

Exotic Annuals and Bee Pasture: Lori Weidenhammer Oct 21, 21

Borage (*Borago officinalis*) Annual (self-seeding)

Time of year: Direct sow in mid to late spring after last frost *(deep taproot)

Seed depth and treatment: ¼ to 1/2 inch deep

Soil: average, well-drained, loose, full sun/some shade, likes some feeding with compost, allow soil to dry out before watering when mature.

Days to germinate and temp: 5-15 days, 21°C

Height and spacing: 1-3 feet tall, 2 feet apart

Days to bloom: 8 weeks

Bloom season: early summer until first frost

Functions: pumps out nectar every five minutes, compost, deer resistant, edible blossoms, foliage made into tea. Will grow in containers at least 1 foot wide and 1 foot deep.

Types of bees it attracts: Bumble bees, honey bees, *Anthophora*, *Ceratina*, *Hylaeus*, *Lasioglossum*, *Hoplitis*

Native area: Southern Europe and Western Asia

Usual seed life: 3 years

Calendula (*Calendula officinalis*)

Annual

Time of year: inside—3-4 wks before frost, sow direct after frost, sow in succession

Seed depth and treatment: ¼ inch

Soil: average, dappled shade to full sun

Days to germinate and temp: 7-14 days (21° C)

Height and spacing: 15 inches tall, 6-18 inches apart

Days to bloom: 6-8 weeks

Bloom season: summer through fall

Recommended varieties: Choose some single varieties and some with a high resin content for making salves (ie 'Resina')

Seed harvesting tips: Pull off seed heads when fully dry

Functions: beneficial insects and repels harmful nematodes

Types of bees it attracts: honey bees, sweat bees, bumble bees, *Melissodes*, *Triepeolus*, etc.

Native area: Southern Europe

Cosmos (*Cosmos bipinnatus*) Annual

Time of year to plant from seed: Indoors before last frost or direct sow after last frost (in succession)

Seed depth and treatment: 1/8 inch deep

Soil and Exposure: does better in poor, well-drained soil, full sun. Tolerates heat and drought.

Days to germinate and temp: 1-3 weeks, (21-25°C)

Height and spacing: 1-6 feet tall, thin to 12-18 inches apart, pinch out and deadhead for bushier plants

Days to bloom: 60-80 days

Bloom season: mid summer-frost

Recommended varieties or other related species: *Cosmos sulphureus*

Seed harvesting tips: collect dark spikey seed heads

Functions: Long-blooming to the end of bee season in fall, nectar plant for butterflies and hoverflies, birds eat the seeds

Types of bees it attracts: bumble bees, honey bees, leafcutter bees, *Agapostemon*, *Ceratina*

Native area: Mexico, Guatemala and Costa Rico

Heads up!: Can need staking, do not fertilize, has quite a large spread, avoid doubles

Lacy Phacelia (*Phacelia tanacetifolia*) Annual (may self-sow)

Time of year: sowing outdoors is best, as soon as soil can be worked, in succession from last frost to June

Seed depth and treatment: ¼ inch deep, need darkness to germinate

Soil: average, well drained, tolerates sandy or rocky soil, sunny exposure, mature plants tolerate drought

Days to germinate and temp: 12-30 days (13-16 °C)

Height and spacing: 12-22 inches tall, 3-6 inches apart (for support)

Days to bloom: 45-60 days

Bloom season: spring through summer

Other species of note: try California bluebells (*Phacelia campanularia*)

Seed harvesting tips: wear gloves to harvest

Functions: cover crop, cut flower, bee pasture, meadow

Types of bees it attracts: bumble bees, mason bees, *Andrena*, *Anthophora*, *Calliopsis*, *Colletes*, *Chelostoma*, *Hoplitis*, *Osmia* and more

Native area: California, Arizona

Heads up!: hairs on plant can irritate skin (wear gloves), nitrate accumulator (caution for animal feed)

Love-in-a-mist (*Nigella damascena* and *Nigella sativa*)

Annual

Time of year: indoors 6-8 weeks before last frost, or direct sow 1-2 weeks before last frost,

then sow in succession for the next 3 months, does best sown outdoors

Seed depth and treatment: barely cover, 1/8 inch deep

Soil: average soil, full sun/partial shade—water 2 times a week in dry periods once established, likes feeding

Days to germinate and temp: 8-15 days (16-18° C)

Height and spacing: 8-20 inches tall, 8-12 inches apart

Bloom season: late spring to late summer

Seed harvesting tips: Harvest dry pods, place in paper bag and shake out seeds

Functions: edible seeds (*N. sativa*), decorative pods

Types of bees it attracts: bumble bees and sweat bees

Native area: Southern Europe, North Africa, Southwest Asia

Mexican Sunflower (*Tithonia rotundifolia*)

Duration: Annual

Time of Year: indoors 6-weeks before last frost (or later, need to be warm when put outside)

Seed Depth and Treatment: barely covered—needs light

Exposure: sunny

Soil: well-drained average or sandy

Days to Germinate and temp: 5-14 days (21-29 C)

Height and Spacing: 5-8 ft, 2 ft apart

Days to Bloom: 85-90 days

Bloom Season: Late summer-fall

Recommended Varieties: 'Torch'

Seed harvesting tips: collect brown and dry flower heads

Functions: butterfly and hummingbird plant, drought and heat tolerant

Types of bees it attracts: leafcutter bees, bumble bees, *Melissodes*

Native Area: Central America and Mexico

Heads up!: avoid soil with too much nitrogen, may need staking

Nasturtium (*Tropaeolum majus* [climbing] and *T. minus* [bush]) Annual

Time of year: indoors 2-4 weeks before last frost, direct sow 1 week after frost and in succession

Seed depth and treatment: ¼ to ½ inch deep

Soil: poor to average well-drained soil, full sun is best

Days to germinate and temp: 7-12 days (12-18°C)

Height and spacing: sprawling vines, 8-12 inches apart

Days to bloom: 35-50 days

Bloom season: summer to mid fall

Recommended varieties: choose varieties with nectar spurs

Seed harvesting tips: seeds drop once they are ripe—pick them as they fall

Functions: trap crop for aphids, hummingbird nectar plant, edible flowers and foliage, vertical gardens, hanging baskets

Types of bees it attracts: bumble bees

Native area: South and Central America aka “clavel de meurto” (carnation of the dead)

Pincushion Flower (*Scabiosa atropurpurea*)

Time of year: in fall—meadow style

Or early spring just before final spring frost—try successive planting

Or indoors—8-10 weeks before planting outdoors (but keep cool 10-13°C after germinating)

Seed Depth: Barely cover (light helps germination)

Soil: Average to rich, moist, well-drained, 6-8 hrs sunlight

Days to germinate: 10-12 days (18-21° C)

Height: 100 cm, sow about a foot apart (may need staking)

Days to Bloom: 16 weeks

Function: Drought tolerant, good nectar producer, butterfly and hummingbird nectar plant and deer resistant

Bees it attracts: exceptional bumble bee plant

Native Area: Europe

Heads up!: Do not plant *Knautia* (invasive)

Poached Egg Plant (*Limnanthes douglasii*) Self-Seeding Annual

Time of year: fall or after last frost

Seed depth and treatment: 1/8 to 1/2 inch deep, 2 inches apart

Exposure: full sun/ partial shade

Soil: average, moist, tolerates clay soils

Days to germinate and temp: 15-20 days (18-20 °C)

Height and spacing: 9 inches, 2 inches apart

Bloom season: Late spring, summer

Seed harvesting tips: collect brown seeds

Functions: ground cover/border plant, container gardens

Types of bees it attracts: sweat bees, *Osmia*, *Anthophora*, *Andrena*, *Augochlorella*

Native area: wet, grassy meadows California and Oregon

Runner Beans (*Phaseolus coccineus*)

Annual/Perennial

Time of Year: late spring/early summer

Seed Depth: 3.5 cm (1 ½ inches)

Exposure: Don't like too much heat—need moisture and cool roots, but need sunlight

Soil: well-drained, warm, not too much nitrogen

Days to germinate and temp: 8-16 days (21-32 °C—Some sources say as low as 16 C)

Height and spacing: Needs trellis—sprawling 6-15 ft, at least 4 inches apart

Days to bloom: 75-85 days

Recommended varieties: 'Scarlet Emperor'

Seed harvesting tips: Pods must be dry and brown

Functions: attracts hummingbirds, fixes nitrogen in the soil, edible flowers, pods and seeds

Bees: Bumble bees

Native Area: Mexico and Central America

Heads up!: Keep leaves dry, and don't overcrowd

Zinnia (*Zinnia elegans*) Annual

Time of Year: 5-7 weeks indoors before transplanting outside, thin when they have 2 sets of leaves, put under grow lights or sunny windowsill/greenhouse OR direct sow after all danger of frost is passed

Seed depth and treatment: ¼ inch deep

Soil: average, full sun

Days to germinate and temp: 7-10 days (20 C)

Height and spacing: 8-24 inches apart

Days to bloom: 60 days—deadhead to produce more blooms

Bloom season: summer—through to early or mid fall

Recommended variety: California Giants

Seed harvesting tips: Heads must be brown and dry

Functions: hummingbird and butterfly nectar plant, cut flowers

Types of bees it attracts: bumble bees and sweat bees

Native area: Mexico and Central America

Heads up!: Water early in the day, underneath to prevent mildew

Bee Pasture

Crimson Clover (*Trifolium incarnatum*).

Annual

Time of year: Summer crop—plant outside after danger of frost. Winter crop—6-8 weeks before first frost

Seed Depth and treatment: ¼ inch deep, treat with inoculant for cover cropping

Exposure: Sun to dappled shade, but not too hot. Prefers cooler moist conditions.

Soil: average, well-drained, and moderately moist

Days to germinate and temp: 2-3 days, (16°C)

Height and spacing: 1-3 ft tall, 25 grams covers 100 square feet

Days to bloom: 70-90 days

Seed harvesting tips: self-seeds a bit, but generally well-behaved

Functions: bee pasture, green manure (fixes nitrogen), livestock feed, good nectar producer, attracts minute pirate bugs

Types of bees it attracts: honey bees and bumble bees

Native area: South-Eastern Europe and South-Western Asia Minor

Buckwheat (*Fagopyrum esculentum*)

Time of year: 2-4 weeks after last frost date and in succession after possible heat wave

Seed depth: 1 inch deep—plant densely to smother weeds and for support

Exposure: dappled shade to full sun

Soil: thrives in poor soil. Needs to be 21 C to germinate

Days to germinate: 2-5 days

Height: 1 m (can reach this height in 3 weeks)

Days to Bloom: 70-90 days

Functions: Cover crop or intercrop. Till under or compost for green manure. Honey plant. Edible seeds.

Bees: honey bees, bumble bees, sweat bees, *Andrena*, *Augochlora Calliopsis*, *Colletes*, *Dufourea*, *Melissodes*, *Sphcodes*, *Megachile*, etc.

Country of Origin: Native to southeast Asia

Heads up: Don't eat buckwheat sprouts

Hairy Vetch (*Vicia villosa*).

Annual that self-seeds under the right conditions

Time of Year: Sow in succession from early spring (not drought resistant) can sow 35-50 days before first frost.

Seed Depth and Treatment: $\frac{1}{4}$ to $\frac{1}{2}$ inch deep, inoculate if using to improve soil

Soil: average (tolerates acidity), partial shade to full sun

Days to Germinate and temp: 10-14 days (20 C)

Height and Spacing: sprawling vines, 12-20 inches. 50 grams covers 100 square ft.

Days to Bloom: 6-8 weeks

Bloom Season: Depends on date of planting.

Seed harvesting tips: pods mature at different times

Functions: green mulch, fixes nitrogen, suppresses weeds and improves soil for annual crops

Types of bees it attracts: long-tonged bees, bumble bees, large leafcutter bees

Native Area: Europe and Western Asia

Heads up!: Can escape and become weedy—don't plant near sensitive conservation areas
Seeds are toxic to chickens