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MARIGOLD (*TAGETES* SPP.) IN ORGANIC SETTING

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Introduction

Marigold (*Tagetes* spp.) is one of the most commonly grown herbaceous ornamental annual. It is highly appreciated in the ornamental industries for its versatile uses such as potted plant, garden settings, border planting, bedding plant and loose flower for various purposes. It is less affected by the photoperiod and has wide range of adaptability makes this ornamental grown in most of the places especially in hills. Apart from the aesthetic value and adaptability factors this plant also produces some bioactive compounds which enable this crop to be a great companion in organic farming to suppress the insect-pest devastation. Because of its wide range of adaptability and capable of producing bioactive compound which can be exploited in different ways to enhance crop production aspects in organic farming, since going with organic farming we must be explorative in our approaches to make use of every bits and pieces which we can incorporate in crop production aspects for our advantages.

In organic farming where most of the synthetic chemicals for insect pest management are prohibited in such condition marigold can play versatile role as it produces bioactive compounds having nematicidal, insecticidal, fungicidal, antiviral, and cyto-toxic activities and it is very easy to grow with minimal effort. Though, many studies have revealed the potential of this crop in different aspects. However, this crop can also stand highly appreciable in organic crop production module.

There are some aspects in organic crop production in which this ornamental crop can play a very vital role in enhancing the production and sustaining the essence of organic farming.

Use as trap crop

Marigold are often used in companion planting for tomato, eggplant, chili pepper, tobacco, and potato found significant in reducing the insect pest devastation. Whiteflies are notorious pests that feed on the plant sap and act as a vector for transmission of viral diseases in many fruit and vegetables turn out from damaging by using marigold as a trap crop. The infestation of fruit borer in tomato can also be reduced in a considerable amount using the marigold as a trap crop.

Use as companion planting

Marigold can be a great companion crop with tomato, eggplant, chili pepper, tobacco, and potato. Nearly all marigolds provide some protection from nematodes, the French marigold (*Tagetes patula*) provides the greatest protection against a wide range of nematodes, French marigolds (*Tagetes erecta*) found to be a good companion crop with tomato. As an added benefit, these brightly colored flowers in shades of yellow and orange contrast well with the tomato foliage and create a pleasuring aesthetic sense. Most of the study revealed that 3:1 ratio of planting *i.e*. three row of desired crop and one row of marigold remained significant to suppress the nematode and fruit borer infestation.

Use to control nematode

Marigolds are mostly grown for ornamental purposes as bedding plants, potted plant and other loose flower purposes. However, there are other uses of this crop which is yet to be exploited for better use of this crop. Studies have found that marigold root exudes allopathic compound all as alpha-terthienyl which can help to reduce a wide range of nematodes. It can be plant as a companion planting with nematode-susceptible veggies, like tomato, pepper, beans and okra. In order to get better result marigold should be planted at least two months before the desired vegetable crop. Furthermore, it must be planted at the same site in which the vegetable crop will be planted to get the benefits from marigold root exudates.

Use as rabbit repellent

Marigolds are often found used in border plant as because it makes a good compact aesthetically appealing border. Many gardeners plant a border of marigold flowers around their gardens to help repel rabbits. Apparently this animal finds marigold plant smell unpleasant and due to this quality of marigold to repel rabbits can be incorporate in organic farming to protect crops like vegetables from rabbit by planting marigold as border crop.

Use for poultry feed additive

The quality of the poultry egg is also depend on the deep yellow colour of the yolk which can be improved by using the marigold flower powder extracts as colorants in poultry feed. These can be a good option for enhancing the poultry eggs quality organically without using other synthetic chemicals.

Use as household insecticide

Most of the insecticides which are used for household use are inorganic which tend to be harmful to the user and to the environment. Recent studies show that 75% of households use some form of insecticide, with much of this being used indoors. They are used against houseflies, ants, mosquitoes, flea and flies. Thus, alternative household insecticide utilizing the extract from marigold plant which in exposure to sunlight generates its phototoxin which makes a natural insecticide can be highly economic and eco-friendly.

Use in organic food additive colour

The florets of Marigold (*Tagetes erecta*) are rich in the orange-yellow due to the presence of carotenoid lutein which can be extracted and used as a source of the organic food coloration to substitute the synthetic food coloration for foods such as pasta, vegetable oil, margarine, mayonnaise, salad dressing, baked goods, confectionery, dairy products, ice cream, yogurt, citrus juice and mustard.

Colorful Tea

Enjoy colorful tea with 2 teaspoons of marigold petals in 250 ml of boiling water to yield a brightly-hued brew. Taste is rather bland, but the tea has been said to alleviate cramps, sore throat and fever. To enhance the flavor adding a few leaves of lemon balm or your favorite mint and that can be a great healthy cup.

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