

NATURE'S COLORS INITIATIVE

TRAINING PROGRAM AGENDA 2022 :

Day #1, Tuesday: April 05

- 10 am Opening/Bagels + Coffee
- 11 am Nature's Colors Project Overview/Introductions
- 12 pm Invoices/Data Collection
- 1 pm Plant Overview/Harvesting
- 2 pm Closing/Lunch

Day #2, Wednesday: April 06

- 10 am Opening/Bagels + Coffee
- 11 am Questions
 Story/Narrative
- 12 pm Processing
- 1 pm Natural Dye Demonstration
- 2 pm Closing/Lunch

CONTACT INFORMATION

NAME	TITLE	EMAIL	PHONE #
Jay Nwachu	IW Supervisor	jay@iwbmore.org	
Marina Butler	IW Project Manager	marina@iwbmore.org	
Kenya Miles	Supervisor/ Parks & People Farmer	kenyamiles@gmail.com	646-957-5301
Sun English	Tech Asst./ Parks & People Farmer	sunenglishjr@gmail.com	510-388-4720
Jordan Bethea	Bliss Meadows /Backyard Basecamp Farmer	jbethea@backyardbasecamp.org	
Tiara Matthews	Plantation Park Heights/ Farmer	mintegirls@live.com	
Floyd Godsey	Plantation Park Heights/ Farmer	fbgcosmos@gmail.com	
Myeasha Taylor	Farm Alliance/ Farmer	myeasha@farmalliancebaltimore.org	
Lavette Blue	The Greener Garden/ Farmer	thegreenergarden@comcast.net	
Kimberly Raikes	Whitelock/ Farmer	iwillgetitdone1@gmail.com	

FARM SUPERVISING:

Kenya Miles will be the farm supervisor and support for all participating farms (ers).
If you need support or have questions around data collecting please contact **Kenya Miles**.

Supervising questions regarding data collection, farm needs/prep,volunteers, harvest, plant care
Please contact: **Kenya Miles** kenyamiles@gmail.com - 646-957-5301

TECHNICAL ASSISTANCE & DATA COLLECTION:

Sun English will be the technical assistant and data collection point person this season.
If you need support or have questions around data collecting please contact **Sun English**.

Technical Assistance questions regarding data collection, farm needs/prep, etc
Please contact: **Sun English** sunenglishjr@gmail.com - cell # 510-388-4720

INVOICES: (submit Farmer invoices MONTHLY to) Marina Butler marina@iwbmore.org

Marina Butler is supervising the Nature's Color's project at **Innovation Works** and will be the person you submit your invoices to. You will all receive an email with an invoice template via google drive. Please "save a copy" of the file to keep the original template intact so you can create your own monthly invoice.

Innovation Works will also submit **Land payments** directly to the farms in 3 separate invoices. If you have any questions on the land payment amount and or payee/address adjustments please contact **Marina Butler**.

INVOICE INFO

Submit Invoice: marina@iwbmore.org

When: 1st of the Month (first invoice should be submitted by **Monday, May 2, 2022**)

Rate: \$25 per hour

Hours: This is based on your farming contract. Please read and submit according to the agreed upon hours. If there are any discrepancies or adjustments please let me know.

DATA COLLECTION/LOGS:

Monthly Data logs should be gathered and sent along with monthly invoices. Including plant maintenance, issues, growth patterns, harvest, etc.

Daily/Weekly Log:

- Date (As you log, daily, every other day, weekly)

- Temperature & Weather (rainy, cool, sunny, warm)

- Health of the plant (leaves, blooms, growth, loss)

- Are you managing insect/pest issues on the plant(s)?

- In what way do you water (drip irrigation, hand watering)?

- Watering log (when you are watering)

- What fertilizers have you added (organic)?

- What fertilizers are needed?

Harvest Log:

- Harvest date

•Harvest process (example: hand harvested, bundled)

•Harvest yield (weight) ounces, grams, pounds

MONTHLY WEIGHT/HARVEST LOG (ounces/grams/pounds)

	May	June	July	August	Sept	Oct	Nov
Indigo							
Hibiscus							
Calendula							
Cosmos							
Coreopsis							
Safflower							
Weld							
Black Eyed Susan							
Marshmallow Root							
Licorice							
Cotton							
Goldenrod							
Marigolds							
Madder Root							
Hopi Sunflower							

Nature's Color Crop Plan: 2022

Seed Inventory 03/03/22
Hibiscus (Roselle)
Calendula, Yellow (Calendula Officinalis)
Calendula, Orange (Calendula Officinalis)
Calendula, Orange Barrel Flashack (Calendula Officinalis)
Tall Orange Sulphur Cosmos (Cosmos Sulphureus)
Golden Rod (Solidago Virgaurea)
Dyers Coreopsis Mix (Coreopsis Tinctoria)
Safflower (Carthamus Tinctorius)
Hopi Black Dye Sunflower (Helianthus Annuus)
Madder (Rubia Tinctorium)
Weld (Reseda Luteola)
Black Eyed Susan (Rudbeckia Hirta)
Marshmallow (Althaea Officinalis)
Chinese Licorice (Gan-Cao, Gly Cyrrhiza Uralensis)
Bobtail Marigolds - ORDER ASAP
Indigo (Persicaria Tinctoria)
Cotton (Sea Island Brown, Sea Island Green)

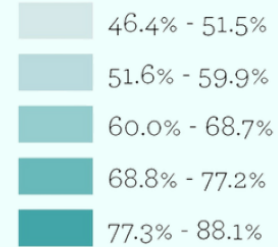
Nature's Color Farm Plan: 2022

Farm	Farmer	Square footage	Plants to Grow	#
Parks & People Foundation	Sun English + Kenya Miles	3200 sq ft	indigo, yellow calendula, dyers coreopsis mix, sulphur cosmos, weld, black eyed susan, bobtail marigolds	7
Bliss Meadows Backyard Basecamp	Jordan Bethea	390 sq ft (65ft x 3ft) X2 beds	indigo, marigolds, dyers coreopsis mix, cotton, golden rod	5
Plantation Park Heights	Tiara Matthews + Floyd Godsey	2500 sq ft	indigo, hibiscus	2
Farm Alliance	Myeasha Taylor	1200 sq ft x4 beds	indigo, calendula (orange barrel flashack), sulphur cosmos, weld, black eyed susan, marshmallow root, licorice, madder root, bobtail marigolds, hopi sunflower (shade)	9
Greater Green Garden	Lavette Blue	390 sq ft	orange calendula, bobtail marigolds, safflower	3
Whitelock Farm	Kimberly Raikes	500 sq ft	cotton, black eyed susan, sulphur cosmos, indigo, bobtail marigolds, madder root	6

2022 FARMS Under Consideration



2015-2019
Percent of
Population Employed
(ages 16-64)



3



5

THE GREENER GARDEN URBAN FARM



4



6



PLANT INFORMATION

MADDER ROOT

Scientific Name: *Rubia Tinctorium*

Life Cycle: Perennial

General Information: It prefers sandy to loamy soil (the lighter the better) that drains well. It prefers full sun. It can grow in acidic, neutral, and alkaline soils. The plants spread by underground runners and are known to take over, so it's best to grow them in containers or their own designated beds. While the plants will thrive in a range of pH conditions, a higher alkaline content is known to make the dye more vibrant. Check your soil's pH and, if it's neutral or acidic, add some lime to the soil.

Color Story: Madder Root is a plant native to the Mediterranean that has been used for centuries to make reliably vivid red dye as well as shades of orange and pink.

Medicinal Properties:

Growing Conditions: USDA 5 through 9 but in colder zones it can be grown in containers and overwintered indoors.

Starting Seeds: Start madder indoors several weeks before the last frost and transplant out after all chance of frost has passed. Make sure to give the indoor seedlings plenty of light.

Harvesting Plant: Maturation 3-5 years

Processing Plant: Plant should be harvested in the Fall before the threat of frost. Roots are dug up after the third year and left to dry until bone dry, up to several months. Roots are then chopped up and macerated to a fine powder.

Harvesting Seeds: Plants will flower and produce seeds several times during the season (summer and fall) choose seeds that are firm and dry and may have fallen from the plant (still firm)

INDIGO

Scientific Name: *Persicaria Tinctoria*

Life Cycle: Annual

General Information: Indigo (*Persicaria Tinctoria*) *Persicaria tinctoria* is a native to Vietnam and Southern China and is frost sensitive. It is mostly grown as an annual and has a relatively high indacatin content. It grows fast and can usually be harvested six weeks after planting in the right conditions giving

two harvests per season. Plant gets about 2-3 feet in height.

Medicinal Properties: Antiseptic, antifungal, used as a disinfectant to treat infections, used to treat canker sores and other internal ailments.

Growing Conditions: USDA zone 5 through 9 but in colder zones it will be harder to get a second harvest. Indigo does well in nitrogen rich soil and enjoys sun and part shade with frequent watering especially during the hotter summer months.

Starting Seeds: Seeds can be soaked overnight to soften hulls. Indigo grows best in community so when starting indoors in seed trays 6-10 seeds per cell make for a robust and healthy growing environment. Indigo should be started indoors mid to late February and left to mature for 4-6 weeks. Depending on your environment and predators it may be preferable to up pot plants to larger containers until stronger and more durable against deer etc.

Harvesting Plant: Collect the top 12 inches of each plant, this will not harm further growth. For ingestion, it is best to harvest when the plants are just beginning to bloom in late summer. stalk, leaf, and blooms may be used for tea. For dye, it is best to harvest the plant when flowers are in full bloom and bright yellow. When the flowers start to dull, dye may still be made but the color will be less vibrant.

Processing Plant: There are several ways to process indigo that vary from many cultures. Wet extraction is completed during the summer months to utilize the heat to remove pigment from plants immersed in water. Dry methods include pounding wet leaves and making balls such as done in many parts of West Africa. In Japan, sukumo is the traditional practice of composting indigo for 100 days and letting it cure for several months to follow

Harvesting Seeds: Harvest seeds in the late Fall (October - November) seeds should be dark brown to black and fully dry. Harvest before heavy rains to avoid losing seeds or collecting seeds that may have less efficacy due to water damage. Indigo seeds are abundant and will naturally fall and plant themselves again as long as the soil continues to be composted and enriched with nitrogen.

Care Tips: If Indigo leaves become red and bruised that could indicate the need for shade (sunburn) or over composting. Indigo leaves that become yellow and pointy (leaves should be large and rounder in shape) could benefit from more daily watering or adding compost directly to the base of the plant and watering for more nitrogen. Be mindful to try this in small quantities several weeks apart to allow plant to absorb and show signs of adjusting. Mushroom compost worked amazingly well at Park Heights and Bliss Meadows last season for early bed prep.

GOLDENROD

Scientific Name: *Soldiagio*

Life Cycle: Perennial

General Information: Tall Goldenrod (*Solidago altissima*) is a North American species of goldenrod found in open areas such as meadows, prairies, and savannas. The plant grows sufficiently in zones 3 to 8, enjoys full sun and blooms August to October. Goldenrod has a fibrous and rhizomatic root system. Goldenrod is an excellent food source for a wide variety of pollinators, and is an extremely resilient plant.

Medicinal Properties: Most medicinal goldenrod originates in Eastern European countries. The parts of this plant growing above ground are used to decrease inflammation, reduce swelling, and as a diuretic. It has also been used as a mouth rinse to decrease inflammation of the throat. Historically it has had many other medicinal applications. Goldenrod has also been used to treat tuberculosis, diabetes, enlargement of the liver, gout, hemorrhoids, internal bleeding, asthma, and arthritis. Goldenrod tea can be made by pouring boiling water over fresh or dried leaves and leaving to steep for 10 minutes.

Growing Conditions: USDA 5 through 9 but in colder zones it can be grown in containers and overwintered indoors. Goldenrod grows well in average garden soil with decent drainage, it is recommended to steer clear of overly rich soil. This can lead to taller plants that cannot support themselves and have fewer blooms..

Starting Seeds: Starting from seed is typically an easy process. Seeds can be sown directly outdoors in fall or spring or started indoors 6 to 8 weeks before your last frost date. Be sure to sow at the surface of the soil as they need sunlight to germinate. If transplanting from growing indoors, seedlings should be hardened off before transplanting into soil. If transplanting from growing indoors, seedlings should be hardened off before transplanting into soil. Provide adequate 1 to 3 feet of space between plants to permit good air circulation and avoid overcrowding.

Harvesting Plant: Collect the top 12 inches of each plant, this will not harm further growth. For ingestion, it is best to harvest when the plants are just beginning to bloom in late summer. stalk, leaf, and blooms may be used for tea. For dye, it is best to harvest the plant when flowers are in full bloom and bright yellow. When the flowers start to dull, dye may still be made but the color will be less vibrant.

Processing Plant: Harvested flowers in their peak window are the best to draw color from. The leaves and stalks may be separated out in order to be steeped for tea. Seeds may be shaken out of dried flower heads.

Harvesting Seeds: It is best to harvest flowers for seed when there is a combination of open flowers and unopened flowers, cut the stem just below the seed heads and place in a large paper sack to dry further for a few weeks indoors.

HIBISCUS

Scientific Name: *Roselle*

Life Cycle: Perennial

General Information:

Hibiscus, (*Roselle*) is a perennial plant that originates from Africa, it is thought to have been domesticated in Sudan approximately 6000 years ago, initially for its seed and later for leaf and calyx production. Hibiscus gives a lovely range of reds, tans and purples, but is only colorfast when fermented.

Color Story: The juice of the hibiscus petals and flowers was used as a dye by the Chinese and Indians to darken eyebrows and hair.

Medicinal Properties: Roselle is valued as a mild diuretic, and as a treatment of cracked feet, bilious, sores and wounds. Historically in Sudan, Roselle has been used for relief of sore throat and topically for healing wounds. Its fruits are also harvested throughout the world for beverages, sauces, jellies and wine. “Roselle leaves are used for their antimicrobial, emollient, antipyretic, diuretic, anthelmintic, sedative properties and as a soothing cough remedy, whereas in India, leaves are poultice on abscesses.”

Growing Conditions: It can be grown from seed in USDA zones 8-11, and as far north as zone 6 if it's started indoors and then transplanted outside. Having a deep root system, roselle requires adequate soil depth and is rather drought resistant. Little to no fertilization is necessary. It is advised to weed around them when seedlings are young, but once they have some height they can shade out most competitive plants.

Starting Seeds: When starting seeds indoors it is best to do so under light, and with heated mats. Plant them at a depth of ¼” in [seed starting mix](#). Hibiscus seeds need heat to sprout. To get the best and fastest hibiscus seed germination possible, start them on a [heat mat](#) set to 80°F.

Harvesting Plant: Harvesting of Roselle flowers and calyxes will not start until after October, as the flowers do not come out until the days begin to shorten. Once flowers shrivel up and fall, Calyxes should be harvested 3-7 days after. Once pollinated and mature, the flowers form ripe calyxes, with a seed pod inside. “The seeds grow within the calyxes in a velvety capsule, similar to how seeds grow in peppers. After they have been harvested, the seed pod is pushed out of the calyx with a small hollow metal tube. The Roselle flower seeds are then dried to be planted later and the fleshy red calyxes are dried or eaten fresh.”

Processing Plant: Cut across the base severing the calyx from the stem, cut a slit down the length of the calyx, then using your fingers, pop out the seed pod from the calyx. If you want to save the calyxes for later use, dry them (with seed pods removed) in a dehydrator or on a rack.

Harvesting Seeds: Roselle seeds are usually harvested ten days after the flower blooms. Inside each calyx is a pod of seeds. These calyxes are harvested by carefully snipping them off the stems with sharp pruners or scissors. It is important to be mindful of how much moisture has been introduced into the pod, too much can lead to molding while trying to dry the seed pods.

HOPI SUNFLOWER

Scientific Name: (*Helianthus annuus macrocarpus*)

Life Cycle: Annual

General Information: Sunflowers are native to the Americas and are thought to have been domesticated as early as 3,600 BC in the Eastern United States, although it is unclear if this occurred in Northern Mexico, the Southwestern U.S., or the Mississippi River Valley. Sunflower seeds were spread throughout the U.S. over subsequent generations, and evolved into separate varieties.

Color Story: Hopi people have traditionally used Hopi Black Dye sunflowers to make a dye. The dye was used mainly on fibers for basket making but after sheep were introduced, the dye was also used on wool. Basketry is a very important part of remembrance in Hopi culture. Colors derived include maroon-red, deep maroon, dark purple, deep lavender, medium blue and black dye for basketry, iron, from piñon gum and yellow ochre, is added to the dye stock.

Medicinal Properties: "Sunflower products have traditionally been used by the Hopi as a medicine for spider bites and the oil can be used against warts and snakebites. Sunflower seeds can help to lower cholesterol and blood sugar levels, anxiety and neurosis." The Navajo ate sunflower seeds to stimulate the metabolism. The Cherokee used an infusion of sunflower leaves to treat kidneys. The Dakota used an infusion of sunflowers for chest pains and pulmonary troubles.

Growing Conditions: Sunflowers take 7 to 14 days to sprout and should be planted at a depth of ½ an inch below the soil, and grow in full sun. A nutrient rich soil is ideal for growth with moderate moisture levels and a pH of 5.5. Many growers recommend mounding the soil around the base of the stalk to prevent tipping. Wild sunflowers also grow in washes where water concentrates.

Starting Seeds: Direct sow in spring, or start indoors 2-3 weeks before last frost. Plants should be hardened off before transplanting if started inside.

Harvesting Plant: Once your sunflowers have died back completely and the backs of the blooms are brown, it's time to harvest. To harvest the seeds, cut the dried, browned flower heads into a paper bag.

Processing Plant: Dislodge the seeds by breaking apart the seedheads/flowers. Use a strainer to sift out the larger chaff. They can be used to dye with immediately, or stored for later use.

Harvesting Seeds: Birds are very fond of sunflower seeds as a food source, so it is important to be mindful of how much you want to harvest for yourself, and how much you want to leave for the birds. You can create a greater level of control around this by using netted bags to preserve the sunflower heads as they mature. The birds have a harder time accessing the crop. seeds can be used for dye right after harvesting or saved for later use. Anthocyanin is the active compound in sunflower seeds. It creates beautiful purples in the dye pot but it is extremely pH and heat sensitive.

WELD

Scientific Name: *Reseda Luteola*

Life Cycle: Perennial/biennial

General Information: Reseda weld plant is a biennial plant, which means it develops a basal rosette the first year and flowers the second year. The plant lives only two years, but it usually drops enough seeds to ensure plentiful blooms year after year.

Growing Conditions: You can also collect seeds from dry seed pods at the end of the blooming season. Plant reseda weld seeds after the last frost, or in early summer. If you live in a warm climate, you can plant seeds in late autumn for early spring blooms. Weld plant grows in moist to slightly dry soil. It appreciates rich loam but tolerates clay, gravelly, or . Plant seeds in a permanent location, as seedlings don't transplant well. The plant needs full or partial sunlight and grows 2-5 feet in its second year.

Starting Seeds: Plant weld seeds after the last frost, or in early summer. If you live in a warm climate, you can plant seeds in late autumn for early spring blooms. Weld plant grows in moist to slightly dry soil. Plant seeds in a permanent location, as seedlings don't transplant well. Weld will readily reseed itself.

Harvesting Plant: In year 2 harvest flowering plant in late summer/fall

Processing Plant: Dry flower/stalks in second year once fully matured. Plant can be macerated to powder or broken into chips more roughly. Produces vibrant yellows for textiles

Harvesting Seeds: Harvest seeds in late fall year 2 by shaking bloom over paper as seeds are very small.

CALENDULA

Scientific Name: *Calendula Officinalis*

Life Cycle: Annual

General Information: Calendula is an annual or short-lived woody perennial originating from wasteland and rocky habitats in southern Europe and North Africa. The leaves are light to mid-green and have a fuzzy texture on both sides. They are lanceolate to 2 to 7 inches with slightly wavy or toothed margins and grow alternately along the stem. Single and double floret daisy-like flowers ranging from pale to vibrant yellow, orange, and pale pink are borne on branching stems throughout late spring, summer and fall. Calendula flowers unfurl from tight buds and can reach 2-3 inches in diameter. As flowers fade, green crown-like seed heads mature to brown and readily self-seed.

Medicinal Properties: Traditionally, gardeners would grow calendula flowers for medicinal and culinary use. Calendula has both antifungal and antimicrobial properties to help fight infection and anti-inflammatory and antioxidant benefits to boost immunity. Flowers and leaves are edible and can be

added to salads or dried for herbal teas. The extracted oils are also used to produce skin-soothing beauty products. Although both the leaves and calendula flowers are edible, it's mainly the flowers that are used in cooking, such as adding petals or whole flowers to a salad to add color and interest. Dried petals can also be used in herb tea infusions and the pressed flowers as cake decorations. Traditionally calendula petals were added as a golden food coloring for butter, cream, and soups. Calendula is also known as the poor man's alternative to saffron, adding a subtle warmth, spice, and orange color to dishes.

Medicinally, calendula has been used for its healing properties and the extracted oils used in beauty products such as moisturizing and soothing body creams, lotions, lip balms, and soaps.

Growing Conditions: Calendula is primarily an annual unless you live in hardiness zones 9 to 11, where it can be grown as a perennial. It is easy to grow from seeds directly sown in the garden or containers. Plant seeds in early spring and repot or transplant sturdy seedlings after the danger of frost has passed. Calendula will tolerate poor conditions but grows best when it has rich soil. Once established, it doesn't need much water or fertilizer to grow. Calendula is a full sun plant, however, it's not a fan of sweltering hot temperatures and might start wilting in intense heat. Calendula will rebloom constantly if old blooms are deadheaded.

Starting Seeds: Plant calendula seeds directly in September/October before the first frost of the year, or in spring after the last frost. Alternatively, calendula seeds can be sown indoors in seed cells in September/October and March/April.

Successful germination will occur between 59-77°F (15–25°C) and seedlings should appear within 7-14 days. Plant calendula seeds half an inch deep into moderately fertile, well-drained but moisture-retentive soil. Container-grown plants may need some additional grit or perlite added to the soil/compost mix for extra drainage once they're planted in their future permanent garden location.

If planting outdoors, planting seeds under the cover of a greenhouse or polytunnel can produce larger plants that flower earlier in the season. All plants raised indoors will require hardening off for at least a week to acclimatize to outdoor conditions.

Provided that you have grown calendula before and want to grow it again in the same location, simply let your plants self-seed in their garden bed or containers. Calendula can tolerate full sun to light shade and prefers a sheltered location. Thin direct sown plants and plant calendula transplants into the garden spaced 12 inches apart (30cm) with 2ft (60cm) between plant rows.

Calendula, if planted near food crops, can act as a trap crop as well as an herb. When planted nearby, the calendula becomes a target of aphid feeding rather than your prized vegetables. This can address some of the pest pressures you'd normally face while gardening, reducing the risk of aphids feeding on your leafy greens like lettuce or swiss chard.

Sun and Temperature

Grow calendula in full sun to partial shade, as it prefers at least 4-6 hours of direct sun per day. USDA zones 8 to 10 are ideal growing locations. Plants flower best in the cooler seasons and can become dormant in summer when temperatures rise above 85°F (29°C), flowering again in autumn when the weather has cooled.

Calendula is frost hardy, but will not survive prolonged freezing temperatures. Plants overwintered outdoors will require frost protection with fleece or supplementary heating. If you want, bring your plant indoors and grow calendula in containers in a bright window throughout the winter months. This keeps them out of risky weather conditions.

Water and Humidity

Water in the morning or evening if plants show signs of wilt. Timed [soaker hoses](#) work well. Alternately, watering by hand and targeting the soil around the plant will avoid wetting the foliage. Damp conditions can cause mildew and other fungal diseases of the leaves and stems.

Calendula is relatively drought-tolerant given its origins from rocky, wasteland habitats.

Soil

Calendula grows well in most soil types and isn't fussy about fertility or soil pH. However, like many plants, it performs best when you plant calendula in loamy, well-drained, and moisture-retentive soil.

If growing in containers, provide lots of good quality compost and loamy garden soil with added grit or [perlite](#) for drainage.

Fertilizing

Calendula tends not to require feeding and will grow quite happily if given the right soil, light, and water conditions. However, if plants are not thriving, supplement with liquid seaweed or a nitrogen-rich fertilizer in spring to give young plants a boost, followed by a potassium-rich fertilizer when in flower. You can provide a supplemental boost during the summer if desired to encourage more bloom development.

Pruning

Regularly deadhead calendula plants to produce continuous calendula blossoms. Pinch out the growing tips of young plants to encourage branching and prune the lateral branches throughout the season to develop bushier new growth and less spindly plants.

Harvesting Plant: Harvest calendula in the morning when the flowers are fully open. If harvesting as a cut flower, cut the stems to the length you require, leaving a few leaf nodes to encourage more flowering stems. Place the stems into a bucket of fresh water and leave somewhere cool and shaded. This allows the flowers to condition, hydrate and any hitchhiking bugs can leave to new pastures. After a few hours, the flowers are ready to arrange. When harvesting calendula for the flower heads and petals, simply snip off the flowers and store them somewhere cool until needed.

Processing Plant: Calendula flowers will remain fresh in a vase for up to a week if the water is changed regularly and the stems cut at the bottom with each water change. Flower heads are best stored in sealed plastic tubs or glassware in the fridge. This keeps flowers looking their best and protects the calendula petals from bruising. Flowers can be air-dried in a similar way to herbs, either strung up by their stems or laid flat on a tray somewhere cool, dark, and ventilated. Once completely dry, flowers can be stored in airtight jars for up to a year.

Care Tips: The main difficulty with growing calendula is plants going to seed too early, becoming leggy, and generally untidy in appearance. This tends to happen when plants haven't been deadheaded regularly and lateral branches pruned to keep the plant bushy.

Another common problem is plants self-seeding early in the season and competing with the mother plant for space, water, and nutrients. The simple resolution is to deadhead regularly removing the seed heads rather than allowing seeds to fall on the ground and weeding out any seedlings as soon as they appear.

Pests

Aphids are the main pest affecting calendula especially towards the end of the season when plants are weaker. Aphids (*Aphidoidea*), are small, sticky, yellow, green, and black pests that feed on the sap of new growth. Encourage lots of beneficial insects into the garden by planting a good selection of wildflowers and umbellifers such as coriander. Spray with an organic insecticidal soap or neem oil. If infestations are severe, pyrethrin is an organic pesticide that can address the issue and reduce pest populations on your calendulas. Squishing aphids with fingers or knocking them off with a quick blast of water can help reduce numbers as well.

Diseases

Calendula is susceptible to **powdery mildew** if grown in humid, shaded conditions and especially towards

the end of the growing season. It grows as thick whitish dust on leaves, inhibiting photosynthesis and hindering growth. Maintain good garden hygiene, removing infected foliage to prevent the disease from spreading and reinfection in subsequent years. Provide adequate sunlight and good air circulation. Treat affected plants with an organic fungicide such as sulfur, copper fungicide, or potassium bicarbonate prior to or on first sight of disease.