

# CROP PROFILE

## CALENDULA

*Calendula officinalis*  
Member of the Asteraceae family



### **History**

Calendula originates in southern Europe and the Eastern Mediterranean. It has been cultivated for centuries and has become a widespread garden escapee in cool, temperate climates. Throughout history, calendula has been valued for its culinary, medicinal, and ornamental uses.

### **Climate Needs**

Calendula grows best in full sun but tolerates light shade, particularly in warmer climates. Plants flower most abundantly when watered moderately and not over-fertilized. Seedlings require regular watering during establishment, but mature plants are relatively drought-tolerant. Calendula does not perform well in heavy rain, as blossoms are easily damaged.

### **Risk**

Calendula spreads readily through self-seeding and should be managed carefully to prevent unwanted spread in garden or production areas.

### **Calendula Description**

Calendula is bushy with angular, branched stems that spread up to 2 ft long and are covered in fine hairs. The alternate leaves have wavy margins and are often sticky and aromatic, though this trait may be reduced in modern cultivars. The daisy-like flowers are typically bright orange or yellow, with some white and bi-colored cultivars available. Flowers are 2–3 inches across and composed of both ray and disc florets. Plants bloom over a long period, often continuously until the first heavy frost, and are well-suited for cut flower production. Calendula is monoecious, with male and female flowers present on the same plant. After pollination by bees, the styles develop into curved, nail-like achenes. As petals drop, a circular ring of gray to light brown seeds remains. Pinching early growth encourages branching, and regular dead-heading promotes continued flowering. If flowers are left unharvested, plants readily self-sow.

### **Soil**

Calendula grows well in most well-drained soils and prefers average fertility. Excessively rich soil encourages leafy growth at the expense of flowers. A soil pH between 6.0 and 7.0 is ideal. Before planting, conduct a soil test to determine fertilizer needs and follow test recommendations. If amendments are required, incorporate them into the top 6 inches of soil.

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## **Seeding**

Seeds may be direct-sown just before the last frost, or started indoors 6–8 weeks earlier for earlier blooms. Successive sowings throughout the season help maintain continuous flowering. Seeds should be planted  $\frac{1}{4}$ – $\frac{1}{2}$  inch deep, as light inhibits germination. Soil temperatures of approximately 60°F promote reliable germination, which typically occurs within 5–15 days. Seed viability declines quickly in storage, so fresh seed is recommended each year. When direct seeding, space plants 4–6 inches apart and thin later to 8–16 inches. Transplants from garden centers should be planted at least 8 inches apart after the danger of frost has passed.



## Highlights

Calendulas benefit soil by teaming up with fungi to naturally cleanse it. They've helped restore cadmium-contaminated soils in China and the USA and suppress root-knot nematodes in Colombia and Spain.

## **Pest & Disease Management**

Calendula is resistant to deer and rabbits but may occasionally be affected by aphids, whiteflies, slugs, snails, or cabbage loopers. Cucumber mosaic virus is an infrequent but possible concern. Powdery mildew is the most common disease issue and can be minimized by ensuring good air circulation.

## **Fertility**

Calendula benefits from moderate fertility. A light application of garden compost before planting supports healthy growth, but over-fertilization leads to excessive foliage and reduced flowering. When using compost, apply no more than 1 inch of well-composted organic matter per 100 square feet.

## **Weed Control**

Mulching in spring with bark, straw, or hay may help suppress weeds and retain soil moisture. Weeds can also be managed through shallow cultivation or hand pulling. Calendula readily self-seeds if flowers are not deadheaded and may become weedy in some garden settings.

## **Harvest**

Harvest calendula flowers when fully open and completely dry, preferably later in the day. Whole flower heads or individual petals may be collected depending on the intended use. Regular harvesting encourages continued bloom production. Calendula is highly productive. A 60-ft row can yield approximately 1 pound of dried flower heads under good growing conditions.

## **Cleaning & Storage**

Dry harvested flowers in a well-ventilated area away from direct sunlight, or use a food dehydrator. Flowers typically dry within 1–5 days. Once fully dry, store blooms in moisture-tight containers in a cool, dark place.

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Rating any crop's production opportunity or risk is subjective and depends on the region where the crop is to be raised. Genetic advancement for pathogen tolerance and adverse weather condition has been more significant for popular, high seed sales crops such as corn and soybeans. The below table lists some of the issues of producing specific crops and helps guide your process of selecting your cropping choice.

**Average rating: 3.33**

Issue	1	2	3	4	5
Seed availability				X	
Scouting requirements					X
Drought tolerance				X	
Waterlogged soil tolerance		X			
Disease pressure				X	
Wildlife concerns				X	
Yield swings				X	
Harvest ability			X		
Field loss				X	
Market demand			X		
Soil regeneration			X		
Residue value				X	
Storability				X	
Benefit for following crop			X		

1- very low 2- low 3- average 4- moderately high 5- very high

**Seed availability** – Price, lead time, and required lot size are consideration for these issues

**Scouting requirements** – What frequency does someone need to look at the crop?

**Drought tolerance** – Rainfall patterns are requiring crops go longer between rainfall events.

**Waterlogged soil tolerance** – Rainfall events tend to produce higher volumes than historical averages.

**Disease pressure** – Plant stress has increased with the rise of daytime temperatures

**Wildlife concerns** – Deer, rabbits, voles, resident geese, and others can destroy fragile crops.

**Yield swings** – How predictable will the income be when this crop goes to market?

**Harvest ability** – Do we need plans B & C if adverse conditions affect the harvest?

**Field loss** – How much will be left in the field and can we monetize field loss?

**Market demand** – Does this crop have an elastic delivery window and are there timing penalties?

**Profitability** – Is there potential for higher margins needed for a shrinking land base?

**Soil regeneration** – Does this crop support the next crop?

**Residue value** – What remains after the target crop? Can we monetize the residue?

**Storability** – How long can we hold this crop? Will quality be challenging to maintain?