

# Our permaculture nut orchard

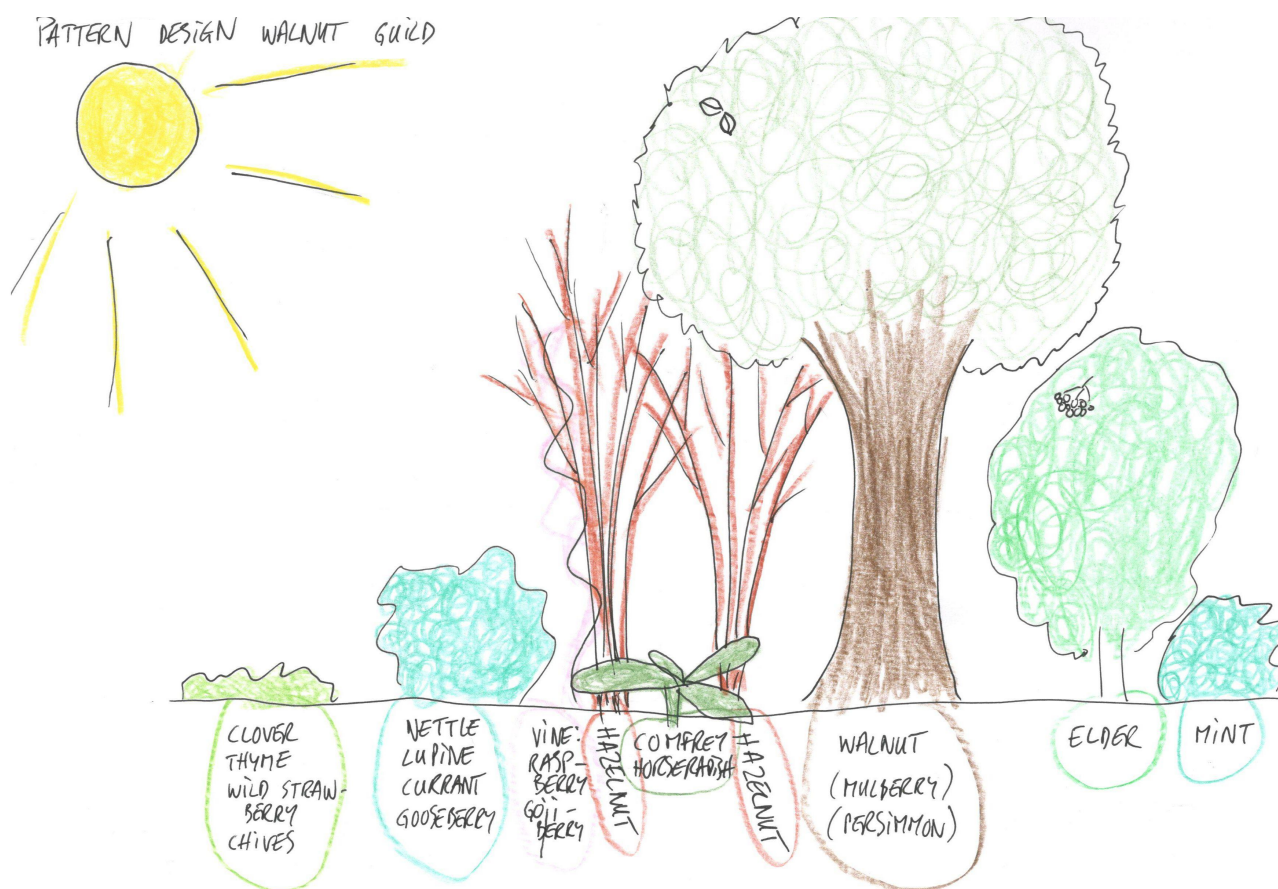
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2018, Bogata Šuma, Vojnić, Croatia

At Bogata Šuma we're happy to live a varied life with multiple income streams. We grow fruits, nuts and herbs for personal use, and on the grass in between we host camping guests. The grass itself we turn into hay and use as animal food. The herbs we use and sell as teas, kitchen herbs, oils, tinctures and salves.

We grow a good part of our food, with which we feed our visitors, and volunteers that want to learn about permaculture. People that come as a volunteer or for a workshop or course on our terrain.

Still we can do more with our land. More yield that is easy to store, and easy to make a high end product with. An investment in planting trees now, for protein sources for future generations, and added value to our land.

This zone 3 design for growing more nut trees on our terrain, is made with a mix of the SADIMET design process and Looby Macnamara's Design web



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## Vision

Our terrain is a beautiful park-like edible landscape with an abundance of food for humans and animals. The diversity makes a healthy environment for plants and helpers. A few times a year we get a nice amount of money from the crops or products we make with it. Our permaculture farm inspires traditional farmers to work more *with* Nature.

## Principles

We observed that nut trees love it here, so we interact by giving them the space they need and obtain a yield.

We catch and store energy by using Nature's cycles. Trees capture sunlight to power the process of photosynthesis. During photosynthesis, the light energy from the sun powers the chemical reaction to combine carbon dioxide in the air with water. This creates oxygen, which animals breathe, and starchy carbohydrates, which are the energy-packed building blocks of all trees. Trees create clouds (and rain) and falling leaves mulch and feed the trees. Cycle and Recycle Energy.

Diversity brings more balance, in the health of the plants and in our income.

We integrate rather than segregate those walnut trees that pop up everywhere, by re-planting them as a barrier against false acacia that wants to take over. Cooperation instead of competition, focus on systems and relationships. And with that we stack functions: barrier, more diversity, more yield, more income.

Small and slow solutions prevent big mistakes.

And this nut orchard design (with its proteins and extra income potential) is part of our design for resilience.

## Survey

We would like an extra stream of income and we like to do more with our land. Especially that empty field where false acacia likes to take over. Maybe we can plant something that will keep the pseudo-acacia out.

At this moment we're not seriously growing a crop, but we do host camping guests on our land. So we want to grow a crop that doesn't interfere with the camp ground. A crop that cannot be destroyed or eaten by camping guests. And it should be a crop that is easy to store and possible to turn into a high end product.

I thought about growing (more) nuts. They love our climate, they pop up everywhere, the current nut trees on our terrain seem healthy and are happy to provide us with heaps of nuts every year. And at the end of their life the wood can be used to make beautiful furniture.

## People analysis

For now only our **family** lives (permanently) on our land: Peter, Barbara, Nol and Fleur Scheltus.

Peter (1959) is the owner of the land and the company, he is a designer, carpenter, blacksmith, NLP trainer and personal coach. He wants to focus on coaching.

Barbara (1973) manages the land, the camp site, the volunteers, the household and everything that grows. She is a permaculture facilitator and wants to have a great example permaculture farm.

Nol (2004) is still going to school and seems interested in carpentry and cooking.

Fleur (2010) is a creative outdoor kid.

We usually have a **worker** who comes every day and we can call in more workers if necessary. He works with machines like tractors, mowers, chainsaws, trimmers, the mulcher, the soil drill...

We host **volunteers** from March to October. They come here to learn about permaculture and how to live a sustainable life in Nature.

## People limits

We cannot be full time farmers because we enjoy our multiple income streams and our different roles and tasks that come with it.

There are so many things going on on our farm that it is hard to commit to getting the harvest in in the right time, for instance. We need clear goals to help us with that.

Volunteers can do light jobs; they cannot be regarded as workers. We can prepare volunteers for occasional heavier farm tasks in our texts on volunteer platforms.

## People helps

Barbara is the most interested in farming, setting up an example farm and making beautiful things with the harvest.

Peter is interested in selling beautiful products; he can be a good sales man.

Our worker is a willing helper, in for any job, he is strong and works steady like a diesel engine.

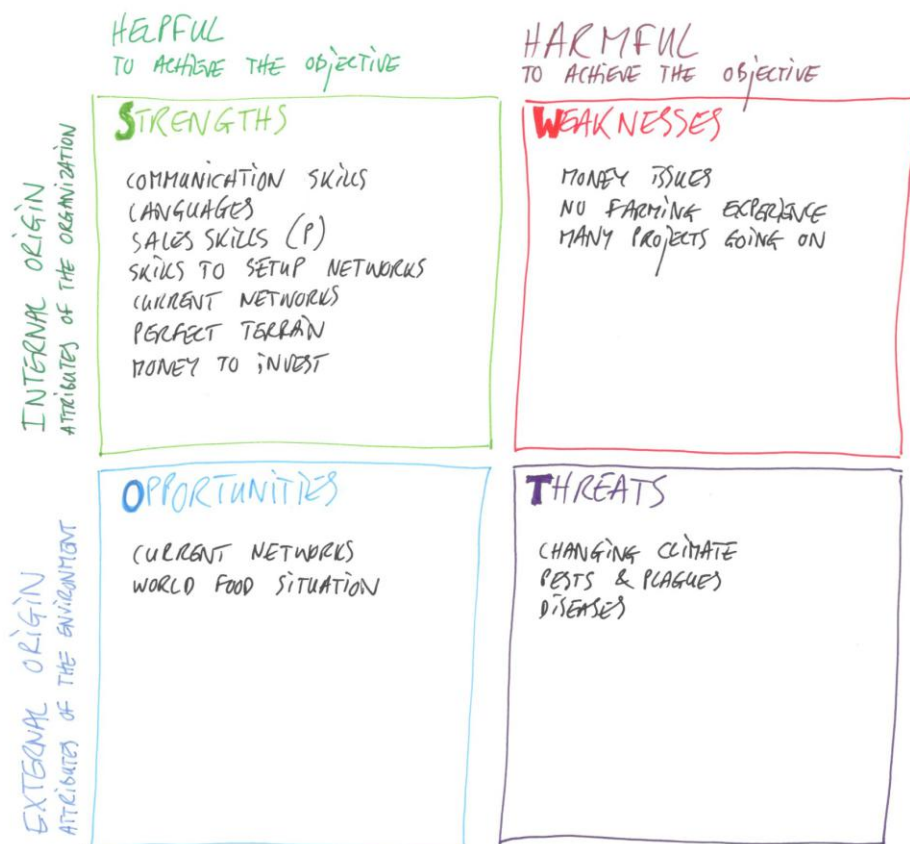
Volunteers can do special jobs & fun things, like fertilizing plants and trees, pruning, companion planting, making bird and bat boxes...

We (the family) drive to The Netherlands at least once a year, for learning opportunities or to visit friends and family. If we could combine this trip with selling our produce somewhere along our route (Croatia, Slovenia, Austria, Germany, The Netherlands), we lower our expenses.

We speak the languages in all these countries, and also French and English. So our selling market is easy to reach.

Barbara has setup various web shops for clients, and she knows how to do online marketing. So our selling market is not restricted to the countries that we can drive to.

## SWOT analysis



## Farm analysis

We would like to be an example permaculture farm, but we do not farm (yet)!

We have an unused field that is too hot (microclimate) for hosting camping guests. It is quite close to the house (100 meters) in our permaculture zone 3. It is a flat area and it has beautiful deep soil, just slightly compacted, where lots of wild grasses, herbs and flowers are growing. The field is well protected against winds with the high (pseudo acacia) trees around.

We can use an extra stream of income, and especially an income stream from the land. We have 12 hectares, and no income from produce.

## Area



*"The field" is the area in the white line*

Coordinates: 45.363471, 15.689532

Field: flat, 300 square metres on our parcels 1924 and 1922.

There is a few meters slope going down to the field. The height difference is 3 meters; the slope is 5 meters long.

Electricity line over the field; we're not allowed to plant trees under the line and 5 meters from it.

**Aspect:** the field runs almost north-south; slightly more NNW-SSE.

**Climate:** temperate

Hardiness zone 6 to 7: winters with an average minimum temperature of -10 with exceptionally cold nights up to -20.

The field has a slightly warmer micro climate since it is sort of a bowl, protected by high pseudo acacia trees around.

**Rain:** 1100 mm per year. The driest month is February, with 69 mm of rainfall. In November, the precipitation reaches its peak, with an average of 121 mm.

**Growth:** grasses and wild herbs (thyme, agrimony, St john's wort, goldenrod), some shrubs (wild rose, hawthorn), 2 peach trees and the pseudo acacias from the edge are "walking in". In the pseudo acacia-edge are probably also wild cherry trees and maybe an incidental oak tree growing.

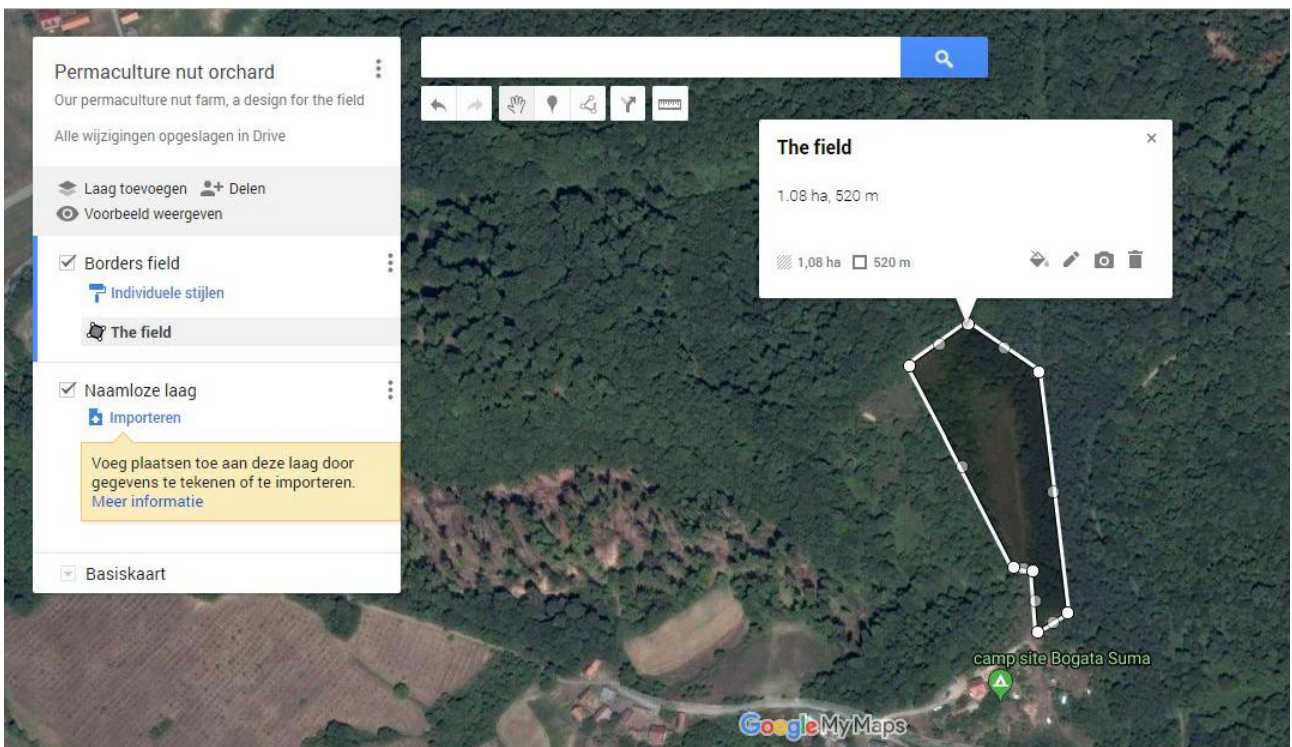
**Soil:** rich and deep. Undisturbed for at least 25 years, except that a neighbour had his horse on the field for 1 season (10 years ago), 2 lumberjacks stored a few hundred cubic metres of wood on the field (8 years ago) and we drive over the field every now & then.

There is a deep layer of soil before you find rocks. I don't know how deep; I never found rocks in the field.





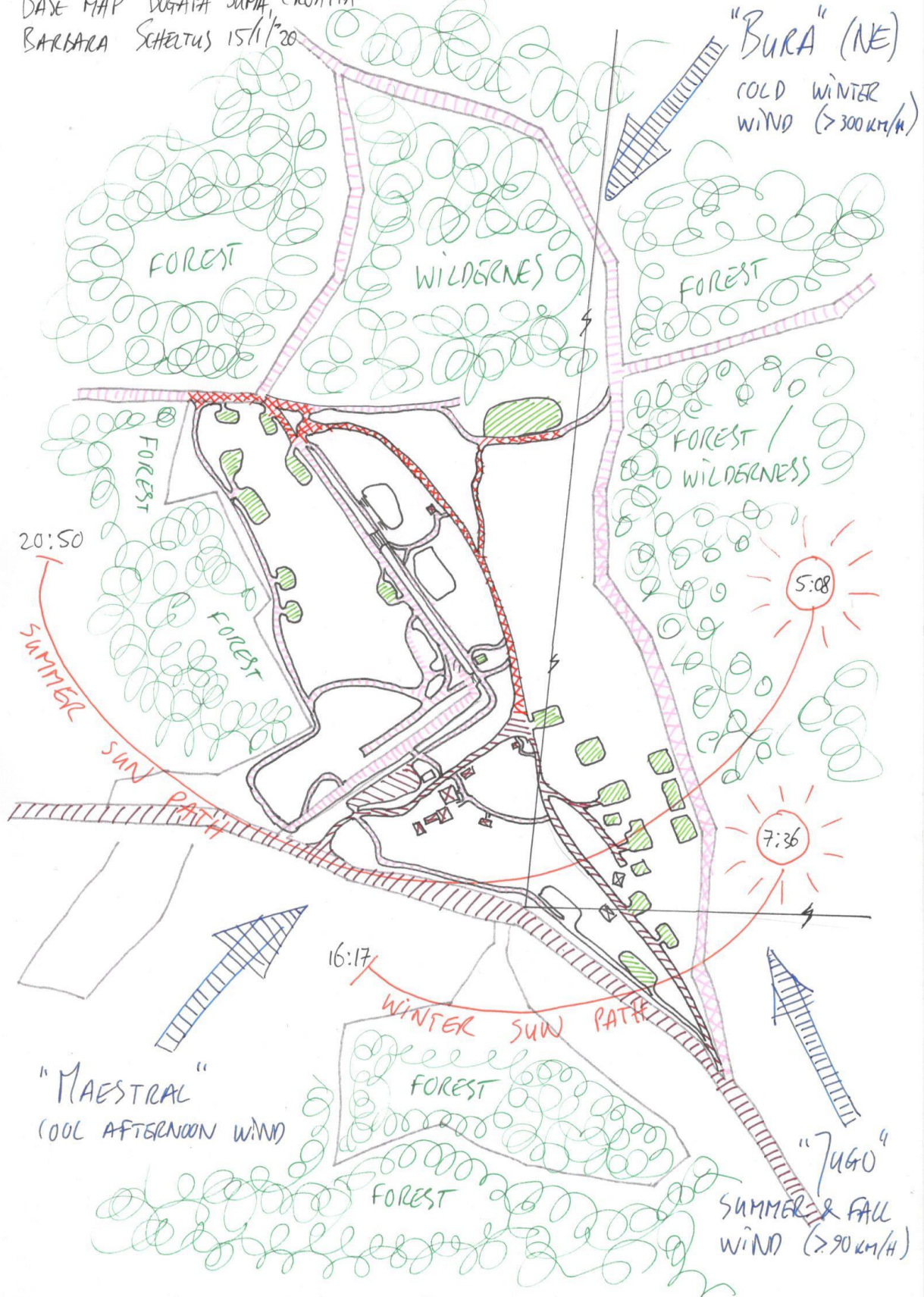
In the history of Google maps you can see that the field grows smaller and smaller





## Base map

BASE MAP BOGATA ŠUMA, CROATIA  
BARBARA SCHELTUS 15/11/20



# Analysis

Our field is slowly taken over by wilderness (pseudo acacia and brambles mainly); we want to take it back so we can grow profit on it.

## Functions

To prevent the pseudo acacia from walking into the field,  
To make good use of the land and not let wilderness take over,  
To invest for the future,  
To create an extra income source,  
To positively influence the climate on the heat trapping field,  
To give us an easy, low maintenance crop that stores well,  
To create possibilities for future expansion of the camp site,  
To be an example permaculture farm.

## Traditional versus permaculture nut orchard

walnut trees	a variety of nuts and helpers, intercropping, companion planting, tree guilds and beneficial "weeds" and plants
Design = plant distance	Design = holistic approach for a healthy ecosystem
Artificial weed and insect control	Plant and animal helpers for a healthy ecosystem
Vulnerable to market influences	Diversity of crop gives more possibilities
Vulnerable to pests and plagues	Diversity confuses pests and plagues, hosts more predators, and if 1 species is destroyed you still have others left
Vulnerable to weather influences	Spread risk because of varied timing of blooming and ripening
Big workload in 1 period: harvesting time	Spread workload over the various harvest periods
1 Yield, limited possibilities for (high end) products	Many yields and many possible combinations for (high end) products
Traditional maintenance by humans	Possible animal helpers to dig and scratch, clean up fallen fruits and nuts, eat pests

## Stacking functions

A list of functions for the trees and shrubs in our nut orchard:

1. Gives yields (for us, for our livestock and/or for beneficial wildlife) in nuts, berries, leaves and wood
2. Offers habitat to birds, insects, small mammals etc.
3. Offers food to creatures directly (fruit, leaves, wood, pollen)
4. Offers food indirectly (predators eat those who feed on the tree)
5. Offers wood for construction, furniture, tools, instruments, firewood
6. Foliage for the soil/mulch
7. Fertilize the soil
8. Produces oxygen
9. Raises the water table
10. Slows down the wind/wind break



11. Reduces the impact of rain
12. Roots protect soil from erosion
13. Regulates evaporation
14. Keep out unwanted plants (pseudo acacia)
15. Provides shady spots for camping
16. Walnut trees help to repel mosquitoes

## First year(s) yield

Between the walnut and the elderberry, we can plant **garlic** in the first 1 or 2 years. Later, when the trees and shrubs grow bigger, we will plant shade loving mint in that spot.

South of the walnut and the comfrey, between the hazels, we can plant **red hot chilli peppers** as a temporary yield from the field.

Also butternut squash can be planted, as ground covering crop.

## Design (decisions)

### The choice for nuts

Walnut leaves excrete a substance (juglans) that makes it hard or impossible for seeds to germinate or other plants to grow. Therefore it can be a good barrier against the false acacia that walks into our field.

Nut trees love our climate. What I see on our terrain, is that walnut trees, sweet chestnuts and hazelnut shrubs grow easily. They seem to love our soil and our climate. And we love them. They are healthy and are happy to provide us with heaps of nuts every year. And at the end of their life the wood can be used to make beautiful furniture.

When washed and dried, nuts are easy to store and keep for a while.

Nuts can be sold as they are, right after harvesting, or later when dried. We can sell them peeled, or make oil out of them, or a nut spread or other product. The wood can be sold, or turned into beautiful products and then sold.

Nuts are ripe when camping season is almost over so we will not lose many to guests.

Walnut trees repel mosquitoes so it is nice to camp near them.

### Companion plants for walnut trees and hazelnut shrubs

**Comfrey** (symphytum): a fast growing perennial with deep tap roots. Rich in potassium, but also phosphorus, calcium, copper, iron and magnesium. Leaves can be chopped and dropped as mulch up to 6 times a year. Leaves can be used in liquid fertilizer and the plant acts as ground cover. General insect (especially bees) nectar and pollen plant, lacewings and spiders prefer to lay eggs on comfrey and spiders prefer to overwinter on it.

**Horse radish** (Amoracia rusticana): General insect (especially bees) pollen plant, edible leaves and root, antifungal, confuses garden pests with its scent.

**Elderberry** (Sambucus nigra): attracts birds, can act as wind break for walnut

**Nettle** (Urtica dioica): rich in minerals like calcium, potassium, phosphorus, magnesium and traces of iron, sodium and zinc.

**Lupine** (Lupinus): nitrogen fixing green manure with edible seeds. And what we cannot harvest, the chickens will eat from the ground.

**Clover** (trifolium): a nitrogen fixing ground cover.

## Other possible crops

**Mulberry** (*Morus alba*): nice canopy tree to attract birds and give delicious, bloodsugar level regulating berries in June. We can make jam with the berries, or dry them and sell the dried fruits. One of the few trees that grows well with walnuts.

**Sweet chestnut** (*castanea sativa*) can bring more diversity, although it already grows abundant on other parts of our terrain, the trees attract wild boar and most of our sweet chestnut trees have disease where the leaves swell up due to a parasite.

**Persimmon** (*Diospyros kaki*): smaller tree with delicious orange kaki fruits in late fall. One of the few trees that grows well with walnuts.

**Raspberry** (*rubus idaeus*): the vines can climb into the hazelnut poles.

**Goji berry** (*Lycium barbarum*): idem

**Redcurrant** (*Ribes rubrum*): a deciduous shrub, usually up to 1.5m high, that produces lots of sour berries in early summer. A jam from this berry goes well with meat.

**Mint** (*Menta piperita*): grows well in the shade, makes a delicious and healthy tea, lemonade

**Sea berry/sandthorn** (*hippophae*): grows well in partial shade, well drained soil.

**Red hot chilli pepper** is able to grow near walnut trees and it might be a nice annual crop to sell in the first years, when the trees are small.

**Garlic**, same as pepper, will do fine when the trees are still small. We can grow elephant garlic and sell that to friends & family who want organic garlic.

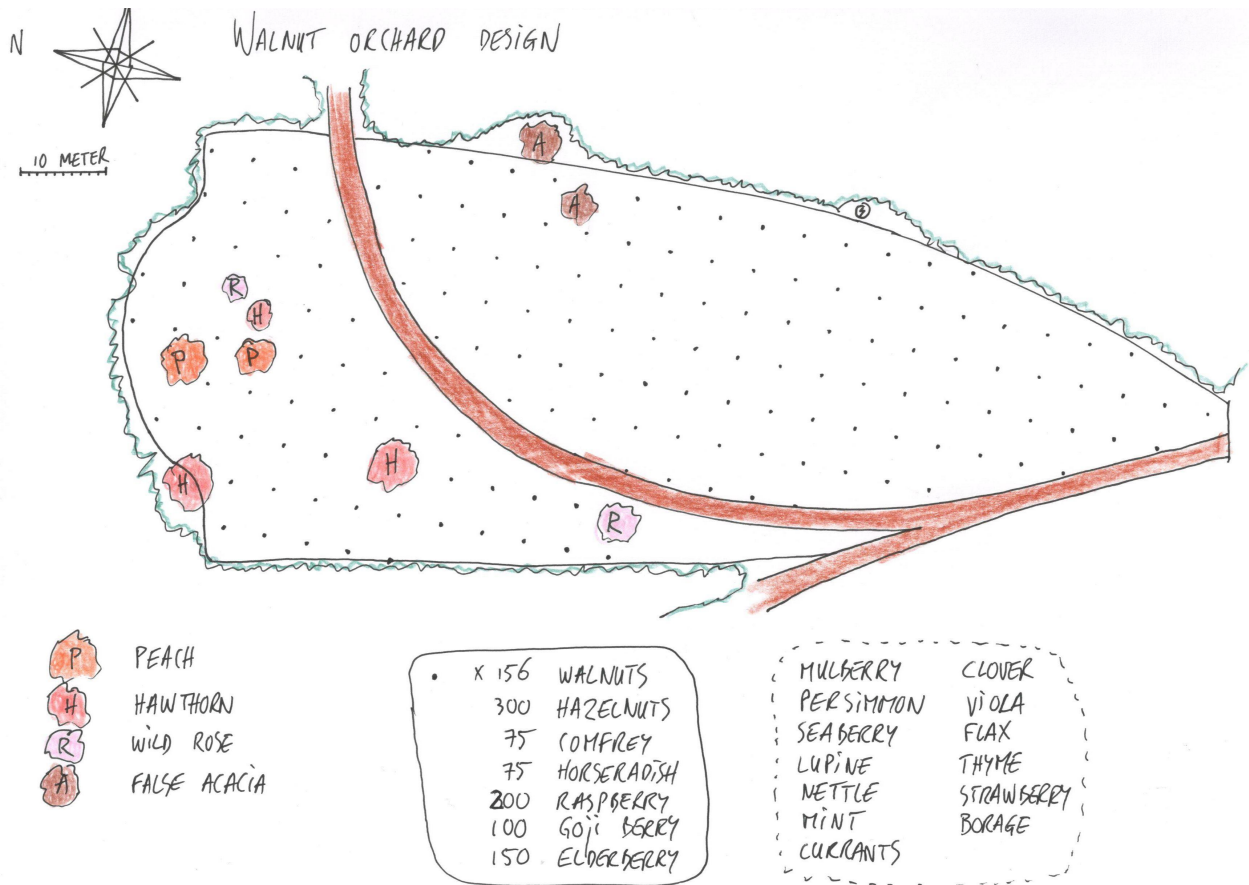
**Butternut squash** as a ground cover in the first years, when trees don't produce nuts yet.

**Violet** (*viola tricolor*): medicinal ground cover in spring

**Flax** (*Linum usitatissimum*) already grows wild on that part of the terrain

**Wild thyme** (*Thymus serpyllum*) grows abundant in the dryer, sunny end of the terrain

## Planting pattern design



The main pattern will be **walnut** trees, planted 6 meters apart.

If walnut trees die or get eaten by deer, we can replant mulberry trees, persimmons, occasionally a sweet chestnut or new walnut trees in that vacant spot.

Every walnut tree gets 2 **hazelnut** shrubs, in a 2.5 meter triangle on the south-east and south-west side.

An **elderberry** shrub will be placed 2 meters north of the walnut tree, acting as a wind break and bird shelter.

Every walnut tree will get a **comfrey** plant 1 meter south, as a ground cover, fertilizer and mulch provider.

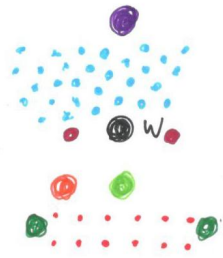
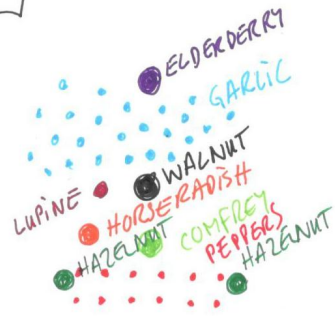
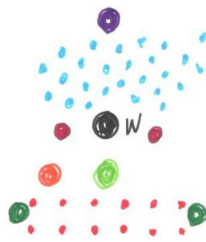
Next to the comfrey, south-west of the walnut tree, a **horseradish** will be planted for its anti bacterial and anti fungal properties (isothiocyanate) and for the big leaves that cover the soil.

**Lupine** will go east and west of the walnut, from year 2.

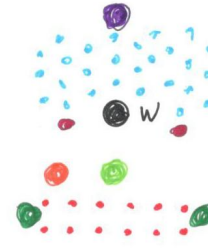
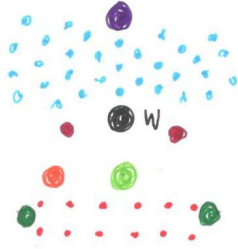
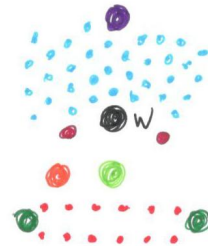
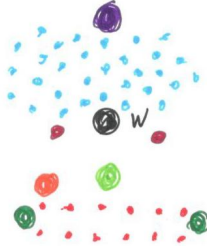
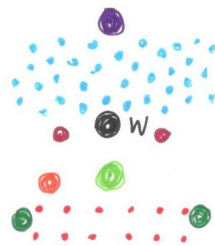
**Clover** will go in empty spots from year 2.



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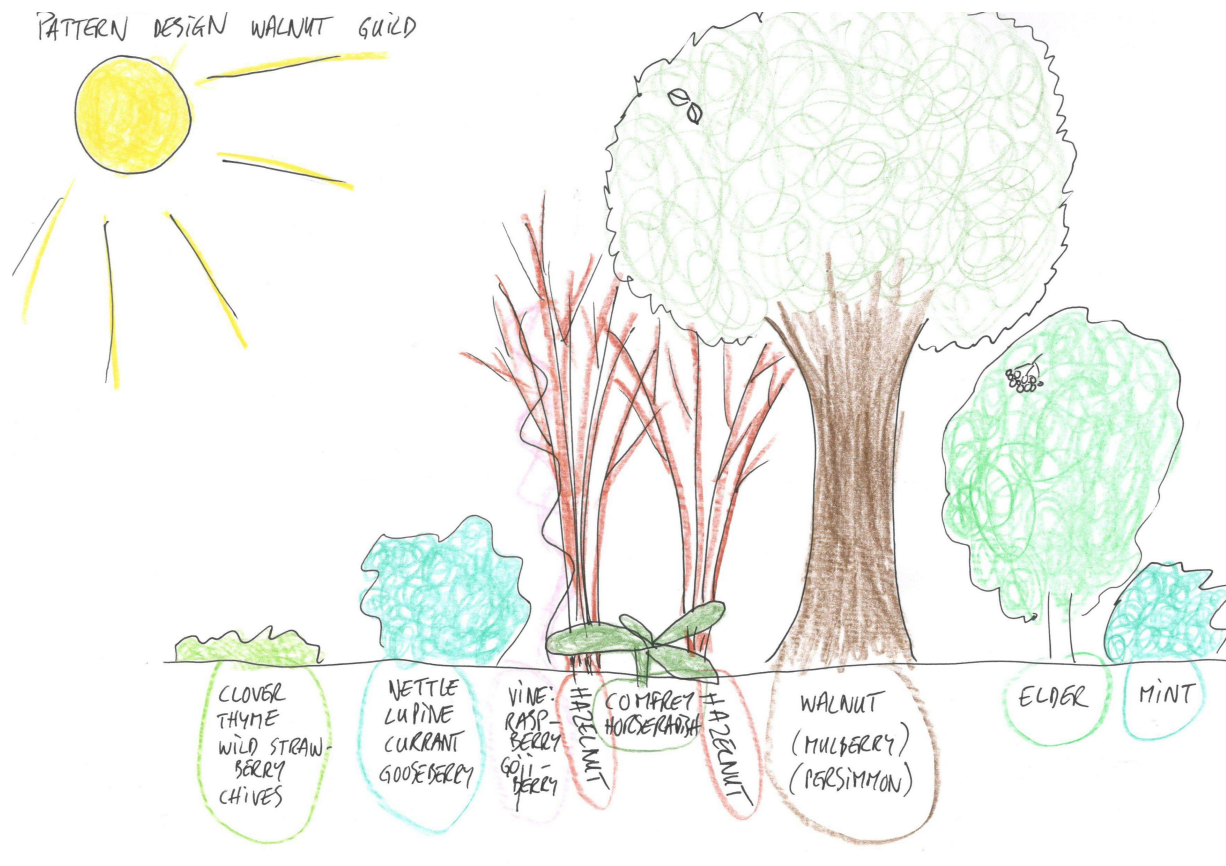


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## Pattern design walnut guild



### The choice for swales on the slope

The few meters of sloping land towards the field will get 2 swales on the contour line.

These swales will hold the runoff water longer, so it gets time to seep into the soil. This prevents gulleys and erosion.

The swales will also trap organic matter and increase habitat for insects and micro organisms.

And by digging and hilling, we increase the planting area.

# Implementation

## *Preparing the land*

We need a heavy mulcher to mulch all the shrubs, young false acacia's and strong herbs on the edges. Until the line of the older trees (5m from under the electricity line).

Before we can mow there, we need to pick up all the sticks, and hoe out the stumps.

The wild herbs need to be mowed before they produce seeds; that can be done with our "IMT".

Next we could shred the herbs with the trimmer if necessary.

## *Digging swales*

On the slope going down to the field, we dig 2 swales to slow down water and organic matter runoff.

## *Mulching, not ploughing*

We will mulch the high grass on the field; not plough it. That will not only save money (the neighbour's fee) and time (because the soil doesn't need months to restore), it also saves us a lot of trouble in the future with weeds that keep coming back.

Ploughing can help to turn organic matter (plant material and manure) into the soil, but adding organic matter on top of the soil, will give Nature the chance to do it her way. Ants and beetles will work it in, the bacteria in the top layer of the soil will help with decomposing it. In the mean time the organic matter acts as mulch and prevents the soil from drying out, and weeds from germinating.

You can think that ploughing brings air into the soil; I think the opposite happens. Ploughing destroys all air channels that are made by wildlife like ants, earthworms and beetles, and a tractor compacts the soil by driving over it.

## **Buying trees & shrubs**

Part of the trees and shrubs we can sow and propagate ourselves, and for more diversity it is a good idea to also buy some of them.

A young walnut tree, *Juglans Regia*, costs 30,- kuna (€ 4,05)

## **Propagating berry shrubs and companion plants**

All the plants we want to grow in our nut orchard, we already have. So we're able to sow and propagate a lot, to lower the costs.

## **When & how to sow walnuts**

Sow walnuts after 12-15 weeks in the fridge in moist sand with chalk, and 2-3 days soaking in water, when they have sprouted.

Or: sow in bucket without bottom, and mesh on top (against rodents).

Plant sprouted seeds 3 cm deep in sand + compost (soil molds) in the glasshouse. Keep the pots moist.

## **Planting walnut trees**

The hole should be 45x45cm wide and 60cm deep. Plant the tree (6 inches) when the last frost passed, as deep as it was in the nursery and gently close the planting hole again.

Water

Add well rotted manure as mulch and fertilizer.

If we contour the soil a little bit and make **mulched basins** in which the trees are planted, the "basins"





catch and hold runoff rainwater so it has time to deeply soak into the soil.

We should protect the young trees by putting a pole in front and a pole behind it, and wrap mesh around.

### **When & how to sow hazelnuts**

Sow in autumn after 12-15 weeks in the fridge and soaking in water for 3 days. Sow the hazels 1 inch deep, 1.5 inch apart.

You can try taking cuttings, dipping them in growth hormone powder and plant in sawdust.

### **When & how to (trans)plant hazelnuts**

Hazels like well drained soil that doesn't dry out too much. A wide range of soil pH: 5.5 to 7.5, with an optimum around 6.0.

Plant on 2.5m<sup>2</sup> each at least, better 5-6 meters apart.

Don't fertilize; that will only grow more leaves. Only a bit of nitrogen.

what are good companions/tree guilds

details drawings

### **Red hot chilli peppers as 1<sup>st</sup> year crop: sowing, transplanting and care**

Start hot pepper seed indoors 6 to 8 weeks before the plant date. Peppers can be seeded in the garden or transplanted out 2 to 3 weeks after the last frost in spring, when the soil temperature has risen to at least 18°C. Transplant when the plant is 10-15cm tall. Keep 60cm between the plants.

Hot peppers grow best where the air temperature ranges from 21°C to 35°C.

Hot peppers mature in 60 to 95 days.

Avoid high nitrogen fertilizers which will create large leafy plants with few or no fruits.

# Maintenance

## Water plan

No structures, so no rain water catchment close by  
Yes well water source nearby in the forest edge

## Fertilizer plan

The field we will use, is probably rich in nitrogen because there were acacia's growing.  
For extra nitrogen we can use diluted pee from the nearby compost toilet.  
Hazels don't need fertilizer  
Walnuts like fermented manure as mulch & fertilizer.

## Pests & plagues

**Squirrels** I have never seen on our terrain, but we do have a "puh" family, a Croatian version of a **dormouse**. They are almost as big as a squirrel but grey, with a fluffy straight tail. The orchard will be too far from the house for the cats as dormouse predators, so we might need to set traps if they become a problem.

**Crows** seem to steal nuts and they live in the area, but I have never seen them on our terrain. A solution/fun project: make scarecrows with the kids!

Although I never saw the **hazelnut borer** and the **filbertworm** moth, I did see how it can destroy part of our hazelnut yield. The larvae are protected in the nuts or in the soil, so my plan is to leave no nuts on the ground (rake or let pigs clean them up) and let the chickens scratch the soil under the hazelnuts in fall, when the worm larvae are on/in the ground. If we let the chickens in again in spring, they can catch the adults emerging from the soil.  
Another solution could be to attract bats to the nut orchard. Place 4 meter high poles with a bat box in the top. The bats can catch the moths.



## Animal helpers

Chickens to find and eat the hazelnutborer larvae. Put chickens under the hazelnuts when the nuts fall and again in spring when the moths hatch.

Pigs to clean up the bad nuts

Bats to hunt hazelnutborer moths

Snakes to hunt the dormouse and squirrels. Make wood pile for them.

## Nut tree diseases

The hazelnuts on our terrain seem to be disease free; I saw healthy shrubs over the last few years.

We did have walnut trees die from **honey fungus**. You can detect this fungus by checking for indications on the trees: small yellowish leaves, early leaf drop and shoot dieback.

Another walnut tree disease we might have had, is **leaf blotch**. Another fungus that causes brown blotches on the leaves, early defoliation and blackening of the young green nuts. Spores overwinter on dead leaves on the ground, and can be killed by burning or hot-composting the leaves.

To avoid **walnut blight**, we can ensure the pH of the soil is over 6, not wet the foliage with irrigation, avoid excess nitrogen application



and only light pruning.

## ***Pruning***

### **Walnut trees**

The best time to prune walnuts to avoid sap bleeding is mid-summer to early winter.

In the first few years you prune to have 4-6 main branches and you saw off low branches.

Later pruning (after 5-7 years) is only for allow good aeration of the tree and to bring in light.

### **Hazelnut trees**

Pruning in May to keep a maximum of 5 main trunks and remove suckers and crossing branches.

Vigorous vertical shoots hardly grow nuts; it's the weaker horizontal shoots that carry the crop.

Female flowers are produced from buds of the past season's growth.

## ***Harvesting***

### **Walnuts**

Ripe walnuts will fall in September/October.

As a rule of thumb, a walnut tree will give good yield only during 2 or 3 years per every 5 years period.

And we need patience: walnuts produce at their best after 25-30 years.

### **Hazelnuts**

After 3-4 years the shrubs will produce nuts.

Collect the ripe (fallen) nuts every 1-2 days



## Appendix I: Nutritional value walnuts

Amount Per 100 grams, calories 654, % Daily Value (based on a 2000 calorie diet)

Total Fat	65 g	100%
Saturated fat	6 g	30%
Polyunsaturated fat	47 g	
Monounsaturated fat	9 g	
Cholesterol	0 mg	0%
Sodium	2 mg	0%
Potassium	441 mg	12%
Total Carbohydrate	14 g	4%
Dietary fiber	7 g	28%
Sugar	2,6 g	
Protein	15 g	30%
Vitamin A	0%	
Vitamin B-6	25%	
Vitamin B-12	0%	
Vitamin C	2%	
Vitamin D	0%	
Calcium	9%	
Iron	16%	
Magnesium	39%	

## Appendix II: Nutritional value hazelnuts

Amount Per 100 grams, calories 628,                      % Daily Value (based on a 2000 calorie diet)

Total Fat	61 g	93%
Saturated fat	4,5 g	22%
Polyunsaturated fat	8 g	
Monounsaturated fat	46 g	
Cholesterol	0 mg	0%
Sodium	0 mg	0%
Potassium	680 mg	19%
Total Carbohydrate	17 g	5%
Dietary fiber	10 g	40%
Sugar	4,3 g	
Protein	15 g	30%
Vitamin A	0%	
Vitamin B-6	30%	
Vitamin B-12	0%	
Vitamin C	10%	
Vitamin D	0%	
Calcium	11%	
Iron	26%	
Magnesium	40%	

## Appendix III: Possible products with walnuts and hazelnuts

- organic walnuts in a shell
- peeled nuts
- peeled walnuts in honey
- mix of nuts as a healthy snack
- nut spread for bread (walnut butter, hazelnut/chocolate spread)
- walnut oil for salads
- hazelnut oil for salads, skin products, hair care, massage
- cereal ingredients (grow also grains)
- hard nut shells as mulch or for wood pellets?
- Tap the water/juice from walnut trees that will be pruned out
- walnut wood

### ***Price of a kilo peeled walnuts, august 2018***

€ 13.95	Albert Heijn, The Netherlands
£ 15.60	Tesco, United Kingdom
€ 12.50	Aldi, Germany ("Trader Joe", Californian nuts)

### ***Price of a kilo of peeled hazelnuts, august 2018***

€ 24.50	Albert Heijn, The Netherlands
£ 14.00	Tesco, United Kingdom
€ 11.50	Aldi, Germany ("Trader Joe", Californian nuts)

### ***Price of a liter walnut oil, august 2018***

€ 19,16	Albert Heijn, The Netherlands (La Tourangelle)
£ 07.60	Tesco, United Kingdom
€	Aldi, Germany ("Trader Joe", Californian nuts)

# Appendix III: Calender for the nut orchard

	JAN	FEB	MAR	APR	MAY	JUNE	JUL	AUG	SEP	OCT	NOV	DEC
SOWING	Stored seeds: do the same as hazelnuts seeds without soaking			← or →		Mulberries (as soon as possible after harvest seeds)		Gaulic				
	After 3m in fridge			Walnuts		Clover		Stored seeds need high stratification (as soon as possible after harvest seeds)		Walnuts		
				Lupine				← or →		Walnuts		
PLANTING				Pepper (indoor)						Walnuts		
				Mint						Walnuts (in a place protected from frost because greenness come in winter)		
				Mulberries		Redcurrant				Walnuts (better season)		
(PROPAGATE →)				Mulberries (gettable, readom ONLY if you Water a lot at the first months of your tree)		Redcurrant						
PRUNING	(old wood)			Hazelnuts (young wood)		Gaulic				Walnut → just 1 time in the 3rd year of the tree		
						Walnuts						
				Mint								
						Walnuts						
				Hazelnuts								
						Pepper						

## **Appendix IV: Plan for the first 10 years**

### **Year 1**

#### **August**

Select best hazelnuts and walnuts and put them in the fridge

Mow the field with the IMT (& shred herbs with trimmer?)

Buy lupine, white clover

#### **September**

Make and mark plant holes for walnut trees and hazelnut shrubs

Apply a good layer of compost and add straw mulch on the patches for garlic and pepper.

Sow white clover

#### **October**

Make and mark plant holes for walnut trees and hazelnut shrubs

Transplant horseradish and comfrey

Plant garlic

Sow lupine

#### **November**

Transplant our walnut trees and hazelnut shrubs

Put nuts from fridge in the water for 3 days

Sow the nuts in a nursery after their 3 days soak

#### **January**

Sow red hot chili peppers indoors

#### **February**

Sow red hot chili peppers indoors

#### **March**

Sow red hot chili peppers

Take 30cm cuttings from 1-year old redcurrant wood & put in sand

#### **May**

Sow white clover

Plant pepper plants from half of May (when temp is >18°)

#### **June**

Plant the last pepper plants

### **Year 2**

November: Plant redcurrant shrubs

December: Cut out the badly growing trees and sell as timber



**Year 4**

August: Harvest of the first hazelnuts?

**Year 5**

August: Harvest hazelnuts

September: Harvest of the first walnuts?

**Year 7**

Cut out the bad trees and sell as timber