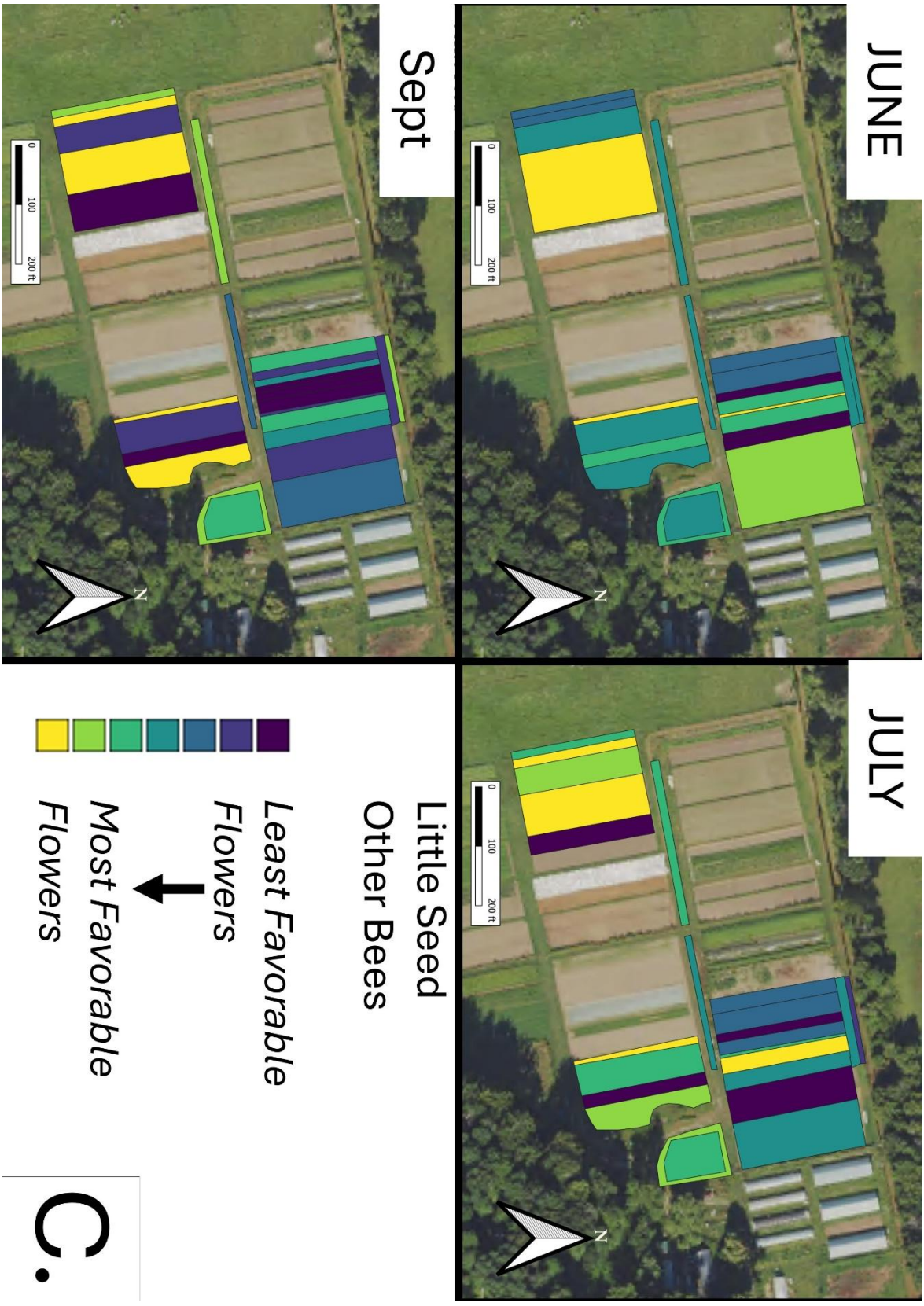


Figure 7C. Flower favorability for other bees in the different survey units and different months at Little Seed Gardens. Generally, darker signifies less favored flowers, and lighter colors mean more favored.

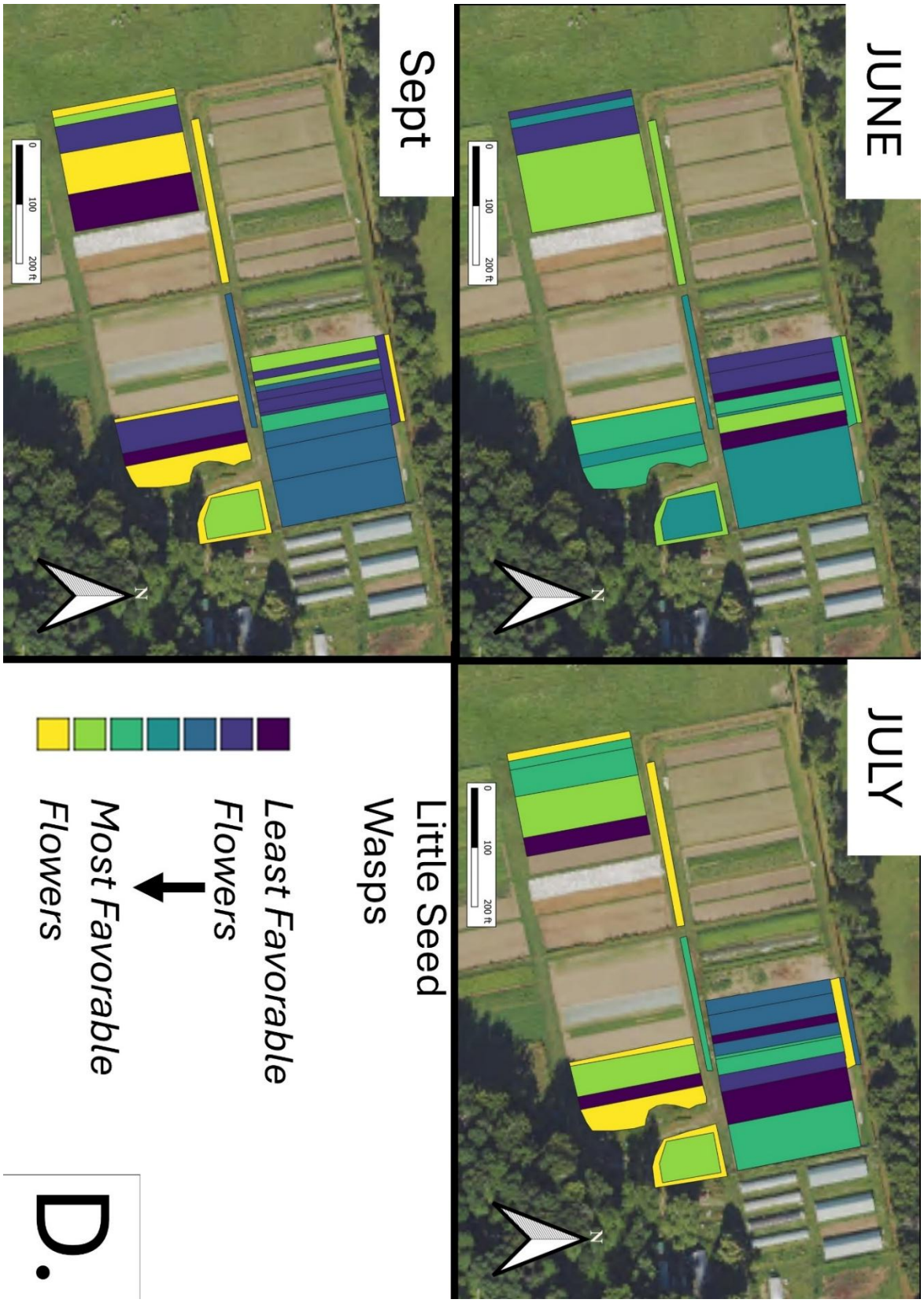


Figure 7D. Flower favorability for wasps in the different survey units and different months at Little Seed Gardens. Generally, darker signifies less favored flowers, and lighter colors mean more favored.

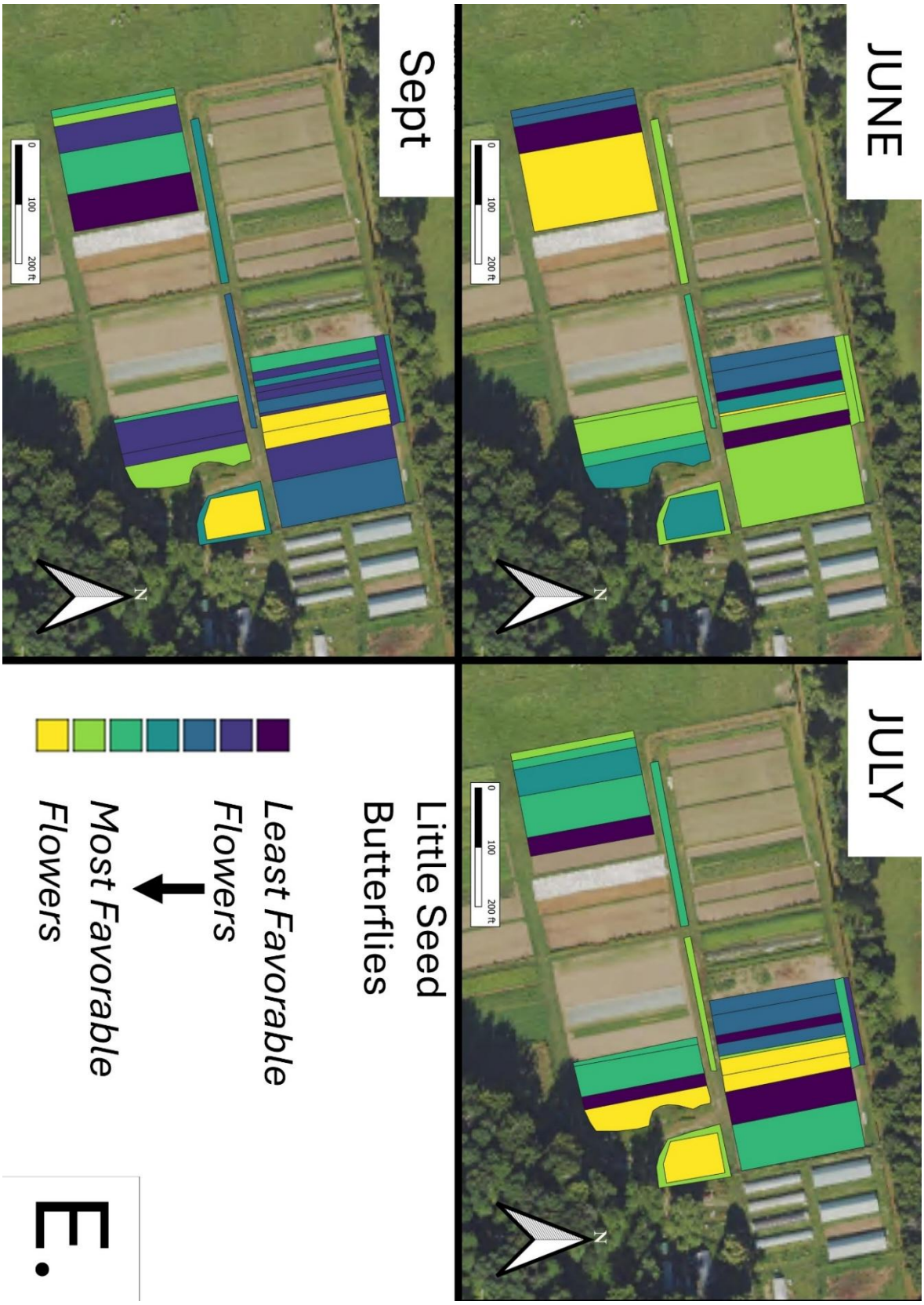


Figure 7E. Flower favorability for butterflies in the different survey units and different months at Little Seed Gardens. Generally, darker signifies less favored flowers, and lighter colors mean more favored.

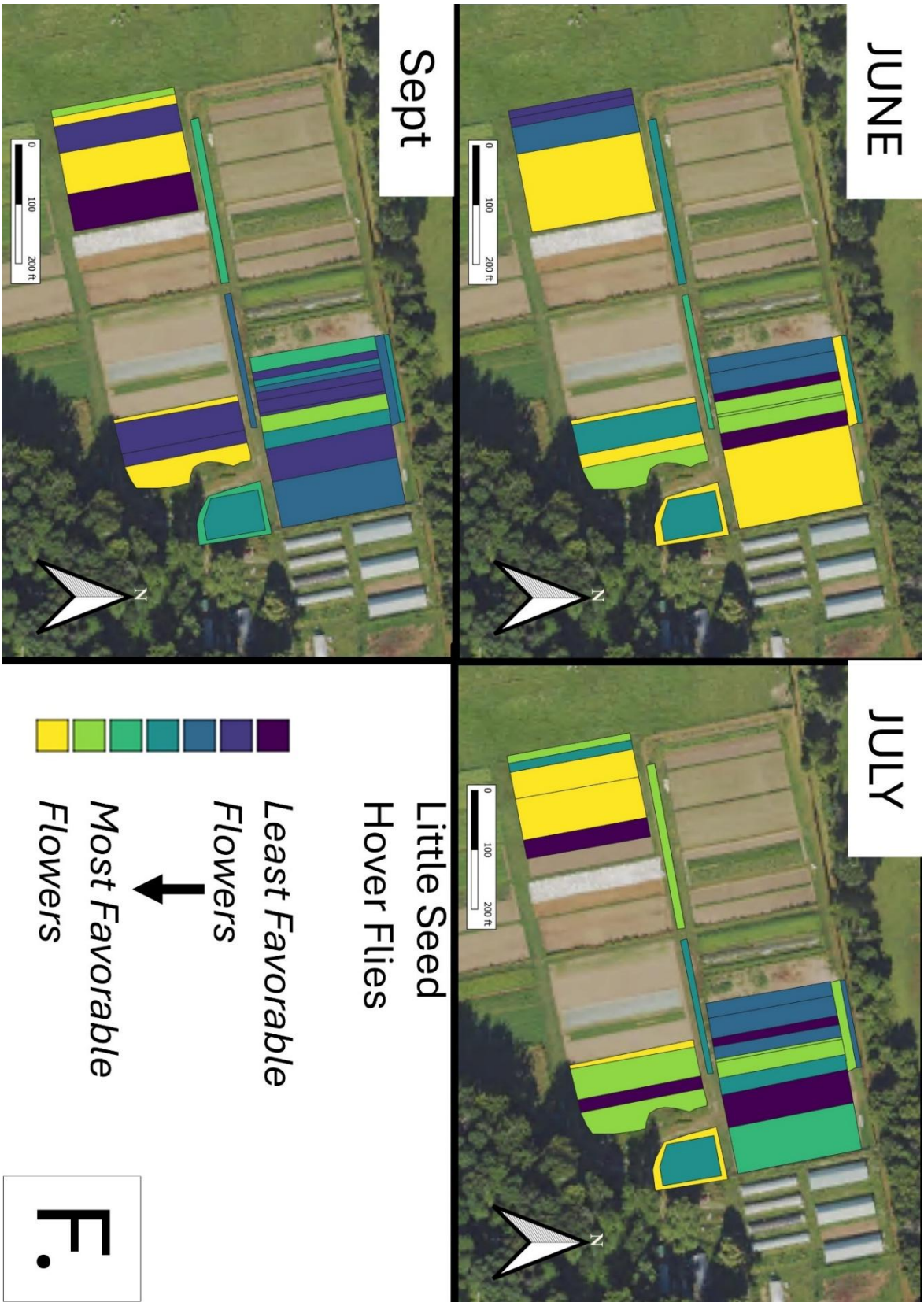


Figure 7F. Flower favorability for hover flies in the different survey units and different months at Little Seed Gardens. Generally, darker signifies less favored flowers, and lighter colors mean more favored.

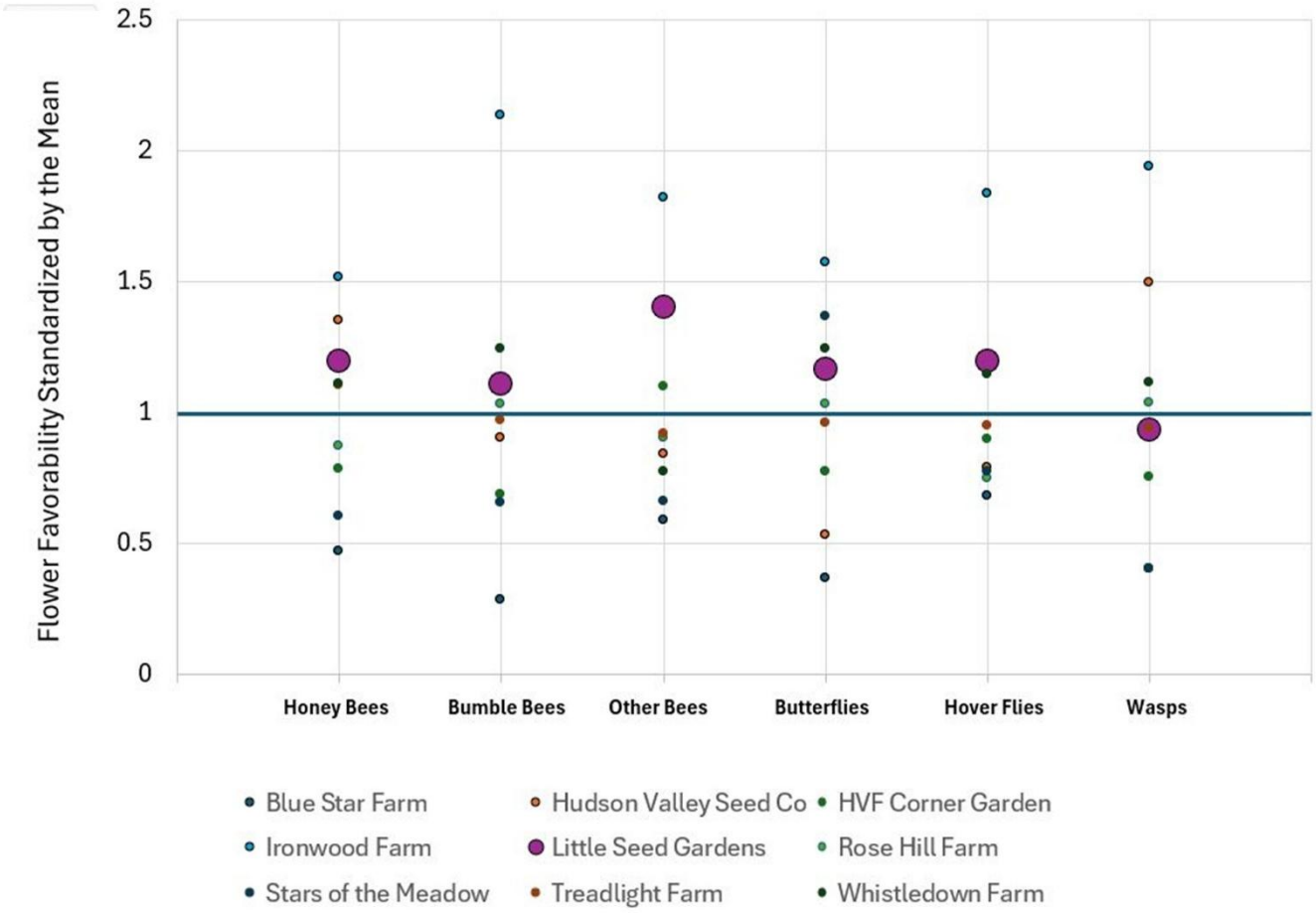


Figure 8. Standardized flower favorability scores by insect group. The solid line at one indicates the mean value across all farms.

Potential Next Steps

The apparent discrepancy between Little Seed Garden's generally generous flower offering and its seemingly low insect activity poses a puzzle whose answer could be valuable for understanding the management of beneficial insects on regional veggie farms. However, it would be important to first have confidence in our results and, while it seems like the self-serving, researcher-sort-of-thing to say, another year of data collection could help us understand how confident we can be that our 2025 results were representative of a larger pattern and not just a fluke due to particularly hot survey days or some other methodological quirk. In addition, some spring observational work trying to find where queen bumble bees are searching for holes could help us better understand the local needs of that group of insects. Researchers have used the duration of foraging in a particular habitat as an index of that habitat's nesting quality. Reportedly, hibernating sites are often not far from nesting sites. Furthermore, early spring flowers might be crucial for bumble bee colony establishment, and so surveying for those in the nearby forests could help provide clues. Watching the Honey Bee hives to better understand where they are foraging might also be informative. Finally, comparing the larger landscape

context across farms could also be helpful – our earlier work in orchards and the work of others suggests that land use within .5 to 1.5 km can have an important impact on resident insect populations.

While the apparent discrepancy between flower availability and insect activity can be disconcerting, it may also provide an important opportunity for practical learning.

Acknowledgments
Thanks to everybody at Little Seed for the hospitality over the years, both in and out of the water.

Appendix: List of Plants Observed Flowering

On the following three pages, you find the appendix with the list of plants seen in bloom in the survey units of Little Seed Gardens during three surveys in 2026. The column annotations are explained below.

Native: Indicates whether a species is considered native to the Hudson Valley, "Y" or not, "N." Non-native invasive species are denoted "N-I." Wild-growing species have only the entry "Y," "N," or "N-I." Cultivated species have an added "cult." Additional entries in parentheses indicate that a usually wild-growing plant is occasionally cultivated, "(cult)," or a usually cultivated plant is occasionally also found wild, "(wild)."

Rarity: A star * in this column flags species we consider rare or uncommon in the Hudson Valley.

Ubiquity: The values are calculated as the average % of survey units at the farm which contained the species in bloom during the months of its flowering season.

Duration: The number of months (1 to 3) in which the species was observed in bloom at the farm.

Fl. Season: Indicates with an "x" the months in which the species was observed in bloom at the farm.

Appendix: List of Plants Found in Bloom in the Study Units of Little Seed Gardens During Three Surveys in 2025

			Rarity	Ubiquity	Duration	Fl. Season		
Common Name by Groups	***Scientific Name***	**Native**	**regionally rare/uncommon**	**avg. % of units during flowering season**	**# months in bloom (of 3)**	**June**	**July**	**Aug/Sep**
alfalfa	*Medicago sativa*	N cult		4.4	2	x	x	
amaranth, globe	*Gomphrena globosa*	N cult		5.9	2		x	x
amaranth, red-rooted	*Amaranthus retroflexus*	Y		23.1	1			x
amaranth, spleen (smooth)	*Amaranthus hybridus ssp. hybridus*	Y		15.4	1			x
arugala	*Eruca sativa*	N cult		13.6	1	x		
Asian greens; turnip	*Brassica rapa*	N cult		7.7	1			x
aster, awl	*Symphyotrichum pilosum*	Y		3.8	1			x
aster, calico	*Symphyotrichum lateriflorum*	Y		3.8	1			x
bachelor's button	*Centaurea cyanus*	N cult		4.5	1	x		
basil, wild	*Clinopodium vulgare*	U		3.8	1			x
bean	*Phaseolus vulgaris*	N cult		4.4	2	x	x	
bedstraw, hedge (wild madder)	*Galium mollugo*	N		20.9	3	x	x	x
beebalm, lemon	*Monarda citriodora*	N cult		3.8	1			x
bindweed, black	*Fallopia convolvulus*	N		3.8	1			x
bindweed, hedge	*Calystegia sepium*	N		4.2	3	x	x	x
bluebells, California	*Phacelia campanularia*	N cult		3.8	1			x
buckwheat	*Fagopyrum esculentum*	N cult (wild)		29.9	3	x	x	x
burdock	*Arctium sp.*	N		16.7	1		x	
carpetweed	*Mollugo verticillata*	N		4.2	1		x	
carrot, wild	*Daucus carota*	N		32.9	2		x	x
celosia, feather	*Celosia argentea (Plumosa group)*	N cult		4.0	2		x	x
celosia, pink-spiked	*Celosia argentea (Spicata group)*	N cult		4.0	2		x	x
chamomile, corn	*Anthemis arvensis*	N		13.2	3	x	x	x
chickweed, common	*Stellaria media*	N		9.1	1	x		
chickweed, giant	*Myosoton aquaticum*	N		12.2	2	x		x
chicory	*Cichorium intybus*	N		32.7	3	x	x	x
cinquefoil, rough-leaved	*Potentilla norvegica*	N		4.4	2	x	x	
clover, alsike	*Trifolium hybridum*	N		6.6	2	x	x	
clover, crimson	*Trifolium incarnatum*	N cult		4.5	1	x		
clover, red	*Trifolium pratense*	N (cult)		55.6	3	x	x	x
clover, white	*Trifolium repens*	N		40.9	3	x	x	x
columbine, wild	*Aquilegia canadensis*	Y cult		4.5	1	x		

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Common Name by Groups	***Scientific Name***	**Native**	**regionally rare/uncommon**	**avg. % of units during flowering season**	**# months in bloom (of 3)**	**June**	**July**	**Aug/Sep**
comfrey	*Symphytum officinale*	N		4.4	2	x	x	
cosmos, garden (white, pink, red)	*Cosmos bipinnata*	N cult		4.2	3	x	x	x
cucumber	*Cucumis sativus*	N cult		4.4	2	x	x	
daisy, oxeye	*Leucanthemum vulgare*	N		4.5	1	x		
dandelion, common	*Taraxacum officinale*	N		29.0	2	x	x	
deadnettle, henbit	*Lamium amplexicaule var. amplexicaule*	N		3.8	1			x
dock, curly	*Rumex crispus ssp. crispus*	N		4.5	1	x		
fleabane, daisy	*Erigeron annuus*	Y		48.7	3	x	x	x
goldenrod, early	*Solidago juncea*	Y		7.7	1			x
goldenrod, flat-topped	*Euthamia graminifolia*	Y		15.4	1			x
goldenrod, smooth	*Solidago gigantea*	Y		11.9	2		x	x
goldenrod, tall	*Solidago altissima ssp. altissima*	Y		26.9	1			x
horseweed	*Erigeron canadensis var. canadensis*	Y		17.8	2		x	x
Indian-hemp	*Apocynum cannabinum*	Y		8.5	2	x	x	
Indian-tobacco	*Lobelia inflata*	Y		4.0	2		x	x
Jerusalem-oak	*Dysphania botrys*	N		9.9	2		x	x
Jimsonweed	*Datura stramonium*	N		3.8	1			x
kale, broccoli, etc. (white or ye fl)	*Brassica oleracea (all varieties)*	N cult		7.2	3	x	x	x
knapweed, brown	*Centaurea jacea*	N-I		10.1	2		x	x
knotweed, common	*Polygonum aviculare*	N		6.6	2	x	x	
lady's-thumb	*Persicaria maculosa*	N		68.2	3	x	x	x
lamb's-quarters	*Chenopodium album*	N		53.8	1			x
lettuce, prickly	*Lactuca serriola*	N		6.4	2	x	x	
loosestrife, purple	*Lythrum salicaria*	N-I		4.0	2		x	x
mallow, musk	*Malva moschata*	N		4.5	1	x		
marigold (all varieties)	*Tagetes sp. (all varieties)*	N cult		4.2	3	x	x	x
medic, black	*Medicago lupulina*	N		8.6	3	x	x	x
milkweed, common	*Asclepias syriaca*	Y		36.4	1	x		
mistflower	*Conoclinium coelestinum*	N cult		4.0	2		x	x
mullein, common	*Verbascum thapsus*	N		4.4	2	x	x	
mustard, hedge	*Sisymbrium officinale*	N		13.4	2	x	x	
mustard, tumble /tall hedge	*Sisymbrium altissimum/loeselii*	N		12.5	1		x	

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Common Name by Groups	***Scientific Name***	**Native**	**regionally rare/uncommon**	**avg. % of units during flowering season**	**# months in bloom (of 3)**	**June**	**July**	**Aug/Sep**
parsnip, wild	*Pastinaca sativa*	N-I		4.5	1	x		
pea, Austrian winter (pink fl)	*Pisum sativum ssp. arvense*	N cult		11.5	1			x
pepperweed, wild	*Lepidium virginicum var. virginicum*	Y	*	8.3	1		x	
pigweed	*Amaranthus sp.*	N cult		12.5	1		x	
pincushion flower (all colors)	*Scabiosa atropurpurea*	N cult		3.8	1			x
pink, Deptford	*Dianthus armeria*	N		19.2	1			x
plantain, common	*Plantago major*	N		4.2	1		x	
plantain, narrow-leaved	*Plantago lanceolata*	N		14.4	3	x	x	x
potato	*Solanum tuberosum*	N cult		4.5	1	x		
primrose, common evening	*Oenothera biennis*	Y		5.9	2		x	x
purslane, common	*Portulaca oleracea*	N		7.9	2		x	x
quickweed	*Galinsoga sp.*	N		34.6	3	x	x	x
radish, wild	*Raphanus raphanistrum*	N		12.7	3	x	x	x
ragweed, common	*Ambrosia artemisiifolia*	Y		34.6	1			x
ragweed, giant	*Ambrosia trifida*	Y	*	7.7	1			x
rose, multiflora	*Rosa multiflora*	N-I		4.5	1	x		
shepherd's-purse	*Capsella bursa-pastoris*	N		9.1	1	x		
smartweed, dock-leaved	*Persicaria lapathifolia*	Y		20.8	1		x	
smartweed, low	*Persicaria longiseta*	N		11.9	2		x	x
smartweed, Pennsylvania	*Persicaria pensylvanica*	Y		7.7	1			x
sorrel, common yellow wood	*Oxalis stricta*	Y		30.6	3	x	x	x
sow-thistle	*Sonchus sp.*	N		6.4	2	x	x	
spearmint	*Mentha spicata ssp. spicata*	N		3.8	1			x
speedwell, corn	*Veronica arvensis*	N		13.6	1	x		
speedwell, germander	*Veronica chamaedrys*	N		4.5	1	x		
squash (summer)/zuchini	*Cucurbita pepo*	N cult		4.4	2	x	x	
stitchwort, common	*Stellaria graminea*	N		9.1	1	x		
strawflower, garden	*Xerochrysum bracteatum*	N cult		4.0	2		x	x
sunflower, common	*Helianthus annuus*	N cult		14.1	2		x	x
sweetclover, white	*Melilotus albus*	N		4.2	1		x	
sweetclover, yellow	*Melilotus officinalis*	N		6.6	2	x	x	
thistle, Canada	*Cirsium arvense*	N-I		28.2	2		x	x

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Common Name by Groups	***Scientific Name***	**Native**	**regionally rare/uncommon**	**avg. % of units during flowering season**	**# months in bloom (of 3)**	**June**	**July**	**Aug/Sep**
tomato	*Solanum lycopersicum*	N cult		4.4	2	x	x	
trefoil, bird's foot	*Lotus corniculatus*	N		12.5	3	x	x	x
vervain, white	*Verbena urticifolia*	Y		20.2	2		x	x
vetch, slender	*Vicia tetrasperma*	N		4.5	1	x		
vetch, tufted or hairy	*Vicia cracca/villosa*	N		31.5	3	x	x	x
watermelon	*Citrullus lanatus*	N cult		3.8	1			x
yarrow, common	*Achillea millefolium*	Y (cult)		4.0	2		x	x
zinnia (small)	*Zinnia cf. angustifolia*	N cult		12.5	1		x	
zinnia, garden	*Zinnia sp.*	N cult		14.1	2		x	x