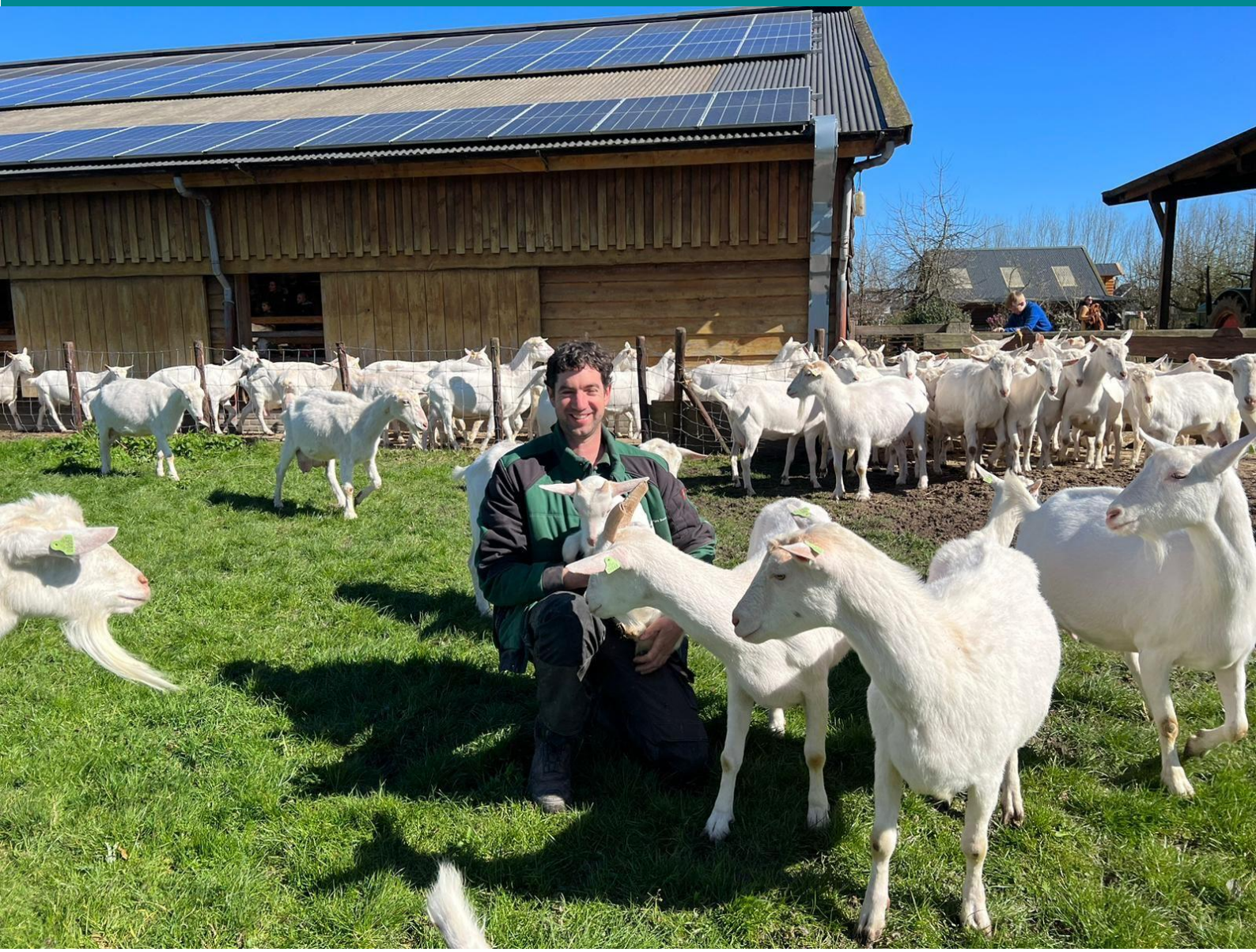

Summary Nuffield Scholarship

Opportunities for farmers and nature

PROVINCIE UTRECHT

NUFFIELD THE NETHERLANDS FARMING SCHOLARS

Summary Nuffield Scholarship

Opportunity's for farmers and nature

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Introduction and research question

Introduction

From a very young age I have been involved in our family business. In 2014, together with my wife and with support of our families we opened a second city farm. Our families have connected city life with country life since 1982. Recently farmers have found themselves in the middle of political debates, and a changing political landscape. To me it feels like society is looking at farmers from a different perspective. The right to exist and the need to produce food in the Netherlands is strongly questioned. The Netherlands is a relatively small country, with high intensity agriculture, serving many different purposes.

We have been farming organically for many years already and several years ago I completed a course in circular agriculture. I strongly feel the need to progress and to take our farm, small scale, organic and entirely focussed on local produce even further. We have the aim to show more farmers, nature organisations and governments the possibilities of combining nature and agriculture, where they complement and strengthen each other and where nature and production go hand in hand. The world demands that we keep challenging ourselves, which is what I have tried to achieve during this Nuffield trip.

My farm and roots

My wife Anne and I have a mixed, recreational, organic agricultural company. We focus on circularity. We have 120 milk goats, plus the young stock. We turn about 80% of our milk into cheese (Gouda and fresh cheese), which is sold in our farm shop and our restaurant. A byproduct of the cheese making process is whey. This is fed to our 40 pigs. Part of the pork is sold in our shop and the restaurant. We also keep 4 pony's, bees, 15 sheep and some chickens. 35 Ha of land are part of the farm, including 9 Ha arable land. Almost 30 Ha is leased from a environmental trust, which brings its own limitations. Most of this land can be cut after 1st of June or 15th of June. Many plots have limits on the use of fertilization, where no fertilization or very little is allowed. The farm is situated in an area of outstanding natural beauty.

In our shop (150 m^2) we strive to offer the customers everything they need to put together a complete meal. For this, we aim at a mix of organic and local products, keeping a close eye on the purchase price. About 20 m^2 of the shop is equipped for the sale of souvenirs and gifts to tourists and holiday-makers.

Our restaurant is open to receive guests during the day. In the evenings it is regularly booked by various groups, e.g. for weddings and other parties. There are separate rooms for groups, which is often booked for celebrations with friends and families. We also organize many children's birthday parties and a range of group activities like clog decoration, polder sports and farm games, cheesemaking workshops and seasonal crafts. These often include a guided tour of the farm.

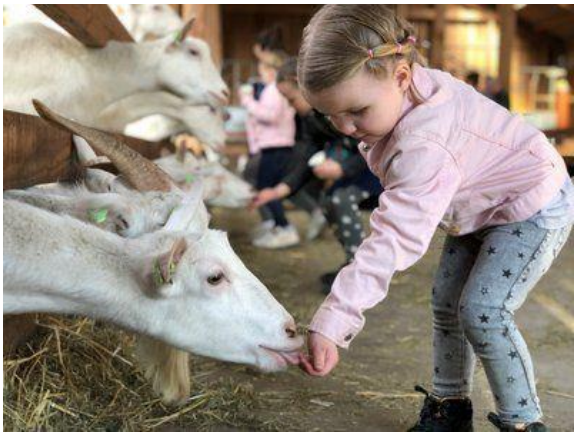
Many schools visit our farm for our educational programs, ranging from kindergartens through primary schools through agricultural students. For example, in the Boerderijschool (farmschool project) the same class of the local primary school comes to the farm every Friday to learn and work 'hands-on'.

*Or **mission** is to bridge the gap between city and countryside.*

*Our **vision** is to improve people's life by giving them a nice time and also to show the public how a farm works, without being too teacherish.*

Our farm is situated at the transition from the city of Utrecht to countryside in the Netherlands. We are a relatively young business. We started 10 years ago. In those years we have grown into a regional attraction with 100.000 visitors a year. These people visit the farm for recreation, to consume in the restaurant and to buy products in the shop.

Luckily, we are now in a position where we can share the work at the farm and all its guests with other people. Our team has grown to 70 employees and 22 FTE.



A lot of Dutch people have little understanding of how their food is produced. The distance between citizens and the agricultural sector is widening and misconceptions are growing.

As farmers, my wife and I see a mission for ourselves here. We want to educate the people about the processes involved in running a farm and producing food. Not by explaining or lecturing, but rather by providing insights in these processes through recreation on our farm. So people can come to our farm to have a fun time and at the same time find out more about modern agriculture. Which in turn will lead them to be more understanding and appreciative of the agricultural sector and the craftmanship involved.

Our farm is located in a buffer zone of the city. About 20 – 30 years ago, the provincial government bought out all the farms in the area and turned the land into 'nature with recreation'. An organization for the conservation of nature, called Natuurmonumenten, now owns and runs the land. Subsequently, from an agricultural point of view, part of this land is can be used only moderately. This is where I see possibilities for us. We want to produce our food in a more natural and sustainable way and to use the land for the production of food, whilst achieving the nature conservation goals of Natuurmonumenten. Our goals are to develop the crop growing branch of our business, to sell the high quality products to the customers in our shop and the restaurant and to feed the cereals and the lower quality products (e.g. dented potatoes) to the goats and/or pigs.

Research question

The threat of the many pests in the nature land makes the cultivation of crops more difficult. I submitted to Nuffield to give myself the opportunity to research this issue and find possible solutions.

My research question is:

How do I guarantee both the health of the livestock and
a good stock yield when producing and selling completely local,
in a way that strengthens the local nature values?

My sponsor is the province Utrecht.

During my Nuffield travels the main focus of my research changed into question of what is a suitable combination of crops for my farm to combine sustainability & yield and how to cultivate these crops profitably.

At the moment my main feed crop consists of grains. However, this is not cost-effective because of the relatively low yield and the small size of the arable plots. These are obvious points were improvement is certainly possible. An extra disadvantage for my farm is its isolated situation. Except for some corn growing, there are no feed crops grown in the area. This means that neighboring farmers and local contractors do not have the experience, the knowledge nor the machinery that is needed for growing livestock feed crops.

The main advantages of my farm are the high numbers of consumers in our immediate vicinity. Our shop is visited by many customers who can buy our produce directly from the farm. There is an available workforce, e.g. trainees and volunteers.

To me the most ideal option would be to grow all the feed for the goats and pigs at our farm, in rotation with crops suitable to sell in the shop. These crops could even be harvested in part by the people who visit our farm. This is what is I was looking for during my research and travels.

Inspiring countries

During the various travels I have been able to visit a number of countries where I have gained experiences not directly related to my research. See the appendix about these travels.

In relation to the research question, I was especially interested in the country of France.

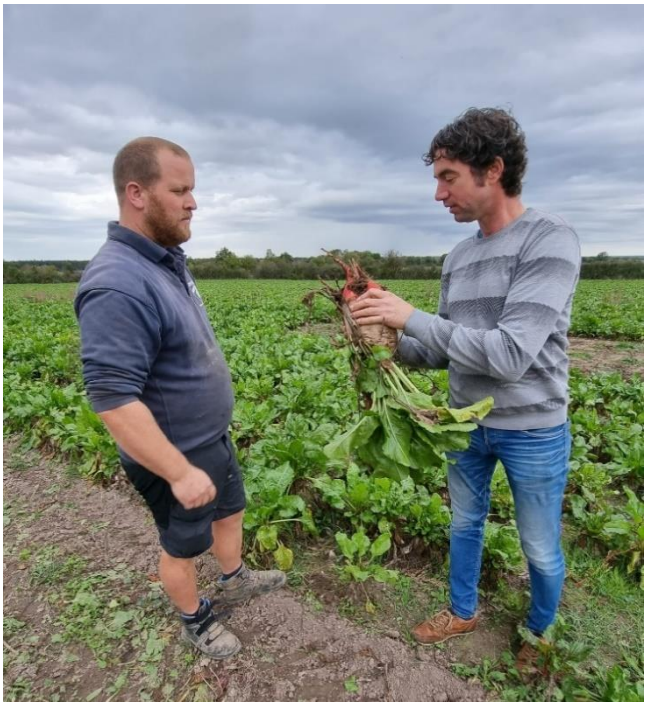
There are many goat farms in France, most of which keep 40 to 200 dairy goats. Many of the farmers grow most of their own concentrate and roughage. They sell their product directly to their customers, either from a farm shop or at local markets. These are all area´s that relate to my farm, so I expected to gain useful insights in my own practice through visiting theirs.

France

I went to France 3 times and amongst other farms and businesses I visited 12 goat farms and one sheep farm. I met a lot of nice and interesting farmers with whom I had good conversations. The differences in French and Dutch farmers are many.
The average Duch dairy goat farmer keeps a 1000 goats with a yearly production of 1199 liters of milk containing 4.1% fat and 3.5% protein in 2021. A Dutch goat farmer rarely has enough land to produce all the crops he needs to feed the livestock. Dutch farmers typically mainly have grass land for the production of roughage in the form of silage grass. Any Dutch goat farmer with lots of land will choose to harvest the grass and feed it to his livestock as fresh grass, in order to save

costs for buying high protein concentrate, rather than growing cereals or other high protein feed crops. Growing arable feed crops is perceived to be ineffective and costly.
The organic Dutch goat farmer produces approximately 60% of the rations. For traditional farmers this is around 15%. In the Netherlands 90% of goat farmers are traditional. This then averages to 20% of what is being produced by Dutch farmers themselves.
The average price for agricultural land in the Netherlands is € 97.400 per hectare early 2023.

On average, a French milk goat produces 700 to 750 liters of milk per year, containing 3.5% fat and 3.1% protein. More than half of the French goat farms (55%) supply milk to dairy companies. On average they keep 180 goats. The remaining farms are artisanal cheese makers which keep 65 goats on average. The amount of grains in the feed is a lot higher than it is in the Netherlands.

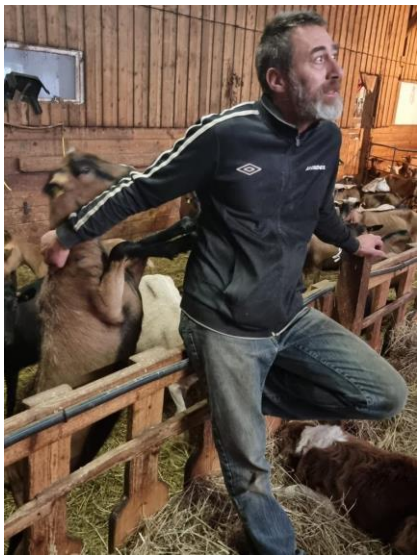


French farmers are very knowledgeable about growing and foddering cereals. Usually, these are crushed and kept in silos. The average price for agricultural land in France is € 6,000 p/ha, with considerate local differences. One of the contributing factors to the low price lies in the strict rules and regulations concerning land sales. Compared to Dutch farmers, the French farmers own considerably more hectares of land and especially the mountain farmers receive more government subsidies.

For exemple, in the French department le Puy—de-Dome, farmers receive a 40% subsidy from the region for the build of a new barn, a 40% subsidy for any renovations and machine purchases and 60% of other purchases such as mobile milk tanks. In addition to this, there is a start up subsidy awarded upon completion of certain studies and there is a young farmers regulation. A sheep farm of 70 ha in Tailhac allowed us an insight in their accounts. They have an annual turnover of € 151.000 of which € 47.000 consists of subsidies. The average Dutch dairy farmer has 64 ha and receives a subsidy of between € 19.000 and € 26.000 on an annual turnover of € 620.000,- In addition to this there is a young farmers regulation and various smaller subsidies focused on durability, however these are nowhere near the French subsidies.

It shows that the building of barns, the purchase of machinery and takeover costs are more heavily subsidized in France.

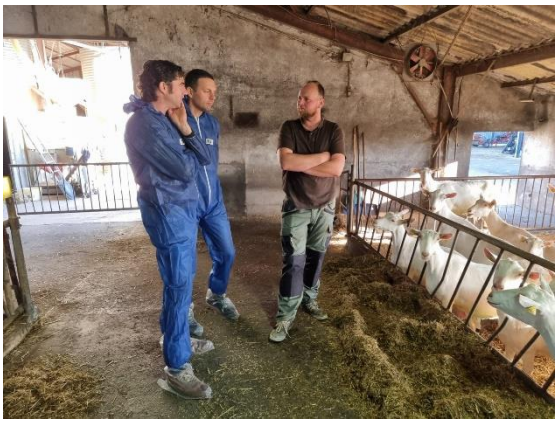
French farmers tend to live with other farmers or citizens on or close by the farm. These are often small communities. The Dutch farmer typically lives on his farm only with his own family (spouse and children).



I particularly noticed that none of the French mountain farmers I spoke had a potential successor for his business. Multiple factors play a role in this. I feel the most important reason is the lack of appeal to start a career in agriculture. Hard work, for a relatively low income and very little time for anything else. There are not many candidates in the flatter areas either.

Many goat farmers sell their farm produced cheese on markets. A farmer can generate a good income from 40 goats. Here I solved a small part of my puzzle: how can I make it profitable? By selling directly to the consumer, it is possible to get a higher price for the product. Another important factor is the lower costs for land in France. The challenge lies in balancing production and sales: how much can I produce and also sell or process in our own farm profitably? When producing on a small scale it is almost impossible to make selling to intermediate traders worthwhile.
The French farmers I have seen show no motivation to work with nature. French mountain farmers receive a generous subsidy per hectare. This way, extensive farming is cost-effective. The revenue from a French hectare of arable land is significantly lower compared to the Dutch yield.

I expected to find that many French farmers are able to grow most or even all of the feed for their livestock on their own farm. This was confirmed. In the higher mountain regions it is of course more difficult to grow cereals. These farmers buy their barley or other cereals from other farmers, still locally, as far as I have seen. It is important to ensure the mineral balance of the animals. I have seen that different farms give their animals different additives to the fodder.



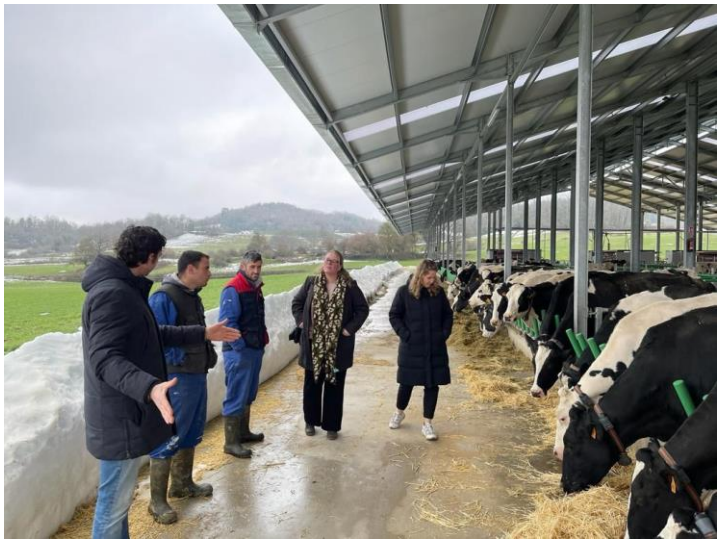
Comparisons

Comparitive features	**The Netherlands**	**France**
Average size goat farm (nr of animals)	1000	180
Average production (l/goat)	1199	725
Fat	4,1%	3,5%
Protein	3,5%	3,1%

% home grown crops for feed	<20%	54%
Price per/ha	€ 97.400	€ 6.000
% farms that make cheese	<15%	45%

Spain

I also visited the region of Mondragon in Basque Country. I was genuinely impressed by the Mondragonmodel. In this business project the employers can become co-owners of the company which is a co-operative corporation. After two years of working for the company one can buy into the company and become a co-owner. From then on you take part in the decision making processes in the company. Everything is transparent for everyone, including the wages of the employees and the directors. On average the employees earn more than they would in other companies, whereas directors earn less. The ratio between the lowest and the highest wages is 6, at the most. Even in the big multinationals. The excess profit is added to your original investment and you receive it back when you retire.



The many co-operatives that make out the corporation are interconnected in various ways.
For example, if one of the cooperative companies is at risk of going bankrupt, it will be supported by the other cooperatives in its division. If there is absolutely no future possible for this cooperative it will be closed down and its employees will be taken on by other cooperatives. A division consists of similar cooperatives, some of them are large companies operating on international markets. The collective, and thus the continuation of the company, is paramount, not the individual owners/shareholders. There is also a cooperative bank. Mondragon Cooperative Corporation (MCC) is the umbrella organization of all the cooperations, of which there are about 100, clustered in 14 divisions. All in all it consists of 250 companies and 70,000 employees.

In my view this is a very good system. To me it feels more fair than the average Dutch company.

- People will feel more of a bond with the company. Company policy choices will be broader supported by workers/owners.
- Everybody is working with and for each other, which leads to more social cohesion and meaningful lives for the involved individuals.
- A higher reward for workers/owners when their company is doing better.

In the Basque Country, in the region of Mondragon, this system is broadly supported. However, I think it will be difficult to introduce this system in the Netherlands, because of the disadvantages that I observe.

- It could be difficult to attract good directors and managers because of the lower wages.
- If the cooperative you work for does well for some years, the umbrella organization could be a hindrance instead of a support, as your company will have to pay fees to it. The call to leave the Mondragon umbrella will be voiced. In practice, this does happen and successful companies do opt out of the cooperative. Weaker companies stay in, which means that the MCC falls back every time a successful company leaves.

Still, I would love to see this model all over the world. It seems to me that the world would be a better place because wages would be more equal, workers would work together more and better and there would be more transparency. My wife and I run a growing company and we have employees who are becoming more important to achieve good business operations. We are on a quest to find ways to reward these people in a fitting way, to bind them to our company and to continue challenging them to keep implementing improvements. Mondragon certainly inspires me here. More information: www.mondragon-corporation.com

Overall Lessons

The thing that stays with me about all the countries that I visited, is the fact that each country has its own strengths and weaknesses. Every country has their very own problems to solve. Some countries have put sustainability high on their national agenda. In other countries a sustainable agenda seems to be very far away. I realize that we, in the Netherlands, are not doing so bad at all. Dutch farmers come across as efficient and production-orientated. The mild climate and the fertile soil ensures much higher revenues per ha, compared to France for instance. Also, sustainability is an issue that is much talked about and invested in. My travelling made me more proud of the Netherlands and the Dutch agricultural sector. I have concerns about how to provide the world with food in the future. In many places there is a decline of agricultural land for various reasons such as droughts, desertification and transforming good quality agricultural land to rewilding areas and many other purposes. With the world population increasing. I wonder whether researchers and politicians have given these factors enough thought.

Conclusions

It is certainly possible to produce and sell completely locally. Though I can see it in all countries, the Netherlands is focused on export so here there is less of it. Also, nature and production can be combined. They can go hand in hand. The intensity of some of the agricultural sector has to yield. On the other hand, nature has to also adapt to the presence of humans and their ways and means to survive.

In my search for possible improvements in combining nature values with high production yields I did not encounter any readymade answers. In farming, one to one copying is not an option. Every region has its own challenges and strengths. Type of soil, local pests and climate are important variables to take into consideration.

My travels did lead me to a series of insights that I took home with me.

1. *Possibilities for mixed cropping*:

This means to cultivate different crops in one field simultaneously, with one crop strengthening the other. On our land intercropping field beans (Vicia faba, also known as broad been for human consumption, but the varieties with smaller, harder seeds grown to feed animals are known as field bean, tic bean, tick bean or horse bean) and a grain would be a good possibility, providing both crops can be harvested together. Summer field beans would combine well with oats (Avena sativa, also known as common oat). The oats will provide quick and early ground covering, thus impeding weed germination. Field beans are a leguminous crop, that fix nitrogen from the air and release it into the soil when dying back at the end of summer. Right in time for the developing oat kernels to profit from the nitrogen.

   Winter field beans combine well with spelt (Triticum spelta, also known as dinkel wheat or hulled wheat), were the spelt will profit from the nitrogen released into the soil by the rhizomes growing on the roots of the winter beans. The harvested crop, when successfully grown, has a protein – energy ratio that is very comparable to the concentrated feed most goat farmers feed their animals and can thus replace the concentrated food directly. Field beans are a sturdy crop that can be cultivated in a 1:4 crop rotation system, or better still 1:6.

   Grass-clover: this is an important crop in the rotation systems of organic farming. It gives the soil opportunity to be restive and restored. A two year period of grass-clover growing is preferable due to costs, yield and soil restoration.

2. *Possibilities to grow protein*
   Protein: at the moment this is the most expensive component of the concentrated feed, which makes it the most profitable candidate to cultivate ourselves. Peas and field beans are good protein containing crops. However, in our area it is impossible to grow peas, due to the pigeons that can eat an entire harvest. The necessity of growing our own protein is evident. During the next years I will try out different crops and methods, for example white lupins.

3. *Operational aspects of growing different crops*
   a. Scale of production: due to the necessary crop rotation and efficiency of field labour, the production of animal feed requires a certain volume. This is dependent on type of soil and on possible and suitable crops, as well as the availability of contractors or neighbors that provide their services. In the case of hardly any to no local cooperation, I estimate that 4 Ha with a crop rotation of 1:4 is the minimum needed for efficiency.
   b. Pests: these have to be taken into the account. A variety of pests limit the number of crops that can be cultivated successfully in the area. Common local

pests are: geese, pigeons, crows, jackdaws, hares, Colorado beetles, as well as a very high level of weed pressure. Due to the abundance of weeds it is very difficult to cultivate open crops like carrots or fodder beets. The numerous hares damage a significant amount of beets. Pigeons make it very difficult to successfully grow peas. The Colorado beetle makes cultivating potatoes a challenge, but not impossible. Damage by other birds can be sufficiently minimized with falcon kites.

c. Manure application: On arable fields in or adjacent to nature areas (the maximum amount of) manure application is regulated. E.g. 6 tons of straw manure per Ha per year. In most cases, one can make agreements with the responsible conservation organization to spread the maximum amounts over various crops in the rotation system, providing the average amount is in line with the given regulations. E.g. a lower amount for the less needy crops and a higher amount in the crops that need more manure, as long as the total amount does not exceed 6 tons per acre per year. This is so important to successful harvests it can almost be considered a necessary condition to achieve good quality yields.

What will I change on my farm?

I plan to start a four year rotation system next year:

- 2 years grass-clover (one manure application 6 tons per Ha);
- 1 year field beans/spelt (no manure)
- 1 year potatoes (18 tons of manure per Ha)

The grass-clover and the spelt would be animal feed, the potatoes would be sold in the shop. Suitable instead of potatoes are pumpkins, sunflowers or cabbages or kale. All of these can be sold in the shop and are also suitable as fodder crop.

In the above crop rotation system applied on 4 hectares of land, this would mean 2 hectares of grass-clover and 1 hectare of field beans/spelt. The average revenue of field beans/spelt is 6 tons per hectare. At this moment the goats and pigs are fed 50 to 60 tons of concentrated fodder a year. This means that with the same business organization I would need 34,6 hectare of good quality arable land. However, the goats and pigs do not produce enough manure for this. An extra year in the protein fodder crop rotation system is needed. Therefore my quest has not come to an end yet.

What are the economics of my plan?

Summary financial plan

Revenue of grains, selling at organic prices	2021	€ 250,- p/ton
Revenue of field beans, selling at organic prices	2021	€ 450,- p ton
Revenue of field beans,	2023	€ 500.- p/ton
Costs concentrated feed goats organic	2022	€ 650,- p/ton
Costs	2023	€ 610,- p/ton

Prices are going down at the moment
Revenue field beans mixed cropping: about 6 ton p/ha

Assuming a real concentrate price of € 550- p/ton, and replacing concentrate 1: 1 with field beans, leads us to a revenue of € 3.300,- p/Ha.

Renting suitable land in the region of Utrecht now costs roughly € 1,500 p/Ha. From early 2023 on, buying suitable land costs € 90.000,- p/Ha. The land prices are going up. This shows that because of low revenues, it is very difficult to grow these crops on the expensive Dutch agricultural land in a cost-effective way.

	Cost per ha
Expenses	
Ploughing	€150,-
Cultivating	€115,-
Sowing	€115,-
Spelt 100kg/Ha	€156,-
Broad bean 175kg/Ha	230,-
Harvesting	€293,-
Rent	€1.500,-
Total Cost	€2.559,-
Revenue	
Broad beans + wheat 6 ton/Ha	€3.300,-
Straw 3 ton/Ha	€300,-
Total Revenue	€3.600,-
Balance	**€1.041**

Growing broad beans combined with other crops do not require artificial fertilisation and in most cases no fertilisation at all. The straw produced will be utilised by our farm and therefor reduces the cost of external purchasing. We find that with these feed prices, growing broad beans on rented land can be extremely lucrative if the crops grow well. If crops are grown on purchased land, based on the current prices we would experience a significant loss.

Land rent compared to purchas €90.000,- 4% €3.600,-

My recommendations

Governments and nature organizations should want to have the production of food for people and animals in and adjacent to natural areas.

For the following reasons,:

- Extensive agriculture and crop growing has a long history in the Netherlands. This has led to the development of a unique local flora and fauna. There is a wide range of plants that specifically grow on extensive arable soils.
- Many people want to keep the characteristic local landscape.
- It contributes to the social cohesion of the region. These types of farms have many important social functions in the local community. They are places where people can experience not only a nice time but also a deep and meaningful connection with their social, natural and cultural environment.
- Local economic activities form a positive contribution to the surrounding region.
- Producing and selling locally is widely considered to be a highly sustainable manner to produce food, adding to the sustainability of the Netherlands as a country.
- There are almost 18 million Dutch people and 450 million Europeans, who all need food. Where every contribution matters.

In my opinion this should be produced organically, as artificial fertilizers and especially pesticides have a detrimental effect on the nature values. How to determine suitable crops and production systems for a specific area? Organic farmers are experienced and knowledgeable concerning these questions so they fit the picture perfectly. As for the amount of farm animals in an area, we shall have turn the question around. The answer is no longer the amount of animals that the farmers want to keep, but rather the amount of animal feed that can be produced in the area.

Producing and selling completely locally on nature land is a difficult path. I would recommend the governmental bodies and nature organizations to stimulate the process by subsidizing the cultivation of the land, supporting the purchase of sustainable machinery (e.g. eco plow) and by demanding a lower price for the land. This would also be in their interest as land designed to be only ´nature' requires investments to maintain, without financial benefits. The land will, next to the biological benefit, also add a financial and nutritional benefit, which in turn could lead to a positive impact on the nitrogen emissions.

For non-organic farms it can also be cost-effective to produce their own feed crop e.g. field beans. Specifically, the year before reseeding the grass land would be cost-effective as it would need far less tillage.

As the interest in growing field beans is rising, I expect higher revenues in the future because of crop breeding. This would make the crop more profitable. Field beans are certainly a crop to look out for.

It has been a special and eventful year for me, our farm and our family. Nuffield certainly contributed to my perspective on the food system of the world. I haven't finished my journey yet, I've only just started out!

We are facing enormous challenges on a global level. A small time agricultural player, or the Nuffield group will never be able to solve these difficulties. However, the awareness has risen that when you, as a small time player and a farmer forsake to take up your responsibilities, it for sure will not get any better.

We are tiny tots in a big fat world.

Appendix

During the various travels I have been able to visit a number of countries where I have gained experiences not directly related to my research. However, I have been inspired and gained an insight. Therefore I would like to mention them, as they may be of interest to others.

Global Focus Program

From May 23rd to June 6th I took part in a GFP, Global Focus Program.

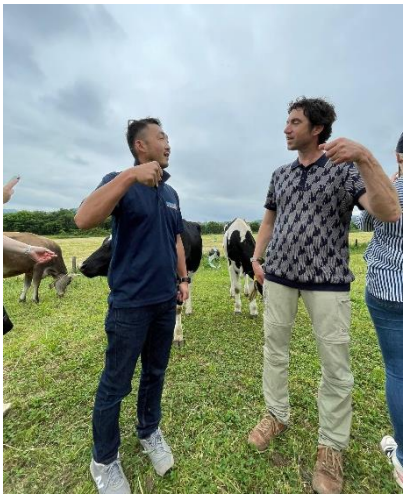
The GFP truly was very interesting. We have been fortunate enough to visit several countries such as Singapore, Japan, Israel, The Netherlands and Washington DC and California in the United States. I will discuss those countries which have been of interest for my research. Of course all countries have been inspiring, these are included in the appendices by way of a brief outline of my experiences.

Singapore

5,7 million people, and a very nice place to be. Rich, organized, hardly any agricultural land. During the last years Singapore expanded 25% by land reclamation. As it is expected that in the future less countries shall be willing to export food because of climate changes, they aim to produce 30% of their food intake in Singapore by 2030. Mainly by having edible gardens on the roofs of buildings. A self-supplying rate of 30% might be too optimistic, but it was 3% and is 8% now. City farmers all over the world are going through difficult times. In the United States, many went bank rupt and two-third of the gardens fail to achieve the stated goals. An important drawback for citygardens lies in the fact that everything has to be uphauled by elevator. This is inefficient. City gardens can be perfect for the production of food for local restaurants, especially the salads, but it seems to me that bulk production would be very difficult.

Japan

Japan grows 67% of their food. Typically, the city and the country side intermingle in Japan. The villages are much more sprawling and many city houses have a rice field in their garden. The average farm counts 0,3 hectare. As almost every family has their own rice field, there are rather a lot of farms. The Japanese population is shrinking and ageing. As a consequence most of the companies we visited are experiencing declining sales. In my opinion, this takes out the dynamics. In spite of Japan's dependency on other countries for raw materials, sustainability is not an issue yet.



Israel

The visit to Israel exceeded my expectations by far. A lot of dynamism, entrepreneurial spirit, good weather, much sustainability. To me it feels that Israel is far ahead where sustainability is concerned. I expect this is a consequence of being situated in an hostile environment and having too few natural resources to support the population. This means that the awareness of being frugal with the sources that are available, is much higher than it is in the Netherlands and France. Israel is well known for its kibbutzim, the communal farms in the desert. Very special places to live in and may volunteers from all over the world are drawn there. The milk production per goat is very high indeed. We also visited a kibbutz where approximately 400 goats where milked. The milk was turned into cheese, processed in its own factory. The milking was not done in a sustainable manner. The livestock fodder was not produced on the farm but bought elsewhere in its entirety, in fact most of the feed comes from abroad. The goats have no function for manure. The manure for the orchards was bought elsewhere, mainly from a big cow farm nearby. However, as one of the initiators explained, the goats not only produce milk for the kibbutz. The most important reason for keeping the goats was to have lots of animals in the kibbutz. The contact that the volunteer workers have with the goats, especially during the lambing season, turns them into different people. I recognize that. The affectionate character of the goat, in combination with its curiosity and its manageable size, makes people and goats go very well together.

The Netherlands

It is a special experience to visit your own country with an international tour group. It does present you with a different view on your own society. I was very aware of the flatness of the land and the straightness of its layout. During our visits we saw a lot of knowledge and craftmanship.

In Dutch politics there is a lot to do about sustainability. The farms reflect this. Every progressive farm is asking itself ´how can I become more sustainable? I can sense this more in the Dutch farms than in any of the other farms I visited, except Israel.

Washington

A beautiful and clean city. Everything is big and done big. America spends an enormous amount of money and energy in the promotion of de American agricultural sector in both the home country and abroad.

California

Central Valley is the wide plain with the huge food production. For instance: 70% of all the pistachio nuts in the world is produced here. All the water is supplied by irrigation systems. Here I clearly saw a considerable gap between city and country land. The city claims a bigger say in the water distribution of the area. This used to be mainly a concern of the farmers. But California and its water management are on the brink of significant changes. The dry summers are increasing. There is a sufficient amount of water. This falls mainly in winter, but cannot be retained. There is a strong lobby against the building of more dams because of their impact on nature. Many Californian farmers are very distrusting towards the government. We visited a huge agricultural company where climate change was completely denied. We met with this more often, climate change was downplayed in several conversations we had. However, plans are made to convert 1,000,000 acres of farmland into natural land, partly because of the water shortage. Many of the farmers here have no affinity with nature, which is seen as a hatchery of vermin and weeds. Future proof farms with good water access are being bought over by the bulk, by investment companies amongst which are Dutch pension funds. These then apply lots of electronics in the orchards and they are able to effectively lobby the local governments, e.g. for water or other things. Farmers can work at the farm in a job with fixed pay. I expect this development to expand, in part because of the high level of investment needed to sustain the orchards and plant new trees. This could become a future thread to the family farm. The vastness and the size of the Californian orchards astounded me.