TECHNICAL NOTES

U.S. DEPARTMENT OF AGRICULTURE
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PLANT MATERIALS TECHNICAL NOTE NO. 71 (rev.)

Revised Pollinator Plant Recommendations for New Mexico

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In recent years, domesticated honey bee populations and beekeepers have been faced with many new challenges. These include introduced diseases and parasites, as well as a new phenomenon known as Colony Collapse Disorder, which is thought to be caused by a complex combination of habitat loss, pathogens, pests, exposure to insecticides, and other stresses. The decline in honey bee populations has stimulated an increasing interest in providing habitat for both domesticated (hive) bees and for native wild bees. In nature, native pollinators perform most of the pollination of wild plants, whereas domesticated honey bees provide the primary pollination service for many crop plants.

To help enhance these pollinator populations, the Natural Resources Conservation Service (NRCS) Plant Materials Program is conducting field trials to develop recommendations on the plants that will sustain bees throughout the growing season. Funding for on-farm pollinator plantings is now available under the cost-share programs administered by the NRCS (e.g., the EQIP program for both organic and conventional producers). Wildflowers, trees, shrubs, and grasses are an integral part of the conservation practices that landowners, farmers and ranchers can install as part of their conservation plan. However, advice on suitable plants is currently based on broad regional guides, with little research-based information on the best choices for New Mexico. The aim of this project is to meet this need by testing a variety of (mostly native) plants for their ability to attract and sustain pollinators and other beneficial insects under a range of New Mexico conditions.

The Los Lunas NRCS Plant Materials Center (LLPMC) installed plantings in 2010, 2011, and 2012 to evaluate native and introduced species for pollinator activity (abundance and diversity); the combined plant species totals included 170 herbaceous perennials, 60 annuals and biennials, and 40 shrubs. We are evaluating these different plant species for pollinator use, plant survival, plant vigor, and duration and timing of flowering. The insects collected in 2011 and 2012 are being identified to genus for native bees and to family for flies and wasps (predatory and parasitic). The results describing the insects collected on particular plant species will be published at a later date.

In addition to the plantings at Los Lunas, in 2011 three pollinator plantings were installed at NMSU's Farmington and Tucumcari Agricultural Science Centers as well as at a demonstration farm for beginning farmers at Chaparral (south of Las Cruces), NM. In 2010, limited plantings were also installed at a rural high school in Reserve, NM and at the Whitfield Wildlife Conservation Area near Belen, NM.

In 2011, weekly pollinator observations and collections were made at the LLPMC from early March to early November, and these data were combined with those from monthly visits to all four sites made in 2012, yielding qualitative pollinator abundance and diversity information for each plant species. Considerable variability in pollinator activity on particular plant species was observed from week to week as the sources of pollen and nectar were continuously changing as other species came into bloom. Differences in pollinator activity on various plant species were also noted between morning and afternoon observations, which may have been partly due to differences in timing of nectar secretion, as well as diurnal variation in the activity of different insects.

Bloom periods were recorded for all species. It became apparent that the bloom periods were not consistent between years (2010 to 2012) due to a number of factors including:

- above average March and April maximum temperatures in 2011 and 2012
- extreme cold in February 2011 (-15° F)
- influence of planting date and degree of establishment (i.e., whether the species had overwintered versus having been planted out as a seedling in the spring)

The following tables summarize the recommended annual, herbaceous perennial, and shrub species which attracted appreciable pollinator activity at the LLPMC or in at least one of the other sites. In each table, the order of species is based on estimated start of the bloom period.

Recommended Native Annuals						
Genus Species	**Common Name**	**Commercially Available**	**Bloom Season** Spring Summer Fall	**Self* Seeds**	**GH** Prop.**	**Notes*****
Lesquerella gordonii	Gordon's bladderpod	Yes		++	++	(NM), Dry, host of beet leafhopper?
Dimorphocarpa wislizeni	touristplant (spectacle pod)	Occasionally		++	-	(NM), Dry, host of beet leafhopper?
Gaillardia pulchella	firewheel (wild annual)	Yes		++	++	(NM), Dry
Phacelia integrifolia	gypsum phacelia	Not Currently		++	-	(NM), Dry
Gilia capitata	bluehead gilia	Yes		+	+	(NM)
Nama hispidum	bristly nama	Not Currently		+	+	(NM), Dry
Machaeranthera tanacetifolia	tanseyleaf tansyaster	Occasionally		++	+	(NM), Dry
Baileya multiradiata	desert marigold	Yes		+	^	(NM), Dry
Cleome serrulata	Rocky Mountain beeplant	Yes		++	++	(NM), Weedy?, host of harlequin bug
Helianthus petiolaris	prairie sunflower	Yes		++	++	(NM), Weedy?
Monarda citriodora	lemon beebalm	Yes		++	+	(NM)
Verbesina	golden	Yes		++	+	(NM)

Recommended Native Annuals						
Genus Species	**Common Name**	**Commercially Available**	**Bloom Season** Spring Summer Fall	**Self* Seeds**	**GH** Prop.**	**Notes*****
encelioides	crownbeard					

* Self-seeds: ++ very easily, + easily, ^ occasionally,

** Greenhouse propagation: ++ very easy, + easy, ^fairly easy, - difficult, -- very difficult

***Notes: (native state – NM or closest state), Weedy = probably invasive, Dry = probably suitable for dry land situations, and ? = possibly instead of probably

Recommended Native Perennials						
Species Name	**Common Name**	**Commercially Available**	**Bloom Season** Spring Summer Fall	**Self* Seeds**	**GH** Prop.**	**Notes*****
Physaria newberryi	Newberry's twinpod	Occasionally			-	(NM), Dry, host of beet leafhopper?
Erigeron pulcherrimus	basin fleabane	Yes			^	(NM)
Penstemon eatonii	firecracker penstemon	Yes			-	(NM)
Zizia aptera	meadow zizia	Yes			^	(CO)
Hedysarum boreale	Utah sweetvetch	Yes			^	(NM)
Achillea millefolium	common yarrow	Yes		^	++	(NM), Intro.
Gaillardia aristata	common gaillardia	Yes		+	+	(NM)
Gaillardia pinnatifida	red dome blanketflower	Yes		++	++	(NM)
Heliomeris multiflora var. multiflora	showy goldeneye	Yes		+	^	(NM), Dry?
Dalea candida	white prairie clover	Yes		^	^	(NM)
Dalea purpurea	purple prairie clover	Yes		^	^	(NM)
Thelesperma subnudum	Navajo tea	Yes			^	(NM), Dry
Psilostrophe cooperi	whitestem paperflower	Yes			^	(NM), Dry
Symphyotrichum laeve var. geyeri	Geyer's aster	Yes			^	(NM)
Sphaeralcea ambigua	desert globemallow	Yes		^	-	(AZ), Dry
Machaeranthera	lacy	Occasionally			^	(NM), Dry

Recommended Native Perennials						
Species Name	**Common Name**	**Commercially Available**	**Bloom Season** Spring Summer Fall	**Self* Seeds**	**GH** Prop.**	**Notes*****
pinnatifida	tansyaster					
Senecio flaccidus	threadleaf ragwort	Yes		^	^	(NM), Dry?
Coreopsis lanceolata	lanceleaf tickseed	Yes		+	+	(NM)
Melampodium leucanthum	plains blackfoot	Yes			^	(NM), Dry
Gaillardia pulchella	firewheel	Yes		+	++	(NM)
Thelesperma filifolium	stiff greenthread	Yes		+	^	(NM)
Monarda fistulosa	wild bergamot	Yes		^	^	(NM), Weedy?
Penstemon strictus	Rocky Mountain penstemon	Yes			-	(NM)
Scrophularia lanceolata	lanceleaf figwort	Occasionally			-	(NM)
Agastache pallidiflora ssp. neomexicana	Bill Williams Mountain giant hyssop	Occasionally			^	(NM)
Heterotheca camporum	lemonyellow false goldenaster	Yes			^	(MO)
Silphium integrifolium	wholeleaf rosinweed	Yes			^	(NM)
Silphium laciniatum	compassplant	Yes			^	(NM)
Argemone pleiacantha	southwestern pricklypoppy	Occasionally		+	^	(NM)
Eupatorium altissimum	tall thoroughwort	Yes			^	(TX)
Verbena macdougalii	MacDougal verbena	Yes			+	(NM)
Verbena stricta	hoary verbena	Yes			+	(NM), Weedy?
Agastache rupestris	threadleaf giant hyssop	Yes			^	(NM)
Oligoneuron rigidum	stiff goldenrod	Yes			^	(NM)
Symphyotrichum ericoides	white heath aster	Yes				(NM)
Scrophularia californica	California figwort	Yes			-	(CA)

Recommended Native Perennials						
Species Name	**Common Name**	**Commercially Available**	**Bloom Season** Spring Summer Fall	**Self* Seeds**	**GH** Prop.**	**Notes*****
Ratibida columnifera	upright prairie coneflower (yellow)	Yes		^	+	(NM), Dry?
Ratibida columnifera	mexican hat (brown)	Yes		+	+	(NM), Dry?
Sphaeralcea laxa	caliche globemallow	Occasionally		^	-	(NM), Dry
Thymophylla pentachaeta	fiveneedle pricklyleaf	Occasionally			^	(NM), Hardy?
Helianthus maximiliani	Maximilian sunflower	Yes		++	+	(NM), Large!
Solidago petiolaris	downy ragged goldenrod	Yes			^	(NM)
Pycnanthemum verticillatum var. pilosum	whorled mountainmint	Yes			^	(OK)
Solidago nemoralis	gray goldenrod	Yes			^	(NM)
Solidago speciosa	showy goldenrod	Yes			^	(NM)
Helenium autumnale	common sneezeweed	Yes			+	(NM), Weedy?
Symphyotrichum oblongifolium	aromatic aster	Yes			^	(NM)

* Self-seeds: ++ very easily, + easily, ^ occasionally,

** Greenhouse propagation: ++ very easy, + easy, ^ fairly easy, - difficult, -- very difficult

***Notes: (native state – NM or closest state), Weedy = probably invasive, Dry = probably suitable for dry land situations, ? = possibly instead of probably, Intro. = some varieties introduced,

Recommended Native Shrubs					
Species Name	**Common Name**	**Seed Commercially Available**	**Bloom Season** Spring Summer Fall	**GH* Prop.**	**Notes****
Salix irrorata	dewystem willow	Not Currently		^	(NM)
Salix lasiolepis	arroyo willow	Not Currently		^	(NM)
Forestiera pubescens var. pubescens	stretchberry (New Mexico olive)	Yes		^	(NM), Dry?
Prunus americana	American plum	Yes		-	(NM)
Prunus pumila L. var. *besseyi*	western sandcherry	Yes		-	(NM)
Rhus trilobata	skunkbush sumac	Yes		-	(NM), Dry?
Lycium torreyi	Torrey wolfberry	Not Currently		^	(NM), Dry?
Ribes aureum	golden currant	Yes		^	(NM)
Purshia stansburiana	Stansbury cliffrose	Yes		-	(NM), Dry
Amorpha canescens	leadplant	Yes		^	(NM), Dry?
Poliomintha incana	frosted mint	Occasionally		-	(NM), Dry
Fallugia paradoxa	Apache plume	Yes		^	(NM), Dry
Chamaebatiaria millefolium	desert sweet	Yes		^	(AZ), Dry?
Parthenium incanum	mariola	Not Currently		^	(NM), Dry
Eriogonum corymbosum	crispleaf buckwheat	Occasionally		-	(NM), Dry
Ericameria nauseosa	rubber rabbitbrush	Yes		+	(NM), Dry, Weedy
Baccharis emoryi	Emory's baccharis (male plant in particular)	Occasionally		+	(NM)
Dalea bicolor var. argyrea	silver prairie clover	Occasionally		^	(NM), Dry

*Greenhouse propagation: ++ very easy, + easy, ^ fairly easy, - difficult, -- very difficult

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Recommended Introduced Annuals, Biennials, and Perennials						
Species Name	**Common Name**	**Annual or Perennial**	**Commercially Available**	**Bloom Season** Spring Summer Fall	**Self* Seeds**	**Notes****
Linum perenne	blue flax	Perennial	Yes		^	
Salvia officinalis	kitchen sage	Perennial	Yes			
Melilotus officinalis	sweetclover	Biennial	Yes		+	Weedy
Origanum marjorana	sweet marjoram	Perennial	Yes			
Origanum vulgare	oregano	Perennial	Yes			
Lavandula angustifolia	English lavender	Shrub	Yes			
Anethum graveolens	dill	Annual	Yes		^	
Foeniculum vulgare var. azoricum	sweet fennel	Annual	Yes		^	Weedy?
Scabiosa atropurpurea	mourningbride	Perennial	Yes			
Tithonia rotundifolia	clavel de muerto	Annual	Yes		^	
Cosmos bipinnatus	garden cosmos	Annual	Yes		++	Weedy?
Nepeta cataria	catnip	Perennial	Yes			Weedy?
Ocimum basilicum	basil	Annual	Yes		^	

* Self-seeds: ++ very easily, + easily, ^occasionally

*****Notes: Weedy = probably invasive, and ? = possibly instead of probably

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