

# Organic fertilisation of young apple orchards

## Problem

Apple trees require satisfactory soil mineral nitrogen levels before, during and a few weeks after the full bloom. Organic fertilisers are extremely heterogeneous, and some of them do not provide an adequate level of bioavailable nitrogen in the desired moment.

## Solution

It is necessary to choose fertilisers with low C/N ratio, if possible in liquid form, as the mineralisation\* of the organic matter proceeds faster.

## Impact

Low mineral nitrogen levels combined with a low-fertile soil could cause a strong reduction in the fruit production and increase the economic costs for the farmer. The right amount of bioavailable nitrogen can compensate for the soil deficit and significantly improve the harvest.

## Practical recommendation

The time required for the mineralisation of organic fertilisers varies in function of soil temperature and moisture, as well as in function of the physical-chemical characteristics of the biomass. Environmental variables such as temperature are difficult to control, but **farmers can choose the right fertiliser and supply water if there is a drought period. The ideal moment to proceed with an organic fertiliser that mineralise quickly is a few weeks before the bloom, or even better before a light rain.**

**Attention: An excess of water can cause excessive leaching, and hence losses of nitrogen and water pollution. To increase the biological degradation of the fertiliser, it should be put in the tree rows before mechanical weeding, in order to further the incorporation with the soil. During the first year, it might be better to split the fertilisation in two different moments, as an excess of nitrogen could damage the roots of young trees.**

**The highest mineral nitrogen availability was observed during a spring trial, using bio-digestates (green waste and animal slurry origins) and stillages.**

## Applicability box

### Theme

Nitrogen supply

### Keywords

Organic fertilisers, fast mineralisation fertilisers, bio-digestate, stillage

### Application time

Spring, a few weeks before the bloom

### Period of impact

Adequate mineral nitrogen level in the spring period affect the whole season

### Equipment

It varies in function of the different organic fertilisers. It might be useful to incorporate the fertiliser in the soil using a rotary harrow.

\* Biodegradation of organic nitrogen to mineral nitrogen, driven by the microbial biomass of the soil



**Picture 1 (left):** Peas during germination phase

**Picture 2 (right):** Second year Gala/M9 in pot trial at Laimburg Research Centre

## Further information

### Further readings

- <https://www.ecofruit.net/proceedings/proceedings-2020/#4>
- <https://www.ecofruit.net/proceedings/proceedings-2018/#9>
- <https://www.ecofruit.net/proceedings/proceedings-2016/#5>

### Weblinks

- Check the [Organic Farm Knowledge Platform](#) for more practical recommendations.
- DOMINO web page: <http://www.domino-coreorganic.eu/>

## About this practice abstract and DOMINO project

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