



SHERPA
Rural Science-Society-Policy
Interfaces

A VISION FOR RURAL AREAS

MAP Discussion Paper

LONG-TERM VISION FOR RURAL AREAS: CONTRIBUTION FROM 20 SCIENCE- SOCIETY-POLICY PLATFORMS

MAP DISCUSSION PAPER

GREENPORT GELDERLAND

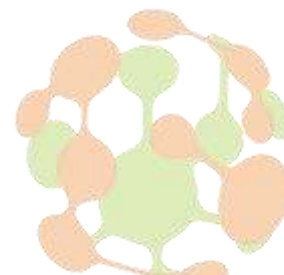
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Contact information

Facilitator | Marianne Groot, marianne.groot@wur.nl

Monitor | Ardjan Vermue, ardjan.vermue@wur.nl

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Dutch summary for MAP members

Samenvatting

Het Europese project SHERPA verzamelt kennis die van belang is voor toekomstig EU beleid voor het platteland. Die wordt gedaan door de belangrijkste toekomstige trends en drijfveren van die trends te beschrijven en door in zogenaamde MAP's (Multi-Actor Platforms) het gesprek aan te gaan met mensen vanuit de samenleving, beleid en onderzoek. In Nederland wordt samengewerkt met Greenport Gelderland. Greenport Gelderland is een publiek-privaat netwerk in het rivierengebied van de provincie Gelderland. Dit netwerk stimuleert innovatie, duurzame ontwikkeling en de groei van de tuinbouw (fruit, boomkwekrij, paddenstoelen en glastuinbouw) in de regio.

De tuinbouw is nauw verweven met het Rivierengebied in de provincie Gelderland, zowel sociaal/maatschappelijk als in het landschap. Dat betekent dat ontwikkelingen in de tuinbouw de regio beïnvloeden en omgekeerd. Ontwikkelingen als bedrijfsgrootte, teeltondersteunende voorzieningen om de risico's van het klimaat te verminderen (zoals hagelnetten), automatisering (zoals zelfrijdende machines), huisvesting van internationale werknemers, etc. hebben serieuze invloed op de omgeving van de bedrijven. Aan de andere kant beïnvloeden de voorkeuren van consumenten en inwoners ook de ontwikkelingen in de sector. Enkele belangrijke trends zijn de concurrentie om grond (te zien in stijgende grond en huizenprijzen), veranderingen in de sector (te zien in het dalende aantal bedrijven, stijging in bedrijfsgrootte met relatief gelijkblijvende bedrijfsinkomen) en de klimaatveranderingen (stijgende temperaturen en meer extreme weersomstandigheden).

De belangrijkste kansen en uitdagingen voor de komende jaren liggen op het gebied van:

- klimaatverandering en de maatregelen daartegen zoals teeltondersteunende voorzieningen
- de vraag om een duurzamere productiewijze met economische consequenties maar ook de vraag wat technisch mogelijk is
- het verlies van biodiversiteit waarbij biodiversiteit voor fruit zowel een kans als een uitdaging is
- precisie technieken die naar een nieuwe manier van telen leiden
- seizoensarbeid die voor de komende jaren nodig blijft
- de fruitmarkt is een wereldmarkt, de kostprijs blijft belangrijk voor de concurrentiepositie
- de verbinding met de regio en maatschappij: moderne fruitteelt is niet het geromantiseerde beeld van en hoogstamboomgaard

1. Introduction

Greenport Gelderland (GG) is the horticultural programme for the River region of the province of Gelderland in The Netherlands. This public-private network organisation stimulates innovation, sustainable development and growth of the horticultural sectors (glasshouse, fruit, nursery stock and mushroom cultivation) in the region.

The horticultural sector is closely integrated with the rural landscape and society, which means that developments in horticulture, influences the society and vice versa. Developments like increase of the size of farms, more structures inside the fruit orchards to reduce risks from weather, pests and diseases (like hail netting), more robotica (self driving machinery), seasonal labour from other countries who need housing etc, have serious impact on the surrounding communities in which farms are embedded. On the other hand, the preferences of consumers and inhabitants of the region influence the development of the sector as well.

Keywords: *horticulture, future of farming, rural development.*

2. Results from desk research

The River region of the province of Gelderland in The Netherlands is characterised by a high population density and is located in a central part of the Netherlands, within an hour drive of the major urban economic and political districts, called the Randstad region, including cities such as Amsterdam, Utrecht, Rotterdam and The Hague. These factors are significant in understanding the key trends of the semi-rural area that the Greenport Gelderland MAP is situated in.

From the desk research, the following themes marked in bold, turned out to show significant trends over the past 20 years, which affect the well-being of inhabitants and farmers in rural development today. The data for the other themes show that these issues are either well taken care of, such as infrastructure and digitalisation, or do not show trends that raise direct or future concerns, such as a demographic shift and inequalities in this particular rural areas. The themes not marked in bold have to be seen in the light of the (1) close proximity to the major urban cities, the (2) relatively high population density for a rural area and (3) the small size of Netherlands as a whole, which has positively influenced the respective developments, but also come at a cost of land-use competition and other social issues outlined below.

1. Demographic shift
- 2. Climate change and environmental services**
- 3. Change in production and diversification of the rural economy**
4. Infrastructure and basic services
5. The rise of digitalisation and smart ruralities
6. Inequalities and well-being in rural areas
- 7. Land-use change and competition**

2.1. Review of key trends

Major challenges stem from a land-use competition, both in terms of land prices as well as in the multiple functions a relatively small urban area have to fulfil with competing interests from different stakeholders. Due to the high population density, other common issues for remote rural areas in the EU are less of a concern, related to infrastructure and basic services, digitalisation and well-being in rural areas. Also climate change affects the outdoor fruit growing sector, due to it's sensitivity to extreme climatic events such as late spring frosts after mild winters, hail storms en high temperatures in summer.

Land-use competition

The average price of farm-land in the province of Gelderland has increased by 34.8% from 2011 until 2018, with an average annual increase of 4.4% per year (EUROstat).

The average prices of houses sold in the Netherlands has rapidly increased over the past 25 years and the regional statistics for Gelderland show that on average prices have increased at the same rate, despite a large percentage of rural areas included in this region. On average, prices of houses have increased by 4,6% per year since 1995 until 2019.

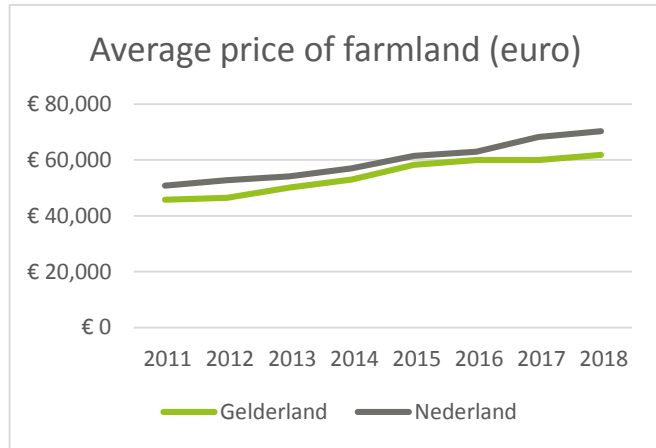


Figure 1. Source: Eurostat

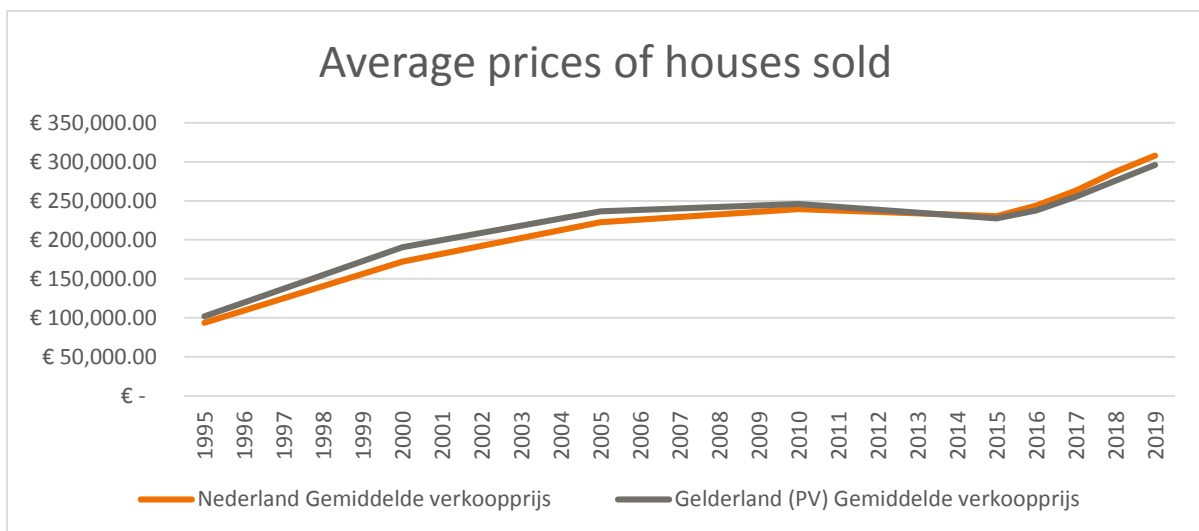


Figure 2. Source: CBS

The share of agricultural land for horticultural has remained relatively stable, despite the increase in farm land prices and the steep increase in the average price of houses sold.

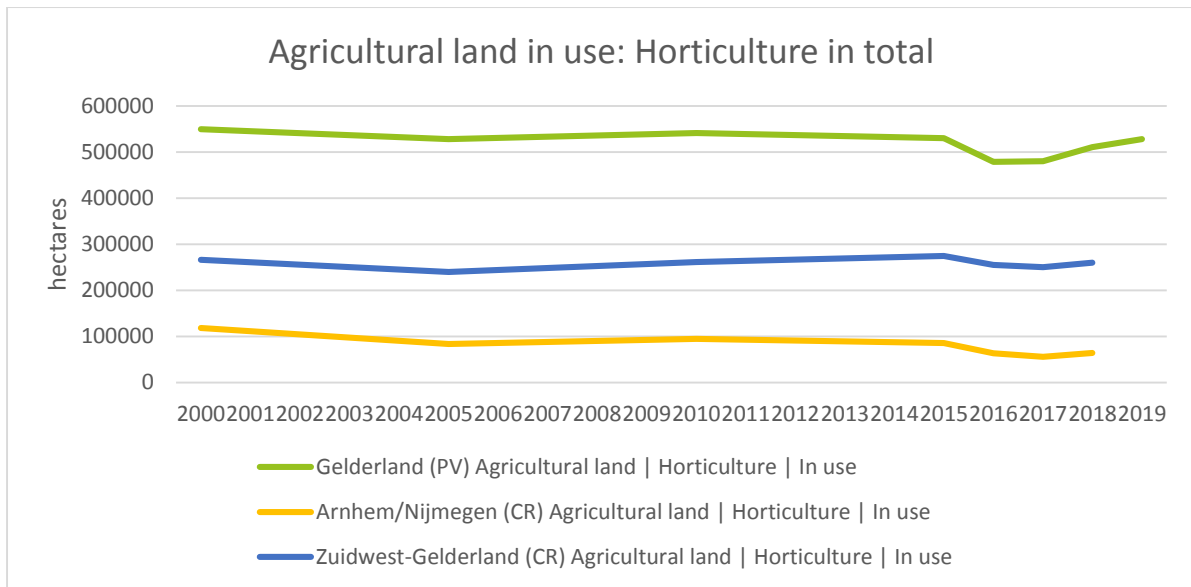


Figure 3. Source: CBS

Change in production

The decreasing number of horticultural businesses while the horticultural land use has remained relatively stable shows the tendency for businesses to choose between having to grow or to quit.

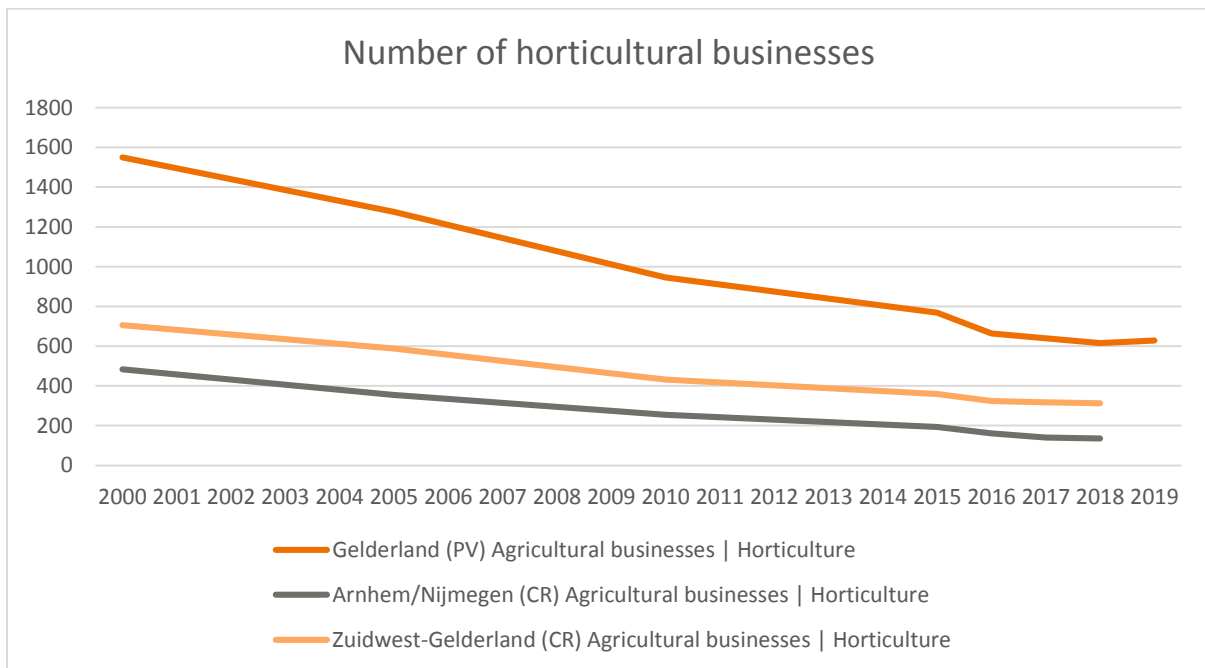


Figure 4. Source: CBS

The total farm business income from horticulture businesses in the region has not shown much growth over the past 20 years, indicating the financial difficulties the sector has been coping with. The income per farm has been more or less stable for horticultural farms, despite of the lower total number of horticultural businesses in operation.

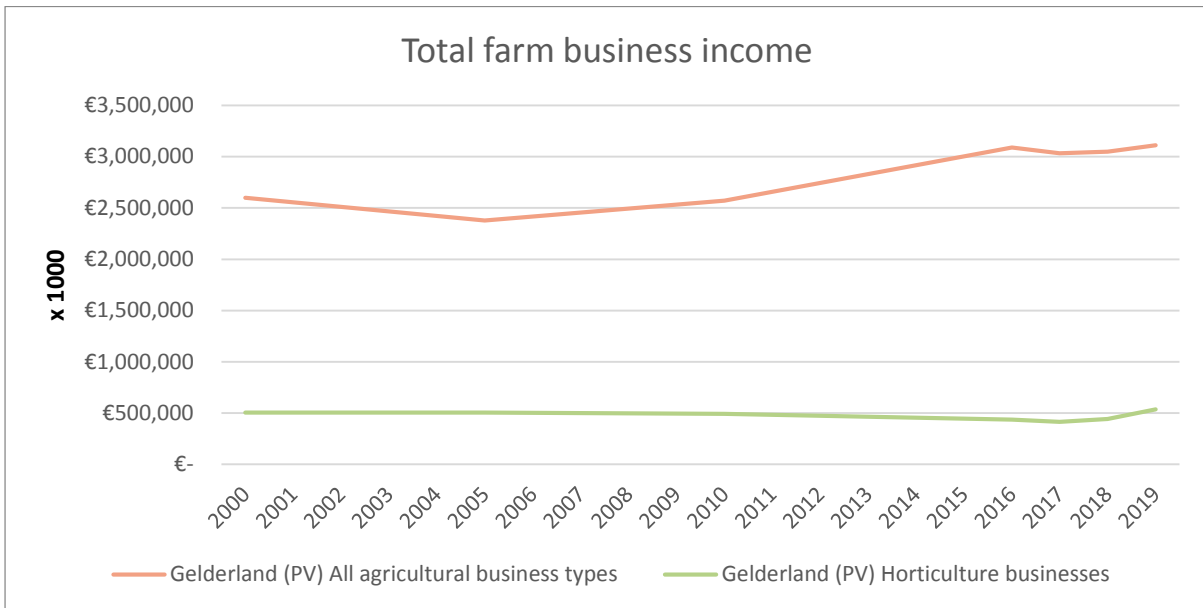


Figure 5. Source: CBS

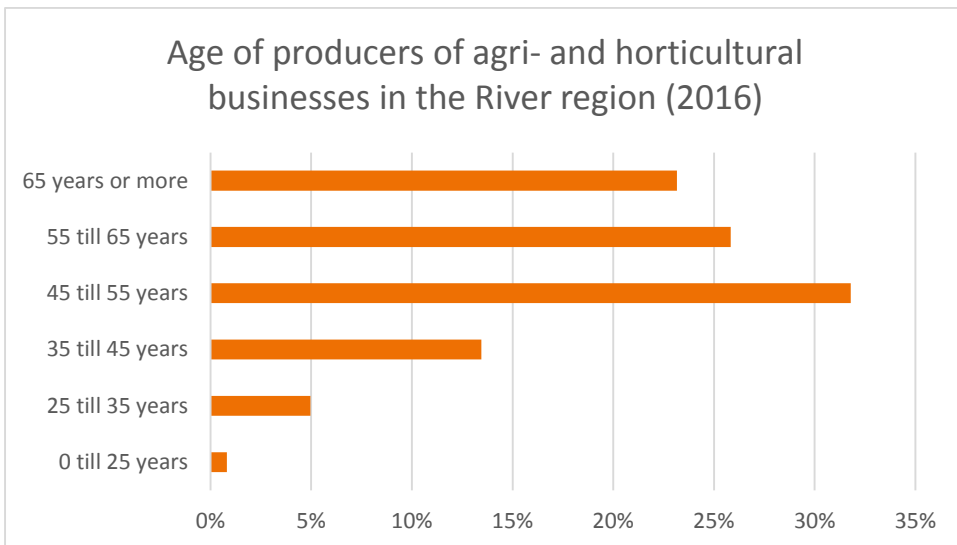


Figure 6. Source: CBS

Climate change and environmental services

The changes in climate change affect the circumstances for fruit production. For example more extreme weather events and higher temperatures influence how fruit crops develop. These cause for example, earlier blossoming periods and changes in the pressure caused by pests and diseases. Therefore the view of the orchards is changing with more structures, like hail netting to prevent damage to the orchard. There are no scientific studies available yet, which have quantified the effects of climate change on fruit production in the Netherlands. Indications of the effects are based on anecdotal accounts and a general concern among the sector.

2.2. Review of main challenges and opportunities

Some of the major concerns from the sector are a regional and European level playing field. At a regional level, the interpretation and application of local guidelines around the housing of seasonal labour strongly differ between the municipalities, which unequally benefits some producers over others. The growing presence of seasonal labour from abroad and more often year-round labour immigrants also working outside the fruit sector and even outside the region is a delicate social issue, both in terms of housing conditions and social dynamics in rural areas and villages.

At a European level, producers want a level playing field in terms of the production costs as well as possibilities for crop protection. The increasing restrictions on pesticide use in the Netherlands require alternative solutions and high investments to overcome the disease and pests pressure and continue to sustain high yields at a competitive price level. If the cost of production rises too much, retailers simply import products from competitors in other European countries where the restrictions on pesticide use are different. The same goes for the labour costs.

At the level of rural planning, a number of conflicts are also arising due to the densely populated nature of the area. The number of horticultural businesses is decreasing (see *figure 5*) as producers are increasing the number of hectares per farmer to stay competitive, which comes with a need to grow the on farm facilities and structures, as well as increase the traffic for logistics in certain rural areas. There is a strong resistance from local inhabitants and policies based on traditional farm models, which do not facilitate a rural area to be more industrialised, stopping producers from building bigger barns for example.

The same wish or idea of inhabitants for the more traditional orchards conflicts also with the fact that more and more structures inside the fruit orchards are becoming necessary to reduce risks from weather (like hail netting) and pests and diseases. For the future this is expected to further increase, as climate change makes the weather more unpredictable and also new pests and diseases are on the rise. The trend of a changing climate with an increase in pesticides restrictions and the need for a sustainable way of fruit growing is putting the horticulture sector and the closely interconnected rural landscapes and societies up for new challenges. New technologies will change the character of the rural landscapes, such as greenhouse like structures to keep open field production dry during rains and reduce the pressure of pests and diseases, robotics (self driving machinery) and different types of trees in the orchards.

These are some of the major issues that will have to be addressed by the Greenport Gelderland MAP over the coming years. It is a challenge to live and work together in such a densely populated area. A dialogue between producers, citizens, politicians and scientists is key to bridge the different concerns, create an outlook to the future and acknowledge the interconnectedness of the all the people and businesses who (temporarily) reside in the most important fruit growing area of Netherlands.

2.3. Summary of existing foresight(s)

In a vision 2040 document developed by the Provincial Executive of the province Gelderland (2010), some focus areas for the future are outlined per region. For this MAP we are specifically interested in the vision for the River region, in which the fruit sector is embedded.

The main identified opportunities for growth and development in terms of rural livelihood, are increasing tourism and absorbing the residential expansion and growth from the neighbouring Randstad (major urban area in the Netherlands, including Utrecht, Amsterdam, The Hague and Rotterdam). An attractive recreational infrastructure has already been developed, which became evident during the COVID-19 crisis in the summer of 2020, when most foreign destinations were no longer accessible and Dutch people had to find their recreational refuge in their own country. Overnight stays increased by 62% this year, according to the River Region agency of tourism during the COVID-19 crisis, in comparison to 4% nationally (2020). The River region has potential to further build on its authentic landscape, consisting of orchards, rivers, historic sites and villages and many lakes suitable for recreation.

In comparison to the overcrowded cities of the Randstad, the River region offers more space, nature and quality of life for residents looking for a more quiet life outside the cities. Due to the close proximity, it remains possible to reach Utrecht within an hour, by car or public transport. Especially now that working from home is expected to stay beyond the CIVOD-19 crisis, it becomes more attractive to develop increasing residential areas in the region, while maintaining the landscape features. Further investments in mobility are necessary to support this trend according to the province.

The challenges that were identified in the 2040 vision document are related to the interdependence of the different developments in the same area. The future of the fruit sector is dependent of the development of the logistics sector in the region. These go hand in hand and while one development may strengthen the other, the opposite may be true as well. It is a given that cargo traffic will increase according to the province, but the question is how, which adds a layer of uncertainty to the region. Which means and combination of transport will grow the fastest and how can the region keep up? The development of the fruit sector may be hampered by a stagnating logistics sector. The growth in cargo traffic and the increasing also adds friction to the rural livelihood goals of increasing the quality of life in rural areas, when not planned right. The same goes for increasing horticultural development, which is more difficult to keep separated from the rural landscape.

The population in the River region is expected to grow over the coming 20 years, until 2040, based on the Primos forecast model (Companen, 2019). The aging is expected to be less, compared to other regions in the same province.

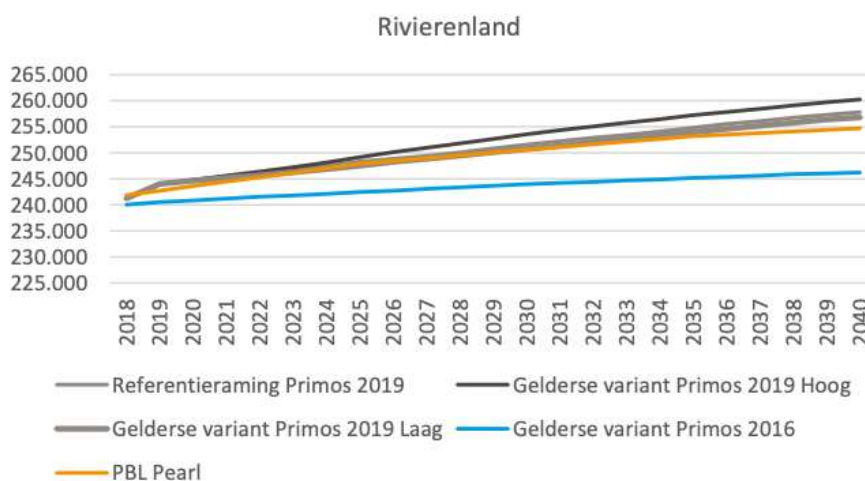


Figure 7 Population forecast per region 2018 – 2040. The 2016 forecast has been adjusted for the 2019 forecast with a low (Laag), average (Referentieraming) and high scenario (Hoog). Source: Companen, 2019.

3. Results from interviews with MAP members

In 2019 the MAP already started to develop a vision about the « fruitfarm of the future ». In several sessions with fruitgrowers, policy makers as well as politicians, the developments in research were discussed at the Wageningen University fruit research facility in Randwijk. Here the innovations in research, with impact to society were shown and discussed. Based on the discussions and results of three different sessions a figure was drawn of the « Fruit farm of 2030 ». The Fruit farm of the future assessment not only addresses the implementation of new technologies at orchard and farm level, but also the changes in rural landscape in terms of infrastructure, biodiversity, recreation and quality of life.

3.1. Challenges and opportunities in the next 20 years

The discussions which led to the vision and the figure of the « fruit farm of the future » (see 3.2) made clear that the following are the main challenges and opportunities for the coming years and decades :

- Due to the climate change, more extreme weather, as well as more new and invasive pests and diseases are expected. To protect the orchards, fruit growers will use more technical structures like hail netting, or netting against insects. This is changing the traditional looks of orchards, from open fields with trees, to semi protected cultivation with structures rising over the trees to allow for full coverage with nets.
- Concerns about the use of chemicals causes the need for a more sustainable way of fruit production. This leads to many far reaching consequences for fruit growers, both in terms of financial investments (EU level playing field) and what is technical feasible.
- The loss of biodiversity is an import issue. In fruit growing, biodiversity can be both an opportunity and a challenge. As biodiversity gives many advantages for crop protection, it also includes an increase in species which can damage the fruits and reduce the quality and quantity of production.
- Precision technology with remote sensing, the use of data, robotics will lead to a whole new way of growing fruit.
- At least for the coming years, fruit harvesting needs a lot of labour. It is a challenge to find enough people as well as to have good housing opportunities for the workers. Most producers rely on (seasonal) labour immigrants for the bulk of manual labour. The presence of seasonal immigrant labour brings about challenges of social dynamics and (lack of) integration with rural communities. In addition to the changing social dynamics, also housing prices in rural communities are affected as the demand for housing increases and labour agencies are willing to pay more than local families.
- As fruit is a global market, the cost price of fruit is important for the competitive position of the fruit growers.
- Modern fruit growing is not the historic idea of an orchard. The big challenge is to find a way in which the needs of society can be combined with the needs of a modern, sustainable and competitive fruit sector to have a healthy and happy region.

3.2. Desirable future for 2040



Figure 8. *Fruit farm of the future*. (Fruitpact, 2020).

“A picture is worth a thousand words.” The figure summarises all the elements that were identified by the MAP to be included in the vision for a « fruit farm of the future ». It shows the way a region can combine the different functions of tourism (two walkers at the top), nature and biodiversity (represented with flowers, bees and birds), sustainability (wind energy but also the use of resistant varieties), local products for sale (at the bottom on the right), new technologies with harvesting robots, protected cultivation (netting and greenhouse type structures over the orchards), logistics (at the bottom separated lanes for different kinds of traffic), housing of temporarily workers at the fruit farms and on farm facilities and structures in rural areas.

The integration of multiple functions in the rural fruit areas is key to make the region attractive for everybody and to leave enough room for other income sources through for example tourism and recreation. The changing look of a traditional orchard to orchards with protected cultivation is illustrated quite explicitly. Based on the rapid changes due to climate change, this scenario is by already considered inevitable by scientists (Verstegen, 2018).

3.3. Challenges in reaching the vision

As discussed before, the discussion between the different groups with each their own interests and concerns is the biggest challenge. The wishes of society as well as legal possibilities and restrictions on local/regional/national/EU level are changing and sometimes are a challenge by themselves. The economic impact of all these factors is a challenge for the sector.

The portrayal of the desirable future focuses especially on the functions and physical layout of the region. Less thought has been put into the economic and social realization of the desirable future, for which more

consultation with local citizens is needed. Due to the COVID-19 crisis it has been difficult to get citizens involved, by not having been able to demonstrate in practice what the fruit farm of the future looks like on the scientific demo-farm.

In a desirable future with an expected increase of automatization, the social conflicts and challenges that arise around housing seasonal labour, will likely decrease as well. On the other hand, the future fruit farms and the necessary logistics will change in many different ways, often away from the preferred traditional look of an orchard and farm. The conflict of interest and expectations of the different groups will be the most challenging to reach a future vision.

4. Conclusion and next steps

The Gelderland river area owes its identity to the fruit growing sector that has traditionally flourished in this region. The rural development is closely interconnected with the fruit production and will continue to be so in the future. However, many challenges are ahead that their roots in climate change, persistent difficult economic years for the fruit sector, social issues around housing of seasonal labour and the need to increase on farm facilities and structures in rural non-industrial areas. The MAP has developed a vision for the farm of the future for a viable horticultural sector and rural area that will continue owe its name to the fruit sector. The following months of discussions and interactions among the stakeholder groups will provide opportunities to refine the vision and reach a common ground for the changes and challenges that are ahead for this region.

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