

**DEPARTMENT OF FELD CROPS &
HORTICULTURE**

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Introduction

- **Safflower** is a versatile crop that is often overlooked and underutilized. The crop is a member of the sunflower family.
- It is multipurpose oil seed crop that can be used for cooking oil production, as vegetable crop, cut flower, forage crop for both forage and animal feed, industrial crop for dye production and medicinal crop.
- Safflower can be grown year-round with summer cropping being done under rain fed conditions and winter cropping being done under irrigation.



Safflower Varieties

Variety	Maturity Days	Potential Yield (Tons/ha)	Seed Colour	Flower Colour
Code KY	168 days	2tons	Dirty white	Light yellow
Kiama	168 days	2.5tons	Dirty white	Red orange
Sina	168 days	2.7tons	Dirty white	Light yellow
P527710	168 days	1.5tons	Mixture of dirty white and brown	Yellow
P536636	168 days	3tons	Dirty white	Yellow



Climatic and Soil Requirements

- Safflower performs best in temperatures between **15°C and 30°C** but can tolerate temperatures from below 0°C during early growth to over 40°C during later stages, making it well adapted to Botswana's climate.
- It is highly heat-tolerant during flowering but sensitive to frost during the early seedling stage.
- Safflower grows well in a wide range of soils including sandy loams, loam or clay loams, alluvial shallow and light textured soils with a pH between 6.0 and 8.0.
- However, well drained, neutral fertile deep soils with high water holding capacity are ideal. Avoid waterlogged soils, as safflower is highly susceptible to root rot.



Factor	Requirement
Temperature	15 – 30°C optimum
Rainfall	300 – 600 mm
Sunshine	Full sunlight
Frost	Avoid during flowering

Land Preparation and Fertilizer Requirements

- Safflower requires a fine and firm seedbed, as such, deep ploughing is essential to improve moisture infiltration and storage.
- Proper fertilizer management involves applying the **right nutrient** in the **right form** at the **right amount** and at the **right place** based on soil test results and the crop fertilizer requirement.
- Safflower seeding rates vary greatly around the world with the seeding rate depending on the variety's growth habit, growth environment and cultural methods.
- Higher plant densities can lead to decreased safflower yield and oil content while the crop can compensate for low populations with increased branching.
- Winter sowing should be done during the onset of the winter season with plants spaced 20cm apart and rows 50cm apart.



Harvesting and Storage

- Harvesting of safflower depends on the intended use of the plant. Most safflower varieties mature within 90 – 160 days depending on cultivar and growing season.
- **Petal Harvest Timing:** Pick petals **2 to 3 weeks after blooming begins**, when they turn a vibrant yellow, orange, or deep red.
- **Seed Harvest Timing:** Harvest seeds when **95% of the plant has turned brown and dry**. The small leaves (bracts) surrounding the seed heads should look papery and brown.
- Test seed readiness by biting a few kernels. If they are hard and crack sharply, they are ready. If they feel soft or cheesy, they need more time to dry in the field.



Value Chain Opportunities

Enterprise	Raw Material	Final Product	Product Application
Seed production	Seed	Certified seed	Basic and Certified Seed Production
Oil extraction	Seed	Cooking oil	Dietary oil high in polyunsaturated fats and Vitamin E, used to lower cholesterol and manage heart health.
Feed manufacturing	Oil cake	Livestock feed	High-protein (20%–40% depending on dehulling) residue left after oil pressing, used as an animal feed supplement.
Herbal tea processing	Petals	Packaged tea	Antioxidant-rich, caffeine-free herbal infusion used to improve blood circulation and reduce inflammation.
Cosmetic production	Oil	Skin and hair products	Natural colorant used in lipsticks, rouge, and eye shadows.
Natural dye production	Petals	Textile and food dyes	Natural pigment used to dye cotton, silk, and wool fabrics into shades of yellow, orange, and red.



Key Message for Farmers

- Safflower is a climate-smart, drought-tolerant oilseed crop suitable for the semi-arid conditions that can provide farmers with a drought-resilient alternative for income generation, value addition, and sustainable agricultural production.
- With proper **agronomic management**, the crop offers opportunities for edible oil production, livestock feed manufacturing, and value-added processing while reducing the risk associated with drought-prone agriculture.





Thank you....

