

LEVERS FOR SUCCESS

TECHNICAL ASPECTS AND PROJECT DESIGN

- **Experiment fast-growing varieties:** plant the trees close to one another (every 1.20 m) and choose varieties known for providing fruits quickly (within 3 years). It will allow you to assess their suitability to the natural characteristics of the soil and climate.
- **Choice of rootstock:** choose one adapted to the pedoclimatic context (e.g., MM111 adapted to dry and well drained soils) and favour rootstock with a small root system to avoid competition with market gardening crops.
- **Think your plantation plan according to the slopes exposure** and make sure that the fruit trees' roots run deep into the soil to avoid competing with marking gardening crops' water stocks.
- **Protect the crops:** It is important to protect the plots up on a headland against the wind by planting evergreen trees in tiers to create microclimates.
- **Adapt to the terrain:** farmers created terraces to cultivate the plots regardless of the slope. A lot of leaching in the first few years until the soil became fertile and productive.

- **Anticipate the risk of damage caused by ungulates (Red Deer, Roe Deer):** setting up a fence at least 1.80 m high to prevent ungulates from jumping over.

STAKEHOLDER COMMITMENT

- **Join the the local producers' and farmers' networks:** share the best practices and encourage the creation of a local market.

ACTION MONITORING AND REPLICABILITY

- **Pass on experience:** Yohan and Marion welcome trainees and train other tree growers in fruit tree grafting. GAVE 65 and the SMART network came for a technical visit to learn more about the project's integrated approach.
- **Consolidate economic viability:** Consider diversifying activities and production to improve the farm's resilience to hazards, for instance : make sure you have products to sell in all seasons and strengthen the autonomy of your production through the fruit tree grafting cycles, a longer yet more resilient process.

FOR FURTHER INFORMATION

- Nature 2050 Programme webpage: <https://www.cdc-biodiversite.fr/realisations/ferme-du-sarrat/>
- Description of Sarrat Farm on the Cagette website: <https://app.cagette.net/la-ferme-de-yohan-65/>

PROJECT LEADER

- **Yohan Caubet**
Farmer
fermedusarrat@gmail.com

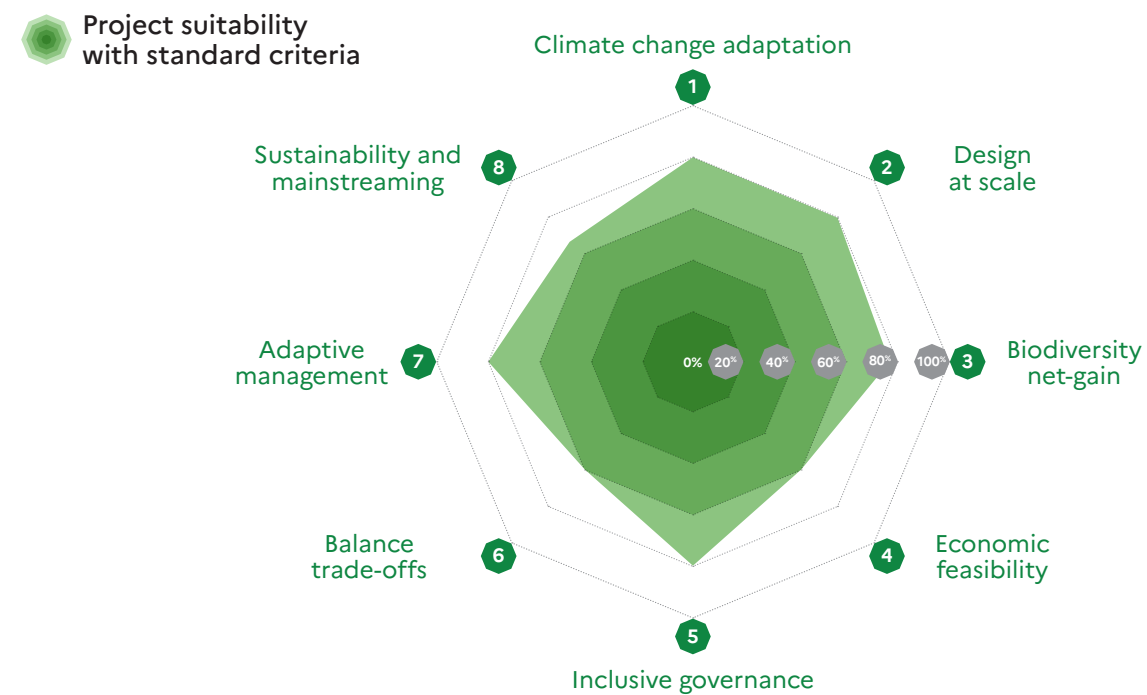
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Julie Tourron

ANALYSIS ACCORDING TO THE GLOBAL STANDARD IUCN NATURE-BASED SOLUTIONS



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SARRAT FARM

2019 - 2050



FACT FILE

GEOGRAPHICAL LOCATION

Boô-Silhen
in the Hautes-Pyrenees (65)

ADAPTATION ISSUES ADDRESSED

Soil erosion and droughts

AFFECTED HABITAT(S)

Agricultural ecosystems

TYPE(S) OF NBAS

Sustainable management of ecosystems: focus on the symbiosis between fruit trees and market gardening crops by planting 1000 trees and shrubs of ancient local varieties.

Sarrat Farm,
Plot with mountain view, 2020
© Yohan Caubet

PROJECT LEADER(S) AND ASSOCIATED PARTNER(S)

- Sarrat Farm
- Farmers of the future competition – Accor, Pur Projet
- Nature 2050 Programme – CDC Biodiversity

FUNDERS AND BUDGET

- Grant for Farmers of the Future competition – Nature 2050: 16 500 €
 - Self-financing: 2 000 €
- Total Budget: 18 500 €

To this is added the cost of project maintenance and monitoring until 2050 covered by Sarrat Farm and CDC Biodiversity.

PROJECT OBJECTIVES

- **For climate change adaptation**
Improve farming resilience by favouring tree species that are adapted and resistant to local soil and climatic conditions, and which contribute to the infiltration of run-off water into the soil.
- **For biodiversity**
Use trees as a base for biodiversity and preserve ancient varieties of fruit trees.
- **For the local community**
Create a botanical conservatory made of ancient endemic varieties, and increase the supply of fresh produce in the area.



Apple tree plantations 2020
© Yohan Caubet

CONTEXT AND ISSUES

Sarrat Farm is located at an altitude of 500 metres, straddling the communes of Saint Pastous and Boô-Silhen in the Hautes-Pyrénées. This mountain habitat imposes numerous farming constraints linked to the complex pedoclimatic context, aggravated by the effects of climate change. Yohan and Marion, farmers, are faced with strong temperature variations (early and late frosts accompanied by snowfalls), drought periods in summer and floods in spring, all in a context of a very short production season (May to October). Moreover, the sloping silty ground is vulnerable to rainwater run-off and soil erosion.

Despite the weather hazards, Yohan and Marion aim to supply the local community with food (organic seasonal fruit, soft fruit and vegetables) using agroforestry and "living-soil" market gardening techniques. The whole farm is managed in accordance with agroforestry designs and the principles of permaculture: no soil tilling, no mechanisation, mass organic mulching and organic inputs (manure, compost, straw, hay, ramial chipped wood, grass cuttings), no synthetic chemical inputs (pesticides or fertilisers), crop association and rotation, great diversity in varieties, autonomy in plant production and reproduction of ancient seed varieties via fruit tree grafting. The Sarrat Farm project was awarded a prize in the 2019 edition of the Farmers of the Future competition and has been integrated within CDC Biodiversité's Nature 2050 programme.

REGULATORY CONTEXT OF THE PROJECT

- Territorial Coherence Scheme (SCoT) of the Community of Communes of the Pyrenees Gaves Valleys (updates in 2017)
- Midi-Pyrenees Regional Ecological Coherence Scheme (SRCE) (updated in 2020)

ACTIONS IMPLEMENTED

On two plots of land certified as organic, planted in part with fruit trees and grazed by about twenty Lourdais sheep (a hardy local breed), the project aims to fulfil the farm's tree capital..

- Hedge planting: 500 hedge plants of fruit bushes and diversified rural trees (serviceberry, viburnum, willow, elder, common dogwood, mahonia, purple hazel, cherry plum, black alder, hedge maple, medlar, strawberry, raspberry).
- Parcel the plots with grafted trees: 510 fruit trees, mainly apple, pear and plum trees, as well as well as apricot, peach, cherry and fig trees.
- Preparation and plantation protection works: creation of terraces; installation of fences to prevent access by game and sheep.
- Creation of a rainwater retention basin to compensate for the lack of water during summer.

CALENDRIER

PROJECT LIFESPAN	
2012	Establishment of the market gardening crop company
2019	Winner of the Farmers of the Future competition Co-development of indicators
2020	Start of works Monitoring of indicators
2021	Partnership with La Cagette, a group of local producers Monitoring of indicators
2022	End of works Monitoring of indicators
Until 2050	Site monitoring and coordination Monitoring of indicators

GOVERNANCE ADOPTED

In the long term, the management, maintenance and monitoring of the plantations are taken care of by the owners. Sarrat Farm is supported by CDC Biodiversité via the Nature 2050 programme and its scientific partners for the defining and monitoring of indicators until 2050, in addition to the co-financing of the actions. Meanwhile, Yohan Caubet is involved in the creation of the SMART network with the Organic Farming Group (GAB) of Gers. Sarrat Farm is also involved in the creation of a 100% organic market in the valley with local producers and has established a partnership with La Cagette, a group of producers (online sales).

Sarrat Farm, Apple tree seedlings, 2022
© Yohan Caubet



PROJECT BENEFITS AND CONTRIBUTIONS



BENEFITS REGARDING ADAPTATION CHALLENGES

- Improvement in the farm's resilience (against droughts, floods, frost etc).
- Reduction in soil erosion and leaching over sloped lands.
- Improvement in shading and windbreak effects throughout the farm



BENEFITS FOR BIODIVERSITY

- Improvement in the symbiosis between the crops and the local fauna, which favours greater species diversity (birds, wild bees).
- Preservation of the cultivated biodiversity of the area by choosing ancient varieties of fruit trees that are both endemic and resistant to climatic hazards.



OTHER BENEFITS

- Socio-economic benefits: increase the local supply of fresh and healthy produce in the area.
- Climate change mitigation: CO₂ sequestration through planted trees.

MONITORING INDICATORS

Climate change adaptation

- Ecosystem evolution/maturity: Measurements of organic carbon stock in soil and the natural abundance of Nitrogen-15 in tree leaves.
- Monitoring of abnormal weather events to assess the resilience of the site following agroforestry developments.

Biodiversity

- Earthworm monitoring: assess soil quality through earthworm density
- Monitoring of wild pollinators (OAB solitary bee protocol)
- Monitoring of chiropterans: assess chiropteran populations and improve natural pest control

Others

- Monitoring of fruit tree productivity: assessing fruit tree yield and pollination quality