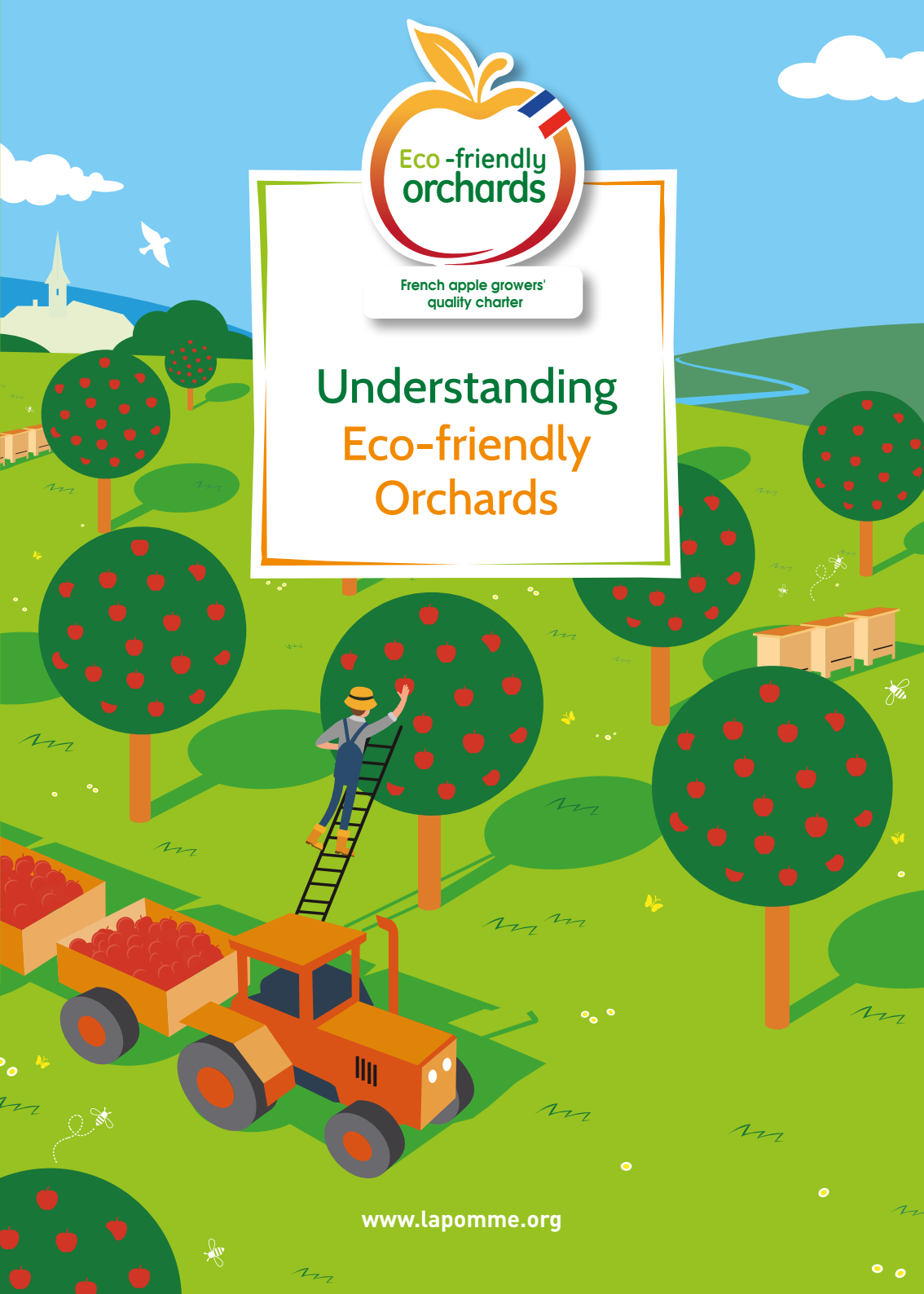
Eco -friendly orchards

French apple growers' quality charter

Understanding Eco-friendly Orchards



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Summary

Eco -friendly orchards

French apple growers' quality charter

For more than 20 years, apple growers committed to respecting an eco-responsible production process have shared the same ethics: producing healthy, tasty and quality fruits, following environmentally friendly methods that respect biodiversity in orchards, while ensuring the economic balance of their fruit farms.

Vergers écoresponsables (Eco-friendly Orchards) is a label that identifies the production of apples and pears following this approach, since 2011.

This innovative agro-ecological approach is based on the principles of integrated fruit production, which focuses on supervision of orchards, biological control methods and cutting-edge techniques to ensure quality production for all consumers.

This new generation of apple growers have made a sustainable commitment to a modern arboriculture that preserves and feeds on natural balances in order to stay in tune with their environment.

The Eco-friendly Orchards approach

Today, almost **1,300 French apple growers certified as** "*Vergers écoresponsables*" within the framework of the ANPP* have decided to commit themselves to producing quality French apples that are environmentally friendly, healthy and rich in taste.

In 2020, the apple crop of the Eco-friendly Orchards accounted for **almost 65% of the French production.**

This label, recognised by the Ministry of Agriculture, was the first in the fruit and vegetable sector to obtain a level 2 environmental farm certification ("*Certification environnementale des exploitations agricoles*") in 2013
The ANPP has set a target of 50% of member farms being certified High Environmental Value ("Haute Valeur Environnementale", HVE) by 2022

The Eco-friendly Orchards label currently applies to the production of apples, pears, peaches, nectarines and apricots.

The 1st label in the Fruit and Vegetables shelves with

1 million tons of apples
50 000 tons of pears,
130,000 tons of peaches and nectarines
and **75,000 tons** of apricots.

***The Association Nationale Pommes Poires (ANPP)** is a French association of apple and pear producers. It counts 300 members and represents 1,400 producers, independent producers and producer organisations, as well as shippers and experimental centres.

The ANPP promotes the know-how of its members adhering to the Eco-friendly Orchards principles.

Eco-friendly orchards

French apple growers' quality charter

6 commitments

1. Promoting biodiversity in orchards
2. Favouring biological control methods
3. Well-thought-out orchard interventions
4. Hand-picking at optimum ripeness
5. Ensuring orchard traceability at the point of sale
6. Checking compliance with good practices by an independent external body

Crop protection. A necessity, but with moderation.

THE PROTECTION OF ORCHARDS. A NECESSITY

Like all crops with a long cycle between flowering and harvesting, apple and pear trees are subject to many attacks of pests and diseases that can jeopardize the harvest or make the fruit unfit for consumption. Hence, it is essential for apple growers to protect the trees in order to produce quality apples and pears.

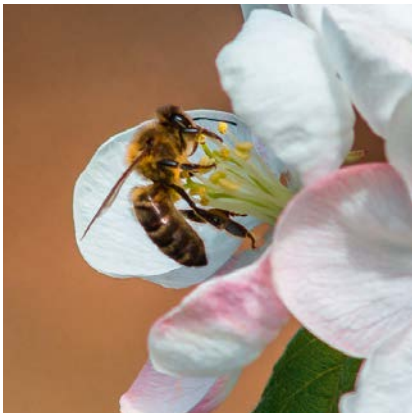
Proceeding with moderation. An imperative.

The orchard needs to be protected from diseases and pest attacks, but the grower must proceed with moderation.
Many insects, birds and other raptors, present in the orchard, are indeed extremely useful throughout the development from flower to fruit:

- **Pollinating insects**
  in the first place, such as bees or bumblebees, are essential for pollination and therefore for fruit production.
- **Useful insects**
  such as ladybirds, hoverflies or earwigs help control aphids, while typhlodromes feed on another pest, the red spider mite, etc.
- **Birds**
  such as great tits rid the orchard of many worms and insect pests, which bats are fond of too.
  Birds of prey, on the other hand, are keen on targeting rodents.

Focus on bees

BEES ARE AT THE HEART OF POLLINATION



The presence of foraging insects such as bees, butterflies or bumblebees in the orchard, **is essential for pollination** and therefore for the development of apples.

This is why many apple growers have chosen to install hives amid the trees to foster pollination in the orchard.

Certified Eco-friendly apple growers contract with beekeepers and promise to respect the hives. Such contracts formalise a mutual commitment to protect these essential insects.

It is worth noting that some apple growers are sometimes beekeepers as well.

Grass strips

Maintaining grass strips between the rows of apple trees and planting many hedgerows nearby is also attractive to bees.

Pollination*:

- **5,200 beehives** installed year-round in the orchards.
- Partnerships with beekeepers have been in place in **78% of Eco-friendly Orchards** for an average of 11 years.

Orchard organisation*:

- Creation of sheltered areas to protect useful wildlife
  - **65 ha of flower strips**
  - **1600 km of hedgerows**
- Compulsory inter-row grassing

*2019 ANPP survey covering 15,645 ha of orchards
**2017 ANPP survey covering 12,766 ha of orchards

Biocontrol is essential in eco-friendly orchards

PREVENTION

Various prevention tools are implemented in the Eco-friendly Orchards, notably techniques known as biocontrol or biological control, for which arboriculture has been at the forefront for many years. Using these techniques makes it possible to limit the use of phytosanitary products.

Mating disruption to control apple worms

The apple worm is the larva of a moth called the codling moth. The female lays her larvae on the leaves or fruit in which they tunnel down to the pips, causing considerable damage. To limit their presence, small diffusers of pheromones hung in the trees spray the smell of the female in the orchard. Disoriented, the male butterflies are no longer able to find the females. No mating means no larvae; hence no worm in the apples!

Pheromones diffusers

Biological control at the heart of Eco-friendly Orchards

Biological control makes it possible to do away with pests (aphids, mites, etc.) and crop pests, by fostering the presence of their predators in the orchard.
These predators, or helpers, contribute to keeping the pest population below the threshold that would put the harvest at risk.

Biocontrol*:

- **100% of Eco-friendly Orchards** use biocontrol techniques against the codling moth (apple worm): mating disruption, insect-proof nets…

A selection of helpers

To fight against aphids, the help of ladybirds, hoverflies (a kind of small fly), Aphélinus mali that parasitise them, and earwigs that feed on them, is important.

To control the red spider mite, likely to ravage orchards, apple growers introduced a few years ago its predator, another mite called typhlodrome. The predator now deals on his own with red spider populations, which has allowed growers to completely suppress acaricide treatments in most orchards.

The presence of great tits is also favoured because they eat up hundreds of insects, worms and caterpillars every day.
A pair of great tits can consume up to 10,000 insects between nesting and the time fledglings leave the nest.

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SHELTERS FOR HELPERS

Therefore, growers have organised the presence of these auxiliaries by favouring shelter spaces to accommodate them, such as hedgerows, lodgings for forficules, nest boxes or even insect hotels.

Biological control* :

- **15,000 great tit nest boxes, 600 bat houses, 2,700 insect hotels,** resting poles for birds of prey.

*2019 ANPP survey covering 15,645 ha of orchards.

Scab: the main apple disease

Of all diseases of apple trees, apple scab is the number one enemy. It can significantly alter the quality of the fruit and damage the trees or even completely destroy the harvest.

This fungus develops, in spring only, under certain conditions of temperature and moisture and is prone to generating brown spots on the leaves and on the fruits, making them unfit for consumption. It is therefore essential to protect the trees with the most relevant technique according to a thorough analysis of the situation.

Good protection starts with limiting and anticipating the risk of attacks, then intervening only when it proves essential.

PROPHYLAXIS : SHREDDING THE LEAVES IN AUTUMN LIMITS THE RISK OF SCAB

In early autumn, apple growers preventively grind the leaves laying on the ground and eliminate them, in order to limit the “dormant foci” of this fungus that grow naturally in the orchard.

By eliminating these foci, the growers limit the projection of spores that are likely to contaminate leaves and fruits when humidity and heat conditions become conducive to the development of the fungus.

Scab anticipation with a connected orchard

RISK OF OUTBREAKS ARE ANALYZED AND FORECASTED THANKS TO A WEATHER STATION

To help them in the observation of their crop, many Eco-friendly apple growers are equipped with a weather station installed in the orchard, associated with a software that analyses the data transmitted by sensors: temperature, humidity and rainfall.

This information is primarily used in spring, to predict the risk of scab and to decide on whether it is necessary to intervene in the orchard. Modelling software informs the apple grower about risk periods that require intervention. This is done either thanks to copper- or sulphur-based organic preparations, or with synthetic products if necessary according to the vigour of the fungus projections.

Focus on varietal evolution

One of the important axes of varietal research in recent years has been the creation of new varieties more resistant to scab, thereby limiting orchard interventions. This is the case for varieties such as Antarès, Ariane, Choupette, Juliet, Opal, etc.

Being eco-friendly also means managing water and waste

WATER MANAGEMENT

Thanks to the weather stations installed in the orchards, apple growers can analyse the data collected by probes placed in the soil to measure the moisture content.

This allows them to reduce the water supply to what is strictly necessary, notably thanks to drip irrigation, which is getting more and more common in orchards.

WASTE MANAGEMENT

Eco-friendly apple growers are responsible for the disposal of their waste.

They are committed to participating in recycling channels such as Adivalor for used containers or anti-hail nets.

Anti-hail nets can be recycled to produce urban furniture such as public benches.

© ADIVALOR

Irrigation*:

- **94% of irrigated surfaces are controlled using decision-making tools** in order to limit water consumption (water balance, tensiometer, dendrometer).

** ANPP 2019 survey covering 15,645 ha of orchards.*

A supervised and controlled approach

ENSURING TRACEABILITY AND TRANSPARENCY OF ORCHARD PRACTICES

Eco-friendly apple growers must keep a culture book in which all interventions are recorded. This book accounts for traceability and transparency of practices. Systematic interventions are prohibited and each one must be technically justified.

SYSTEMATIC TECHNICAL SUPPORT

In order to help them make the best decisions, the fruit producers are assisted by a technical advisor, independent of input suppliers, and approved by the ANPP Technical Commission.
Technical support is supplied to 100% of Eco-friendly Orchards members. Technical advisors are members of research and experimentation networks who provide the apple growers with the knowledge that enables them to fine tune their practices according to the latest technical breakthroughs.

AN APPROACH CONTROLLED BY AN EXTERNAL AND INDEPENDENT BODY

- 100% of fruit farms are controlled every year by a competent agency.
- 100% of independent producers,
  100% of producer groups,
  30% of fruit stations,
  and 10% of members of a producer group
  are controlled every year by an external and independent body.

A mandatory programme of analyses

In order to ensure healthy fruit for consumers, an annual health monitoring programme is carried out by Cofrac accredited laboratories, including multi-residue analyses performed per 1,000 tonnes per producer organisation or producer. Lots that do not comply with the regulations in force are not marketed, and the causes of these overruns are investigated. These programmes ensure that the fruit complies with the health regulations in force.

FOCUS ON RESIDUE REGULATION

AT FRUIT LEVEL

The traces of residue, that can be detected at extremely low levels with today's techniques, must remain under the Maximum Residue Limits (MRLs).

WHAT DOES MRL MEAN?

MRLs are set by European regulations and guarantee an excellent level of health safety for consumers. Indeed, safety margins are sizeable in terms of MRLs.

HOW IS IT SET?

For safety reasons, the MRL is set at a level 100 to 1,000 times lower than the Acceptable Daily Intake (ADI) – the worst case of exposure, which is the dose of a given molecule that one could absorb every day of his life without any health effects.

Eco-friendly Orchards through the seasons

1. IN AUTUMN

Prior to planting, the selected apple varieties are grafted onto rootstocks perfectly adapted to local soil, climate and cultural conditions.
The rootstock determines the vigour of the tree and the graft, the variety.
After planting, the apple grower must wait 2 to 4 years for the orchard to go into production. To support good fruit growth, the grower fertilises the soil and regularly observes the evolution of plant growth.
In orchards already installed, at the end of autumn, after harvesting, that apple growers grind the leaves on the ground to eliminate the sources of scab (see pages 10 and 11).

2. IN WINTER

Fruit trees must undergo a cold winter period to stimulate fructification. In winter, apple and pear trees are thinned to select the branches that will bear fruit.

3. IN SPRING

In spring, the producer monitors flowering: it is the bee's part to pollinate the flowers to allow fruiting. The grower proceeds to a first thinning to optimise the amount of fruit per branch. When the fruits are formed, he proceeds to a second, qualitative thinning: he drops a number of small and ill-formed fruits to foster the homogeneous growth of the others. Thinning makes it possible to limit the phenomenon of alternation from one year to the next and ensures that production is as regular as possible, in quantity and size.

Spring frosts

Spring frost can destroy the flowers or “burn” the fruit in formation.
The growers, alerted in case of frost, start a watering system that forms a film of ice around the fruits and protects them (preserving a constant temperature inside). They can also light up antifreeze candles in orchards at night to raise the temperature, or activate antifreeze towers, sorts of wind turbines able to gain 2 to 3 degrees, by stirring the air.

Biological control

It helps regulating pest populations and makes sense in the spring (see pages 8 and 9).

4. IN SUMMER

Summer pruning helps to circulate the air around the trees. Suckers (branches that grow vertically without bearing fruit and exhaust the tree) and leaves are removed to allow light to penetrate and ensure optimal fruit colouring. During this period, the grower also ensures that the trees are well irrigated to obtain well-sized fruit.

Harvest takes place from August to November according to the varieties

Depending on the degree of maturity, apples are harvested at “eating” maturity for immediate consumption, or at “picking” maturity for storage and subsequent consumption. The fruit is then detached from the branch with its peduncle, without pulling it. Fruits are handled with care and placed in “paloxes” (large boxes containing approximately 300 kg of fruits).

Next step is transport to the fruit station where they are stored, calibrated and packed as orders are received.

IN SEPTEMBER, THE ECO-FRIENDLY ORCHARDS OPEN THEIR DOORS:

The Open Orchards

Every year, in September, at harvest time, the French National Association of Apples and Pears producers organises the “Open Orchards” event for a weekend. This is an opportunity for the Eco-friendly apple growers to allow the general public to discover their profession, their passion, and to explain their production ethics through the “Eco-friendly Orchards” approach.

LEARNING ABOUT APPLE GROWERS AND THEIR TRADE

It also allows the producers to exemplify how they preserve biodiversity in their orchards, and how nature helps them to produce beautiful, tasty and healthy fruit.

A FUN AND PEDAGOGICAL EVENT

Organised as an educational course designed by the apple grower, this event often includes free picking, tastings of apples, apple juice and other specialities, workshops for children and meetings with beekeepers.

For more information on the Open Orchards, visit www.lapomme.org

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"Vergers écoresponsables"
(Eco-friendly Orchards) is a designation that applies to French apples, pears, peaches, nectarines and apricots produced according to genuine ethics. Such know-how meets consumers' expectations regarding environmental compliance, and many partners in the distribution and food service activities are now committed, alongside Eco-friendly Orchards apple growers, to provide their customers with savoury, healthy and quality fruits respectful of sustainable and friendly agricultural methods.

Serviceplan I - RC Nantes B 389 788 993 - Pommes Poires Communication SAS - Photo credits: iStock - ANPP - © Emilie FROQUET, May 2020

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