

Volume 1, issue 1 July 2022

AHEAD OF TIME

Eleven visions on the future of
the Dutch food system

lieudefensie
anders kijken, anders kiezen

Dutch Agriculture
European
and Global Food
System Transitions



WAGeningen
UNIVERSITY & RESEARCH

Toekomstscenario's
Nederlandse land- en
tuinbouw 2030

Toekomstbestendige land-
en tuinbouw in 2030



Growing
a better world
together
Rabobank

in 2050

Op zoek naar brede welvaart
in een circulaire economie

Wetenschappelijk Bureau GroenLinks

Provincie
Noord-Holland

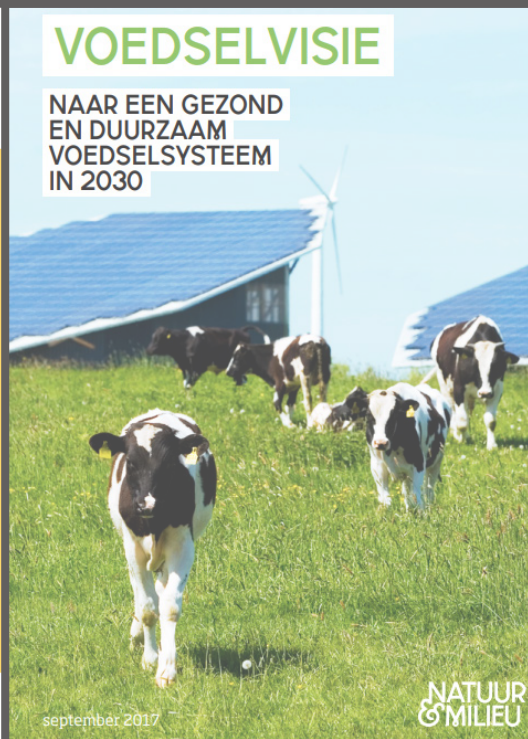
Boer & Business in Balans
'naar een duurzaam voedselsysteem 2020-2030'



VOEDSELVISIE

VOEDSELVISIE

NAAR EEN GEZOND
EN DUURZAAM
VOEDSELSYSTEEM
IN 2030



september 2017

NATUUR
& MILIEU

GEZONDHEID
IN DRIEVOLD

Naar een gezond voedselsysteem
voor planeet, consument en boer



Wetenschappelijke Raad
voor Integrale Duurzame

CONTENTS

Preface

4

Introduction

5

Vision 1

Towards a healthy food system for planet, consumer and farmer

6

Vision 2

Connecting perspectives for a sustainable rural area

8

Vision 3

Dutch Agriculture, European Policies and Global Food System Transitions

10

Vision 4

Panorama Netherlands

12

Vision 5

Towards sustainable future perspectives for agriculture

14

Vision 6

Future scenarios Dutch agriculture and horticulture 2030

16

CONTENTS

Vision 7

Food vision: Towards a healthy and sustainable food system in 2030

18

Vision 8

Scenario study perspective on development directions for Dutch agriculture in 2050

20

Vision 9

Our food vision: healthy and fair agriculture with a future

22

Vision 10

Farmer & Business in Balance: Towards a sustainable food system 2020-2030

24

Vision 11

Circular society in 2050

26

Conclusions

28

Bibliography

29

PREFACE

“If you don’t think about the future, you cannot have one.” This quote by writer John Galsworthy illustrates the importance of envisioning the future. This magazine compiles eleven inspiring visions on the future food system of the Netherlands. These visions are made by businesses, political parties and more.

This magazine was written by three students from the HAS University of Applied Sciences in Den Bosch. We are a multidisciplinary team consisting of students of Food Innovation, Food Technology, and International Food & Agribusiness. For our Professional Assignment we have researched which role visions play in the transition to a sustainable food system. To answer this question, we made an inventory consisting of all visions for the Future Dutch Food System. We have also interviewed experts and students to ask their opinion on visions and whether they think these visions can contribute to transition.

During our research we found that there are a lot of interesting visions that we want to highlight. That is why we have decided to make a magazine to put these visions in the spotlight. The research is commissioned by the HAS for the Professorship Future Food Systems, a professorship dedicated to research on future food systems. The project also contributes to the NWA (Dutch Research Agenda) research project “Transition to a Sustainable Food System.”

This research is powered by Stichting Beheer NIB. Thanks to them we were able to execute this project. We also want to thank Heleen Prins and Frederike Praasterink for their great guidance during this project.

We hope that these visions will inspire you and make you think.

Anne Verhallen, Lois Haaima and Pjotr van Weert
24-06-2022



INTRODUCTION

‘There is more food produced today per person than ever recorded.’ (Gladek, et al., 2017)

Global food and agricultural production have increased significantly since the end of World War II. Next to that, a combination of population and economic growth along with technological and cultural shifts in production practices has had a contribution in this increasing production (Gladek, et al., 2017).

A third of the global Greenhouse Gas Emissions comes from the food system (Crippa, et al., 2021). Next to that, the world loses a third of the food it produces. In this world, where more than 870 million people do not have enough to eat, those numbers are untenable (FAO, 2011). There is also a loss of biodiversity, and the food system also takes up almost 40% of all land on earth and consumes 70% of all irrigation water (Gladek, et al., 2017) (Food and Agriculture Organisation of the United Nations, 2020).

The transition of the food system is one of the greatest challenges of this time. A food system that ensures sufficient, safe, and healthy food for everyone, within the capacity of our earth, and with respect for humans and animals is therefore essential (Batini, Lomax, & Mehra, 2020).

But what role does the Netherlands play in this? The Netherlands is the second biggest exporter of food in the world (De Heus, 2020) and therefore plays an important role in the global food system. The Netherlands has a strong presence in several sectors, such as horticulture, poultry, pork, and dairy (Smits, 2016).

But what is a sustainable food system? It depends on who it is asked. For example, the FAO defines a sustainable food system as a system which is economically, environmentally, and socially sustainable (Nguyen, 2018). What a sustainable food system looks like can be imagined with a vision. However, visions are often overlooked in the transition. Visions are essential to keep people on track towards a collective goal. Visions are also able to mobilize and inspire people (Anderson, 2019). That is why we decided to research visions.

The visions for this magazine were selected using the ten vision criteria of (Wiek & Iwaniec, 2013). The visions in this magazine meet all ten criteria and are therefore used in this magazine.

The aim of this project is to analyse the role of emerging visions and foresight activities in food system transitions. The main research question is:

What is the role of vision(s) in guiding the transition towards a sustainable food system in the Netherlands?

One of the things we did to answer this question was developing an inventory. For a preview of this inventory, see page 32. This inventory is an overview of all the visions on a sustainable food system in the Netherlands. To further analyse the content of the visions, we looked at themes and narratives. The themes were looked at using the framework of (Brouwer, 2020). For the narratives we used the narratives of (Béné, et al., 2018): food security, nutrition & health, social welfare and environmental.

Interviews were conducted with agri-food students, experts and vision creators. We wanted to research how the students view the visions, since agri-food students are likely to work in the agri-food sector and have an impact on the food system. The vision creators were interviewed to find out more about how they viewed this vision. The experts were interviewed about the impact of visions on the food system.

On the following pages we introduce the eleven visions. We also show some reflections by students and the people who created these visions. Finally we give a conclusion with the common themes in these visions.

Health in Triplicate : Towards a healthy food system for the planet, consumer and farmer

W. van der Weijden; E. Van Bueren Lammerts; Jaap C. Seidell; Jan Staman; W. Ferwerda; M.A.S. Huber; A. Datema; T.H. Jetten; H. Kranstauber; L. Lauwers; P. Blom; Johan Garssen; H.H.F. Wijffels (Scientific Council for Integral Sustainable Agriculture and Nutrition ((Wetenschappelijke Raad voor Integrale Duurzame Landbouw en Voeding, 2021)) | Published in September 2021

This vision by the Scientific Council for Integral Sustainable Agriculture and Nutrition envisions the future as a utopia with Health in Triplicate as an inspirational goal. Health in Triplicate means 1) a healthy planet, 2) healthy people and 3) healthy socioeconomic circumstances for farmers and other occupational groups in the food system. In terms of food narratives, this fits three narratives: nutrition & health, environmental and social welfare.

The vision was created in discussions with the council and several external people, such as professors, advisors, and communication specialists. It is notable that there were no farmers involved. The vision was made to inspire policy makers, politicians, NGO's, investors, and other players in the food system. The organisation also hopes that the report inspires more systems thinking and more collaboration between varied parties, especially on a local level.

The Scientific Council for Integral Sustainable Agriculture and Nutrition has a goal to have an integral approach from the perspective of science and society. Their focus is on the Netherlands (Scientific Council for Integral Sustainable Agriculture and Nutrition, n.d.).

Market

The healthy choice will be the easy choice, and this will be encouraged by the government. Notable is that the part about the market is focused on policy. Marketing will only be for healthy and sustainable products. There will be more short chains, which fits with the more regional governance in this vision.

Supermarkets will have a benchmark triple health. This means that products will be scored on their impact on planet, consumer, and farmer. This will encourage supermarkets to offer more sustainable products to avoid red scores. Companies will be required to be transparent about the costs and benefits of food for triple health. This measure is based on full cost accounting principles. Notable about this is that this vision trusts the consumer to make sustainable choices and doesn't restrict that much.



Scan the QR-code for more information on this vision.

Government & European Commission

Since this vision was written for policy makers, a lot of attention is paid to the government. In general, the government must become more local. They have to organize Citizens Consultation on Food and Agriculture. This Citizens Consultation will encourage conversation, and this group will develop a common vision together.

The government will formulate clear goals for climate, environment, biodiversity, and healthy food. They will stimulate a healthy and sustainable lifestyle through rules, fees, and subsidies. The government must also provide spatial planning and regulate the food environment. An example of regulating the food environment is facilitating healthy lunches in schools.

Even though the vision encourages more local governance, there is also a role for the European Commission. They have very similar tasks as the national government, in that they must set clear goals and stimulate a healthy lifestyle. An additional task they have is applying sound market protection, and strengthening the position of the farmer. This will be done by applying the same standards of the EU to imported products. This way the European market is protected from import of food from countries with low standards.

Thinking differently

A system shift must happen to make these changes. There is a focus on a change of mindset in this vision, which isn't very common in visions. One of these shifts will be the shift from silo thinking to integral thinking. This means that there must be more systems thinking.

There will also have to be a shift from thinking about lower prices to valuing health more. This is necessary so that consumers will make healthier choices, which is mentioned earlier. Long term efficiency will have to become more important than short term efficiency. The current worldview is very mechanic and has little regard for coherent biological and social systems. This worldview must switch to a more ecological worldview by incorporating more systems thinking. Eventually this world will have biological, ecological, and social systems which are full of interactions, like synergies and feedbacks.

The regulation of the agroecosystem will also have to change. There will be a shift from a control model to a resilience model. This model is based on a self-regulating system and utilizes functional biodiversity. Biodiversity will become more utilized in this future.



Connecting perspectives for a sustainable area

Edo Gies, Wim Nieuwenhuizen, Michael van Buuren & Marcel Pleijte | Published in 2019

This vision by Wageningen Environmental Research envisions the future in four different scenarios for Overijssel. Wageningen Environmental Research is dedicated to creating “Nature-based solutions for a greener world” (Wageningen Environmental Research, n.d.). The scenarios are in a matrix with two axes with on one axis the type of system (technological or natural) and on the other side who takes initiative (society or government). The goal was to make policy choices, exchange expectations and wishes about the future and reflect on these.

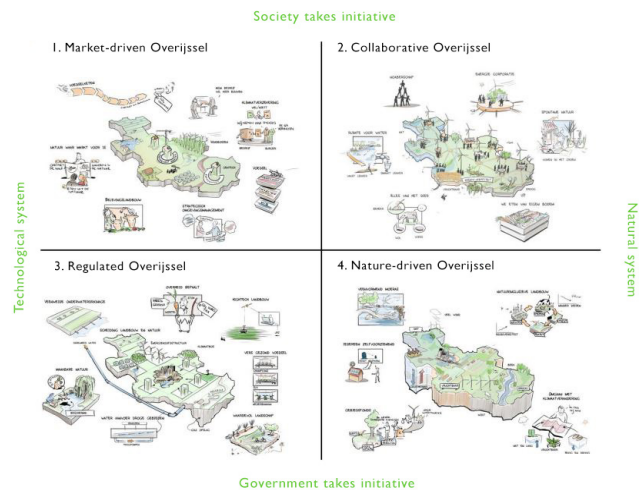
This vision was created in a participatory process. This was a process with 30 people with different backgrounds. In the process these participants looked for solutions for 5 challenges. This led to four different perspectives for policy and cohabitation. With Together works better, policy makers, and experts, they reflected on these scenarios. This vision is more visual than most visions since there was a collaboration with designers in creating this vision.

Scenario 1. Market-driven Overijssel

The power of the market is central. Companies and societal organisations reach sustainability goals themselves. They also take care of public tasks like for example food. Businesses can master natural circumstances themselves. They do this by using new techniques in a way that is cost efficient.

In 2050 the food chain is climate neutral. Products that aren't climate neutral aren't allowed anymore in Overijssel. Reliable and transparent food production is taken care of by blockchain technology. The government and consumers can check if a product is sustainable by themselves. Despite the local focus of this scenario, there is still an open and international market. Multinationals also still have a role in this future, and they want a license to produce in Overijssel.

High tech food products will be made in high volumes. Aside from this, the consumer will also ask for artisan products which contribute to biodiversity among others. Notable is that this scenario combines high-tech and low-tech. The vision isn't extreme, despite the fact it was created using scenarios.



Scenario 2. Collaborative Overijssel

The focus of this scenario is community. People and companies show respect for nature in their actions. The economy is artisan and has sustainable companies. Both this scenario and the first rely on society acting. The main difference between the two is that the first scenario relies on the market, while the second is more about cooperation between people.

The food system in Overijssel is local. The type of farming is determined by the circumstances, which makes food production very diverse. The amount of cattle has decreased in 2050. There are also less areas of grassland. There will be more arable land for cultivating cereals and vegetables.



Scan the QR-code for more information on this vision.

The cycles are closed in Overijssel. All the cattle feed is from Overijssel. Manure is very important for keeping the soil healthy. Animals that serve multiple purposes (such as meat and milk) are popular. Since the groundwater runs its course, the peatland is much wetter. This means the emission of greenhouse gas emissions from peat oxidation have been stopped. The local community grows crops such as bulrush and rice here and there is room for fishing. Forests are planted to make building materials and food. Emissions of greenhouse gases and nitrogen are avoided or compensated for by these activities. This scenario also has a focus on environment, like the last scenario, but the way this plays out is very different. In the second scenario there is more of a focus on landscapes, while the first focuses more on food.

Scenario 3. Regulated Overijssel

The way sustainability issues are handled by citizens and companies is arranged by the government. The government does this by safeguarding goals and taking away worries. Feasibility is the most important principle, and the goals are achieved in a technologically efficient way. Companies and citizens are judged on if they act in ways that fit the goal. If they do, they are rewarded and if they don't, they are fined. This rewards system is something that is also discussed in a few other visions in relation to sustainability goals.

Genetic engineering and high-quality technology are applied to produce in a climate neutral way. Circular food production will take place in big scale food parks. Regular agriculture still exists and supplies these parks. These measures make this scenario the most high-tech out of the scenarios in the vision. Scenario 1 is also a tech-driven scenario, but also mentions that artisan products will still be in demand. This vision however is all about big scale production and doesn't mention nature as much.

The government encourages a sustainable diet and tries to prevent food waste. A new Wheel of Five displays what is healthy and sustainable. Using nudging and rules, consumers are steered in the right direction. Products with high greenhouse gas emissions will be subject to a tax.

Scenario 4. Nature-driven Overijssel

Everyone lives in harmony with the natural system. This means people will use natural resources, but it also means that the natural system will put limits on food production. The government aligns the resilience of the natural system. For each type of area, sustainability tasks are set. The government also sets boundaries for using the natural system. It is interesting that consumers are mentioned the least in this scenario, especially compared to scenario 3, where the government takes the lead as well.

Technology is used to strengthen the resilience of the natural system. An example of this is robots who work the land to prevent soil compaction. Technology which manipulates the natural system is forbidden. An example of this is genetical engineering.

Farmers use a multiple revenue model. This is necessary because the volume of production is lower. This also affects their earning capacity. Farmers offer added value by collaborating with other agrarian companies and selling products. For services such as landscape management the government rewards them. This fact that this vision includes a financial part is notable, since many visions don't include anything about how this will affect the economy.

Dutch Agriculture, European Policies and Global Food System Transitions

Jack van der Vorst, Krijn Poppe | Published in 2020

This vision by Wageningen Economic Research strives for a new green deal between citizens and farmers. The three parts that are needed for this are environmental quota, full transparency, and regional reconstruction processes. The vision is written by agricultural economists and the goal is that the vision will help discuss policy making, innovation priorities and research agendas for Wageningen. Wageningen Economic Research wants to deliver social, economic, leading, and independent applied research. They want to offer insights and advise for policy and decision making (Wageningen Economic Research, n.d.).



Environmental boundaries

The environmental boundaries for the agricultural sector in 2030 and 2050 must be determined while looking at the international treaties and national laws. The boundaries need to be translated to farm level. This will be done in the form of tradable emission rights for nitrogen (N), phosphate, ammonia, and CO₂. With these quotas, farmers have clarity. They can also manage using these objectives while looking at room for innovation. Regions could have different quotas. This instalment of quotas reduces risk for businesses (Poppe and Jongeneel, 2020), and will satisfy non-governmental organisations. Currently quotas aren't always translated to the level of the farm, and this hurts the trust between farmers and the government. Quotas and emissions were pointed out as something positive by the students. One respondent did note she thought the government should stick to their quotas this time, since she often heard from farmers that this didn't happen. One quote from a student about this vision:

“A reasonable vision, not very radical.”

Sjoerd Van Vliet (Student Spatial and Environmental Planning):

“A reasonable vision, not very radical. It is mainly about creating more openness but being clear about the effects of the emissions. And setting quotas with citizens in a positive way. I like that the vision assumes that farmers and citizens will work to make the world a better place. Without legislation, which is often based on distrust.”



Scan the QR-code for more information on this vision.

Transparency

There is an obligation for farmers to report their environmental performance and progress. If food processing companies must provide full environmental information the transparency will improve (corporate social responsibility reporting, Hartmann, 2011). Transparency was something almost all students agreed with and liked about the vision. One student did note that she thought it was a bit hypocritical that farmers had to report this, while huge companies don't.

There was also a paragraph about consumers in this vision. Consumer data is more observable and in the future, the relationship between food and health will become clearer. It would be great to get citizens involved in science to let them manage their own data. The vision doesn't spend that much time on consumers and mainly focuses on policy, which matches with the background of vision creator Krijn Poppe. He is an economist. Students did think the vision was missing the consumer side and was a bit too single-sided. The responsibility should be shared more according to some students.

“I think it's a good vision, but I don't know if it will really solve the problem in the sector.”

Jasmijn Cantrijn (Student International Food and Agribusiness):

“I think it's a good vision, but I don't know if it will really solve the problem in the sector. Because the focus is again on the farms, and that they must change. And that is true, they do have to change. But there is still a whole process around that in terms of the government helping. The farmer must be given good support and fair prices must be paid for their products. Because it's all very well setting up quotas and so on, and that will certainly help. But at the end of the day, the ones who set the price are the farmers and not the consumers. And that's a very big essence of the problem that this vision still doesn't really solve.”

Regional construction processes

Regional reconstruction processes in which the design for the rural area for the next 25 years is made and agreed upon. Because of the transparency policies mentioned earlier, regions could optimize their economic system. Other objectives could be considered as well. Half of the students brought up the reconstruction processes and almost all agreed that these should be agreed upon. One did think this would take too long and that that was too long.

National transition goals such as climate should be reached using regional approach. For example by doing a regional reconstruction or land development programme like in the '50s and '60s. An underpin farm strategy and instalment of 25-year conservation contract (like in the United States) would help. Other measures would be to give budgets to demolish old buildings, devalue land for extensive use and for early retirement. Many farms will close in the coming years.

Economic research is prepared for such as process like in the '50s and '60s. Economic research will work well with farmers, and data since computer capacity is now large and cheap enough to calculate alternative plans. Farmers will be able to get supported with alternative business models. Notable about this vision is that it really works from the past towards the future and often uses examples of what was done in the past to see what should be done in the future. This is because this vision is also a reflection on the food system, which the future is a part of.

Students found this vision quite realistic. Six of the respondents thought the vision was realistic. This vision appealed the least to the students. There were a lot of different reasons for this, such as the formal tone, that it was close-minded and unrealistic. Half of the students (4 out of 8) also didn't find this vision inspiring the act. This was mainly because it didn't directly appeal to them. This was because of the complicated language, as well as the fact that it was mostly focused on policy.

Panorama Netherlands

Floris Alkemade, Berno Strootman, Daan Zandbelt | Published in December 2018

This is created in the name of the Dutch ministry and mentions three values as their key objective: plentiful, inclusive, and clean. A New Deal between farmers and society is needed. This vision was created with a participatory method, with mostly experts. This makes you question to which degree the interests of farmers, consumers and other food system actors were included in the vision.

The exhaustion of the soil will be decreased with this deal. There will be more biodiversity, a better environment and better public health. A way to achieve this is true cost, where hidden social costs of a product are considered of in the product price. This will result in a fair price for farmer for the products they provide, but it will also result in a lower CO2 footprint, a healthy soil, agrobiodiversity, closed cycles, and no epidemics. Fewer animals and strict enforcement of circularity and animal welfare in intensive livestock farming are part of this. Some crops can be intensified in the form of 'footloose' agriculture. This is a form of closed, industrial, high-tech agriculture which is safe and healthy for humans and animals. Good food security, good environment and a better social welfare are the three focus factors that could be reached with the examples within this vision. The following principles are mentioned to achieve a food system that provides enough food for everyone in a sustainable manner:



1. Landscape quality

A high landscape quality is a prerequisite for agriculture. The desired quality of the landscape must be determined. This must be taken as condition for deciding the amount of space for agriculture. The combination of natural properties (such as landscape and soil) determines the best form of land-based agriculture. Land-based agriculture will only be practiced in the rural area. Footloose agriculture (for example intensive livestock farming) must be moved to industrial sites.

2. Make the soil healthy again

Improving the vitality of the soil must be a top priority. The quality of the soil has decreased the past years. For each area, the volume and nature of agricultural production must be determined. To get a healthy soil which captures a lot of CO2s, the organic dust content must be improved. Agrobiodiversity also must be boosted. Soil shouldn't only be seen as a property with value, but also as a public good.



Scan the QR-code for more information on this vision.

3. Offer perspective for peat

Dutch peatlands have a very high value internationally. This is because of their value for meadow birds and their medieval parcels. Peatland emits large quantities of CO₂, nitrous oxide and methane and the ground is also falling. This is due to the oxidation of the peat and denitrification processes. To solve this, design research into sustainable solutions has to be carried out. It must be explored which business styles fit in each peatland. Several pilot projects must be done so participating farmers can explore how to sustainably farm on their polder.

4. Take care of our open space

Urbanisation is a big problem in the Netherlands with an average of eight hectares a day being taken from the countryside. Landscape isn't endlessly available in the Netherlands. By building new companies and businesses in urban areas our landscape can be saved. The pressure on agriculture needs to be limited, since they need all the space they can get to make farming more sustainable.

Aside from the urban area, the rural area is also needed for energy transition. It's still important to first find solutions in urban areas. It is best to try to avoid building solar power plants on agricultural land and nature reserves. Use all roofs and farrow lands to make the most of offshore wind.

Make sure solar power plants are temporary if they are necessary. Make sure they are multifunctional and keep the financial proceeds in the region. That way they can be used for the transition to sustainable circular farming.

If a hectare is taken out of the countryside, this must be compensated by paying a substantial part of the price for the land to a landscape fund. This fund will be used to invest landscape quality and recreation.

It is also necessary that a landscape monitoring system is set up for the long term.

5. Take industrial agriculture out of rural areas

Footloose agriculture is a production form that will be linked to the main infrastructure. Intensive livestock farming is moved to industrial areas. This way the rural area is free for land-based farming. Intensive livestock farming doesn't take a toll on the climate and takes animal welfare into account. Some cultivations will become even more intensive than they already are.

6. The active role of the government

The government should take an active role in transforming to a sustainable and circular agriculture. There are several measures that should be taken for this. The government should organize a transitional fund. This will help farmers who want to farm more sustainably. It makes sense that the role of the government is discussed, since this vision was commissioned by the government. The LNV vision on circular agriculture should be developed into precise actions and incentive programmes. The parts on landscape must be more explicit.

The government should implement policy on solving locked ins among farmers, for example for farmers which are stuck because of debts on land and property. Think in terms of vital soil (land) as a public good and help social parties to participate in the ownership of land (like for example Herenboeren).

Towards sustainable future perspectives for agriculture

Social and Economic Council (Sociaal-Economische Raad (SER)) | Published in May 2021

This vision by the Social and Economic Council envisions the future as economically, ecologically, and socially sustainable by 2050. The goal of this vision was to advise the government and reach an agreement according to policy officer Sarah van Hugte. The Social and Economic Council in general advises the government about their socioeconomic policy. In the council entrepreneurs, employees and independent experts collaborate (Social and Economic Council, n.d.).

This vision was part of an exploration done by two members of the SER. They talked to many different parties, such as supermarkets and the Council for the Living Environment (Raad van de Leefomgeving). The target group was the government, but according to van Hugte, the SER tries to make their reports easy to understand for everyone. The vision was quite well received by the students who thought it was very optimistic and clear. One thing that was missing a bit according three students was the consumer side.

Good food and public services

Farmers will ensure a wide variety of good and affordable food. Farmers also offer other products, such as flowers and plants. Farmers have enough resources and confidence in the future to keep investing in innovation. Agriculture will also deliver public services. Agriculture will be combined with “green services” or “blue services”. Green services include care for nature and cultural-historical qualities of landscapes. Blue services are offering possibilities for water storage. There are multiple visions which suggest that agriculture should also start delivering other services. One student said that this would be divisive among farmers. Some would embrace it, while others would dislike it.

Limits of the food system

There is a lot of pressure on farmers, because of the emphasis on lowering costs and heightening products. Aside from this, farmers also have small margins and aren’t rewarded properly for their services. Farmers urgently need a sustainable perspective for the future. This also includes an economic model and giving rewards for sustainable actions. The fair income was something that students responded to very positively.

“The vision sounds very nice. I think this is quite a long term vision, this is 2050, so that will take some time.”

Angelique De Vor (Student Animal Husbandry):

“The vision sounds very nice. I think this is quite a long term, this is 2050, so that will take some time. From an economic, ecological, and social point of view, it will be a sustainable livestock industry, if I understood it correctly. A fair income always sounds good. And the fact that you also contribute to nature and the environment is good.”

There will be opportunities to adapt to these new challenges, like for example with new technologies. Farmers will also have enough resources to keep innovating. Thanks to an attractive landscape and a healthy living environment, farmers get a new social appreciation. This social appreciation was also something that was mentioned in the interviews as something important.



**Scan the QR-code for more
information on this vision.**

Sustainability

Animal husbandry will have to become more sustainable. The government and businesses must take responsibility together. The Social and Economic Council has given recommendations for this. Sustainable farmers will have to be supported and strengthened. It shouldn't be a one size fits all, the work in the sector must be custom. Not only livestock farmers have to participate, but the entire chain. The livestock farmer also must be put central again. The government has to encourage farmers and make sure that becoming sustainable can be subsidized. This part about rewards was really appreciated by students:

Florian Lampe (Student Horticulture and Business Management):

"This is going towards a spot that you're not just having someone tell you what's forbidden, but the farmers working together with the government to create this better future for the soil, water, animals, and diversity. And in the next part, which I really like and I agree on. That is the system of rewards with better results. For farmers, I heard that you are subsidized as a farmer simply to the amount of land that you have. Not for the efficiency or the protective behaviour of nature. You're not subsidized on that level. If you have a system that rewards better or healthier results, I think that's a great way to encourage farmers to work more sustainable."

Most (6 out of 8) students considered this vision at least somewhat realistic. This vision was found a lot more inspiring than the first vision that was shown (vision 3). Four of the students thought it was inspiring. Reasons for this were the stimulation aspect and the clear overview.

Transition paths

Various (transition) paths towards sustainable agriculture are possible for farmers. Notable is that most of the transition paths focus on becoming more sustainable as a farmer. Most of the transition paths are also based on current sustainable practices, while adapting to new developments in technology. There are seven transition paths:

1. High tech closed systems:

In a high-tech environment emission will be monitored and minimalized. Residue streams will be reused and there will be a high level of animal welfare and animal health. High tech closed systems cost a lot, but they will deliver high revenue of high quality. This transition path will require a lot of knowledge.

2. High tech open systems:

High tech open systems focus on producing high quality products with healthy soil and as little emissions as possible. These systems make use of the latest technology in for example robotics. The focus is on strengthening biodiversity, storing CO₂ and water retention.

3. As sustainable as possible:

As sustainable as possible agriculture consists of businesses for food production which use the most sustainable techniques.

4. Biological plus:

Biological plus agriculture applies and further develops current principles of ecological agriculture. They will have to adjust to modern technologies, for example in allowing genetical engineering. Biological agriculture can have an important social function.

5. Social enterprises:

Social enterprises offer food and other services, such as education and care. Social enterprises offer opportunities to people with a distance to the labour market. There are a lot of opportunities for social enterprises in cities.

6. Nature and landscape management:

Some farmers will offer services for nature and landscape management. These farmers often have regional collectives. There are mainly opportunities for farmers near nature reserves.

7. Quitting:

This transition path can be executed in a way that it comes with a reasonable fee for the farmer as well as realizing societal values.

Food vision: Towards a healthy and sustainable food system

Nature and Environment (Natuur en Milieu) | Published in September 2017

This vision by Nature and Environment aims for an approach which tackles the problems of the food system. In their eyes the increasing production (which is done efficient) in the agricultural sector leads to problems in the field of climate, environment, nature, animal welfare and economy. Their goal is to have a circular food system in the future with looking at the principles of the menu of tomorrow and the climate change agreement of Paris.

They have created this vision by starting conversation with stakeholders who are part of the food chain. This was also something that was noticed by students, who said that a strong suit of the vision is how broad it is. This vision is also the most complete, since most students couldn't think of anything that was missing. The students were asked if they thought a vision was realistic and inspiring. The vision was considered the most realistic and the most inspiring. All people thought the vision was at least somewhat realistic. The vision appealed the most to seven of the respondents. Broadness and concreteness are mentioned multiple times as reasons why they liked this the most. One example of a quote by a student:

“I think this one is the best because it explains ‘what’s in it for me’”

Cindy De Renet (Student Food Innovation):

“I think this one is the best because it explains ‘what’s in it for me’. They explain what you are going to eat and what not, so what it entails. So, I think that’s good. What it says above about cultivation is something they are already doing with nature inclusive agriculture and with using natural enemies with cultivation and so on. They are already doing that, so that should work.”

Circular

The food system is as circular as possible. Manure will have value again since it can all be used on Dutch soil. Cattle feed is produced as close as possible to the livestock farm. Animals use residue streams that aren't useful to humans.

Quality and added value

Instead of the current efficient production with low margins, the focus is on quality and added value. When a farmer takes measures which are positive for biodiversity, nature and/or climate, they are rewarded. This makes the farmer more likely to pay attention to this and it also gives farmers a fair price. This also makes it possible to reduce the number of animals, while the farmer keeps a fair income. There are more and more farm shops and farmers with additional jobs. The government and the banks support this.

The three students who mentioned this were sceptical or disagreed with this part. One respondent mentioned that she thinks the strength of Dutch agriculture lies in its efficiency and that it is a shame not to use this, since there are many mouths to feed. Another student remarked this:



Scan the QR-code for more information on this vision.

Kiki Timmerman (Student Applied Biology):

“This quality to added value is also part of consumer behaviour. Because you want to promote the best meat with the highest animal welfare and quality, but you still must deal with the consumer who stands in the shop and compares an expensive piece of meat with a cheap piece of meat. So, you have to take that into account.”

New cultivation

New cultivation will be an important method to reduce climate impact. There will be more and better new cultivations. Mixed farming methods, such as combining arable farming and livestock farming, are being used again. The three students who mentioned new cultivations all viewed this part positively. One even noted that they are already working on this, and that therefore it was realistic.

Fewer pesticides

Integrated crop protection is a method which focuses on preventing diseases to maintain a healthy soil with more organic matter. This method is used in vegetable cultivation and uses natural or mechanical pest control. The use of chemical pesticides is decreasing, and it is a last resort. Two students mentioned integrated pest management. The students had different opinions on this, but they both agreed that this should be done. One of them did question to which degree they could keep doing this.

Soil and biodiversity

The soil is healthy and CO₂ absorption is high due to addition of organic matter to the land. Biodiversity is on the rise in the Netherlands and everywhere else. This is because of nature-inclusive farming systems and an increase of herb-rich grassland. Students thought that it was a good idea to take care of biodiversity and soil.

Export of knowledge

The Netherlands exports their knowledge abroad, since the Netherlands is a country where food production is efficient and made with good craftsmanship in a healthy way. That way other countries can learn from our production techniques. Students also agreed with this, especially because this is an aspect in which the Netherlands already stands out.

Food consumption

Food consumption in 2030 is sustainable. More sustainable products will be offered and promoted in the supermarkets. Regional food and food from short chains will become a larger part of the assortment. There is high consumer awareness about the impact of food. Consumers also increasingly make sustainable choices. Residual flows from the food sector and from consumers are used as animal feed for circular agriculture. Blonk Consultants, Natuur & Milieu (Nature and Environment) and the Voedingscentrum (Food Centre) have made a menu for 2030. The preconditions for this menu are:

- The earth's temperature will not rise by more than 2 degrees.
- There is enough healthy food for 9 billion people.
- Food consumption remains within the environmental space.
- Food production uses no new land.
- There is a higher level of animal welfare.

There are several product groups consumers will eat more in the Menu of Tomorrow. These are: vegetables, pulses, bread, nuts and seeds, fish, soya products and vegetarian products. The increase in fish is only for sustainably caught fish. The following food groups will be eaten less: meat, cheese, soft drinks, potatoes, pasta, and milk products.

The students were divided about food consumption, which was mentioned by most of the students. The students were generally positive towards the Menu of Tomorrow. They thought it was a good approach to also look at the consumer side. Two respondents were a bit sceptical towards eating no meat and if this was a good development.

Future scenarios Dutch agriculture and horticulture 2030

Rabobank | Published in September 2020

This vision is created by Rabobank in a participatory way since it is in cooperation with many other people like Wiebe Draijer (Chairman Rabobank) (Rabobank, n.d. - a), Dirk Duijzer (Groenpact (sustainability company)) (Groenpact, n.d. - a) (Groenpact, n.d. - b), Carin van Huët (Director Food & Agri Rabobank) (Rabobank, n.d. - b), Bas Rüter (Director Sustainability Rabobank) (Change.inc, n.d. - a), Gilles Boumeester (Global Lead Food & Agri research Rabobank) (Boumeester, n.d.), Alain Cracau (Head Sustainable Business Rabobank) (Change.inc, n.d. - b), Bart IJntema (Senior VP Global Rural Banking development) (IJntema, n.d.), Imke de Boer (Professor Animals and Sustainable Food Systems Wageningen University) (Wageningen University & Research, n.d. - a), Jack van der Vorst (General Director Social Sciences Group Wageningen University & Research) (Wageningen University & Research, n.d. - b), Arne Bac (Sector Manager Food & Agri) (Rabobank, n.d. - c) and Harry Smit (Senior Analyst Farm Inputs and Farming Rabobank) (Smit, n.d.). A lot of colleagues delivered input for creating this vision and multiple sessions are organised to have feedback sessions and this resulted into this vision.

In this vision the Rabobank is making an exploration up to 2030 to get a picture of the adjustments and innovations that are needed for the agricultural and horticultural sector to be future proof in the next decade. With this vision they are trying to facilitate the dialogue between agriculture and horticulture and the rest of society, so that the agricultural sector is in control of its own future. The agricultural sector also gets the appreciation and respect that it deserves.

Traditionally, the Dutch government has pursued a policy of a strong agricultural sector that is competitive in Europe and the world. Examples are export promotion, support of innovation through research and education, stimulating structural development through reallocation and subsidies, and tax incentives to encourage investment. Over the years, the emphasis has been shifted from stimulating growth to making the sector more sustainable. The last decade there has been a stronger call in the political debate to subordinate the agricultural sector to other goals. Politicians increasingly call for things like abolition of factory farming or halving of intensive livestock farming. This raises the question of what the approach of the government will be regarding its policy for the agricultural sector. This vision is very focused on

policy and which specific measures should be taken by the government as well as on the farmers. This makes sense since the vision is about the future of agriculture and horticulture. The vision is very concrete in terms of measures and is one of the three visions which is more focused on these concrete measures.

Wageningen University and Research has developed scenarios. There are two axes. One axis shows whether the government will put production or the environment first. When the focus is on production, the precondition is that the environment and ecology are preserved. When the focus is on the environment, the production function will be less important, and production can be reduced. In this vision they don't pronounce a preference for one or the other.

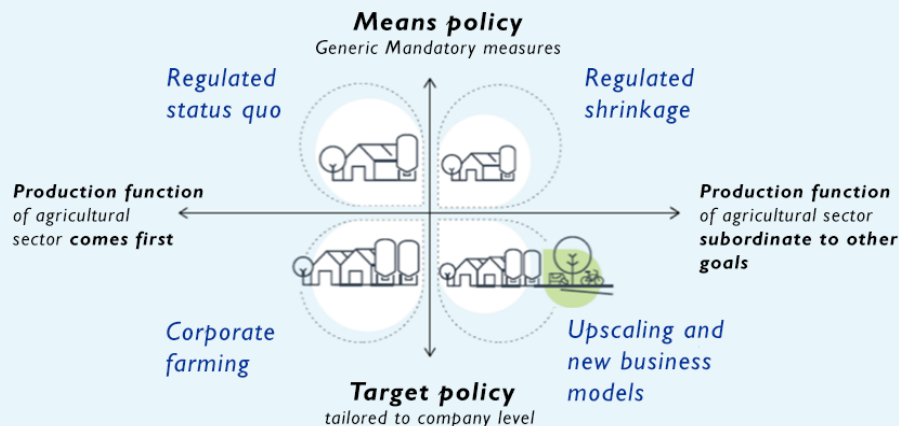


Scan the QR-code for more information on this vision.

The other axis shows whether there is a means policy or a targets policy. Currently there is a means policy. The vision believes that the generic means that were used until now aren't enough. Goals that are tailored to the entrepreneur are necessary and a target policy is needed.

There are two assumptions that the WUR kept in mind while developing these scenarios:

- Environmental targets will remain unchanged or be further tightened until 2050
- Agriculture continues to optimize or is on the path to nature-inclusive production systems.



Scenario 1: regulated status quo

The sector continues like it is now. The production function of the agricultural sectors comes first. The government has the same role and handles issues in the same way. They focus on generic mandatory means regulations. This scenario contains the least number of changes.

Scenario 2: regulated shrinkage

Environmental goals will become more important to the government. The government will focus on generic mandatory means regulations. This will shrink the size of the agricultural sector and the economic contribution the sector has. The production function of the agricultural sector is subordinate to other goals. Because companies are more regulated on a lower level, there will be less competitiveness and less exportation.

Scenario 3: corporate farming

The scale-up will accelerate. The average company will triple in size. The production function of agricultural sectors comes first in this scenario. The government focuses on customization at company level and their facilitating role is a driver behind the scale-up. Another driver is economic efficiency. Thanks to these drivers there will be innovation and new business models which are reliant on scale, knowledge, technology, and management skills.

Scenario 4: upscaling and new business models

There will be a divide in company types. There will be big companies and companies with new revenue models. The new business models make use of frameworks which are created by the government. These frameworks make sure farmers make earnings from contributions to the climate for example. The government focuses on customization at company level. The production function of the agricultural sector is subordinate to other goals.

Scenario study perspective for development directions Dutch agriculture in 2050

Jan Peter Lesschen; Joan Reijs; Theun Vellinga; Jan Verhagen; Hans Kros; Marion de Vries; Roel Jongeneel; Thalisa Slier; Ana Gonzalez Martinez; Izak Vermeij; Co Daatselaar | Published in February 2020

This study is conducted by Wageningen Research and is commissioned by the Climate Table for Agriculture and Land Use and is financed by the ministry of Agriculture, Nature, and Food Quality. The research was commissioned as policy-supporting research. This research is done to gain more insight into the consequences of possible future developments of Dutch agriculture by 2050 under future climate and environmental targets.

This study developed four different scenarios for agriculture and land use by 2050. These are hypothetical scenarios in which it is assumed that all farmers in the Netherlands will follow the chosen development direction and apply all associated measures. The scenarios aim to provide starting points for a well-founded discussion about the future of Dutch agriculture.

The expected environmental and economic effects of the scenarios are determined as concretely as possible using models and expert knowledge. That makes this vision one that is more evidence based than most visions. There are two axes. On the horizontal axis are the environmental boundaries. This is whether the goals will be as intended or if they will be stricter. On the vertical axis is the development direction of agriculture. This is whether the management is productivity-driven or nature inclusive. At the national level, the environmental boundaries determine the emission space for greenhouse gases, ammonia, and nitrogen (N) and phosphorus (P) for the agricultural sector by 2050. For each scenario, a package of (technical) measures has been defined, appropriate to the relevant development direction of agriculture and the environmental boundaries. If these measures are insufficient to achieve the environmental targets, land use change (increasing the area of forest, and peatland out of production) and reducing livestock numbers have been included as options for achieving the environmental targets. This is one out of three visions which focuses more on quotas and concrete goals. This is an uncommon focus for visions, since most are more meant for inspiration and tends to be a little less concrete in terms of measures.



Scan the QR-code for more information on this vision.

Most important insights

1. Both livestock and arable farming have the potential to contribute significantly to the climate targets, even if the current size of agricultural sectors is maintained. The extent to which a decrease in livestock production is required depends on the policy objectives used, the direction of agricultural development, and the increase in acres of forest needed to compensate for agricultural emissions. The most restrictive goal is that of greenhouse gases. Targets for ammonia emissions and N and P runoff and leaching, as defined in the assumptions for the scenarios, will be met in 2050. All scenarios also lead to a more balanced nutrient balance for Dutch agriculture. However, the assumption is that measures will be applied to all farms and will deliver the expected effect.

2. If GHG reduction targets for agriculture by 2050 are differentiated among EU member states, only a limited reduction in livestock numbers in the Netherlands will be required. Under the stricter policy goals with climate neutrality in the Netherlands (the emission allowance for greenhouse gases from agriculture may not exceed the sequestration of CO₂ in land use), the Productivity stricter scenario requires a 20% reduction in livestock numbers, and the Nature-inclusive stricter scenario requires a reduction of more than 40%. In addition, these two scenarios require a strong increase in acres of forest to compensate for agricultural GHG emissions. Part of the peat meadow area will also have to be taken out of agricultural production.

3. In all scenarios, the area of available land decreases compared to the current situation. This is both due to land-related dairy farming and the need to increase the area of forest in the scenarios with stricter policy objectives. Without a decrease in arable land, it is not possible to meet the climate target of net-zero emissions. If measures

(in livestock farming) prove to be less effective, the necessary reduction in livestock numbers will be higher and more land will, therefore, go to arable farming. If the area available for new forest will be restricted, a further reduction in livestock farming will be required resulting in an increase in arable farming.

4. The scenarios have strong effects on net trade and self-sufficiency rate of different agricultural products. Generally speaking, the Netherlands will export less. These trade effects are expected to be absorbed to a substantial extent by other EU member states, but EU trade with the rest of the world will also be affected by the changes in the Netherlands. The expected impact of the scenarios on the human consumption of plant and animal products in the Netherlands is limited.

5. The impact of the scenarios on the economic contribution of agriculture will depend to a large extent on how measures are stimulated and rewarded by public authorities, industries, and consumers. The indicative calculations in this study show that the value added by agriculture will be reduced by a maximum of 35%, particularly in the situation of stricter policy objectives. Of course, this reduction in the value added will also have a significant impact on the size and employment of upstream and downstream industries. The calculated decrease of added value is probably an underestimate because the additional costs of emission-reducing measures have not been considered. Experts expect the scenarios will result in an increase in costs, particularly for the nature-inclusive scenarios (lower production per animal and per hectare costs for free ranging intensive livestock farming) and the Productivity stricter scenarios (high technology, high costs for external inputs and buildings). In the nature-inclusive scenarios, however, more opportunities are seen to realize additional returns, either through the market or through the provision of other services. However, at present the mechanisms for achieving these kinds of added value are still limited for the Dutch agriculture.

Scenario study perspective for development directions Dutch agriculture in 2050

Jacomijn Pluimers, Hugo Hooijer en Jeroen Walstra | Published in 2021

This vision by Friends of the Earth (Milieudefensie) pleads for a healthy earth with healthy food for everyone. They want to create a system that does justice to people and animals; regional, fair, and healthy. They have created these visions to share their story and to encourage people to join their mission. This vision is very activist.

Together with farmers and companies, Friends of the Earth wants to contribute to a future-oriented food supply. The Netherlands has a lot of diversity in crops and the produces are season-bound. In the meadows there are a lot of different animals, such as cows, pigs, chickens, and sheep. They eat grass and the rest of their food comes from nearby fields. Farmers use the manure from the animals to make the fields fertile. The race of scaling up is over and mega stables are not necessary anymore. The amount of land determines the number of animals, which makes manure surplus a thing of the past. Farmers also do not use fertilizer anymore. Consumers will eat more plant-based and less meat and dairy. The climate impact of the Netherlands is lowered with these measures.

Farmers receive a fair price for their products. Due to diversity in their crops, they are not at risk anymore. They deliver quality products and have more contact with the consumer. Throughout the Netherlands nature is revived because pollution from excessive emissions of ammonia and nitrogen have disappeared and agricultural poison is no longer sprayed.

A local system

Local nature and environment are the starting point of their vision. They think agroecology could be done on a small as well as a large scale. For example, crops can be protected from diseases by planting trees or plants. This way Friends of the Earth wants to create a fair and healthy agriculture which can last for centuries without harming the earth.

This is achieved by focusing on several things. The food supply will have a regional focus. This fits with their idea that the ideal system starts with a local system. They also want to improve the resilience of the system. This is done through diversity in crops. Social welfare is also important in their vision and food should be produced fairly. This means with respect to people and animals. The animals must be given space to show natural behaviour. They especially point out that animals in mega stables don't have enough room. Mega stables are something that Friends of the Earth heavily criticizes in the report. Friends of the Earth thinks it's important that everyone must have healthy food. Food needs to be healthy, which they believe leads to a healthy living environment. Agricultural land should be primarily used for food production.



Scan the QR-code for more information on this vision.



About Friends of the Earth

This vision also pays attention to their own organisation, campaigns, and goals. This is because the vision is intended for people who are interested in the organisation. Friends of the Earth is based on the power and desire of the people. Friends of the Earth's Sustainable Food Team conducts campaigns that put problems on the agenda and propose alternatives. They also want to connect to stakeholders such as farmers, citizens, and government, so that solutions are within reach. Friends of the Earth focuses on a system change with its campaigns. This is also very noticeable in the vision itself. For these culture changes to happen, people need to speak up about their problems with the current system.

Collaboration

This vision says there needs to be a system change and acknowledges that this is complex. This change is brought by an interaction between the structure (of a system), culture (values and norms) and the initiatives. Cultural changes influence the structure of the food system and stimulate new initiatives. If the change in culture is strong enough, the current system can be changed to a new system.



Circular society 2050, In search of prosperity in a circular economy.

Scientific office, Groenlinks.

Stephan Slingerland and Richard Wouters, Groenlinks| Published in 2016

This vision is created by the scientific office of Groenlinks. This organisation is driven by research and uses their insights for promotions of Groenlinks. Groenlinks is a progressive left-wing party which values sustainability (Parlement.com, n.d.). In the name of a greener and more social society this organisation developed a vision for a sustainable future food system.

The vision was created by using scientific research papers, but another big part of the creation process is the use of scenario building. As the title in of this report hints, the key element of this vision is circularity, with this vision the organisation wishes to offer prosperity, health, and happiness for everyone. These words indicate that the vision promotes nutrition & health, social welfare but also a healthy environment. But how exactly is this going to be achieved? Well, according to this vision it starts with a circular society. An important part of this vision is the R-ladder theory. In this theory, damaging products will be refused, and products will be shared or used in a different way (rethought) when possible. All these strategies aim for social innovations and are therefore related to the pursuit of a broad prosperity. Reducing, reusing, repairing, and recycling the flow of materials will then automatically follow.

The circular agriculture should change, and notable similarities between this vision and the other visions of the future food system of the Netherlands is the topic of protein transition. In this vision the protein transition is completed when the average consumer eats only 10 grams of animal-based protein per day. This quota is inspired by research of de WUR and is seen as a research-based idea that is set to improve the health of people and planet. Economic possibilities and the new processes could also contribute. The production of seaweed and algae, insects and microbes will be very beneficial for the protein transition. The protein transition is often mentioned, but examples like this create a concrete set of goals. This could inspire young professionals in picking a new career, or a farmer who is searching for a new business. Concrete quotas and plans contribute to the agency of a transition, the provision of targets, thresholds, and reference points inspire people but also give them set goals to work towards.

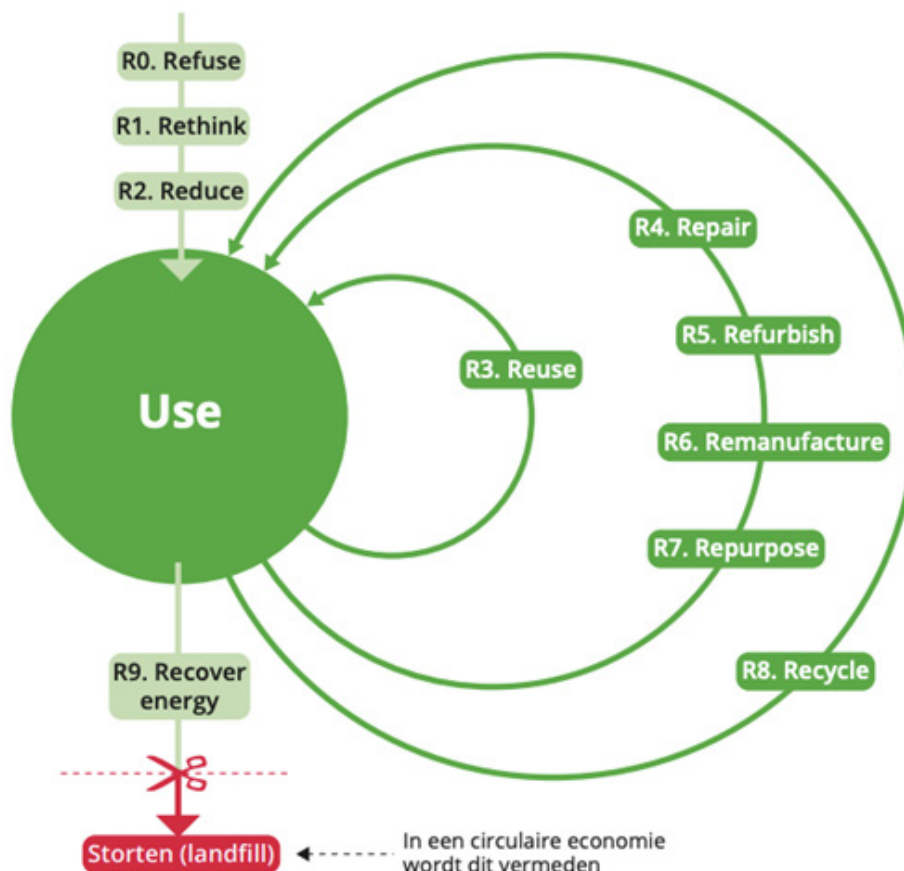


Scan the QR-code for more information on this vision.

Nature inclusive agriculture

Our healthy earth and our healthy welfare come hand in hand with sustainable agriculture. The livestock is reduced by more than three quarters compared to 2020. Cattle is fed exclusively on grasses, clovers, and herbs from the pasture. Biomasses that are not for human consumption are revalued by bio-refineries. Livestock farming is once again land-based and free of antibiotics. Soil life has benefited from the phasing out of fertilizers and chemical pesticides. The nitrogen surplus has disappeared. The eutrophication and acidification of rivers, lakes, and nature reserves, which comes at the expense of biodiversity, has been reversed. The arable farming and livestock farming of 2020 will be nature inclusive.

The objectives and solutions mentioned here solve some of the problems our current food system is producing, especially regarding nutrition and health. This plan mentions the changes that the industry should undergo for a transition towards a sustainable food system, but there is also an acknowledgement of the role the government has in this transition.



Farmer & Business in balance. Towards a sustainable food system in 2030

Ilse Zaal, Province of Noord Holland | Published in 2021



This vision report is also created by and for a governmental actor in the food system. This vision is for the province of North Holland. Together with nature organizations, NGO's, entrepreneurs, and farmers this vision was developed to inspire and facilitate change. In this vision the creators state that it is not the full responsibility of the government to initiate the change in a transition but facilitate and add agency to the process.

This vision also takes the people, profit and planet perspective and wants to achieve an environment that is good for the climate, the soil, producers, consumers, and animals. For this to happen the province will need to create a good balance between economic, ecological, special, and social interests. This reflects a focus and important role for social welfare and the environment. The vision explains that the reason for the shortcomings of our food system originates from an outdated mindset and revenue model. After the second world war the Dutch experienced a famine, after that experience everyone agreed: “Never again, no more.” This led to a drastic intensification of our agriculture processes, and over the last decades the entire agricultural system of feed suppliers, farmers’ organizations, think tanks, agricultural advisers, banks, and lenders has adapted this value into their core. With this vision, the province of North Holland hopes to change this mindset.

Goals that are outlined in the report consist of healthy and safe living environments that is good for people, the planet, and animals. Of course, a prosperous economic business environment

contributes to this idea. This balance is key for the sustainable development that is needed for future generations.

In this vision the protein transition is also mentioned as a core value, this objective is notable throughout most vision reports on the future food system of the Netherlands. In this vision the protein transition is inspired by the Future of food report, and the protein transition is referred to as a process where a plant-based diet is more dominant. No other quotas or goals are used though.

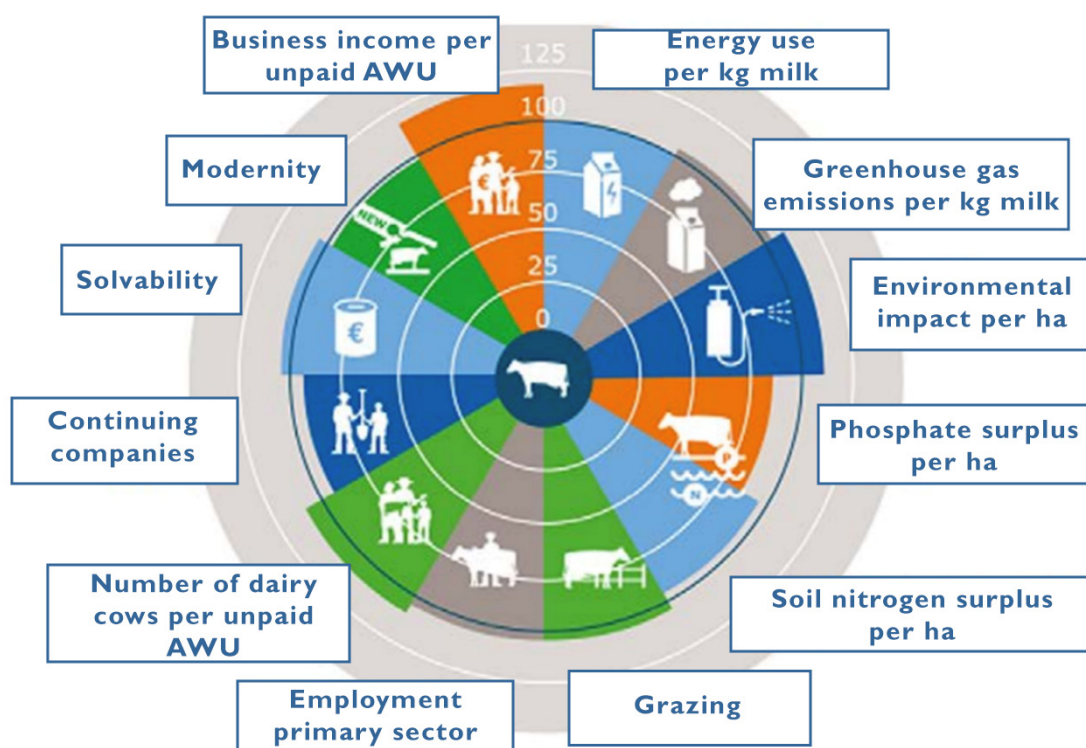
A particular idea of this vision is the reference to the food system. In the vision, the authors apply their own framework to visualize and appreciate the complexity of the food system. It can be motivational and inspiring to appreciate the complexity of the food system and show how consumers, producers and institutes contribute to this complex system. Most other visions lack the systemic explanation of the food system. The inclusion of concrete actions can make it clearer what each actor can do and might even result in a faster transition.



Scan the QR-code for more information on this vision.

This vision makes the food system more local. Interesting is that they consider Europe as a local region. The food is season-bound, and consumers only eat fruits and vegetables that are produced locally. The chains will be shorter. Transparency is also important in this vision, as it is in a few other visions. In this vision communication will be used to educate the consumers. The outcome of this is a fair and transparent food value chain. The consumer can still decide what they eat in this vision. And everyone will be able to afford healthy food.

The future of farmers is bright in this vision. Farmers have a future-proof company perspective which is economically viable. They use land-based agriculture management, which contributes to ecosystem services, climate change adaptation and reduction of emissions. There is also a central role for biodiversity and animal welfare in this management style. Farmers are also more appreciated by the consumer.



Conclusion

These are the eleven inspiring visions on the Dutch food system. Notable is that most of the visions are national with exception of two. The methods that are used differ per vision. Four out of the eleven visions use a participatory process. Most of these did this with experts. There were also three visions which used scenarios to create visions. This is interesting, because these visions show multiple alternative futures.

The most common theme mentioned is environment. A lot of reports discuss how farmers should become more sustainable and take nature into account more. Almost half of the reports mention policy. These reports mainly discuss which measures the government should take for farmers. This makes sense, since a lot of reports were written for the government or commissioned by the government. Healthy food is also discussed a lot with five of the reports mentioning this. Reports often don't go into depth about this and mainly state that food should be healthy in the future. Pricing is also mentioned in four of the reports. These reports extensively mention true pricing and that this should be implemented. Circularity is discussed by only three of the reports. This is interesting, considering the vision of the government is mainly about circular agriculture (Ministry of Agriculture, Nature and Food Quality of The Netherlands, 2019). Based on that it would be expected that more visions are about circular agriculture. It is interesting to see that most of the topics are explored in how they relate to the government. It's also logical, since most of the visions are written for the government.

In terms of narratives, environment is the most common narrative. This is logical, since this is also a theme that is mentioned a lot. Within the environment narrative, sustainable production is mainly mentioned. Social welfare is mentioned the least, only two reports mentioned this extensively. Social welfare mainly refers to the social inequalities in the food system and how these will be solved (Béné, et al., 2018). In the visions this is mainly about fair production that harms no one.

The goal of the research is to find out what the role of visions in transition is. The role of visions in the transition depends on who is asked. The students all differed in opinion about this. The vision creators agreed that visions can have a role in transition if the right people see them.

Because most visions are so focused on policy and farmers, it is difficult to know what you can do as a regular consumer. This was something that we also found in our student interviews. Still there are a few visions which talk about more sustainable food consumption (Province North Holland, 2021) (Sociaal-Economische Raad (SER), 2021) (Nature and Environment (Natuur en Milieu), 2017) (Scientific Bureau Groenlinks, 2020) (Pluimers, Hooijer, & Walstra, 2021). This can start with small steps. For example with eating more plant-based or eating a little less meat (Pluimers, Hooijer, & Walstra, 2021). This way everyone can contribute to a more sustainable world.

Bibliography

Anderson, M. (2019). The importance of vision in food system transformation. *Journal of Agriculture, Food Systems, and Community Development*, 55 - 60.

Béné, C., Oosterveer, P., Lamotte, L., Brouwer, I. D., de Haan, S., Prager, S. D., ... Khoury, C. K. (2018). When food systems meet sustainability – Current narratives and implications for actions. Elsevier, 116 - 130.

Boumeester, G. (n.d.). Gilles Boumeester. Retrieved from linkedin.com: <https://www.linkedin.com/in/gilles-boumeester-79597721/?originalSubdomain=nl>

Brouwer, I. D. (2020). Food systems everywhere: Improving relevance in practice. *Global Food* (26). doi:<https://doi.org/10.1016/j.GFS.2020.100398>

Change.inc. (n.d. - a). Bas Rüter. Retrieved from change.inc: <https://www.change.inc/changemakers/bas-ruter>

Change.inc. (n.d. - b). Alain Cracau. Retrieved from change.inc: <https://www.change.inc/changemakers/alain-cracau>

College van Rijksadviseurs. (2018, December 6). Panorama Nederland. Retrieved from collegevanrijksadviseurs.nl: <https://www.collegevanrijksadviseurs.nl/projecten/Adviezen-publicaties/publicatie/2018/12/06/panorama-nl>

Crippa, M., Solazzo, E., Guizzardi, D., Monforti-Ferrario, F., Tubiello, F. N., & Leip, A. (2021, March). Food systems are responsible for a third of global anthropogenic GHG emissions. Retrieved from ecipi.eu: <https://ecipi.eu/wp-content/uploads/2021/03/Nature-food-systems-GHG-emissions-march-2021.pdf>

De Heus. (2020, January 23). The Netherlands are almost the world's largest exporter of agricultural products! How did that happen? Retrieved from deheus.com: <https://www.deheus.com/articles/news/the-netherlands-are-almost-the-worlds-largest-exporter-of-agricultural-products-how-did-that-happen>

FAO. (2011). Seeking end to loss and waste of food along production chain. Retrieved from fao.org: <https://www.fao.org/in-action/seeking-end-to-loss-and-waste-of-food-along-production-chain/en/>

Food and Agriculture Organisation of the United Nations. (2020, May 7). Land use in agriculture by the numbers. Retrieved from fao.org: <https://www.fao.org/sustainability/news/detail/en/c/1274219/>

Gies, E., Nieuwenhuizen, W., van Buuren, M., & Pleijte, M. (2019). Verbindende perspectieven voor een duurzaam landelijk gebied. Retrieved from library.wur.nl: <https://library.wur.nl/WebQuery/wurpubs/fulltext/469158>

Gladek, E., Fraser, M., Roemers, G., Muñoz, O. S., Kennedy, E., & Hirsch, P. (2017, March). The global food system: an analysis. Retrieved from metabolic.nl: <https://www.metabolic.nl/publications/global-food-system-an-analysis-pdf/>

Groenpact. (n.d. - a). Dirk Duijzer (Topsector Agri & Food): 'Studenten uit het groen onderwijs zijn enorm gedreven en betrokken bij de sector'. Retrieved from groenpact.nl: <https://www.groenpact.nl/groen-in-actie/dirk-duijzer>

Groenpact. (n.d. - b). GroenPact - Talent en passie voor groen. Retrieved from groenpact.nl: <https://www.groenpact.nl/over-groenpact>

IJntema, B. (n.d.). Bart IJntema. Retrieved from linkedin.com: <https://www.linkedin.com/in/bart-ijntema-736279b/?originalSubdomain=nl>

Lesschen, J. P., Reijs, J., Vellinga, T., Verhagen, J., Kros, H., de Vries, M., ... Daatselaar, C. (2020, February). Scenario studie perspectief voor ontwikkelrichtingen Nederlandse landbouw in 2050. Retrieved from library.wur.nl: <https://library.wur.nl/WebQuery/wurpubs/fulltext/512111>

Nature and Environment (Natuur en Milieu). (2017, September). Voedselvisie: Naar een gezond en duurzaam voedselsysteem in 2030. Retrieved from natuurenmilieu.nl: <https://www.natuurenmilieu.nl/wp-content/uploads/2017/09/NM-Voedselvisie-2030-rapport-v3-ia.pdf>

Nguyen, H. (2018). Sustainable food systems. Retrieved from fao.org: <https://www.fao.org/3/ca2079en/CA2079EN.pdf>

Parlement.com. (n.d.). GroenLinks (GL). Retrieved from parlement.com: https://www.parlement.com/id/vh8lnhrouwy1/groenlinks_gl

Pluimers, J., Hooijer, H., & Walstra, J. (2021). Onze visie op voedsel Een gezonde en eerlijke landbouw met toekomst. Retrieved from local2local.nl: <https://local2local.nl/wp-content/uploads/2021/07/Milieudefensie-Onze-visie-op-voedsel-een-gezonde-en-eerlijke-landbouw-met-toekomst.pdf>

Province North Holland. (2021, February). Boer & Business in Balans. Retrieved from boerenbusinessinbalans.nl: https://www.boerenbusinessinbalans.nl/wp-content/uploads/2021/03/PNH_Voedselvisie_PNH_2020_2030_2021.pdf

Rabobank. (2020, September). Toekomstscenario's Nederlandse land- en tuinbouw 2030. Retrieved from rabobank.com: <https://www.rabobank.com/nl/images/Toekomstscenarios.pdf>

Rabobank. (n.d. - a). Wiebe Draijer. Retrieved from rabobank.com: <https://www.rabobank.com/nl/about-rabobank/profile/organisation/board/wiebe-draijer.html>

Rabobank. (n.d. - b). Carin van Huët. Retrieved from rabobank.nl: <https://www.rabobank.nl/kennis/onze-experts/011119703/carin-van-huet>

Rabobank. (n.d. - c). Arne Bac. Retrieved from rabobank.nl: <https://www.rabobank.nl/kennis/onze-experts/011084129/arne-bac>

Scientific Bureau Groenlinks. (2020, December). Circulair samenleven in 2050. Retrieved from [wetenschappelijkbureaugroenlinks.nl: https://www.wetenschappelijkbureaugroenlinks.nl/sites/wetenschappelijkbureau/files/2021-01/Publicatie-Circulair-samenleven-in-2050-Op-zoek-naar-brede-welvaart-in-een-circulaire-economie.pdf](https://www.wetenschappelijkbureaugroenlinks.nl/sites/wetenschappelijkbureau/files/2021-01/Publicatie-Circulair-samenleven-in-2050-Op-zoek-naar-brede-welvaart-in-een-circulaire-economie.pdf)

Scientific Council for Integral Sustainable Agriculture and Nutrition. (n.d.). RIDLV - De Wetenschappelijke Raad voor Integrale Duurzame Landbouw en Voeding. Retrieved from [ridlv.nl: https://www.ridlv.nl/](https://www.ridlv.nl/)

Smit, H. (n.d.). Harry Smit. Retrieved from linkedin.com: <https://www.linkedin.com/in/harry-smit-rabobank/?originalSubdomain=nl>

Smits, H. (2016, February). Role of the Netherlands in the global food and agribusiness. Retrieved from [nortonrosefulbright.com: https://www.nortonrosefulbright.com/en/knowledge/publications/3b06be53/role-of-the-netherlands-in-the-global-food-and-agribusiness#:~:text=This%20is%20exemplified%20through%20the,%2C%20poultry%2C%20pork%20and%20dairy.](https://www.nortonrosefulbright.com/en/knowledge/publications/3b06be53/role-of-the-netherlands-in-the-global-food-and-agribusiness#:~:text=This%20is%20exemplified%20through%20the,%2C%20poultry%2C%20pork%20and%20dairy.)

Sociaal-Economische Raad (SER). (2021, May). Naar duurzame toekomstperspectieven voor de landbouw. Retrieved from [ser.nl: https://www.ser.nl/-/media/ser/downloads/adviezen/2021/duurzame-toekomstperspectieven-landbouw.pdf](https://www.ser.nl/-/media/ser/downloads/adviezen/2021/duurzame-toekomstperspectieven-landbouw.pdf)

Social and Economic Council. (n.d.). Wat is de SER? Retrieved from

[ser.nl:](https://www.ser.nl/)

<https://www.ser.nl/nl/ser/over-ser/wat-is-de-ser>

van der Vorst, J., & Poppe, K. J. (2020). Dutch Agriculture, European Policies and Global Food System Transitions. Retrieved from [library.wur.nl: https://library.wur.nl/WebQuery/wurpubs/fulltext/533845](https://library.wur.nl/WebQuery/wurpubs/fulltext/533845)

Wageningen Economic Research. (n.d.). Wageningen Economic Research. Retrieved from [wur.nl: https://www.wur.nl/nl/onderzoek-resultaten/onderzoeksinstituten/economic-research.htm](https://www.wur.nl/nl/onderzoek-resultaten/onderzoeksinstituten/economic-research.htm)

Wageningen Environmental Research. (n.d.). Over Wageningen Environmental Research. Retrieved from [wur.nl: https://www.wur.nl/nl/Onderzoek-Resultaten/Onderzoeksinstituten/Environmentaal-Research/Over-ons.htm](https://www.wur.nl/nl/Onderzoek-Resultaten/Onderzoeksinstituten/Environmentaal-Research/Over-ons.htm)

Wageningen University & Research. (n.d. - a). prof.dr.ir. IJM (Imke) de Boer. Retrieved from [wur.nl: https://www.wur.nl/nl/personen/imke-prof.dr.ir.-ijm-imke-de-boer.htm](https://www.wur.nl/nl/personen/imke-prof.dr.ir.-ijm-imke-de-boer.htm)

Wageningen University & Research. (n.d. - b). prof.dr.ir. JGAJ (Jack) van der Vorst. Retrieved from [wur.nl: https://www.wur.nl/nl/Personen/Jack-prof.dr.ir.-JGAJ-Jack-van-der-Vorst.htm](https://www.wur.nl/nl/Personen/Jack-prof.dr.ir.-JGAJ-Jack-van-der-Vorst.htm)

Wetenschappelijke Raad voor Integrale Duurzame Landbouw en Voeding. (2021, September). Gezondheid in drievoud. Retrieved from [ridlv.nl: https://www.ridlv.nl/sites/default/files/RIDLV_Rapport-sept2021_Gezondheid_in_Drievoud.pdf](https://www.ridlv.nl/sites/default/files/RIDLV_Rapport-sept2021_Gezondheid_in_Drievoud.pdf)

Wiek, A., & Iwaniec, D. M. (2013). Quality criteria for visions and visioning in sustainability science. Sustainability Science.

Inventory preview

[illegible]



milieudefensie
anders kijken, anders kiezen

Scenariostudie perspectief voor ontwikkel-richtingen Nederlandse landbouw in 2050

Jan Peter Laaschen, Joan Reij, Theun Vellinga, Jan Verheijen, Hans Kros, Marten de Vries, Roel Jongeneel, Thalita Sleg, Ana Gonzalez Martinez, Erik Vermeij, Co Daatselaar

WAGENINGEN
UNIVERSITY & RESEARCH

VERKENNING 21/06 | Mei 2021

SIER

Naar duurzame toekomstperspectieven voor de landbouw

SOCIAAL-ECONOMISCHE RAAD

Dutch Agriculture, European Policies and Global Food System Transitions

WAGENINGEN
UNIVERSITY & RESEARCH

Studie

Toekomstscenario's Nederlandse land- en tuinbouw 2030

Toekomstbestendige land- en tuinbouw in 2030

Growing a better world together
Rabobank

Circulair samenleven in 2050

Op zoek naar brede welvaart in een circulaire economie

Wetenschappelijk Bureau GroenLinks

Provincie Noord-Holland

Boer & Business in Balans
'naar een duurzaam voedselsysteem 2020-2030'

VOEDSELVISIE

VOEDSELVISIE

NAAR EEN GEZOND EN DUURZAAM VOEDSELSYSTEEM IN 2030

september 2017

NATUUR & MILIEU

GEZONDHEID IN DRIEVOLD

Naar een gezond voedselsysteem voor planeet, consument en boer

Wetenschappelijke Raad voor Integratie Duurzaamheid