PRACTICE ABSTRACT

Advantages and disadvantages of weed control in tree rows using soil coverage

Problem

Soil cover can be a very efficient weed control method and can also improve water management. However, it also may cause disadvantages for tree growth and yield.

Solution

By keeping the tree row free of plant cover and other material, the tree row is less attractive for rodents and the heat radiation from the soil reduces the risk of frost damage during flowering.

Benefits

Bare soil reduces the risk of frost damage during flowering. The supply of fertiliser and watering is more efficient. Damages from rodents are reduced. Competition for water and nutrient between the fruit trees and weeds are reduced.

Applicability box

Theme

Crop production, Weed management

Keywords

Plant protection, weed control

Context

Northern Europe

Application time

All season

Period of impact

All year

Equipment

Machinery for mechanical weeding

Best in

All orchards

Practical recommendations

Disadvantages of soil coverage

- Keep the soil in the tree rows free from weeds. It is most important from the green tip period until after the T-stage of the fruitlets. Both to reduce frost damage risks during flowering and support tree growth and fruit set (Picture 1)
- Plants/grass/weeds/cover crops as soil cover will compete with the trees for water and nutrients (Picture 2)
- Bare soil reduces frost damage risks during flowering due to heat radiation from the soil surface (Picture 3)
- Rodents can hide in plant cover; they prefer soil with eatable roots and can live safely under plastic or straw cover (Picture 4)

Advantages of soil coverage

- If soil cover is wanted, e.g., if watering is not possible, a cover with rapeseed straw is a good choice. The straws are stiff, prickly, slowly degraded and an uncomfortable habitat for rodents (Picture 5)
- Biodiversity and flower strips may be established in the alleyway, in areas especially selected for this or in irregular corners

PIcture 1. Perfect mechanical cleaning to prevent frost during flowering in apples. Clean soil can increase the air temperature up to 2°C close to soil surface. Photo: H. L. Pedersen, Hortiadvice.

Picture 2. Red Ingrid Marie apples on M9. Left weed cover crop, right mechanic weeding. No watering and no nutrition. Photo: H. L. Pedersen, Hortiadvice.

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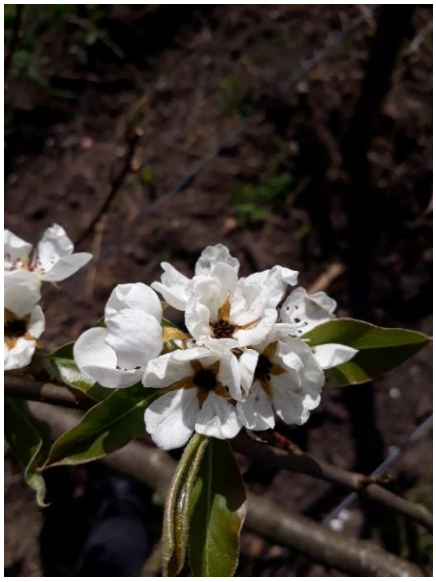

Picture 3. Frost damage pear flowers. Photo: H. L. Pedersen, Hortiadvice.

Picture 4. Soil coverage with Mypex. Voles live under the cover. Photo: K. Nielsen, Aarhus Universitet.

Picture 5. Rapeseed straw coverage in young Elstar Trees. Photo: K. Nielsen, Aarhus Universitet.

Further information

Further reading

- Soil treatments and rootstocks for organic apple production. Ecofruit 2020.
- DOMINO – combining herbaceous species with perennial crops to make organic fruit production systems more resilient. Ecofruit 2022.
- Alternatives to herbicides in an apple orchard, effects on yield, earthworms and plant diversity. Agriculture Ecosystems & Environment, 2013.
- Poldervaart, G. 2022. The future is a combination of measures and techniques. EFM,11. 2022. 10-12.
- The Organic Farm Knowledge platform for more practical recommendations

About this practice abstract

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