

# PROJECT OF SELF-SUFFICIENCY

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# INTRODUCTION

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This plan for establishing our self-sufficiency project is just a first step and will be completed in following presentations.

From which point of view can we approach this project of self-sufficiency emerging consequent to the situation generated by the corona virus? Can it bring us to consider the collapse of the current economic system and, therefore, the entire social model? Do we see this is an agony or as a rebirth? Are we preparing ourselves only for survival or do we consider this situation, with the vision of the path of life, as a benediction to relearn how to live together? Can we walk toward the finality of Life: the consciousness of the permanence of our being? The latter is our choice and it is what motivates our project of self-sufficiency.

On this base we define the spirit of our project, whose root is not fear but rather a new hope. The point is to encounter the complementarity between our collective and personal identities, considering that our personal interest is best met through service to the collective that includes us.

One aspect of a sick society is when it lacks one of its essential elements: the clan, which is a medium-sized collective identity that includes various families.

Additionally, it appears that, at the global level, there is a degeneration of the immune system and genetic heritage due to an artificial way of life and industrially produced food products. Therefore, the project of self-sufficiency is necessary to re-establish a healthy environment within a clan setting, producing healthy food.

With the possibility of the current system collapsing progressively in a short period of time, we see the urgent necessity to initiate this project without losing time, taking three to four years to establish it in stages.



## 1. PERMACULTURE : THE SENSE OF THE INTEGRITY OF LIFE

In a broad sense, permaculture is the practical philosophy of life that consists of living in harmony with nature, observing the functioning of the ecosystems and reproducing them in our way of cultivating the land.

It is a philosophical, structural vision of life, of its dynamic in reference to its finality. This is relative to the concept of the unity of life through its dynamic of expansion, by the complementarity of its differences.

This philosophical vision can be discussed more profoundly based on texts that we have for those who are motivated. Examining the point of the finality of life, the awakening and expansion of consciousness of the being: the permanence of one's identity through the temporality of his corporal existence.

## 2. AUTO-SUFFICIENCY AND THE SOCIAL MODEL

We need to consider a social model based on the clan as a 'cell'. It is a predominately rural model that 'weaves' the clan 'cells' in a dynamic based on a system of cooperatives. Without this, the project of self-sufficiency would isolate the clan, and this would be another form of sickness.

## 3. REALITY OF THE PRESENT

Human history cannot escape the cosmic dynamic. All that has a beginning has a development, a climax, a decline and an end. It is a cycle.

It could be to consider the possibility that we are at the end of a cycle and that there is a necessity to see a new history for ourselves and humanity: a rebirth.

It is from this perspective that we present a model which can serve to participate to a collective project of rebirth for all of humanity.

# PRACTICAL PROJECT

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## Plan para un colectivo de 20-25 personas

To avoid falling into isolationism, the vision is to produce enough food for 25 people (approximately 1/3 extra), using the surplus as a currency and to sell in the markets.

## 1. CROPS

### 1.1. Large crops

We plan for an area of 2.5 acres to produce cereals, proteins and oil products that can feed twenty persons. It would also include space for grass and fodder to feed 2 horses.

This is a long-term plan that we will develop in stages. We would start with a smaller area to cover the necessities of 5 people; a ¼ of the plan for 20 people.

#### *1.1.1. Method of cultivating*

- Annual crop rotation to improve soil structure, increase fertility and promote resistance to pests and diseases.
- Alternating crops, then covering crops (green manure) providing nitrogen maintaining the level of organic matter, boosting soil life, limiting erosion, providing shelter and a source of food for pollinators, small wild animals, soil organisms, and harvesting fodder.

#### *1.1.2. Basic principles of a crop rotation*

- Crops are alternated according to their sensitivity to the nutrients in the soil and their need for nitrogen, which, in agronomy, is second in importance only to water. Ideally, the break period between two crops of the same type (e.g. two straw cereals) should be twice as long as the actual growing period.
- Do not leave the soil bare during the winter (introducing plant cover for example) and favorize rustic varieties that cover the soil (to promote resistance to pests).

### 1.1.3. Rotation model

**FIRST ROTATION** : contributes to the increase of the soil fertility; aerates the soil and improves its' structure.

- Leguminous plants help enrich the soil with nitrogen.
- The following crops\* helps keep the soil free from weeds.

Plants used:

Legumes: Alfalfa (use clover if the soil type does not allow the cultivation of alfalfa)

- High contribution of nitrogen and a crop that cleans the soil.
- Improves the structure of the soil with its deep and powerful roots
- Perennial plant: in a farm with a predominant crop alfalfa is generally cultivated for 2 years. This is followed by 5 to 6 years of annual crops.
- Excellent fodder: cut every 5 weeks on average.

Protein crops : peas, lupins, beans

- Prevents cycle of weeds and disease
- Restores nitrogen (20 to 50 additional nitrogen units compared to a previous wheat crop). For example, a wheat crop following a pea crop produces on average almost 8q/ha more than a previous crop, using less added nitrogen.
- Such crops are used in animal feed because of their high protein content.

**SECOND CROP** : nitrogen demanding crop

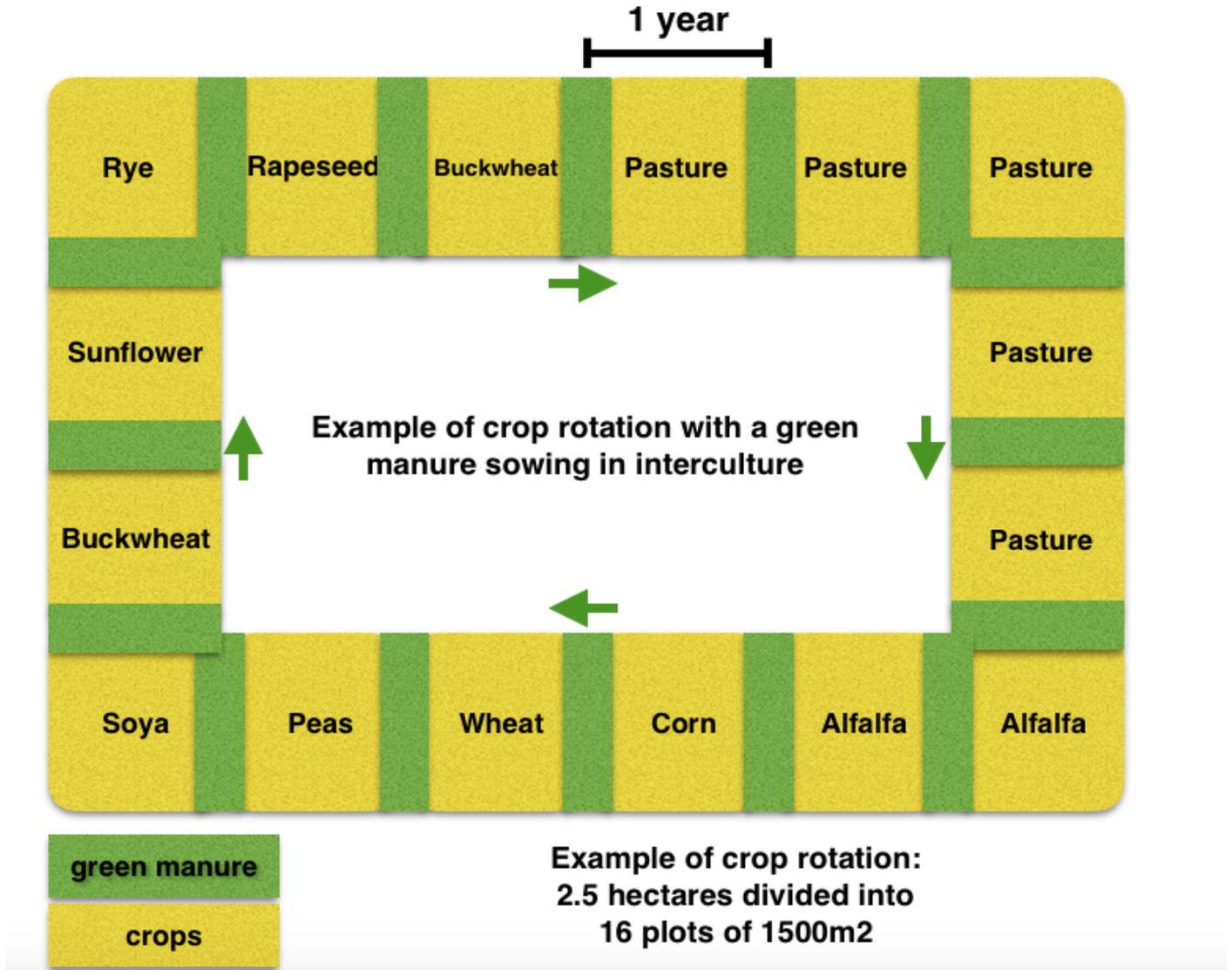
Examples: wheat, rapeseed, corn, etc.

**THIRD CROP (END OF ROTATION)** : soil cleaning plants (green mulch) and low-demand crops.

Examples: buckwheat, rye, etc.

### 1.1.4. Example of rotation

The area of 2.5 hectares could be divided into 16 plots approximately 1500m<sup>2</sup> in size according to the following rotation. This is an illustrative example:



## 1.2. Garden

For the establishment of our initial plan for small crops, we started from a base of associated crops.

We plan to cultivate an area of 500m<sup>2</sup> for 5 people the first year and then increase to 20 people plus an excess of 5 for the exchange.

SOURCE: "A healthy garden through intercropping", <http://aupetitcolibri.free.fr>

### 1.2.1. System of cultivation

For small crops we follow a model of permanent boards, inspired by the model of Jean Martin FORTIER.

Our current area reserved for small-scale cultivation is 1000m<sup>2</sup> where we have cultivated 42 standard boards of 80cm wide and 45cm wide.



*Here is an example of our boards currently: photo of our crops in Sant Jaume de Llierca in May 2021.*

This model allows us, once the board is created, to never walk on it. Thus with a regular amendment of the soil, the micro organisms multiply quickly making the soil very rich. It also allows us to have a standard size which is very practical for the organization and the efficiency of our work: the covers of cultures, protective veil, amendment, etc.

Another beneficial aspect of this cultivation technique: closely spaced plantings allow us to achieve a high yield as well as a quick and complete cover of the soil.

Example of boards :

<b>Vegetables</b>	<b>Number of lines per board</b>	<b>Spacing between each plant on the line</b>	<b>Number of plants per bed</b>
Eggplants	1	45cm	33
Beet	3	20cm	225
Carrot	5	3cm	2500
Cabbage	2	35cm	85
Salad	3	25cm	180

### **Crop rotation**

We plan a basic rotation between the so-called demanding crops (solanaceous for example) and the less demanding ones (leaf-root like lettuce and radish).

Then the order of our rotations follows the following structure:

**Solanaceae - leaves/roots - Cruciferae - Greens/roots - Liliaceae - Greens/roots - Cucurbits - Greens/roots.**

This basic model can of course be adapted according to the needs of the soil (addition of green manure, for example, if the soil needs rest and nutrition).

### 1.3. Establishment of embankments for parcel divisions

Embankments offer a diverse habitat and an interesting food resource for birds (blackberries, insects) and pollinating insects (dog rose (rosa canina), other flowers).

When the embankments are high they provide a well-drained environment favorable to crawling insects, especially ground beetles. They are true "beetle-banks".

### 1.4. Tree and Shrub Nursery

The nursery will be used to grow trees and shrubs for transplanting and for the food-forest, wild forest, and embankments.

The trees will be chosen according to the nature of the land (see food-forest and natural forest).

### 1.5. Fruit trees : food-forest model

The food-forest is an agroforestry system based on the functioning of natural forests. It has different levels of vegetation such as fruit trees, berry bushes (raspberry, blackcurrant, etc.), herbaceous perennials and aromatic plants.

These forests do not require any kind of irrigation, ploughing, fertilizer and treatment, and therefore little maintenance. Their soils are alive, fertile and rich in humus. They have the capacity to retain water and prevent erosion. The trees regulate the water by absorbing it during heavy rains and restoring it in times of drought.

- Half a hectare of food forest can feed up to 10 people.
- Shelters for auxiliary fauna (insects, birds, animals) necessary for the ecosystem

For more information on this topic visit: <https://www.laforetnourriciere.org/>

#### **DESIGN IDEA: The different levels of vegetation**

##### **TREES AND SHRUBS NITROGEN FIXERS**

There are trees and shrubs that can take nitrogen from the air and return it to the soil.

The following list is in order of size. It is not exhaustive, and the particular species will depend on the local biotope, climate and soil.

##### **LARGE TREES AND PLANTS WITH STRONG GROWTH**

- White Alder and Hard Alder.
- 'Fake' Acacia, Robinia.
- Wisteria

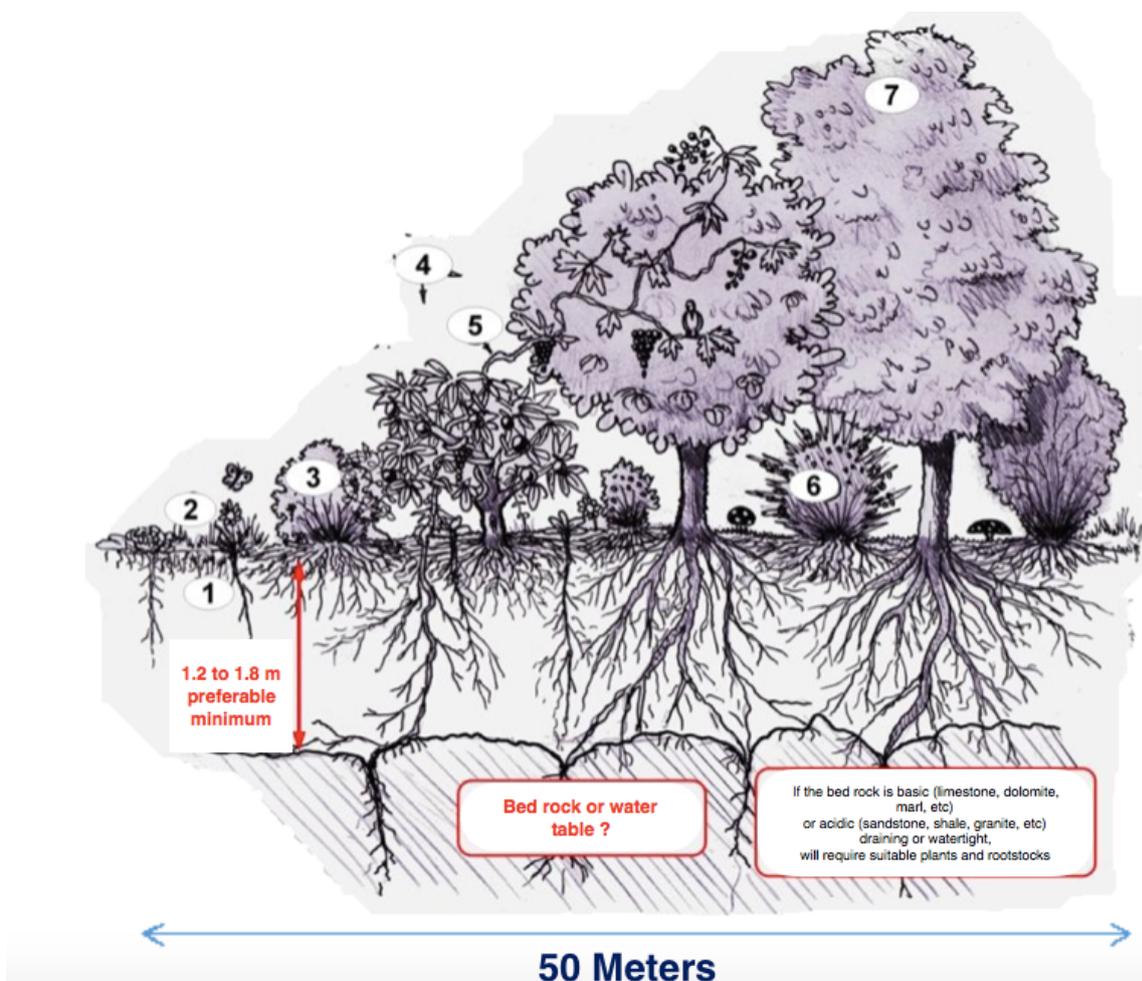
## HIGH SHRUBS AND BUSHES

- False-Indigo (*Amorpha fruticosa*), and the *Amorpha* genus.
- Siberian Caraganiar, and the *Caragana* genus.
- *Eleagnus* genus: Silver Chalef, Bohemian Olive, Japanese Goumi. Some of these trees produce berries of great taste and nutritional value, such as the Sea buckthorn (*Hippophae Rhamnoides*)
- Licorice; an edible leguminous plant

## VIVACIOUS PLANTS FOR THE HERBACEOUS STRATUM

Permanent cover grown at the foot of fruit trees. They can be used as green manure or mulch.

- Different types of clovers, almost all of them are perennial
- Alfalfa
- Alfalfa bush
- False Indigo blue and yellow
- Lupins, wild and cultivated
- Canadian Astragalus



**SURFACE OF 50m x 100m (To be adapted according to the layout of the land) = ½ Hectare, 5000 M2)**

SOURCE: [www.un-jardin-bio.com/les-arbres-et-arbustes-fixateurs-dazote-atmospherique/](http://www.un-jardin-bio.com/les-arbres-et-arbustes-fixateurs-dazote-atmospherique/)

## THE SEVEN LEVELS OF THE GARDEN FORREST

1. **Subsoil**: Plants with roots, rhizomes, tubers, edible bulbs.
2. **Ground cover**: Perennial and annual vegetables, wild salads, fruit, and aromatic vegetables (creeping plants, mulch, green manure, flower strips).
3. **Shrubs**: Low shrubs, bushes, and small fruits: Black White and Red currants, may-berry, raspberry, goji, camellia, etc.
4. **Trees and shrubs**: Small trees and tall fruit shrubs: Apple, Pear, Quince, Peach, Persimmon, Fig, etc.
5. **Liana**: Climbing and creeping plants. Annuals, woody perennials: Rowing Beans, Climbing Pumpkin, Jumping Gherkin, Bramble, Blueberry, Kiwi, Grape, Shisandra, etc.
6. **Under the canopy**: semi-shade and persistent. Mushrooms on trunks, Bear's garlic, Canadian ginger, oyster mushrooms, Foliates, Shiitake.
7. **Canopy**: Large fruit trees over 7m high (Chestnut, Walnut, Cherry, Chinese Pear, Mulberry, Kazakhstan Apple, Cherry, Corn Tree).

### 1.6. Natural forest : Wood for fuel and building timber

Based on plantations of complementary species defined by their usefulness in providing mainly firewood and construction wood. This forest provides the largest amount of organic matter such as humus that can be used in crops.

#### List of the different species for the natural forest:

- Hybrid walnut (*Juglans x intermedia*) and common walnut (*J. regia*)
- Cherry (*Prunus avium*)
- Sycamore maple (*Acer pseudoplatanus*), flat maple (*A. platanoides*) and field maple (*A. campestre*)
- The cormus (*Sorbus domestica*) and the storm tree (*S. torminalis*)
- Pears (*Pyrus communis*) and apples (*Malus sylvestris*)
- Linden trees (*Tilia platyphyllos* and *T. cordata*)

## 2. LIVESTOCK

### 2.1. Horses

- The best option is to start is with a horse that already has 8 to 10 years (max.) experience in working the land.
- The ideal for a 2- 5 hectare project is to have a horse or a double pony of the draught type (350 to 600 kg). Approximate cost €4000 for 2 trained horses.
- Horse needs: food supplements (grain/salt stone), care (bandages, deworming), blacksmith, dentist: from €400 per year.
- 1.5 hectares of pasture (grass + hay) per animal with shelter and water access. Fellow animals will be necessary for their needs.
- Fencing: €2000
- Shelter: €1500
- Note : it is possible to use a bull

<b>Estimated total price</b>	<b>8.000€</b>
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#### 2.1.1. Pulling

Considering a project of production that can sustain 25 people, we need agricultural equipment that will permit production based on the technologies and the adapted material that we will present on this page: the horse drawn riding plow – an improved tool based on the same models of the last century.

This tool permits to pull a sled and plough at the same time.

This is not a utopia; we can take the Amish and Quaker communities as a model.

For this, we give priority to the type of horse "demi-trait", double pony type like merens, halflinger, pottcock etc. In a second stage we will study the possibility of traction with the bull.

Such tools also permit us to free ourselves from the dependency of oil in case there is a difficulty in obtaining it in the future.



*Pottok*



*Haflinaer*



*Mérens*

## 2.2. Cows and Goats

In a second stage, we see the need to raise cows and goats. In addition, the complementarity between horses and cows is very interesting in pasture rotations. An animal does not eat what grows on its own excrement.

### 2.2.1. Fertilizer

- Organic contribution to the crops
- Material for biogás production

### 2.2.2. Consumer product

Our diet is lacto-vegetarian so we produce milk, cheese, butter, etc.

## 3. INSTALLATIONS

### 3.1. Greenhouse : 150m<sup>2</sup>

BUDGET: 2000 €

Information: [www.serresvalde Loire.com](http://www.serresvalde Loire.com)

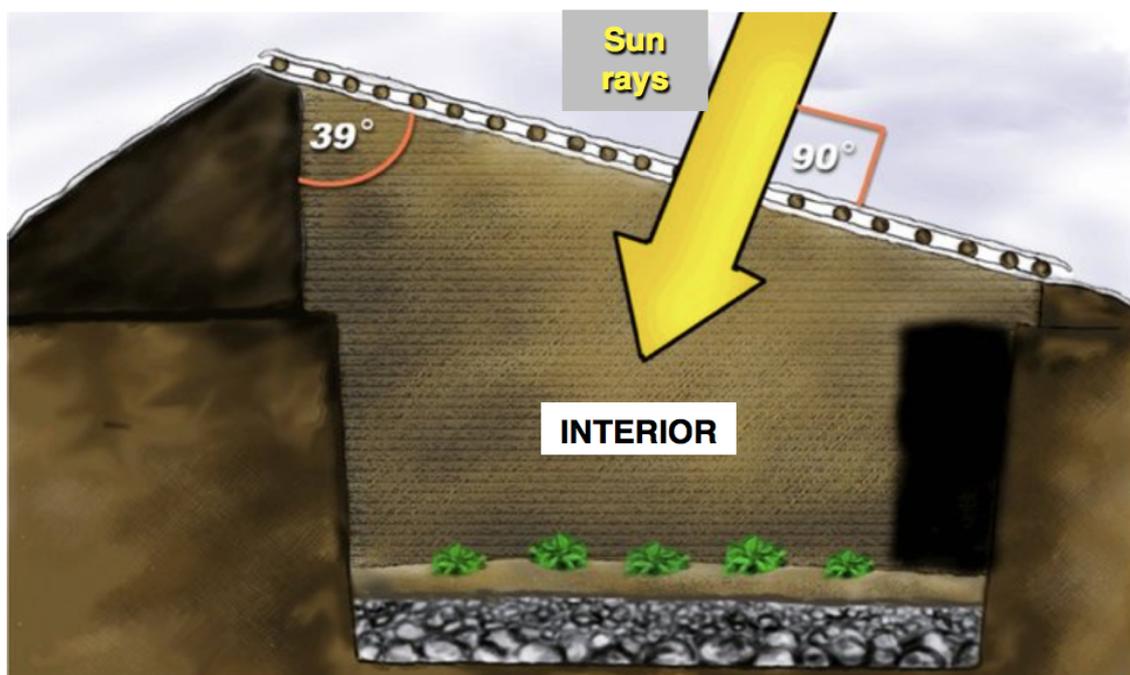
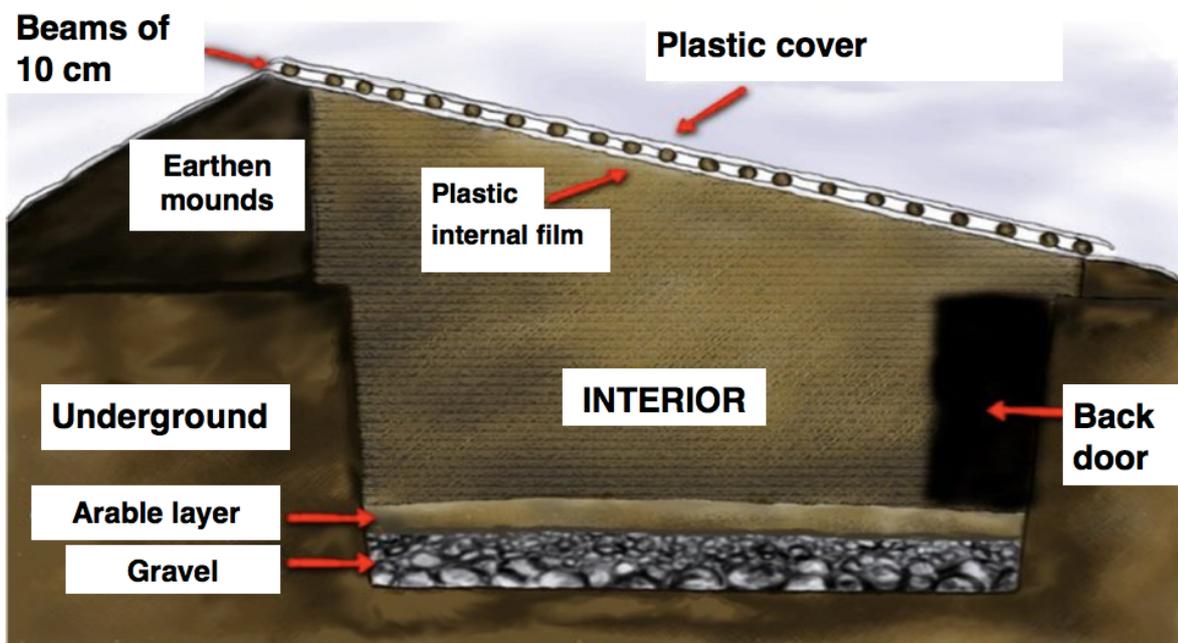
### 3.2. Underground greenhouse (Walapini): 50m<sup>2</sup> for Winter cultivation

The buried greenhouse is a concept that comes to us from the mountainous regions of Bolivia, where it is called "Walipini" (which means "place of heat").

The geothermal energy has a constant temperature that allows the production of vegetables throughout the year.

#### Construction:

- a rectangular hole (2.5m) on average
- a wooden structure covered by a transparent layer
- the walls are made of adobe



### 3.3. Agricultural warehouse 200m<sup>2</sup>

This warehouse can be used to store food products and manage different spaces such as food processing, etc.

**BUDGET: 10.000 €** - « lebatimentbois.com »

## 4. ENERGY

Our research is focused on the possible sources of energy in the sense of our self-sufficiency, examining their potential and cost, taking into account that this project will be developed over time, according to the priorities in our investments.

### 4.1. Biogas

This source of energy comes from the fermentation of animal excrement and can be used for cooking, heating and powering motors



### 4.2. Vegetable oil and alcohol engine

This type of alternative energy is currently being studied.

### 4.3. Solar energy

This type of alternative energy is currently being studied.

### 4.4. Wind turbine

This type of alternative energy is currently being studied.

## 5. TOOLS

This list of tools is not exhaustive but presents the necessary equipment for market gardening and food processing.

### 5.1. Animal traction

Almost all the work can be done with a horse: tillage, transport and use of manure on the cultivated land...

The ideal for a project of 2 to 5 hectares is to adopt 2 horses.



Tool holder MATA-  
MARAÎCHAGE

#### 5.1.1. Animal-drawn machine and specific tools

	Contact	Price in €
<b>TILLING</b>		
Tool holder MATAMARAICHAGE	<a href="https://prommata.org">https://prommata.org</a>	4680
Tool holding frame	<a href="https://prommata.org">https://prommata.org</a>	188
Spiral plough	<a href="https://prommata.org">https://prommata.org</a>	405
Harrow	Segunda mano <a href="http://www.leboncoin.fr">www.leboncoin.fr</a>	70
2 furrowers	<a href="https://prommata.org">https://prommata.org</a>	552
3 hoes	<a href="https://prommata.org">https://prommata.org</a>	129
3 ploughshares	<a href="https://prommata.org">https://prommata.org</a>	66
Work trolley	Segunda mano <a href="http://www.leboncoin.fr">www.leboncoin.fr</a>	1500

<b>TRANSPORTATION</b>		
Transport accessories	<a href="http://www.materiel-forestier.fr">www.materiel-forestier.fr</a>	200
	<b>TOTAL</b>	<b>7790 euros</b>

### 5.1.2. Equipment for horses

<b>FOR PULLING</b>	<b>Contacts</b>	<b>Price for one horse</b>
Harness	<a href="http://www.tracthorse.com">www.tracthorse.com</a>	€1000

<b>MOUNTING</b>	<b>Contacts</b>	<b>Price for one horse</b>
muzzle + saddle + blanket + thigh strap	Secondhand contact Leboncoin/ebay etc	€500

### 5.2. Manual Horticultural Tools

	<b>Contacts</b>	<b>Prices in Euros</b>
Shredder for straw	Second hand <a href="http://www.leboncoin.fr">www.leboncoin.fr</a>	500
Grain seeder 1001B	<a href="https://agraria-comand.fr">https://agraria-comand.fr</a>	254,37
Double handed Wheel hoe and tools	<a href="http://www.terrateck.com">www.terrateck.com</a>	616,50
Flail and Winnower	Second hand <a href="http://www.leboncoin.fr">www.leboncoin.fr</a>	100
Corn thresher	<a href="http://www.amazon.uk">www.amazon.uk</a>	155
	<b>TOTAL</b>	<b>1625,87 euros</b>



*Manual doublé  
Wheel hoe*

### 5.3. Tools for processing products

	<b>Contacts</b>	<b>Prices</b>
Diamant D525 Manual Cast Iron Grain Mill	<a href="http://www.moulins-alma.fr">www.moulins-alma.fr</a>	1150
Oil press 2.8L	<a href="http://www.presseoirs-a-fruits.com">www.presseoirs-a-fruits.com</a>	539
Wood burning stove	Second hand	300
Water filter Berkey 22.7 Liter capacity	Berkey Europe	584
<b>TOTAL</b>		<b>2573,00 euros</b>



*Oil press*

*Manual grinder for grain*



<b>TOTAL COST OF TOOLS</b>	<b>13 488,87 €</b>
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## 6. TOTAL COST OF PROJECT

Installations of greenhouse and storage shed	13 500
Tools	13 488,87
Animals	8000
<b>TOTAL</b>	<b>34 988,87 €</b>

## 7. PROJECT DEVELOPMENT

The development of the project will take place over a period of 3 years. Therefore, investments and constructions will be carried out according to priorities.

