

Chapter 4

CHEMICAL WEED CONTROL IN NEWLY PLANTED PISTACHIO NUT ORCHARDS

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Introduction

The pistachio (*Pistacia vera* L.), a part of the cashew family, is a short tree originating from the Middle East and Central Asia [1,2]. The tree creates seeds that are generally eaten as a fruit. Pistachio is a desert tree and is profoundly tolerant of saline dirt [3,4]. Pistachio plants are reasonably firm in the proper situations and can sustain warmth extending between -10°C in wintertime and 48°C in summertime. All require a sunshiny state and well-drained earth. Pistachio plants do unsuccessfully in situations of extraordinary moisture and are sensitive to root rot in the wintertime if trees get too much rainwater and the soil is not adequately free-draining. Long, warm seasons are required for private ripening of the fruit. The plants grow up to 10 m high. The trees are dioecious, with separate male and female plants. Each pistachio tree means approximately 50 kg of seeds, every couple of years [5]. The pistachio plant is long-lived, probably up to three hundred years [6,7]. The plants are established in orchards and take around 7-10 years to give meaningful products. Product is alternate-bearing or biennial-bearing, meaning the harvest is heavier in alternating times. The top product is given for about twenty years. Plants are regularly pruned to size to make the harvest more comfortable. One male tree gives sufficient pollen for 8-12 drupe-bearing females. A scion from a mature female pistachio plant is grafted onto a one-year-old rootstock. In 2017, the global production of pistachios was about 1.1 million tons, with Iran and the USA as leading producers, together accounting for 75% of the total. Secondary producers were China, Turkey, and Syria [8].

When we look at the consumption of pistachios produced, the kernels of are often eaten whole, either fresh or roasted and salted, and are also used in pistachio ice cream, kulfi, spumoni, pistachio butter, pistachio paste and confections such as baklava, pistachio chocolate, pistachio halva, pistachio lokum or biscotti and cold cuts such as mortadella [9,10,11,12,13] In July 2003, the US Food and Drug

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autumn. It can apply in the spring, but by the middle of April, the orchard floor in a non-bearing orchard where no residual herbicides have been applied will have more growth.

Conclusion

Pistachio trees are highly vulnerable to weeds that weaken the plants' resistance to a number of diseases, insects and mites, which can damage entire pistachio orchards. The competition between pistachio and weeds is of more prominent interest when trees are young and growing because weeds can prevent growth and crop. Furthermore, weeds can host insects and diseases, intervene with watering stability, delivery, and decrease harvest performance. Indaziflam is used as a pre-emergence and glyphosate as a post-emergence to grass and broadleaf, also clethodim and fluzifop are used as post-emergence to grass weed control in the young pistachio orchards. Glyphosate is a highly effective herbicide for controlling a broad spectrum of weeds in pistachio trees and has thus enabled a significant increase in yields over the last three decades. The herbicide is applied around the pistachio trees and even if small amounts land on crop leaves there is minimal to no damage. Indaziflam is licensed in pistachio in different countries; in Turkey; although it has obtained a pre-emergence license against pears, vineyards, apples, cherries, peaches, citrus and olives, it is still not registered for pistachio nuts. This herbicide should be used in vineyards with 5 years old, and in orchards with at least 3 years old or above. It provides weed control throughout the season with two applications in a year in orchards. Herbicides play an important role in reducing the weed population in the pistachio orchard and contributing to the early growth of trees.

Keywords: Pistachio, young orchards, newly planted trees, weeds, herbicides

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