



*Journal of Advances and
Scholarly Researches in
Allied Education*

*Vol. XI, Issue No. XXI,
Apr-2016, ISSN 2230-7540*

REVIEW ARTICLE

MARIGOLD

AN
INTERNATIONALLY
INDEXED PEER
REVIEWED &
REFEREED JOURNAL

Marigold

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INTRODUCTION

Botanical Name-Tagetes erecta/patula

Family-Asteraceae

Marigolds are hardy, annual plants and are great plants for cheering up any garden. Broadly, there are two genres which are referred to by the common name, Marigolds viz. Tagetes and Celandula. Tagetes includes African Marigolds and French Marigolds. Celandula includes Pot Marigolds.



Marigolds come in different colours, yellow and orange being the most common. Most of the marigolds have strong, pungent odor and have great value in cosmetic treatment. There are many varieties of Marigolds available today. Some of the major Marigold varieties are listed below:

African or American Marigolds (Tagetes erecta): These marigolds are tall, erect-growing plants up to three feet in height. The flowers are globe-shaped and large. Flowers may measure up to 5 inches across. African Marigolds are very good bedding plants. These flowers are yellow to orange and do not include red colored Marigolds. The Africans take longer to reach flowering stage than the French type.

French Marigolds (Tagetes patula): Marigold cultivars in this group grow 5 inches to 18 inches high. Flower colors are red, orange and yellow. Red and orange bicolor patterns are also found. Flowers are smaller (2 inches across). French Marigolds are ideal for edging flowerbeds and in mass plantings. They also do well in containers and window boxes.

Signet Marigolds (T. signata 'pumila'): The signet Marigolds produce compact plants with finely divided, lacy foliage and clusters of small, single flowers. They have yellow to orange colored, edible flowers. The flowers of signet marigolds have a spicy tarragon flavor. The foliage has a pleasant lemon fragrance.

Signet Marigolds are excellent plants for edging beds and in window boxes.

Mule Marigolds: These marigolds are the sterile hybrids of tall African and dwarf French marigolds, hence known as mule Marigolds. Most triploid cultivars grow from 12 to 18 inches high. Though they have the combined qualities of their parents, their rate of germination is low.

Facts About Marigolds



Marigold (*Calendula*) is an extremely effective herb for the treatment of skin problems and can be used wherever there is inflammation of the skin, whether due to infection or physical damage; for example, crural ulceration,

varicose veins, hemorrhoids, anal fissures, mastitis, sebaceous cysts, impetigo or other inflamed cutaneous lesions.

As an ointment, Marigold (*Calendula*) is an excellent cosmetic remedy for repairing minor damage to the skin such as sub dermal broken capillaries or sunburn. The sap from the stem is reputed to remove warts, corns and calluses.

In the 12th century Macer wrote that merely looking at the Marigold plant would improve the eyesight and lighten the mood.

In South Asia, bright yellow and orange Marigold flowers are used in their thousands and placed in garlands and to decorate religious statues and buildings. They are also used as offerings and decoration at funerals, weddings and other ceremonies.

Pigments in Marigolds are sometimes extracted and used as a food coloring for humans and livestock.

Propagating and Growing Marigolds

Marigolds can be propagated by seeds. The plants need about 45 days to flower after seeding. Marigold seeds should be sown 2 cm apart. Cover seeds with 1/4 inch of potting soil. Water sufficiently. Plants will appear within a few days. When true leaves have formed, transplant into individual containers or outdoors.

Marigolds are robust, non-fussy plants that bring a lot of sunshine in your garden. Marigolds can be grown easily.

Techniques of growing

- Plant your seeds in half-sunny or sunny locations.

- The soil must be well-drained, moist and fertile.
- Add potash fertilizers to prolong the flowering period.
- Pinch off the first flowers before they open. This will lead to a larger number of flowers.

CULTIVATION

Introduction

In India marigold is one of the most commonly grown flowers and used extensively on religious and social function in different forms. Because of their ease in cultivation, wide adaptability to varying soil and climatic conditions, long duration of flowering and attractively coloured flowers of excellent keeping quality, the marigolds have become one of the most popular flowers in our country. Flowers are sold in the market as loose or as garlands. Due to its variable height and colour marigold is especially use for decoration and included in landscape plans.

Varieties

There are 33 species of marigold and numerous varieties. There are two common types of marigold:

I) The African Marigold (*Tagetes erecta*)

II) The French Marigold (*Tagetes patula*).

Origin: African marigold: Mexico, French Marigold: Mexico and South America

Both have deeply cut foliage with a characteristic odour.

I) The African Marigold (*Tagetes erecta*): The African Marigolds are generally tall (up to 90 cm) with large sized double globular flowers of lemon, yellow, golden yellow, primrose, orange or bright yellow colours. There are also dwarf varieties (20 to 30 cm) having large double flowers. The important varieties are: Giant Double African Orange, Giant Double African Yellow, Cracker Jack, Climax, Dubloon, Golden Age, Chrysanthemum Charm, Crown of Gold, Spun Gold.

II) French Marigold (*Tagetes patula*): The French Marigolds are mostly dwarf, early- flowering and compact with dainty single or double blooms, borne freely and almost covering the entire plant. The colour flowers may be yellow, orange, golden yellow, primrose, mahogany, rusty red, tangerine or deep scarlet or a combination of these colours. The important varieties are: Red Borsade, Rusty Red, Butter Scotch, Valencia, Sussana. However, in the market mostly orange colour varieties are preferred and the variety which is dominating is African Giant Double Orange.

Climate and Soil: The marigolds are hardy and can be successfully grown in different types of soils and climate. Marigold can be successfully cultivated on a wide variety of soil. The French marigold grows best in light soil while the African marigold requires a rich, well-manured and moist soil. However, the soil is deep fertile friable having good water holding capacity well drained and near to neutral in reaction viz. pH 7.0-7.5 is most desirable. They can grow in almost all seasons except in very cold weather, as they are susceptible to frost. Marigolds require mild climate of luxuriant growth and profuse flowering. For seeds germination optimum temperature ranges 18 to 30° C. Soil and planting is carried out during rainy season winter and summer season hence flowers of marigold can be had almost throughout the year.

Planting techniques

There are two common methods of propagation of marigold:

By seeds

By cuttings

Seed rate: - 1.5 kg for raising seedlings for 1 hectare. Seeds can be sown in lines or by broadcast method. Seeds need to be covered with light soil or sand or strained leaf mould.

Nursery beds: - 3 x 1m size mixed with 10 kg of well rotten farmyard manure per sq. meter. Nursery bed should be kept moist by watering accordingly.

Sowing Time and method- seed showing by broadcasting or in row showing.

Season	Sowing time	Transplanting time
Rainy	End of June to 1 st week of July	First fortnight of August
Winter	Mid of September	Mid of October
Summer	First week of January (under glass house of plastic)	First week of February

100: 100: 100 NPK kg /ha at the time of land preparation and remaining 100 kg N/ha should be applied one month after seedlings are transplanted.

Irrigation method:

Marigold takes about 55-60 days to complete vegetative growth and to enter into reproductive phase. At vegetative and flowering period sufficient amount of moisture in soil is essential. The frequency and quantity of water mainly depends upon soil and climatic condition. Though plants tolerate dry weather

upto 10 days without irrigation but growth and flower production is affected adversely. From April to June, frequent irrigation at the interval of 4-5 days is required.

Pinching of Marigold Plants

The shoot is pinch to make the plants bushy and compact. Pinching the plants 40 days after transplanting enabled the plants to yield more flowers. If the terminal portion of shoot is removed early, emergence of side branches starts earlier and more number of flowers of good quality and uniform size are produced.

Diseases and Insect Pests

In general, the marigolds are hardy and almost free from diseases and insects. However, occasionally the following diseases and insect pests having observed.

Diseases:

Damping off (*Rhizoctonia solani*)

Symptoms: Brown necrotic spots, girdling the radical which later on extend to plumule and cause pre-emergence mortality. Post-emergence symptom appears as water soaked brown necrotic ring, leading to collapse of seedlings.

Control: 1. Proper drainage should be provided in the nursery beds.

2. Soil drenching with brassicol (0.3%) should be followed:- Leaf spots and Blight (*Alternaria*, *Cercospora* and *Septoria*)

Symptoms: Minute brown circular spots on lower leaves and enlarge at later stage of infection leading to premature defoliation and ultimate death of the plant.

Control: Spraying of Dithane M-45 fungicide @ 0.2% at fortnightly intervals starting from the first appearance of disease symptoms.

Powdery Mildew (*Oidium* sp and *Leveillula taurica*)

Symptoms: The whitish tiny superficial spots appeared on leaves which later on result in the coverage of whole aerial parts of plant with whitish powder.

Control: Spraying with Karathane (40 E.C) @ 0.5% or dusting with sulphur powder at fortnightly intervals.

Insect-Pests:- Red Spider Mite (*Tetranychus* sp.), Mites appear on the plants near flowering giving dusty appearance.

Control: Spraying Metasystox 25 E.C or Rogor E.C or Nuvacron 40 E.C @ 1 ml/ltr. of water. Hairy Caterpillar (*Diacrizai obliqua*) Polyphagus insect and caterpillar eats away foliage.

Control: Sprays of Nuvon 50 E.C or Thiodan 35 E.C @ 1 ml/l of water.

Harvesting/plucking

Marigold should be plucked when they attain the full size depending upon the variety. It should be done in cool hours of the day that is either in the morning or evening. Field should be irrigated before plucking productivity of plants is increased considerably by regular plucking flowers.

Packing of flowers

For the local market marigold flowers are taken into gunny bags whereas from distant market bamboo baskets are used.

Transportation

Different means of transportation viz. Rickshaws, Buses, Trains are used to carry the flowers to market depending upon the distance.

Storage of flowers

The flowers storage in cold place or covered by cold gunny bag.

Yield

On an average a fresh flower yield of-200-225 q/ha during rainy season 150 to 175q/ha. in winter session. 100-120 q/ha in summer can be obtained.

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