

# KIWI (*Actinidia chinensis*)

Kiwi is a plant that is grown for edible fruit called kiwi fruit or *Actinidia* (Chinese Gooseberry). It is a perennial plant that belongs to the family *Actinidiaceae*. It originates from China and Taiwan from where the kiwi fruit was transferred first to New Zealand and to California. Today, the kiwi fruit is grown in many countries with temperait climat, mainly in Mediterranean regions. In favourable environmental conditions, the kiwi fruit is very sinewy and even an aggressive woody vine plant which grows quickly and can grow up to 10m in length in one year and in the lifespan of the plant the kiwi fruit grows up to 30 m (with support). The Kiwi fruit is a dioecious plant (male and female flowers are on separate plants, among which there is no visible difference). Therefore Kiwi fruit production is only possible with planting of male and female plants.



*Actinidia chinensis*

## ECOLOGICAL CONDITIONS FOR KIWI GROWING

Today there are many kinds of varieties and cultivars of kiwi plants, but they all look very similar. Kiwi fruit grows like vines, searching for a lot of light and moisture to meet their needs to quickly develop. Among the many types there are several species that thrive in colder climate areas. These types are called *Arctic beauty* and *Arguta hardy* which thrive cooler climates with fewer sunny days.

Kiwi fruit is very rich in vitamins, particularly in vitamin C, it contains 10 times more than lemons. The kiwi fruit also contains large amounts of vitamin E and K, as well as potassium and copper.

It has been shown that consumption of kiwi fruit has positive effects on health and prevents or eliminates many diseases and chronic diseases, especially for respiratory organs. Kiwi fruit is also an excellent source of antioxidant compounds that prevent infection.

Kiwi fruit can thrive in very different types of soils but prefers light, drained soils, avoiding acidic soil (pH 5.0 - 6.5).

Growing of kiwi plants does not demand special condition except that the plant gets enough heat and humidity.

Important for proper growth, breeding and production is that the kiwi plant has firm support. This support can be a tree but it is better and more practical if the support is made of iron or wood. The plant needs proper cropping each spring and requires manure fertilizer, although mineral fertilizers are now commonly used as well.

Production of new plantations already begin in the second year after planting, but full production is reached in the 4<sup>th</sup> and 5<sup>th</sup> year however, the plant gives a regular crop of fruit even after 50 years; this plant ranks among the culture from which it can achieve the maximum economic benefits. One kiwi plant produces about 100 kg of fruits annually provided that there are 240 sunny days.

Kiwi fruits are usually used as fresh fruits, however, they are also increasingly used in salads, ice cream, fruit wine and jam. It is also used to prepare various cakes and desserts. Kiwi fruit is even found in cosmetics.

## **HOW ZEOGROW INFLUENCES THE GROWTH DEVELOPMENT AND PRODUCTION OF THE KIWI CULTURE**

Demonstration tests of spraying Zeogrow (suspension of 0.5%) in the five year old kiwi plantation in Istria gave very interesting results which we briefly present here.



**On the left picture we can see untreated kiwi fruits, which had to be harvested later, the right picture shows treated kiwi fruits which were ripe 10 days earlier than untreated plants.**

The kiwi plantation was sprayed 3 times, first straight after blooming, then twice at intervals of one month. At this small plantation of 60 kiwi plants we only left a single row of 10 plants which were not sprayed. All other plants were treated three times. Observations during and at the end of the experiment were as follows:

- Already after the first treatment the plants had a notable change in appearance and anatomy of leaves. Treated plant leaves were stronger, thicker and with a more pronounced nerve system. The leaves were tougher and a little larger than untreated leaves;
- There was no difference in the number of fruits;
- The fruits of treated plants were larger and longer in shape (like an egg), unlike the fruits of untreated plants which were round and stocky;
- The fruits of treated plants have matured ten days earlier and were even more pleasant in taste, they dominated the lemon flavor, while the untreated plants had a prevailing taste of melon;
- Weighing was not possible to determine the difference in production between treated and untreated plants, but the assessment found that the production of treated plants was about 10% higher. We could not established any differences in the attack of diseases and pests as the treated and untreated plants were very healthy. There were no traces of disease, parasites or pests.

## **CONCLUSION**

Although the results of this experiments were positive, and certainly showed that Zeogrow has beneficial effect on increasing production and improving the organoleptic properties of the fruit, we must emphasize that the experiment did not give those results that we expected. We believe that the reasons were as follows:

- The number of sprays were not enough, spraying was done only three times and in a too big time span of one month;

- We assume that the results would be more positive with more frequent spraying, every 15 -20 days, beginning with the appearance of the first leaf until the formation of the fruit;
- In future experiments it should be determined which is the optimal number of treatments, the time for the beginning and end of the spraying, spray frequency and optimal concentration of the solution.

Regardless of the shortcomings and omissions that were made in this demo trial, obtained results indicate that with the minimum number of sprays, Zeogrow positively affects the quantity and quality of kiwi fruits.

Prof. Dumancic, March 2010