

# FROST PROTECTION

by Netafim



Global climate changes – more areas are exposed to frost events.



Many plants can be damaged or destroyed by frost, when temperatures fall below the freezing point of water.



**Protecting crops from frost increases the chances of meeting supply schedules.**

## SPRING (RADIATION) FROST



Typically occurs during the springtime when a combination of cloudless nights with little or no wind, low humidity and low temperatures generate sub-zero conditions for an extended period of time.

Damage from spring frosts may range from damaged buds or flowers, ruined fruit, poor crop quality and even full tree loss, and can be devastating to farmers and the local economy.

## PHYSICAL PROCESSES DURING FROST



### Dehydration

During a frost event, ice is created in the outer cells of the plant, causing the plant to lose water and dehydrate.



### Morning oxidation

Oxidation of the plant's cells, caused by the sun's radiation (the morning after a frost event).

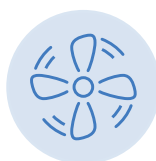


Frost damage - Avocado.  
800 Hectare were damaged in  
Western Galilee, Israel 2016

## COMMON PRACTICES FOR FROST PROTECTION



Heaters



Big Fans








Thermal Nets



Water Sprinklers

# FROST PROTECTION BY SPRINKLERS

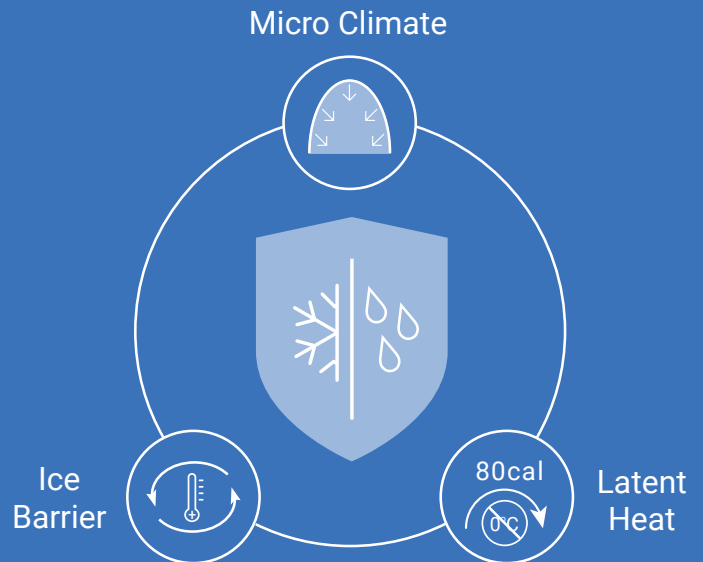
## MAIN ADVANTAGES OF FROST PROTECTION BY WATER

-  Targets specific zones
-  Ease of operation
-  Lower capex
-  Lower opex
-  Suitable for multiple applications

## HOW DOES IT WORK?

During a radiation frost, crops are continuously sprayed with water above the canopy. This process creates a triple protection:

- Micro Climate around the tree
- Release of latent heat
- Thin layer of ice that protects the inner cells of the crop



## THE NETAFIM™ FROST PROTECTION OFFERING

### Sprinklers above the canopy

#### Full coverage

MegaNet™



GyroNet™  
Turbo



#### Localized

GyroNet™

Local/full coverage



SuperNet™

Local/full coverage



#### High efficiency



Pulsar™ with GyroNet™



Pulsar™ with StripNet™