

European canker (*Neonectria ditissima*): Direct control with lime water

Problem

European canker causes loss of fruiting branches and can cause fruit rot. The disease is mainly a problem in north-west Europe with a mild and humid climate (i.e., the Netherlands, Belgium, northern Germany and Scandinavian countries).

Solution

Lime water (milk of lime, lime milk = calcium hydroxide, $\text{Ca}(\text{OH})_2$) is a basic substance in Europe¹. Combining direct control with preventive measures, hygiene and decision support systems can greatly reduce infestation.

Benefits

Less infected parts of the tree requires less manual work for excising cankers, a healthier tree and a better yield with higher quality.

Practical recommendations

Direct measures

- Lime water is a basic substance in Europe. It is a fine suspension of lime in water. The average particle size is $3\mu\text{m}$ (Akdolit).
- Two products are described in the registration as basic substance. The product Neccal (Akdolit) contains 24% active ingredient (a.i.). The product Ulmer Kalkmilch contains 33% a.i. (36 % Münsterkalk with a.i. 92 %) and is used at the same rate as the lime water Akdolit.
- Application time for spray and sprinkler application is leaf drop starting at the end of October until the end of December. For brush application the application time is during the winter period till March.
- Infection occurs in autumn during prolonged wet periods and are common on wounds, such as leaf scars.
- Lime water should be used preventively, just before an infection period in autumn. Its high pH (11-13) prevents the germination of European canker spores. On the tree, calcium carbonate (pH 6-7) is formed with the CO_2 from the air soon after application.
- With three treatments, a reduction of 50-75% can be achieved on the amount of newly formed cankers in June. The effectiveness can even reach 90% when up to seven sprays are applied. The more often, the better – dependent on the weather.
- Even with the use of lime water, preventive measures remain necessary, like manual labour for excising canker spots.

Spraying treatment

- Dosage 63-104 l/ha (maximum 728 l/ha) (24%) and 45-76 l/ha (maximum 532 l/ha) (33%), 2-7 times.
- Remove the pre-filter; the nozzles filters do not need to be removed. Turn on the pump and agitator and let it run. Spray everything all at once. Do not use more lime water than 10% of the water volume. So, at 1000 l/ha of water, maximum 100 l lime water can be added.

Applicability box

Theme

Crop production, Temperate fruits, Pest and disease control

Keywords

Disease control, apple and pear, European canker

Context

Europe, northwest Europe

Application time

Autumn during leaf drop

Period of impact

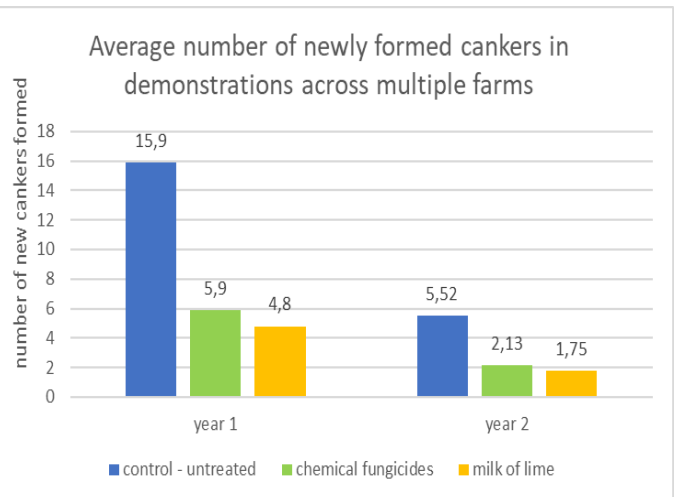
Lifetime of the orchard

Equipment

Lime water (calcium hydroxide, $\text{Ca}(\text{OH})_2$), sprayer

Overhead irrigation with sprinklers

- Dosage 63-104 l/ha, 2-7 times, maximum 1460 l/ha.
- Mix the product well before you start application. Especially in a multibox, lime water settles quickly and forms sediment at the bottom.
- Lime water from a multibox is added to the fast-flowing water via the venturi effect. Depending on the system, it is added either at the suction or at the pressure pipe in the sprinkler system. Cleaning the system with clean water after each treatment is necessary to prevent sedimentation and clogging of the sprinklers. Do not clean longer than necessary to prevent run-off of lime water from the tree.



Picture 1. Elstar sprayed with lime water in an organic orchard. Photo: G. Brouwer, Delphy.

Graph 1. In demonstrations on multiple farms in the Netherlands, lime water was applied 4-7 times in autumn. In June the number of newly formed cankers was counted. The effect of lime water is comparable with chemical treatments. The yearly variation depends on several factors, of which the weather in autumn is the most important. WUR, LBI. 2007.

Further information

Further reading

- WUR, LBI. 2007. Kalkmelk, dé oplossing voor vruchtboomkanker. Biokennis Newsletter August 2007. 1-Fruit (Dutch)
- Weber, R. W. S., Børve, J. 2021. Infection biology as the basis of integrated control of apple canker (*Neonectria ditissima*) in Northern Europe. (English)
- Brouwer, G. 2023. Practice Abstract European canker: How to deal with European canker (*Neonectria ditissima*) in organic orchards. Delphy. BIOFRUITNET.
- EU Pesticides Database - Active substances - Active substance details (europa.eu)

Weblinks

- Check the Organic Farm Knowledge platform for more practical recommendations.

About this practice abstract

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