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

Blue Star Farm Report

Farmer-Ecologist Research Circle
Feb. 2026

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Farm Description

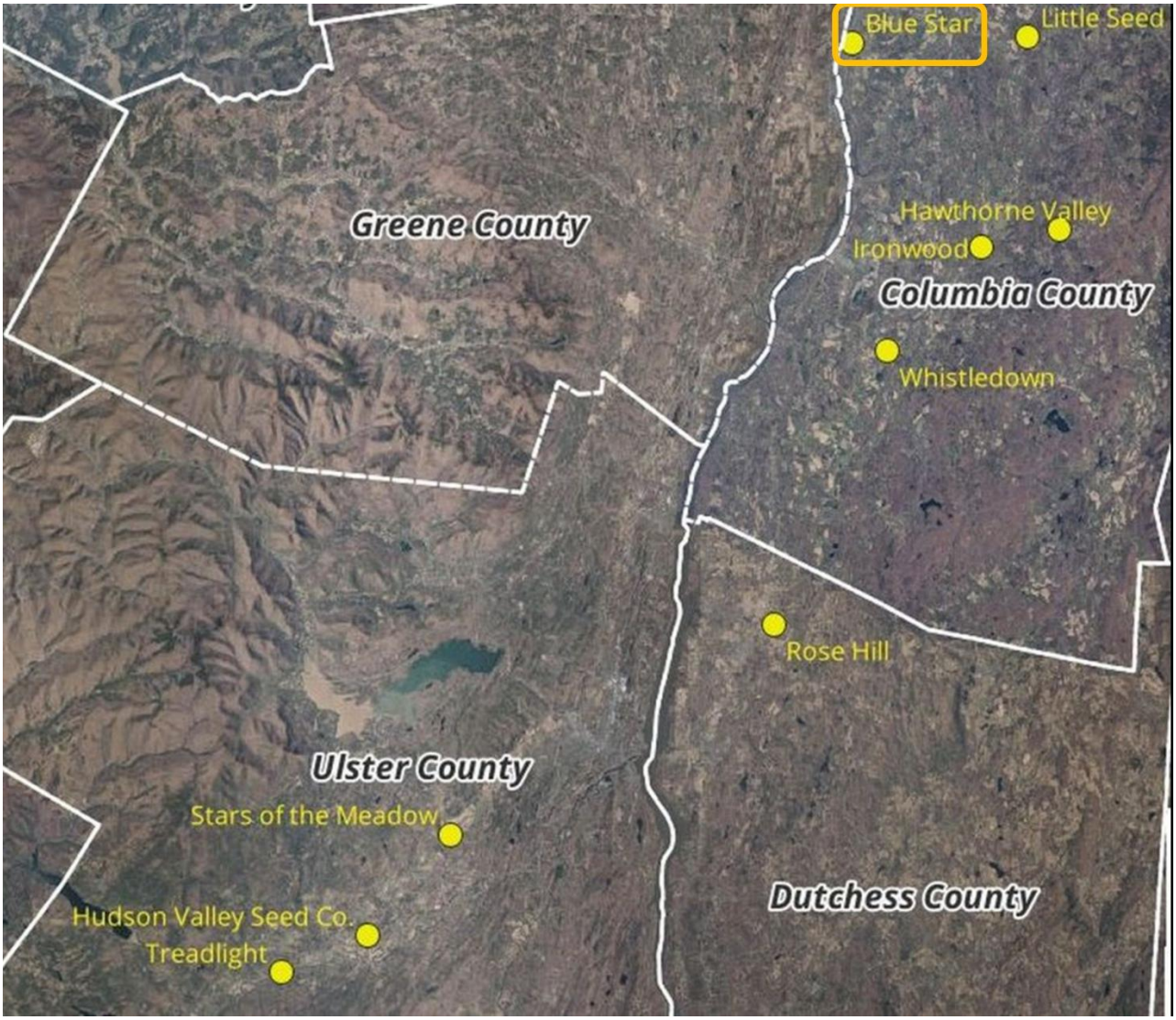


Figure 1. Blue Star is located in northwest Columbia County.

Blue Star Farm manages about 7 acres (on two parcels, one owned and one leased), where it produces a range of organic market vegetables outdoors and in greenhouses. We studied about 3.9 acres of this farm, all of it located on leased land west of the home farm. The land of that parcel is owned by Damsel Gardens, a flower farm which grows cut flowers south of Blue Star's operation. By far the primary management regime in our study area was cultivated vegetables/culinary herbs in various stages of rotation. The study area also included a bed of cultivated flowers, and some mature field edge and fenceline (Fig. 2).

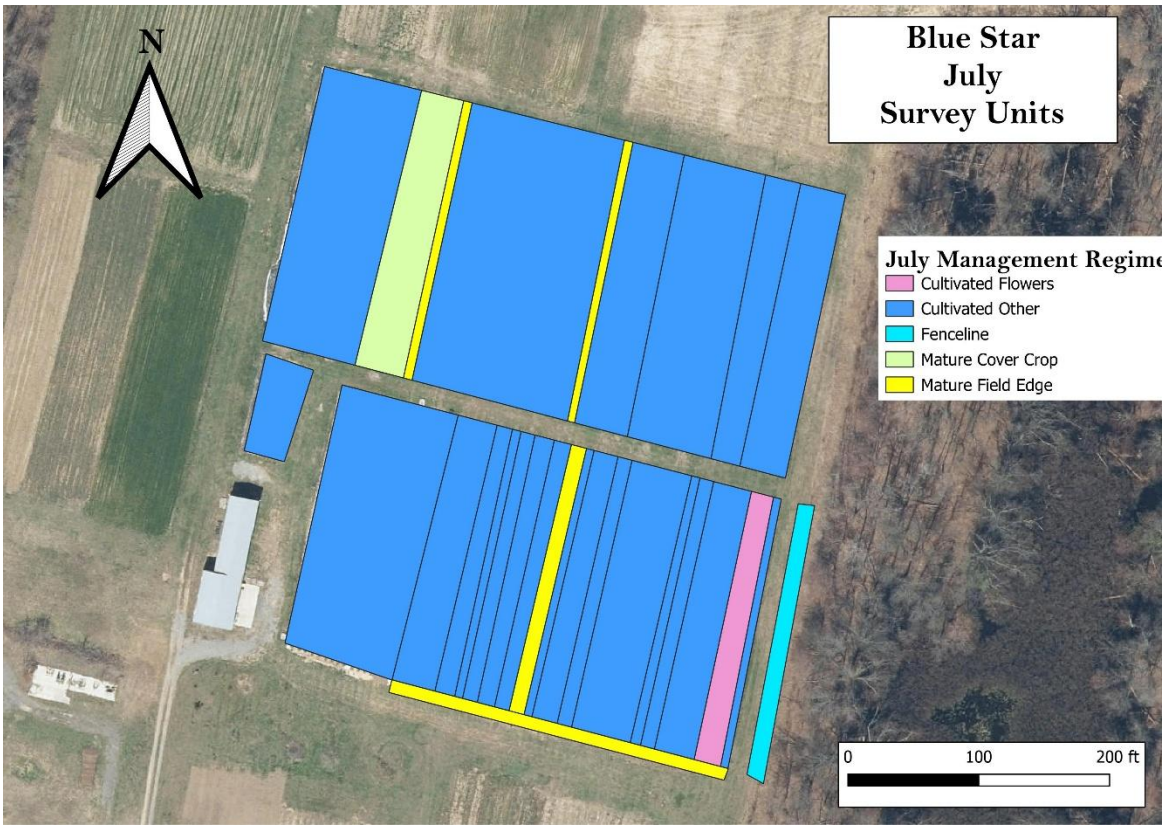


Figure 2. Generalized management regimes in the Blue Star survey units during July.

Botany

We found a total of 101 different flowers within the area studied at Blue Star (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 inventories in the survey units on June 12 ("June"), July 18 ("July"), and Aug. 28 ("Aug/Sept") 2025. 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 Blue Star Farm during its flowering season, (5) duration of its observed flowering season at the farm, and (6) the specific months when we saw it flowering. Please see the caption of the Appendix for more details.

A number of regionally rare/uncommon plants grew wild as weeds in the cultivated beds of Blue Star Farm and contributed to its flower diversity. These included False Pimpernel (not found at any of the other farms in our study in 2025), Marsh Yellowcress, Purslane Speedwell, Wild Pepperweed, and Venus' Looking-glass (which was found at only one other farm during our study in 2025). Overall, Blue Star Farm had only 9

unique flower species (9% of its total of 101 species), which were not found at any of the other farms during our 2025 study.

Figure 3 shows the number of flowering species at Blue Star 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.

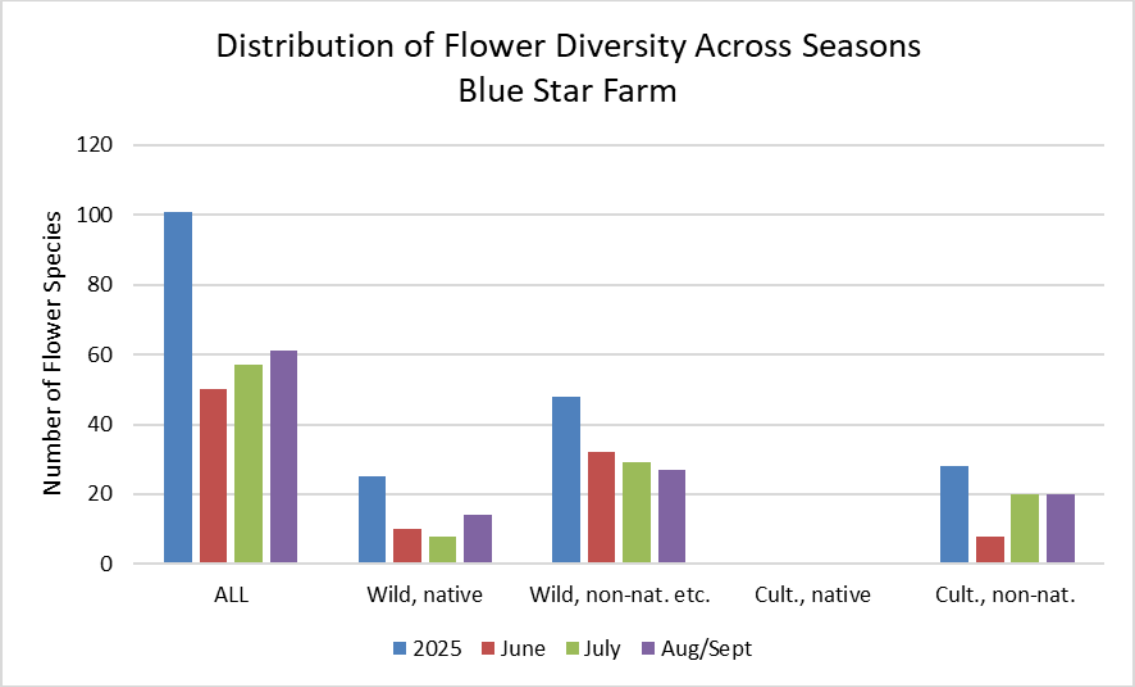


Figure 3. Distribution of flower diversity across seasons at Blue Star Farm

Most of the plants that bloomed from June to Aug/Sept at Blue Star were wild-growing plants. As in most farms we studied in 2025, the diversity of all plants in bloom increased from June to Aug/Sept. However, unique at Blue Star Farm was the relatively high June flower diversity in both, native and non-native, wild-growing plants.

Figure 4 illustrates how much more wild-growing plants contributed to the flower diversity in the survey units at Blue Star Farm across the season. The only survey units that had more species of cultivated than wild-growing flowers were a section of cultivated flowers in July and Aug./Sept. and two fields with recently planted cover crops in Aug./Sept. Most other survey units had more wild-growing flower species (and very few had the same number of wild-growing and cultivated flower species) across the season.

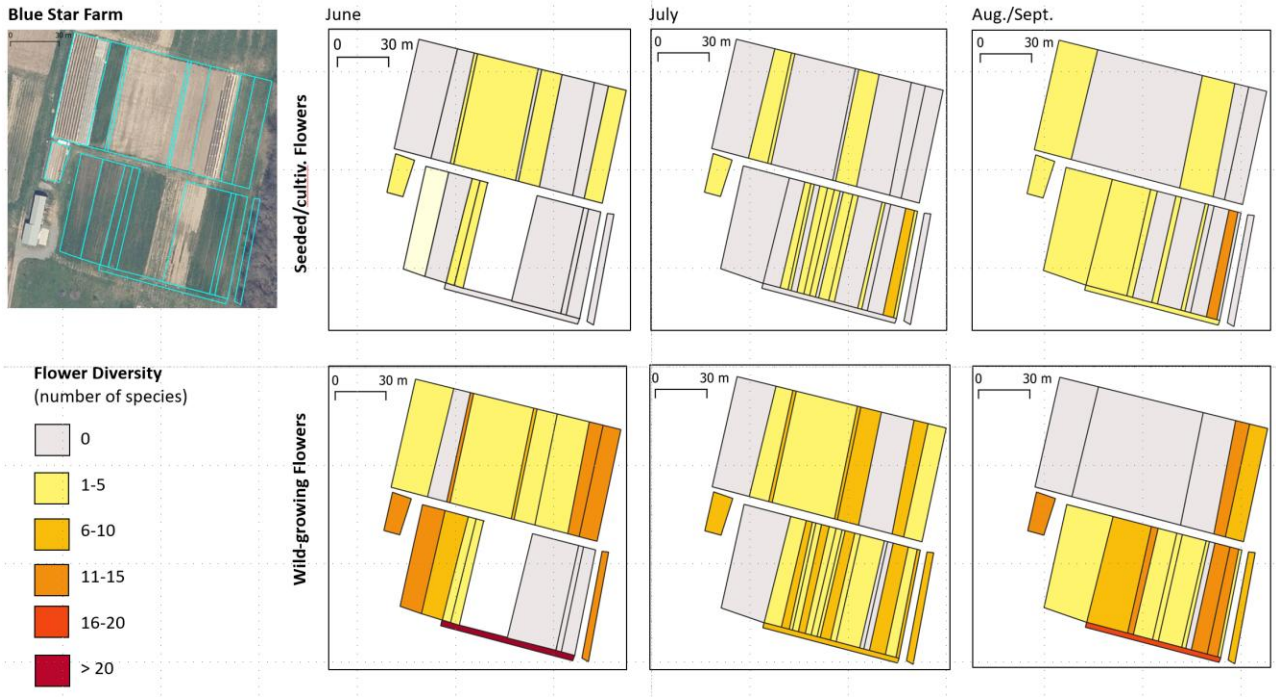


Figure 4. Comparative diversity of seeded/cultivated flowers (above) and wild-growing flowers (below) in the survey units at Blue Star.

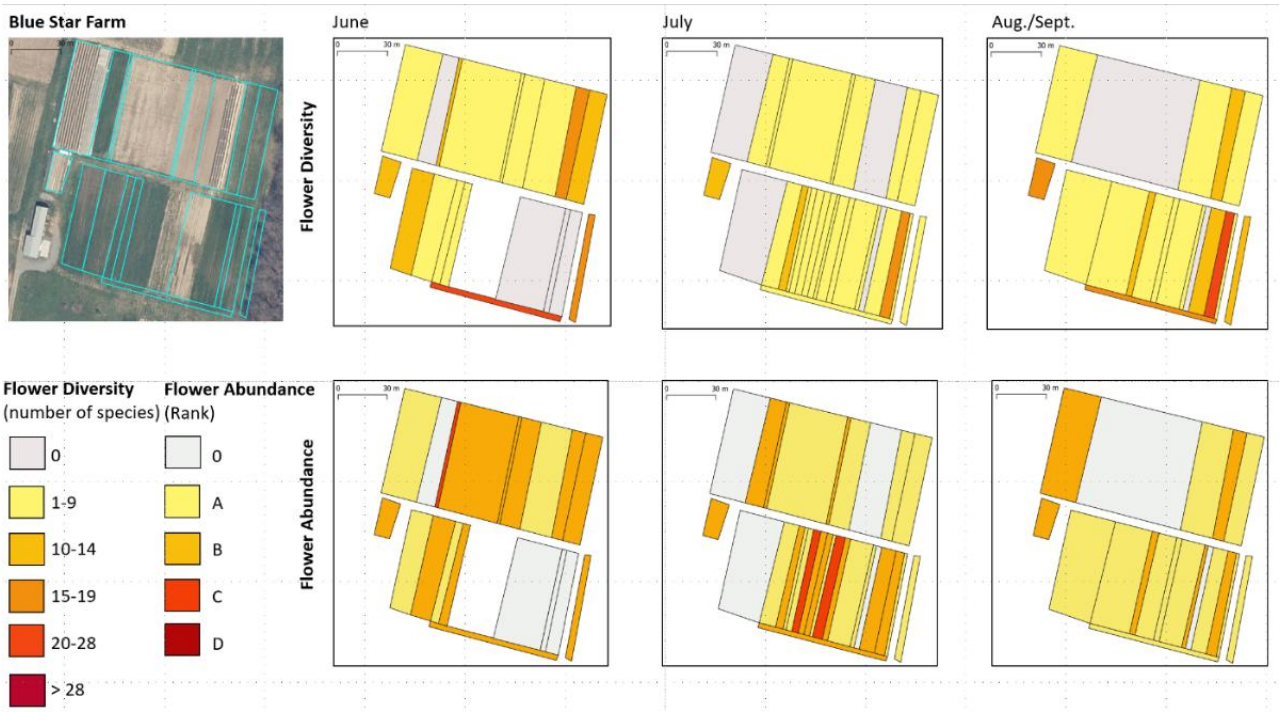


Figure 5. Flower diversity (row of maps above) and abundance (row of maps below) in the survey units at Blue Star. Claudia ranked flower abundances from A (least) to D (most) and also had a zero category.

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.

The Blue Star flower visitor community was mixed – relatively high numbers of butterflies and wasps, and lower sighting rates for bees (Figure 6).

In our somewhat anecdotal but more detailed data on who the 'other bees' were, Blue Star did not particularly stand out. We did sight a couple of rare (in our observations, not globally) bees: *Augochlorella aurata* (one of the green sweat bees) and *Calliopsis andreniformis* (one of the ground-nesting 'miner bees'). In 2010, we studied the bees on this ground (it was a different farm at the time) and found a surprising number in relation to overall flower abundance. We attributed that to the very sandy soils which seem to be ideal nesting habitat for ground-dwelling bees. Our more or less average 'other bee' numbers this time around could reflect changes in management, differences in techniques (in 2010 we used bee bowls to trap bees), and/or the largely different set of farms used in our comparisons.

We did identify the butterflies we saw, and Blue Star's relatively high rate of butterfly sightings was composed of several common farm species – Pearl Crescent, Silver-Spotted Skipper, Common Ringlet, Clouded Sulphur and the introduced (and pestiferous for Brassica crops) Cabbage White, but we also observed the rare Bronze Copper, perhaps associated with dock in the adjacent wetlands. Although the adjacent flower farm was not part of our surveys, their nearby flower offering may have helped boost butterfly numbers.

Flower-favorability Data & Maps

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

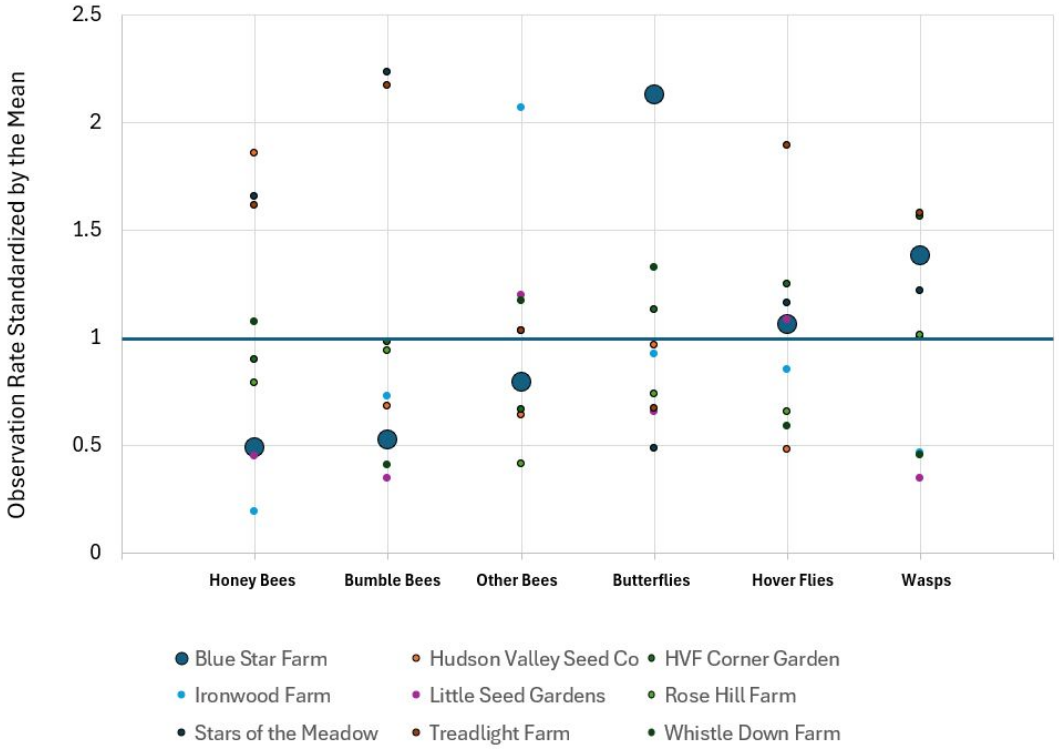
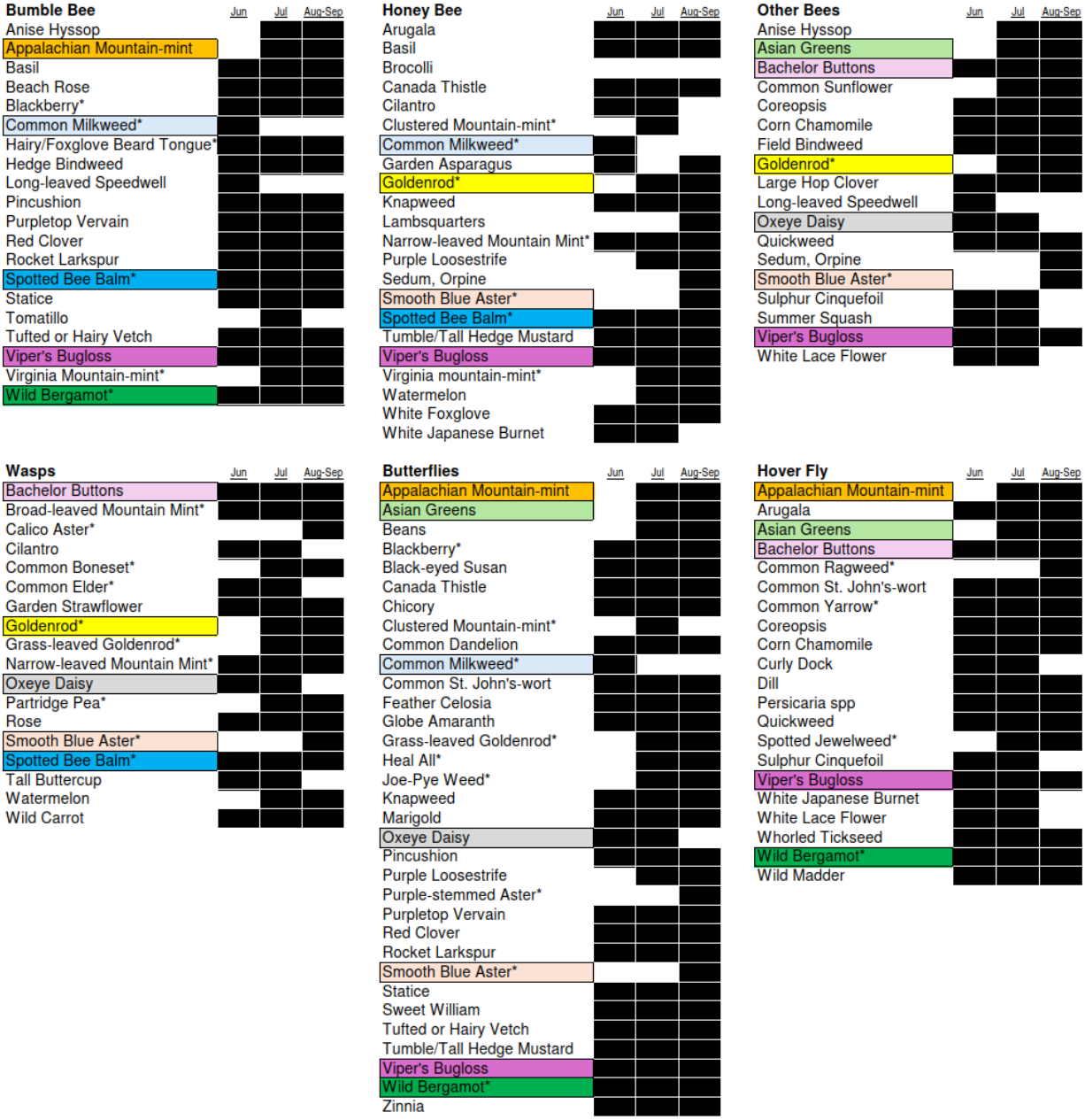


Figure 6. The standardized Blue Star observation rates for the various insect groups relative to the mean for all farms (the solid line at 1).

Figures 7A-F show the flower favorability maps for Blue Star. As suggested by both a quick perusal of these maps and by Fig. 8, the flower offering in the Blue Star study area was relatively low, perhaps especially so later in the Summer. It is, however, important to note that, as already mentioned, the flower beds of Damsel Gardens were located just south of these Blue Star beds. Obviously, insects care about proximity, not who the farmer is, and it is very likely that were we to have included Damsel Gardens in our survey scope, the picture would have looked quite different. A somewhat similar situation may hold at Treadlight Farm, which shares ground with Long Season Farm, except in this case we studied the flower farm rather than the adjacent vegetable operation. Stars of the Meadow flower farm is also adjacent to another farm. The possibility of ecological synergies between adjacent, but independently managed, farms could be interesting to explore.

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.



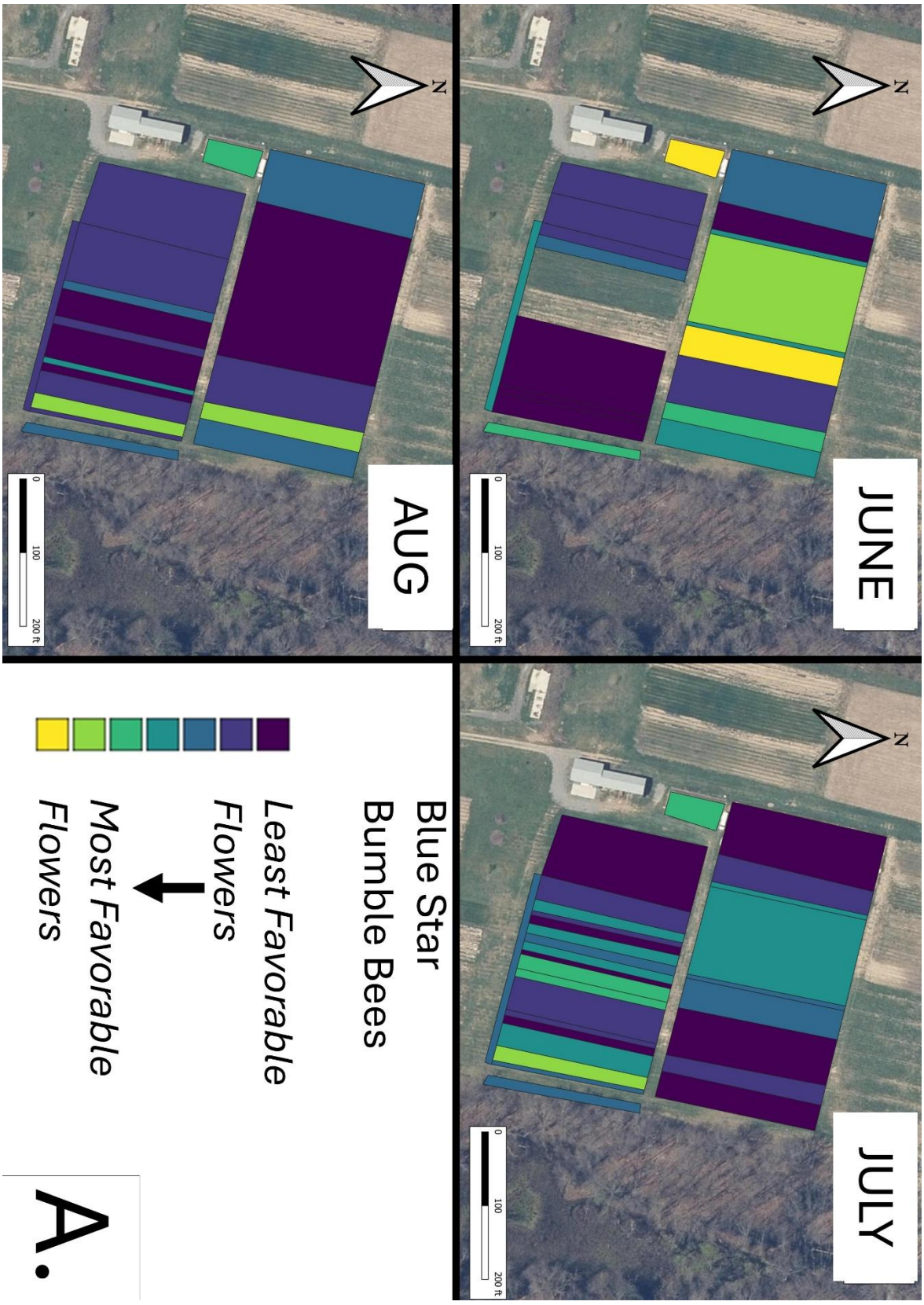


Figure 7A. Flower favorability for bumble bees in the different survey units and different months at Blue Star. Generally, darker signifies less favored flowers, and lighter colors mean more favored.

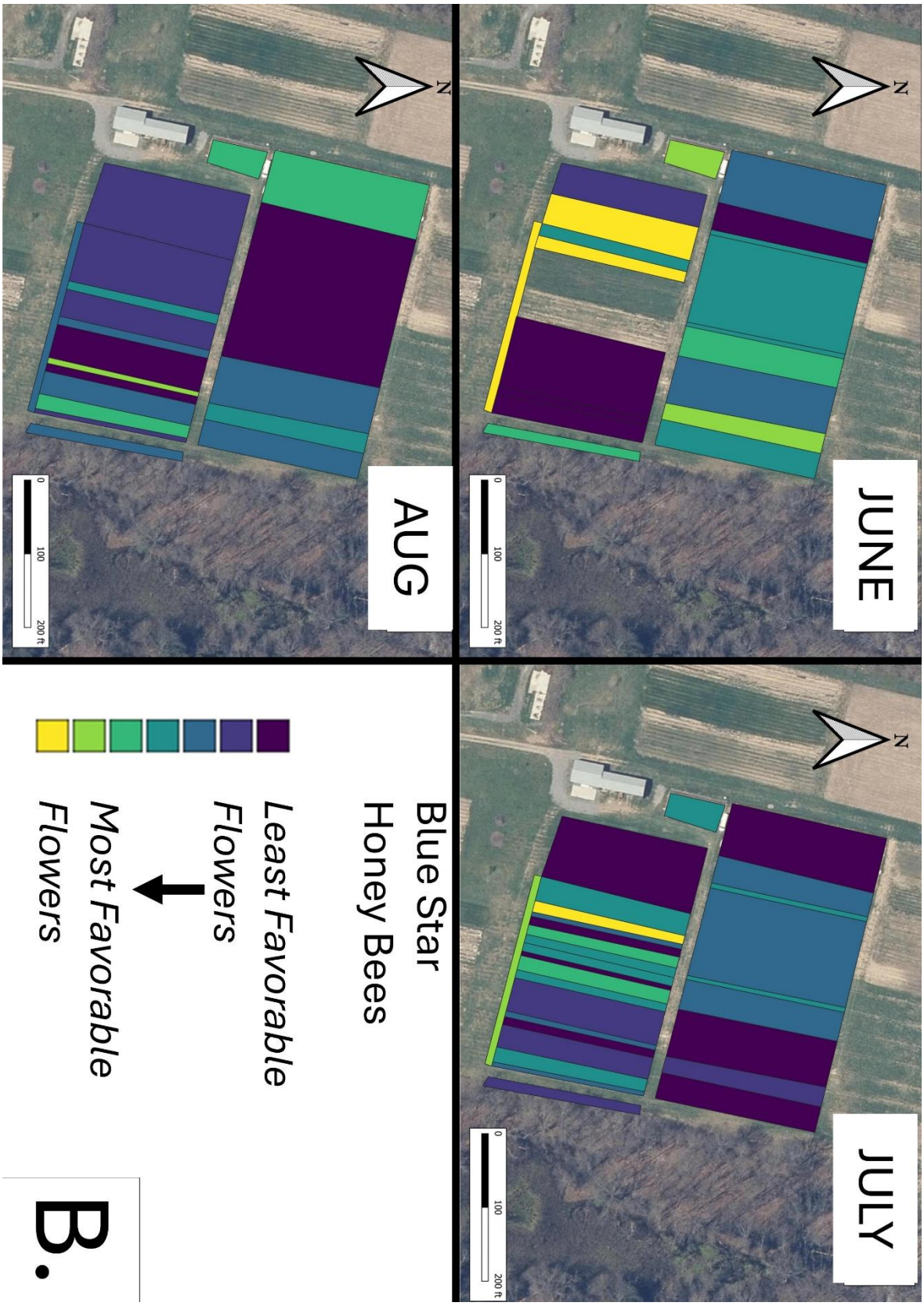


Figure 7B. Flower favorability for honey bees in the different survey units and different months at Blue Star. Generally, darker signifies less favored flowers, and lighter colors mean more favored.

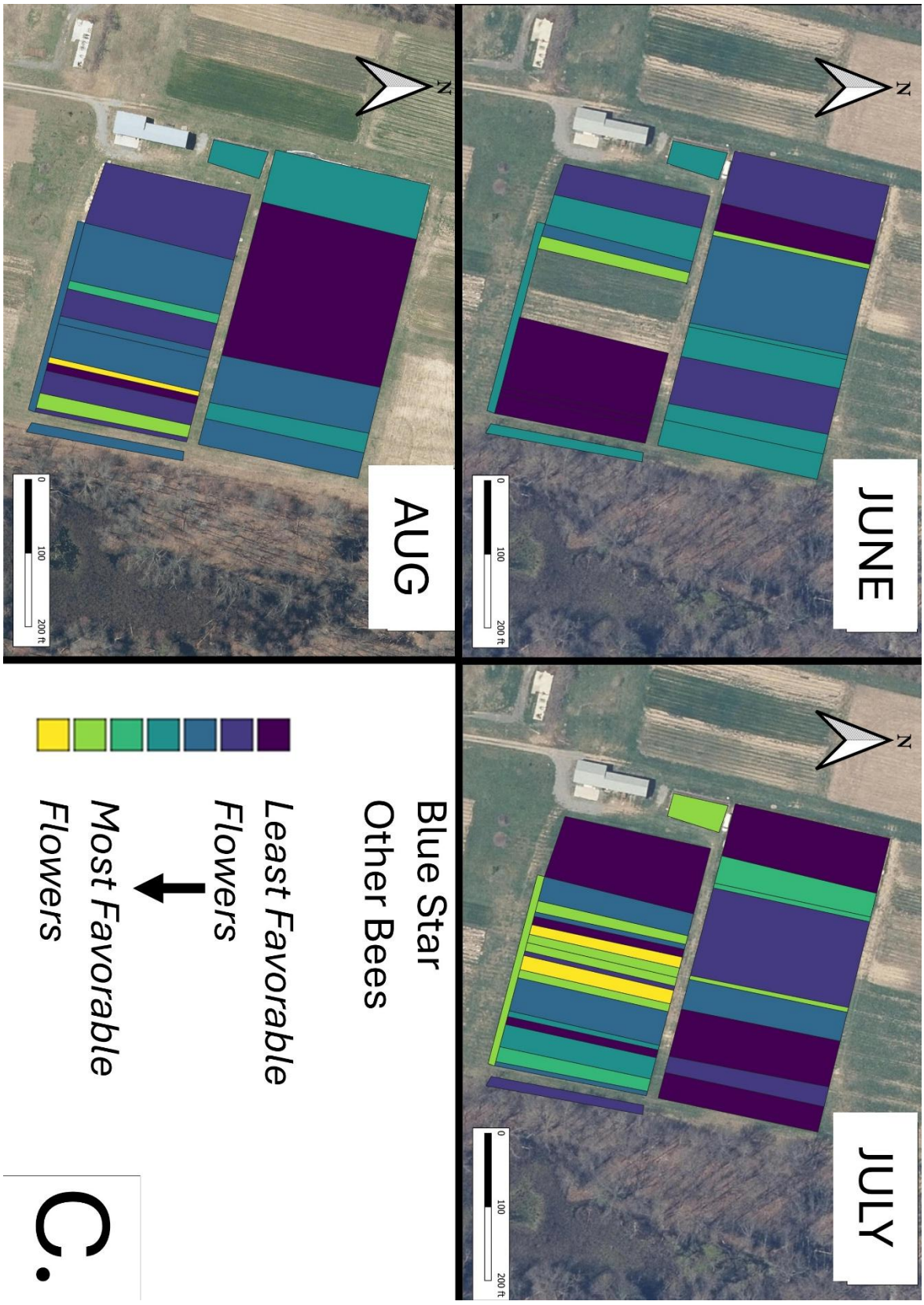


Figure 7C. Flower favorability for other bees in the different survey units and different months at Blue Star. Generally, darker signifies less favored flowers, and lighter colors mean more favored.

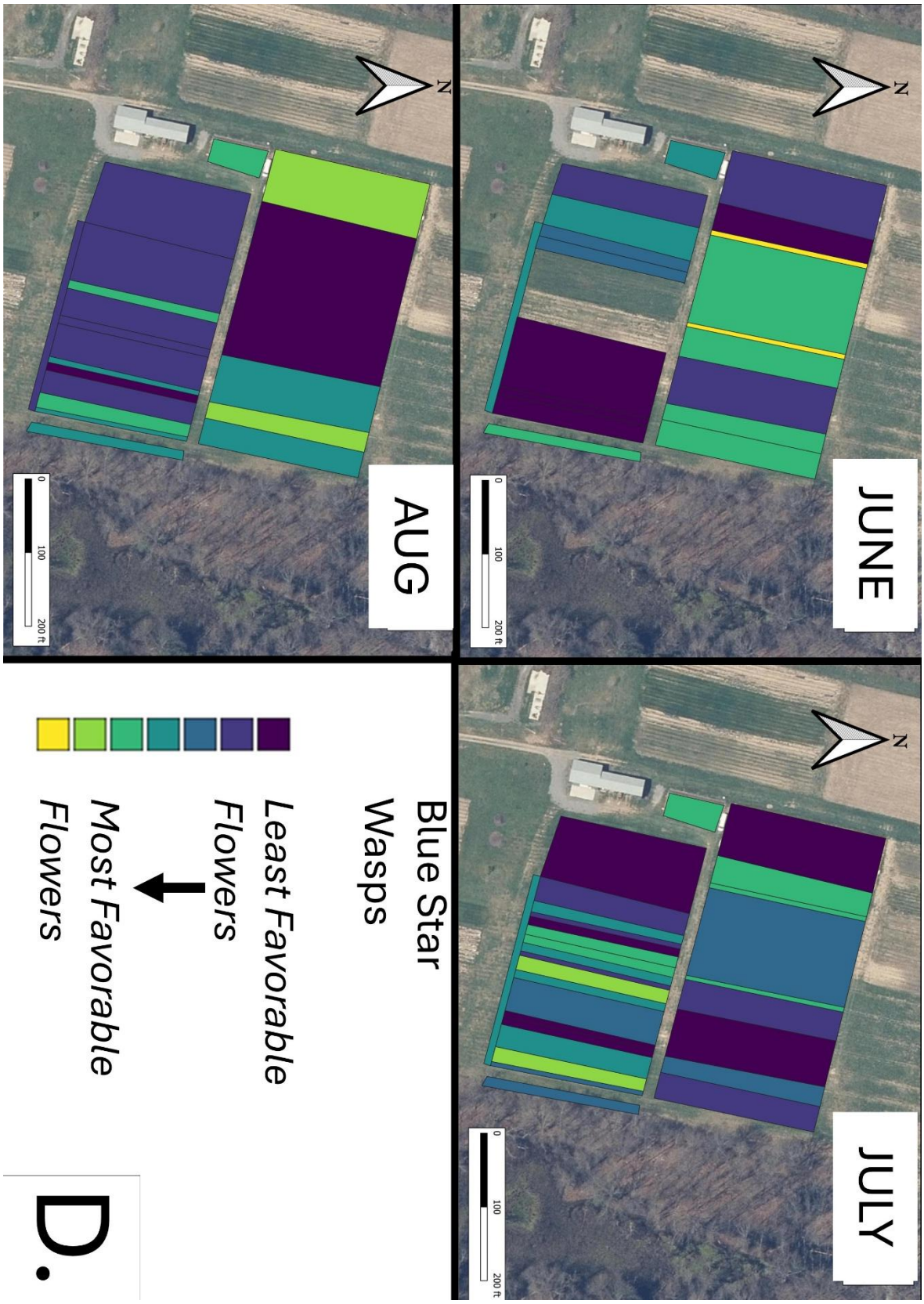


Figure 7D. Flower favorability for wasps in the different survey units and different months at Blue Star. Generally, darker signifies less favored flowers, and lighter colors mean more favored.

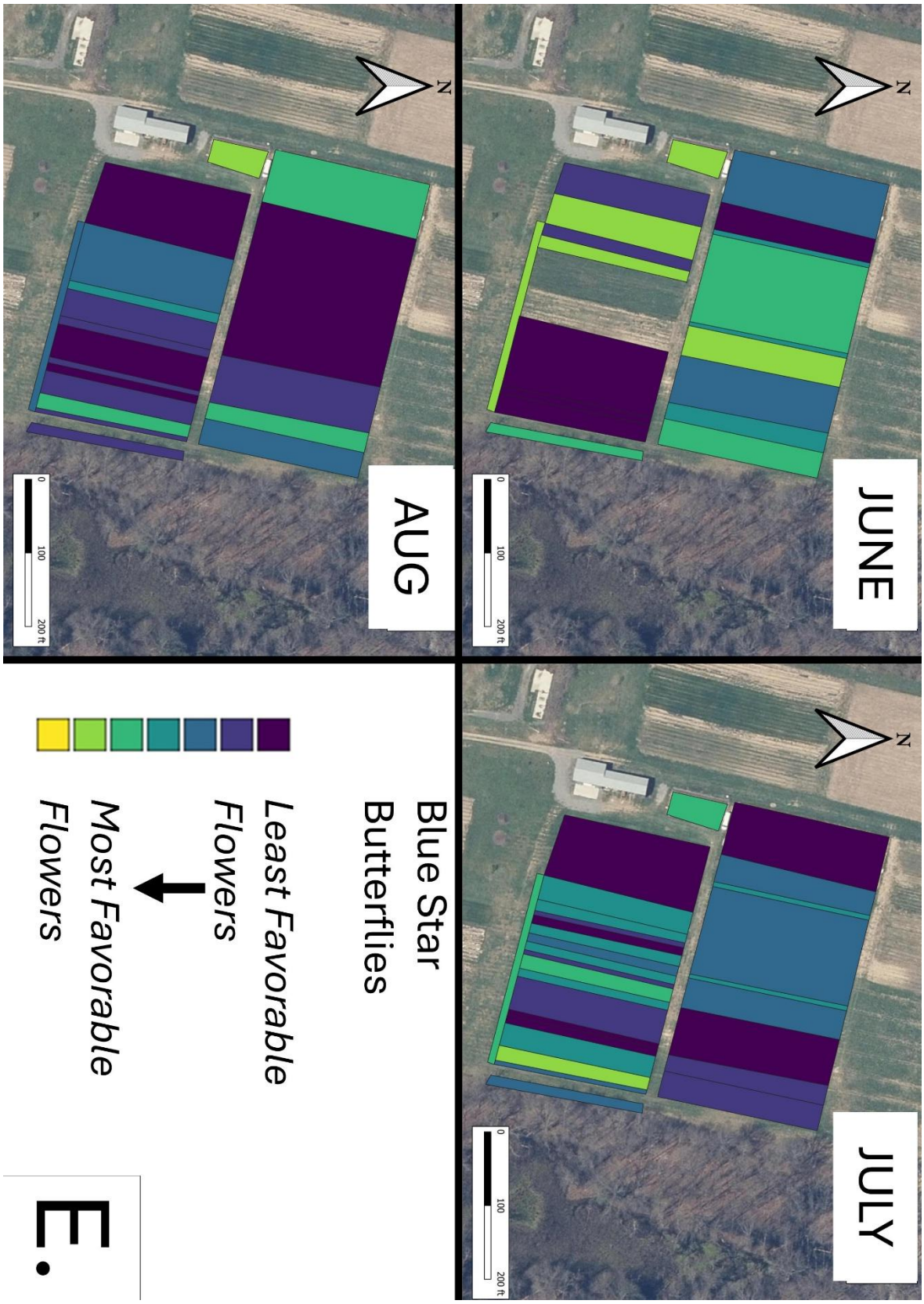


Figure 7E. Flower favorability for butterflies in the different survey units and different months at Blue Star. Generally, darker signifies less favored flowers, and lighter colors mean more favored.

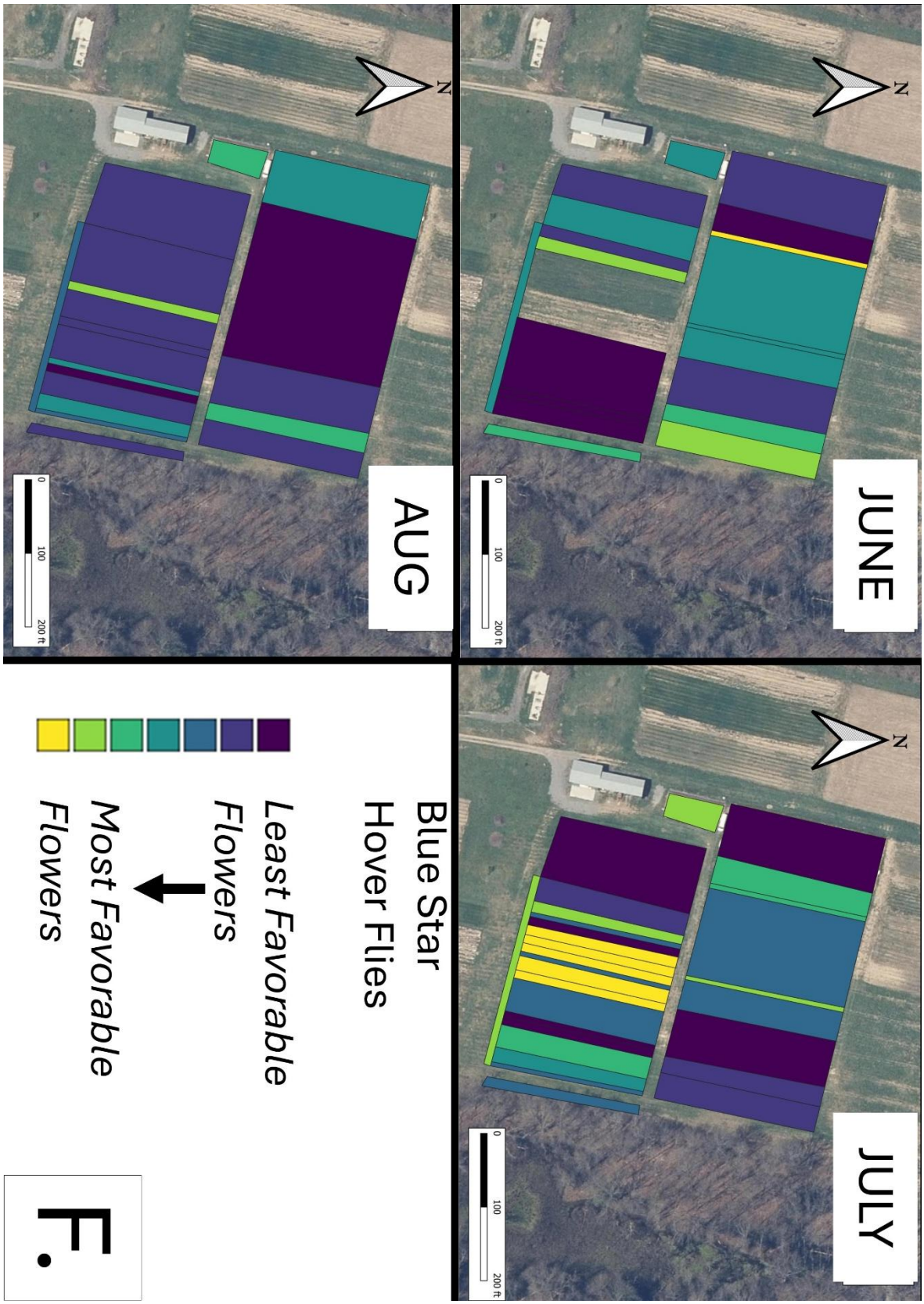


Figure 7F. Flower favorability for hover flies in the different survey units and different months at Blue Star. Generally, darker signifies less favored flowers, and lighter colors mean more favored.

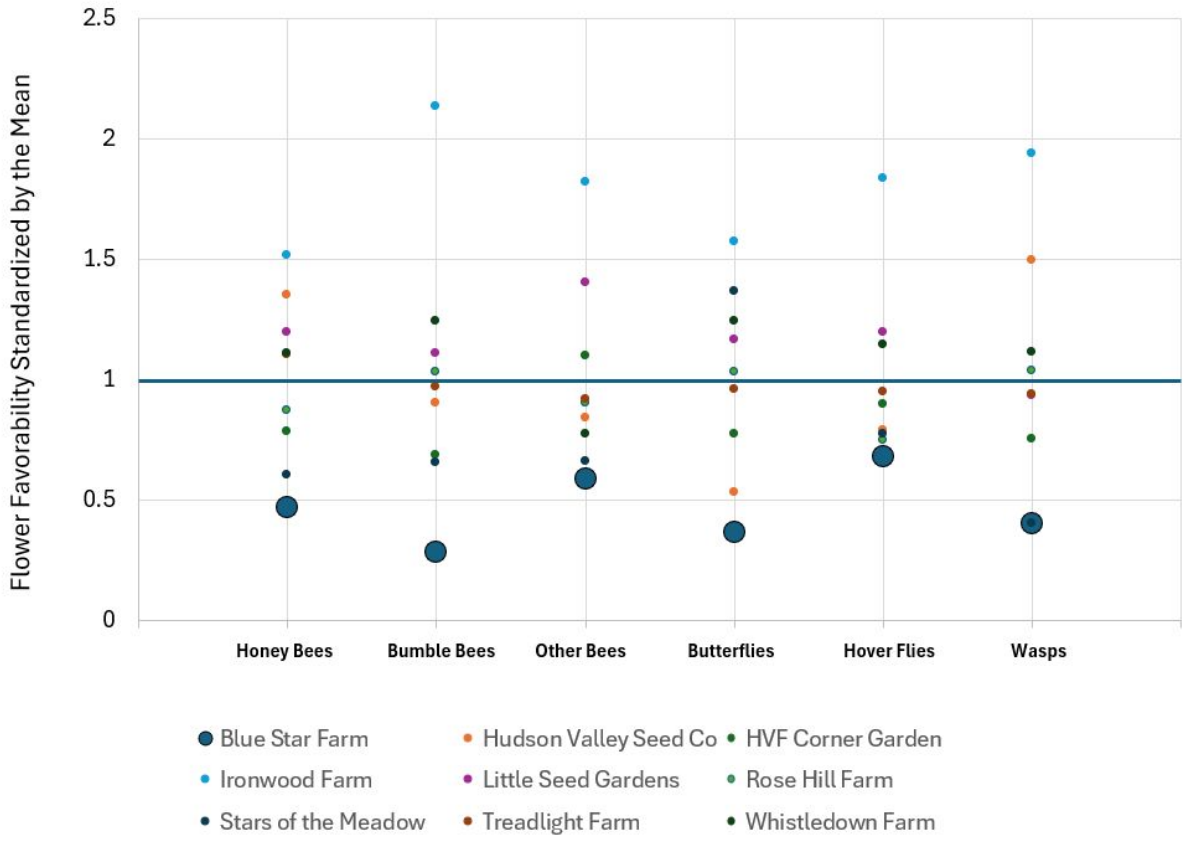


Figure 8. Standardized flower favorability scores by insect group. The solid line at one indicates the mean value across all farms.

Management Considerations

Were we to confine our recommendations to the Blue Star study area alone and if there were interest in increasing the number of beneficial insects, we would suggest an across-the-board expansion of the flower offering, perhaps through the incorporation of expanded flower beds and/or flower seeding along field edges and fencelines. We noticed a particular lack of insect-favored flowers in the study area late in the season. However, as mentioned above, it is possible that the cultivated flowers in Damsel Gardens, just south of Blue Star, and the large, lightly-managed wet meadow/old field associated with the pond north of the study area might support insects in late summer/fall (and, in fact, may have been drawing off some flower visitors from the study area during this or other times of year). If those lands do support large numbers of flower visitors, then removing lands from veggie production in order to plant more flowers might not be needed.

The rate of bee sightings at Blue Star was comparatively low. The relatively low Honey Bee numbers paired with the fact that there were active Honey Bee hives may indicate that, as just suggested, most bees were going elsewhere to forage, either visiting Damsel Gardens or the flowers around the wilder meadows to the north and the swamp forest to the east. Similar logic might also help explain the low numbers of bumble bees.

There is a potential agroecological paradox here: providing flowers in the surrounding farm landscape can help support higher bee populations, but, at the same time, can distract bees from crop visitation. While the question of bee (and other flower visitor) conservation would need to be evaluated by expanding our study area to include these peripheral habitats, the question of impact on production needs to be answered by the farmer: Are there any evident pollination problems? Is there any indication of pest problems that are elsewhere controlled by natural biocontrol? If the answers to both these questions are ‘no’, and if, in the larger landscape, there seem to be hearty numbers and diversity of flower visitors, then we can just be happy.

Potential Next Steps

Blue Star raises the interesting theme of ecological synergies between farm operations. It was one of three situations in our set of nine farms where a veggie operation and flower operation worked side-by-side. In all cases, we only studied one member of the pair, but flower visitors don’t know about farm boundaries, and it could be useful, were the neighboring farms agreeable, to expand our observations to the adjacent operations. We could then ask the question: Is there any evidence that such pairing enhances the beneficial insects on the veggie farm? Conversely, even organic pesticides can affect insect populations and the potential that veggie operations are dampening the beneficial insects on the flower farms could also be considered. Such an approach would require also surveying relatively isolated veggie and flower operations for comparison. Similarly, the work could expand to include wilder habitats, such as the swamp forest and pond edge at Blue Star. In some ways, what one wants is a ‘heat’ map of bee activity across the landscape and seasons - Where do the bees go? When and how does this facilitate (or hinder) crop production and expand (or limit) bee biodiversity conservation?

Acknowledgments
Thanks to farmer Sue Bassin and her crew for fielding our questions and facilitating our work, even during the heart of the field season.

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 Blue Star Farm 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 Blue Star Farm 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**
amaranth, red-rooted	Amaranthus retroflexus	Y		10.5	1			x
amaranth, spleen (smooth)	Amaranthus hybridus ssp. hybridus	Y		5.3	1			x
arugala	Eruca sativa	N cult		4.8	3	x	x	x
Asian greens; turnip	Brassica rapa	N cult		4.8	3	x	x	x
aster, calico	Symphyotrichum lateriflorum	Y		5.3	1			x
basil	Ocimum basilicum	N cult		5.3	1			x
bedstraw, hedge (wild madder)	Galium mollugo	N		15.1	3	x	x	x
bindweed, field	Convolvulus arvensis	N-I		4.8	3	x	x	x
blue-eyed-grass, narrow-leaved	Sisyrinchium angustifolium	Y	*	11.1	1	x		
buckwheat	Fagopyrum esculentum	N cult (wild)		10.5	1			x
buttercup	Ranunculus sp.	N		3.4	1		x	
buttercup, kidney-leaved	Ranunculus abortivus	Y		11.1	1	x		
campion, white	Silene latifolia	N		11.9	3	x	x	x
carpetweed	Mollugo verticillata	N		27.9	2		x	x
carrot, wild	Daucus carota	N		17.4	2		x	x
chickweed, common	Stellaria media	N		27.8	1	x		
chickweed, mouse-eared	Cerastium fontanum ssp. vulgare	N		17.7	3	x	x	x
chicory	Cichorium intybus	N		5.3	1			x
chiretta, green	Andrographis paniculata	N cult		5.3	1			x
cilantro	Coriandrum sativum	N cult		8.0	2	x	x	
cinquefoil, rough-leaved	Potentilla norvegica	N		4.5	2	x	x	
cinquefoil, sulphur	Potentilla recta	N		4.5	2	x	x	
clover, alsike	Trifolium hybridum	N		9.6	3	x	x	x
clover, large hop	Trifolium aureum	N		16.7	1	x		
clover, red	Trifolium pratense	N (cult)		43.4	3	x	x	x
clover, white	Trifolium repens	N		38.8	3	x	x	x
cock's-comb	Celosia argentea (Cristata group)	N cult		4.4	2		x	x
coneflower (amarillo gold?)	Rudbeckia cf. hirta 'Amarillo Gold'	N cult		5.3	1			x
corn	Zea mais	N cult		4.4	2		x	x
craspedia, sunball	Craspedia globosa	N cult		3.4	1		x	
daisy, oxeye	Leucanthemum vulgare	N		11.1	1	x		
dandelion, common	Taraxacum officinale	N		12.8	2	x	x	
deadnettle, henbit	Lamium amplexicaule var. amplexicaul	N		11.1	1	x		
dill	Anethum graveolens	N cult		10.3	1		x	
dock, curly	Rumex crispus ssp. crispus	N		11.1	1	x		
fleabane, daisy	Erigeron annuus	Y		49.6	3	x	x	x
fleabane, Philadelphia	Erigeron philadelphicus var. philadelphi	Y		5.6	1	x		
goldenrod, smooth	Solidago gigantea	Y		5.3	1			x
goldenrod, tall	Solidago altissima ssp. altissima	Y		10.5	1			x
goldenrod, wrinkle-leaved	Solidago rugosa var. rugosa	Y		5.3	1			x
ground-cherry, clammy	Physalis heterophylla	Y	*	3.4	1		x	
ground-ivy	Glechoma hederacea	N-I		14.6	2	x	x	
hawkweed, meadow	Pilosella caespitosa	N		5.6	1	x		
heal-all	Prunella vulgaris	U		4.4	2		x	x
horseweed	Erigeron canadensis var. canadensis	Y		26.3	1			x
hyssop. anise	Agastache foeniculum	N cult		4.4	2		x	x
Indian-tobacco	Lobelia inflata	Y		12.3	2		x	x
kale, broccoli, etc. (white or ye fl)	Brassica oleracea (all varieties)	N cult		7.8	2		x	x
knapweed, brown	Centaurea jacea	N-I		3.4	1		x	
knotweed, common	Polygonum aviculare	N		8.2	2	x		x
lady's-thumb	Persicaria maculosa	N		28.5	3	x	x	x
lamb's-quarters	Chenopodium album	N		26.3	1			x

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amaranth, red-rooted	Amaranthus retroflexus	Y		10.5	1			x
larkspur, rocket	Consolida (Delphinium) ajacis	N cult		6.9	1		x	
looking-glass, Venus'	Triodanis perfoliata	Y	*	5.6	1	x		
loosestrife, purple	Lythrum salicaria	N-I		10.5	1			x
lovage	Levisticum officinale	N cult		5.3	1			x
mallow, common	Malva neglecta	N		7.7	3	x	x	x
Mexican-tea	Dysphania ambrosioides	N cult		3.4	1		x	
mustard, tower	Arabis glabra	Y		22.2	1	x		
mustard, tumble /tall hedge	Sisymbrium altissimum/loeselii	N		27.1	3	x	x	x
nightshade, black	Solanum nigrum/ptycanthum	U		12.3	2		x	x
pansy, garden (ye fl)	Viola tricolor var. hortensis	N cult		5.6	1	x		
parsnip, wild	Pastinaca sativa	N-I		5.6	1	x		
pea, Austrian winter (pink fl)	Pisum sativum ssp. arvense	N cult		13.5	2	x	x	
pepperweed, wild	Lepidium virginicum var. virginicum	Y	*	11.0	2	x		x
pimpernel, false	Lindernia dubia var. dubia	Y	*	6.9	1		x	
pincushion flower (all colors)	Scabiosa atropurpurea	N cult		4.4	2		x	x
pink, Deptford	Dianthus armeria	N		5.3	1			x
plantain, narrow-leaved	Plantago lanceolata	N		25.0	3	x	x	x
quickweed	Galinsoga sp.	N		35.8	3	x	x	x
radish, wild	Raphanus raphanistrum	N		10.8	3	x	x	x
ragweed, common	Ambrosia artemisiifolia	Y		31.6	1			x
rose, multiflora	Rosa multiflora	N-I		5.6	1	x		
sage, wood?	Salvia cf. sylvestris???	N cult		4.8	3	x	x	x
sandwort, thyme-leaved	Arenaria serpyllifolia	N		3.4	1		x	
shepherd's-purse	Capsella bursa-pastoris	N		11.0	2	x		x
smartweed, dock-leaved	Persicaria lapathifolia	Y		3.4	1		x	
smartweed, low	Persicaria longiseta	N		21.0	2		x	x
snapdragon, common	Antirrhinum majus	N cult		4.4	2		x	x
sorrel, common yellow wood	Oxalis stricta	Y		55.2	3	x	x	x
speedwell, corn	Veronica arvensis	N		11.1	1	x		
speedwell, purslane	Veronica peregrina ssp. peregrina	Y	*	5.6	1	x		
squash (summer)/zuchini	Cucurbita pepo	N cult		4.4	2		x	x
St. John's-wort, common	Hypericum perforatum ssp. perforatum	N		4.4	2		x	x
St. John's-wort, dwarf	Hypericum mutilum ssp. mutilum	Y		3.4	1		x	
statice	Limonium sinuatum	N cult		4.4	2		x	x
strawberry, garden	Fragaria x ananassa	N cult		5.6	1	x		
strawflower, garden	Xerochrysum bracteatum	N cult		4.4	2		x	x
sunflower, common	Helianthus annuus	N cult		4.4	2		x	x
Susan, black-eyed	Rudbeckia hirta	N cult (wild)		5.4	2	x		x
tearthumb, arrow-leaved	Persicaria sagittata	Y		5.3	1			x
thistle, Canada	Cirsium arvense	N-I		3.4	1		x	
trefoil, bird's foot	Lotus corniculatus	N		7.3	2	x	x	
velvetleaf	Abutilon theophrasti	N		18.3	2		x	x
vervain, white	Verbena urticifolia	Y		5.3	1			x
vetch, garden	Vicia sativa	N		5.6	1	x		
vetch, slender	Vicia tetrasperma	N		22.2	1	x		
vetch, tufted or hairy	Vicia cracca/villosa	N		5.6	1	x		
water-pepper	Persicaria hydropiper	N		5.3	1			x
yellowcress, marsh	Rorippa palustris ssp. palustris	Y	*	8.0	2	x	x	
zinnia, garden	Zinnia sp.	N cult		4.4	2		x	x