

fruit trees preparing after winter

fruit trees after winter



TIMAC AGRO ADVICE KIT



How to promote vegetative regrowth after winter ?

Perennial fruit crops do not profit of crop rotation and therefore of soil regeneration. Moreover, alternate bearing is a well-known phenomenon in fruit trees that is characterized by biennale pattern (great yield in year N and lower yield in year N+1). It is the farmer's aim to manage soil fertility and provide high quality fertilizers to avoid draining the tree resources at spring to ensure good vegetative regrowth.

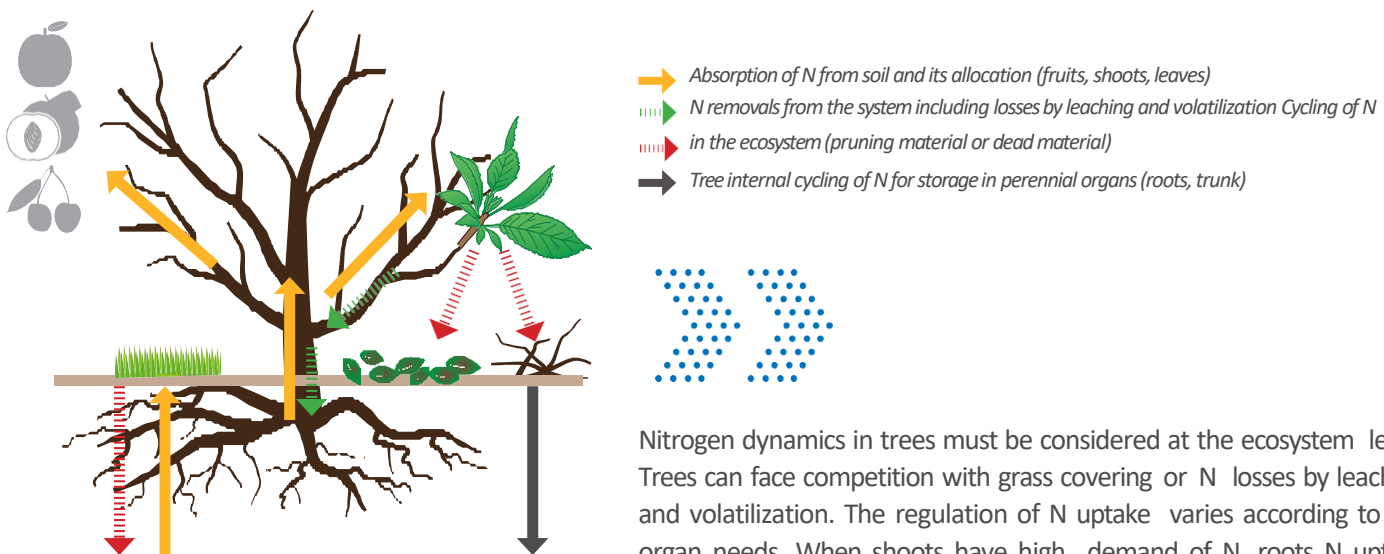
① Timac Agro Insight

Vegetative regrowth happens after bud break which occurs when the cumulative number of temperature required by the tree is reached.

Good spring start can be impacted by the type of winter the tree faced (mild, rainy etc.) and by the previous year production. In fact, fruit trees can remobilize storage reserves in their perennial organs to face winter and thus be weakened to support early growth. Fruit trees have great needs at spring in order to ensure root growth, leaves and flowers (Kuster et al. 2017) and the main 2 sources of N at this stage are roots uptake and the internal N cycling. N supply can help tree reinforcement and growth.

N is the most important nutrient in fruit trees as a component of organic compounds (such as amino acids, proteins, nucleic acids) and chlorophyll. Nitrogen requirements vary from a young orchard to mature orchard. Young trees need N for rapid growth to reach final tree size whereas mature trees N uptake needs can be calculated with: N located in fruits, in the abscised leaves and in pruning material (Carranca et al. 2018).

N dynamics in a fruit tree ecosystem (Tagliviani et al. 2016)



In order to ensure trees long term productivity, a yearly N fertilizer program is needed to replenish soil N

(Carranca et al. 2018).

Nitrogen dynamics in trees must be considered at the ecosystem level. Trees can face competition with grass covering or N losses by leaching and volatilization. The regulation of N uptake varies according to the organ needs. When shoots have high demand of N, roots N uptake increases, on the contrary low shoot demand for N leads to internal N cycling.

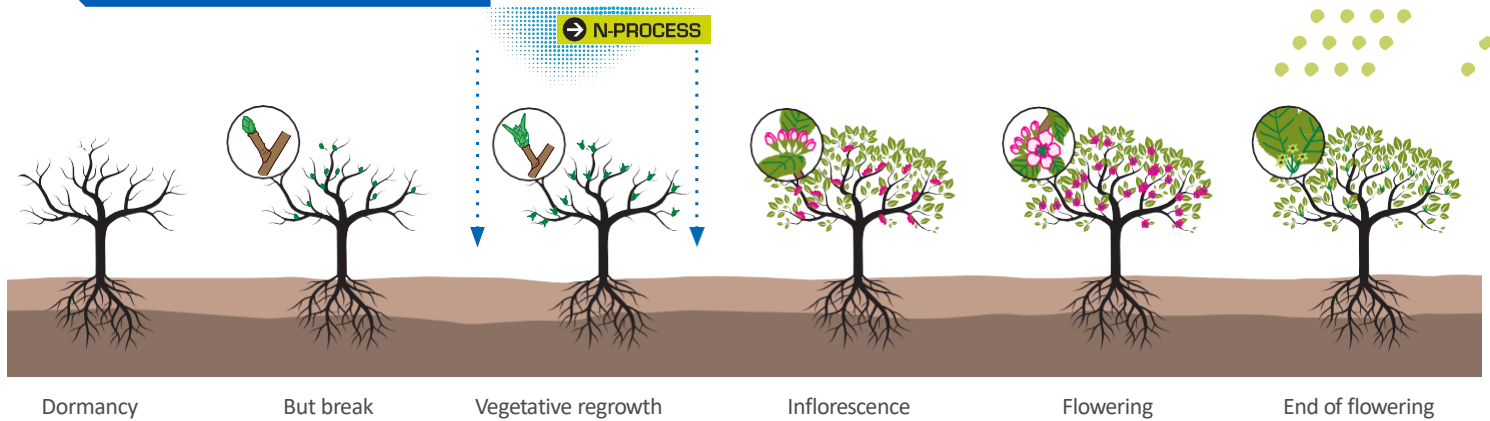
② Timac Agro Solutions

TIMAC AGRO Technology recommends its **N-PROCESS** to provide long term N nutrition to the plant and sustain soil fertility by stimulating microbial activity.

N-PROCESS

- Stimulates nitrogen absorption and assimilation
- Releases nitrogen at the precise time
- Stimulates microbial activity

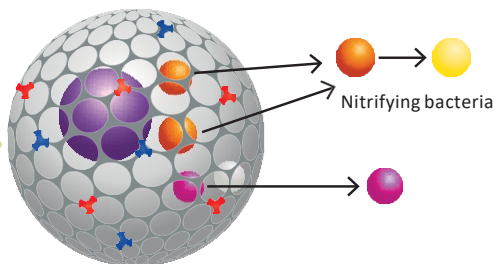
RECOMMENDATIONS



- **Product application:** granule with N-Process
- **Application stage:** after bud break or during vegetative regrowth
- **Application dose:** 175 - 360 lb/ac

TIPS: For better granule disintegration in soil solution, it is ideal to take benefit from the accumulated humidity in the soil during winter.

ZOOM ON THE TECHNOLOGY



- Urea
- Ammonium NH₄⁺
- Nitrate NO⁻
- Other nutrients supplied (Mg, S)

The **N-PROCESS** is a specific technology with an organo-mineral matrix structure encapsulating urea and ammonium. This encapsulation allows both quick N release (ammonium) and gradual release (urea must be hydrolyzed into NH₄⁺ to pass through the matrix and to be nitrified in nitrates). This technology provides immediate and long-term N to the tree and limits losses into the environment (less volatilization and less lixiviation).

ZOOM ON HOW TO EVALUATE N NEEDS

According to the table we can calculate the corresponding amount of fertilizer N to be supplied to the trees related to its yield.

For example: apple orchard of 60 MT/ha or 53.5 MT/ac of expected yield, N supply needed is: 60 (MT/ha) x 0,9 (g N/kg fresh fruit)

= 54 kg N /ha or 48 lb N /ac

Tree species	Net N removal (g N/kg Fresh fruit)
Apple	0,9
Peach	2,7
Pear	1,7
Orange	3,7
Walnut	10
Olive	22
Kiwi	4,5

(Taghivani et al. 2016)