Expanding Dutch Agri-tech businesses in France

THESIS

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Preface

This thesis, written for the examination committee of Aeres University of applied science in Dronten, describes how a Dutch Agri-tech company can enter the French market. This thesis is part of my graduation and belongs to the graduation phase of my study ''International Equine Business Management'. The aim of this research is to find out the different stakeholders who are involved in expanding a business in the France Agri-tech sector and how an agricultural software company can reach their customers. I was engaged in writing this preliminary research from January to March 2021.

I would like to use this opportunity to thank my supervisor Teatske Pol for all the provided information and guidance throughout writing and doing this research. I would like to thank my internship company for their time and interest in this research and the French farmers who are willing to help me. Finally, I would like to thank all my friends who have supported me and all the others that have been engaged in this research.

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Sanne Cornelisse

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Summary

This thesis covers the topic of *''expanding Dutch Agri-tech businesses in France''*. From the software sector, a request was made for more knowledge on the French arable market. It this matter it was important to find out the knowledge of the farmer concerning arable registration software. It is known that the agricultural sector is digitalizing, the Netherlands is a leading country concerning technology.

The purpose of this thesis is discovering which knowledge is already known and which knowledge is desired, in order to find out which information the companies should give the farmers. Also, how they can be reached. This was done through the following main question: ''What is the optimal way for a Dutch smart farming software company to reach out to French arable farmers with their products?'' This has been answered by finding the knowledge, attitude and behaviour of the farmers. All three sub questions aided this purpose and have been answered through qualitative research and literature review.

There are already studies done by governmental institutions, however those are not free access and have not all the information which companies really need. Such as the knowledge that farmers have concerning agricultural technology. The necessary information is often not available in one place. The knowledge among the respondents in this research was general, they did know what kind of software's exist, but they do not use it on their farms yet.

In addition to the knowledge of the farmers, the social factors were also examined. It is important to learn the language and culture in order to settle in quickly. It is mapped out which ways are possible to enter the market. France offers good opportunities for a new software company with a good and innovative product. However, it is important to be motivated as a company, to have a clear goal in mind and not to give up. It is a hard market with multiple players and therefore important to distinguish yourself.

It is important for a new company to work from the country itself and to learn the culture and language. If not, farmers will not be willing to work with the new company. Farmers are open for new technologies created in the Netherlands, however it should work for them and therefore it can be needed to adapt the program to their needs and expectations. Otherwise they do not find it reliable, furthermore it is important to present a new and innovative program or product, do not come up with something that already is being used. It is also important for a new company to be visible in the market via multiple channels, associations and create partnerships an to make sure to have a good customer service department who can help the farmer, they will appreciate this.

Samenvatting

Deze scriptie omvat het onderwerp ''Uitbreiden van Nederlandse Agri-Tech bedrijven in Frankrijk''. Vanuit de softwaresector is gevraagd om meer kennis over de Franse akkerbouwmarkt. Hierbij was het van belang om de kennis van de akkerbouwer met betrekking tot akkerbouwregistratie software te achterhalen. Het is bekend dat de agrarische sector aan het digitaliseren is, Nederland loopt voorop als het gaat om technologie.

Het doel van deze scriptie is ontdekken welke kennis reeds aanwezig is en welke kennis gewenst is, om zo te achterhalen welke informatie de bedrijven aan de boeren moeten geven en hoe zij bereikt kunnen worden. Dit werd middels de volgende hoofdvraag gedaan: ''Wat is de optimale manier voor een Nederlands agrarisch softwarebedrijf om de Franse akkerbouwers te bereiken met hun producten? Deze vraag is beantwoord door de kennis, houding en gedrag van de boeren te achterhalen. De drie deelvragen hebben hieraan bijgedragen en zijn beantwoord door middel van kwalitatief onderzoek en literatuuronderzoek.

Er zijn al studies gedaan door overheidsinstellingen, echter zijn deze niet vrij toegankelijk en bevatten niet alle informatie die bedrijven nodig hebben om succesvol de markt te betreden. Zoals de kennis die boeren hebben over landbouwtechnologie. De benodigde informatie is vaak ook niet op één plaats beschikbaar. De kennis onder de respondenten in dit onderzoek was algemeen, ze wisten wel welke software er bestond maar ze gebruikten het nog niet op hun bedrijf.

Naast de kennis van de boeren zijn ook de sociale factoren bekeken. Het is belangrijk om de taal en cultuur te leren om je snel te kunnen vestigen in het land. Er wordt in kaart gebracht welke mogelijkheden er zijn om de markt te betreden. Frankrijk biedt goede kansen voor een nieuw softwarebedrijf met een goed en innovatief product waarmee een bedrijf zich kan onderscheiden.

Het is belangrijk voor een nieuw bedrijf om vanuit Frankrijk zelf te werken en de cultuur en de taal te leren. Wordt dit niet gedaan, dan zullen boeren minder bereid zijn om met het bedrijf te werken. Boeren staan open voor nieuwe technologieën die in Nederland worden gemaakt, maar het moet wel voor hen werken en daarom kan het nodig zijn om het programma aan te passen aan hun behoeften en verwachtingen. Als dit niet wordt gedaan vinden ze het minder betrouwbaar. Daarnaast is het belangrijk om een nieuw en innovatief programma of product te presenteren dat nog niet wordt gebruikt. Het is ook belangrijk voor een nieuw bedrijf om zichtbaar te zijn op de markt via meerdere (media)kanalen en om samenwerkingen aan te gaan met meerdere bedrijven. Als laatste is het voor een nieuw bedrijf belangrijk om een goede serviceafdeling te hebben, dit wordt zeer gewaardeerd door de boeren omdat ze zich dan geholpen voelen.

1. Introduction

This thesis covers the topic of entering a high developed agricultural technological market in France as a Dutch smart farming software company. The enquiry for knowledge on this topic has arisen from software companies from the Netherlands. These companies want to share their knowledge and experiences outside the Netherlands. For these companies it is important to know what they are dealing with and which country is suitable.

The subjects that will be addressed in the introduction all have a function within the market related to the software product. Starting on what is the market that will be studied, what are smart farming technologies and how they can affect the way of working on farms. This subject is followed by a brief explanation of the farmers that are desired to reach and what the role of biocides and pesticides is, after which the opportunities for Dutch companies in France are elaborated. Then, the cultural differences between the two countries that can have influences on doing business are described and the customer journey is elaborated. Lastly, based on what is unknown, the knowledge gap, the main and sub-questions are set up and the objectives are elaborated.

1.1 Smart farming technologies

Currently, technological innovations are taking agriculture to another level. These new innovations are called smart farming technologies, these technologies on farms promise for example, to reduce costs through applying input (fertilizers and plant protection agents) based on the actual needs of soils and crops. Thereby reducing the environmental impact on the farm and increase profit (Basso et al., 2016). Technology is not only adapted on autonomous robotic vehicles to increase manpower, but also shaped in form of digital farm management information systems (FMIS). Sørensen et al. (2010) defines an FMIS as: "a planned system for the collecting, processing, storing and disseminating of data in the form of information needed to carry out the operations functions of the farm." FMISs can support decision making by finding the best practices for farm management. These systems allow an easy way to document all farm-related processes and comply with the required documentation connected to EU regulation (Fountas et al., 2015). In general, an FMIS supports decision making and helps with keeping track of the current business processes to maximize the profit of a farm.

1.2 Managing arable farms

For the past few years, the managerial tasks in agriculture are shifting up, requiring more attention on the interaction with the surroundings, namely environmental impact, terms of delivery, and documentation of quality and growing conditions (Sørensen et al., 2010b, p. 39). This managerial change is caused by external entities (government, public) applying increasing pressure on the agricultural sector to change production from a focus on quantity to an alternate focus on quality and sustainability (Halberg, 1999, p. 21).

In the Paris Basin, farmers often have more than half of their farmland in use for cereals (mainly wheat and barley), in rotation with sugar beet, potato, oilseed rape, fodder peas and sometimes vegetables for industry (Rossing et al., 1997, p. 281). High input of pesticides and nutrients constitute a threat to environmental sustainability of those farming systems (Aktar et al., 2009, p. 9). It is therefore important that only the amount that is needed for the plants and the soil is being used. This can be measured with the use of the data that is collected on the farm.

Digitalization can generate value for farmers and other stakeholders in the food chain in several ways. It can be economic, social, or environmental value at the production, processing or distribution stage. However, after several years of adoption of digital technologies by pioneer farmers, some still indicate a lack of evidence of added value. Reliability, ROI, and workload reduction are key adoption factors for farmers (Rijksdienst voor Ondernemend Nederland, 2020).

1.3 The use of Pesticides and biocides

Farmers can use farm management systems to registrate how much crop protection products they have used. If the farmer will registrate it correctly, the program will tell the farmer how much active ingredient of the plant protection products can still be placed on their land or crops. Also, based on all the registrations, the advising program can give the farmer advice when or which quantity he should spray. This advice is based on the last time he sprayed and what the weather conditions are. The program will give the optimal time for spraying.

To protect the crops and weeds against pests and various diseases crop protection chemicals are used within the agriculture. However, to improve agricultural production without compromising the health of European citizens and the environment, the European Commission has laid down rules and criteria for both plant products and their substance in the plant protection regulation. These rules are there to make sure farmers do not use to much of those products on their fields or crops. These rules apply to all member states of the European Union and the assessment of substances and products must take place in the same way in all these countries. Thus, the authorisation can also authorise substances and products that have been evaluated in another member state (Ministerie van Landbouw, Natuur en Voedselkwaliteit, 2020).

As part of the ecological transition, the government of France has developed a national strategy to reduce synthetic chemical pesticide use by 50 percent by 2025. Regulatory and societal pressures are impacting agriculture practices towards a more sustainable agriculture in its three dimensions (economic, environmental, and societal) (Rijksdienst voor Ondernemend Nederland, 2020).

1.4 French agricultural market

France has been selected for this study. The choice of France is based on several factors. France has 320.000km^2 of agricultural land, which is 60 percent of the total land area. Of this, 53 precent is arable land, over 41 percent permanent grassland and 5 percent is covered with permanent crops such as fruit, olives and vineyards (Desjeux et al., 2007). France is the leading agricultural producer in the European Union, with 20% of the European production (European Commission, 2020). Due to the weather diversity in France the primary agriculture production is diverse and because of the good organization also productive.

The country is very friendly towards farmers because they want to keep the quality of life on the countryside high. The area around Paris is filled with beautiful large parcels of arable land. More centrally of France there are areas with grain farms (Agriteaminternationaal, n.d.).

The French Ministry of Agriculture and food prepares and implements the Government's policy for agriculture and forestry; educating in farm and life science; plant health and protection and food policy. The ministry of agriculture and food helps farmers transitioning towards a more ecological agriculture and takes actions for a ''safer, sustainable and accessible food to all'' (Rijksdienst voor Ondernemend Nederland, 2020).

In the Netherlands, AgroVision is an active player on the market with their software. As well as other companies, they are interested in entering the French market with their farm management systems. In the French arable sector, there are companies who are already providing management software. It is not known what their market share is or how farmers experience those programs. The following companies provide farm management systems in France:

- Ekylibre
- Samsys
- Agroptima
- Parcelles
- Turbocereal
- Isagri
- MyEasyFarm
- Vinosoft
- Itk
- Smag
- MesParcelles

Besides management software there are also companies who provide farmers with the technology to detect, for example, plant diseases and give the farmer data which can support his decision. These companies are interesting to work with, because they can provide the farm management program with the correct data. The following companies with decision support- tools are active in France:

- M-CADOR
- Sencrop
- Carbon Bee
- SMAG
- Agralis
- Chouette
- Karnott
- Sensegrass
- Farmleap
- Wanaka
- Geosys
- Weenat
- Fruition

Not only the competitors are important to know, but also cooperatives who have an influencing role on the market are important to know. In the fruit and vegetable sector the most important cooperatives are:

- Bonduelle
- Cecab
- Agrial
- Ardo
- Andros
- Sica St Pol

- Saint mamet
- Blue Whale
- France prune
- Eureden
- Saveol

For growers of sugar beets, the following cooperatives are important:

- Tereos
- Christal Union
- Sain Louis sucre

For cereal growers there are two types of companies: cooperatives on the one hand and grain trading firms on the other. The most important companies and cooperatives are:

- Axéréal
- Group soufflet
- Vivescia
- Terrena
- Noriap
- Unéal
- Dijon Céréales

1.5 Opportunities for the Dutch Agro-tech sector in France

According to Cindy Heijdra, communication advisor at the ministry of Agriculture, Nature and Food Quality in France, the first opportunity in France is technological innovation. According to her, the pioneers in French agriculture are choosing precision farming. There is a growing demand for sensors, drones and software to apply fertilizers, crop protection products and water more efficiently (Ministerie van Landbouw, Natuur en Voedselkwaliteit, 2020a).

Organizations who can process data, generate models and algorithms are feared for their power and influence. In France there is little room for technology providers who do not inspire trust among farmers and the farming industry. Farmers do not always have a clear idea of who has access to and processes their data and for what purposes (Rijksdienst voor Ondernemend Nederland, 2020). It is therefore important that tech providers build trust among these farmers by being transparent about their action. If they ask consent prior using farmers' data, if they inform them of the purpose of their processing and aggregating data, and most importantly if farmers get back some value from sharing their data. Consent can be generated by regulatory instruments like general data protection regulation (GDPR) for personal data and contract law (European Union, 2016).

API-Agro is a data exchange platform for agriculture. Using it secret safe dissemination of data while controlling their destination and use. API-Agro connects stakeholders in agriculture, give them access to networks of data collectors and digital solution publishers. Using this platform for newcomers would help their market penetration in France and facilitate connections with other stakeholders plugged to the platform (API-AGRO, 2019).

There are also networks who provide farmers with feedback they give on new technologies. Such a network is ''Fermes Leader'', where pilot farms share videos on YouTube with feedback regarding new technologies.

Such platforms can support a new company by giving their true opinion about it. This can influence other farmers and boost the new company in the market. It is important that the opinion of the platform is reliable and honest, French farmers find it important that such new companies are transparent and fair (Rijksdienst voor Ondernemend Nederland, 2020).

1.6 Cultural differences

When starting a business in a foreign county not only ecological differences are considered, also the knowledge of cultural differences is needed to make sure business is going as desired. The Netherlands and France are both within the same continent and have obviously similarities in culture, however, there are also some differences.

The most important difference in doing business in the agricultural sector is that the French people are less punctual. However, they are more analytical than Dutch people, they know their files. Dutch people are more practical. According to Cindy Heijdra, this difference can have added value in French- Dutch partnerships (Ministerie van Landbouw, Natuur en Voedselkwaliteit, 2020a).

Furthermore, it is important for Dutch people they can understand and speak the French language. This is important when communicating with French businesses and for the communication to Farmers. French people highly appreciate it when you talk to them in their own language, and it is important for regulations. French is a necessity in product offers and presentations, user manuals, terms of service, and all other designations of a product or service. Invoices and receipts, likewise, need to be in French (Hopwood, 2019).

To compare cultures, a model has been developed consisting of six dimensions to provide insights into cultural differences: power distance, individualism, masculinity, uncertainty avoidance, long and short-term thinking and indulgence vs. restraint (Hofstede, 2020). The comparison is made between the Netherlands and France where some differences are shown in figure 1**.** In the French culture, several motives are different from the Dutch. First, the power distance is much higher than in the Netherlands. This means that children are brought up to respect their parents, this is also reflected in French companies, people work more on hierarchical levels. In terms of individualism, France scores about the same as the Netherlands. This means that people in society only look after themselves and their close family. When it comes to masculinity, The Netherlands has a much lower score. This is because the society is not driven by competition, achievement and success. Work and private life is more balanced.

The French live more in the manner of caring for others and enjoying life. The French people also do not like surprises and are very talkative (Hofstede, 2020).
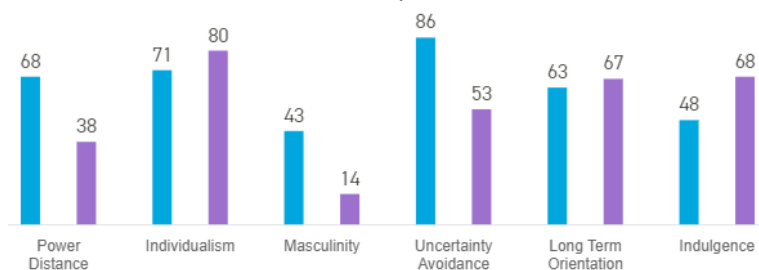

Figure 1 Dimensions to provide insights into cultural differences between France (blue) and the Netherlands (purple) (Hofstede, 2020).

1.7 Customer journey

A successful company knows what its customers and prospects are doing and how they want to be served. To be able to predict which steps customers and prospects will take and to help them with their choices, the customer journey is recorded. It is important for the company to know which phases they must go through when they are mapping out the customer journey and which resources can be used for an optimal customer journey. The customer journey is the journey that a customer takes to purchase a product or service. The customer journey comprises the model in which this customer journey is mapped. Potential customers are also part of it.

The challenge for organisations is not to lose sight of the customer and to be close to him. Despite of the growth of the company and the presence of many different employees and departments. This is a difficult task; on the one hand, the internet provides many developments in the relationship between consumers and companies. Comparison websites, for example, can lead to declining customer loyalty and the online lifestyle of consumers creates high expectations regarding the online accessibility of organisations. At the same time, consumers want to be addressed personally and to know who they are dealing with within the company.

The customer journey consists of several phases; from the still unknown latent need or the already known concrete need, to the decision moment where the purchase takes place. However, the customer journey also continues after the purchase of the product or service. The ideal customer eventually becomes loyal and even an ambassador of the brand, product, or company. To show how a customer journey map is created, the phases are explained using the classification of Digital marketing strategist Bart van der Kooi.

The following phases are used for mapping the customer journey:

1. Latent need and concrete need. At the start of the customer journey, the question is: is the target group already aware that they need the products or services of the company? Or do they still need to be convinced, perhaps because they are not yet familiar with the product?
2. Orientation phase. The way in which (potential) customers orient themselves when purchasing products or services has developed in recent decades. Thanks to the online world, orientation is now possible from any device. In this phase it is important to be in the picture through objective advice.
3. Consideration phase. In this phase the target group's choice of brand or provider of products and services is considered. Brand preference is quite unstable nowadays because it is very easy for consumers to compare products or services on comparison platforms. A successful company can see threats in this phase and is able to use opportunities.
4. Decision moment. At this moment, the consumer has considered everything and chooses a product, brand or provider where the purchase will take place.
5. Purchase phase. After the decision moment the purchase will take place. However, in this phase the consumer can lose its interest and can refrain from the purchase. It is important to know if, when and why this happens.
6. Delivering phase. The delivery of a service or product consists of more variants than just the parcel delivery driving delivering an order from an online shop. Also, for services, which are not literally brought to the buyer's home. The delivery phase can be emphasised by, for example, announcing; 'from now on you are using the online marketing services of company X'. There are

many opportunities for a company that can transform the delivery phase from a boring moment in the customer journey to a positive customer experience and even to enthuse customers.

7. Applying phase. The phase in which a product or service is used offers many starting points that provide insight into the customer and moments of communication with the customer. This is an important moment in the customer journey because it releases valuable information to optimise future products and processes, to respond to possible dissatisfaction and to bind customers to the brand and product.

8. Loyalty phase. A loyal customer commits to the brand and company. However, brand loyalty has many threats, because switching to another provider is becoming increasingly easy and new entrants to the market pose a danger.

9. Ambassador phase. Besides loyal customers, there is a superlative: ambassadors. Ambassadors are not only satisfied and loyal to the company, but they also bring in new customers.

The customer journey can be used to provide insights in the customer experience and is very valuable as a basis to optimize the entire customer experience. Furthermore, the customer journey provides points of departure for dividing the marketing mix. With the help of the marketing mix, the organisation fills out its marketing strategy. The mapped-out customer journey helps to determine how the various marketing instruments should be deployed and what mutual interaction is desired, seen from the customer perspective. With the right communication the company can influence the attitude, knowledge, and behaviour of the customer with the purpose that the customer purchases their product or services (Van der Kooi, B, 2017).

1.8 Purpose of the research

As can be concluded from previous paragraphs on smart farming technologies, managing farms, use of pesticides and biocides, opportunities in France for the Dutch Agri-tech sector, cultural differences, and the customer journey, most of the information necessary for writing an advisory report exist. However, more often than not, the needed information is not available in one document or is not all indeed relevant for a software program. The information gathered in this report forms the basis for writing an advice on how to approach the French arable Farmer with a smart farming software program.

Next to this, what was uncertain in this matter is the knowledge that farmers do and do not have, as well as the information they would like to receive about farm management systems and advisory programs. Research has been conducted on this matter, prior to establish the advisory report. This was necessary to make the implementation plan as applicable as possible to the sector who want to expand their business to France. The focus of this report is on Farm management systems for arable farmers, this is because there are many different Agri-Tech applications who can be used different per sector and with all different purposes.

1.9 Research questions

The purpose of this research was to find an answer to the question: ''What is the optimal way for a Dutch smart farming software company to reach out to French arable farmers with their products?'' with the purpose to provide all information needed to write an advisory report about the French arable market and its stakeholders. It was important to find out the knowledge, attitude and behaviour of the farmers. The answer to the main question has been found through answering the following sub-questions:

1. Which knowledge and need for knowledge do French farmers have concerning farm management systems?
2. On what do French farmers base their choice to adapt farm management systems on their farm?
3. Which sources do French farmers prefer to gather information about farm management systems and advisory programs?

2. Material and Method

The objective of this research was to provide Dutch Agri Tech businesses who provide farm management systems with an advice on how they can enter the French market successfully. By conducting the research, it has become clear which information is unknown and therefore required. The sources used for this study are mainly scientific sources, preferably peer- reviews. In addition, articles from professional journals were used for substantiation. When taking the dating of the sources into account, preferably only sources less than ten years old are used (Baarda, 2014). However, some studies from earlier are still applicable and therefore used in this research.

All three sub questions aided this purpose and have been answered through qualitative research and literature review. A survey has occurred, in which the aim was to find out how the French farms are set up, who makes the decisions and based on what. The aim of the research is to find out which knowledge the farmers have, how they make their choices and where they search for information. After the research has been conducted it is then known which information is important for the implementation plan of a Dutch company.

The research was conducted among French farmers, however, due to COVID-19 it was not possible to go to France and speak directly to the farmers. That is why the questions were spread via an online survey to multiple French arable farmers who then filled it in, the farmers were found via my personal network, my internship, linked In and facebook. Because it was online, I could see the results immediately. To make sure all French farmers were able to fill in the survey, the questions were translated to French by a French farmer. He has also translated the answers back to English so I could use them for my research.

From April 12 to May 1, 2021, farmers have been approached to fill in the survey and three professionals have been approach to do an interview. The farmers filled in the online survey and shared it among colleagues. The results have afterwards been compared to one another and the information that has come from them can be found in chapter three: results.

The answers from the surveys have been thoroughly studied and compared with each other. The questions and answers have been divided into several sub- groups: general information on the respondents, knowledge on software programmes and decision support tools, their attitude around software programmes and their behaviour towards the purchase of a programme.

To support the outcomes of the survey of how farmers behave and how they adopt new technologies several articles have been read. Barriers to the adoption and diffusion of technological innovations for climate-smart agriculture in Europe: evidence from the Netherlands, France, Switzerland and Italy (Long et al., 2016, p. 17) have been used to answer sub-question two.

The general information about the respondents has been processed and put in an overview table, for which the first six question have been used. For the information on the sub-group ''knowledge on software programmes and decision support tools'' the answers from questions 7, 8, 9 and 10 were used. In sub-group ''attitude around software programmes'' answers from questions 11 and 12 have been processed. ''The behaviour towards the purchase of a programme'' has been answered through questions 13 and 14.

Furthermore, the three interviews with the experts provided more information about the market and where a company should think of when they want to enter the French market. By collecting answers on

the questions 5 and 8 sub-group ''attitude around software programmes''. Through questions 6, 7 and 9 sub-group ''attitude around software programmes'' could be answered. Question 10 provided the information regarding social factors.

3. Results

The following data describes the age, profession, type of crops grown on the company and the backgrounds of the ten respondents of the survey among the French farmers. From the respondents nine where male and one was female. The connection between all respondents is that they have a farm, work on a farm or are a farmer's son. Eight out of ten respondents have the age between 26 and 30 years old. The remaining two are 18 and between 41 and 50 years old. Three respondents come from the region Normandie and the others all come from different regions. They all grow different types of crops, mostly vegetables and potatoes but also cereals or other crops. Five respondents have a University degree, four have a master's degree and one has a middle school degree. An overview of the differences in sex, age, region, profession, type of crops grown, and the education can be seen in table 1. As the respondents wish to remain anonymous, they have been named from 1 to 10. The completed surveys can be found in Annex VI.

Table 1 Overview of data collected from the online survey among French farmers.

	Sex	Age	Region	Profession	Crops	Education
1	Female	26 – 30	Somme	Sales manager/ farmer son	Potatoes	University
2	Male	18	Seine-Maritime	Farmer's son	seed potatoes, sugar beet, fibre flax, onions, wheat, barley, rape	University
3	Male	26-30	Hauts- de france	Sales manager/ farmer son	Vegetables	Master/ BTS
4	Male	41-50	Cher	Manager	Field crops. Wheat maize sunflower barley triticale rye	Agricultural middle school
5	Male	26-30	Oise	Manager	Vegetables and cereals	Master
6	Male	26-30	Normandie	Employee	Multi-crop/livestock farming. Wheat, barley, rape, sugar beet, fodder, silage maize	University
7	Male	26-30	Normandie	Manager	wheat, winter barley, spring barley, rape, sunflower, winter peas, spring peas, alfalfa, sugar beet, potatoes, fibre flax, miscanthus	University
8	Male	26-30	Normandie	Employee	Wheat barley rape flax beetroot potatoes	Master/ BTS
9	Male	26-30	Haute-Saône	Employee	Vegetables	Master/ BTS
10	Male	26-30	Seine et Marne	Farmer	Cereals/ beet/ rape/ maize	University

Three professionals have been interviewed in order to find out more about the French market and their experiences with farmers. The following data describes their names, the company they work for and the area in which they are active and if they are familiar with the Agri-Tech market. They are all active in the French market, are familiar with the market and work for three different companies. An overview of the data can be seen in table 2, (full interview transcripts are included in Appendix III-V)

Table 2 Overview of data on three people interviewed on their company, area/country and familiarity with the market.

Name	Company	Country/ area	Familiar with market
Bas Hureau- Haitjema	Sencrop	France, Belgium, Netherlands	Yes
Francois Broutoin	Aviko	France	Yes
Yannick Chevray	Bejo	France	Yes

3.1 Knowledge of FMIS and Decision support tools

Which knowledge do farmers have and which knowledge do they need?

Regarding the knowledge of farm management information systems, the farmers have been asked if they are familiar with these systems. If they are familiar with the systems, they needed to say which companies they know that provide those systems. Three respondents were not familiar with those systems and seven did know some companies who provide the systems. The following companies were mentioned:

- Agiris
- Smag
- Agrinity
- Mes parcelles
- Isagri/Isacompta/ geofolia/ piloter sa ferme

Isagri and Mes parcelles both were mentioned twice.

The farmers were also asked if they were familiar with decision support tools. Four farmers did not use decision support tools on their farm, of which three also are not familiar with FMIS. Six respondents do work with decision support tools. The following companies/ programmes are being used by the respondents:

- Sencrop
- Mileos
- Farmstar
- Meteus
- Geofolia

The weather stations of Sencrop are being used by two respondents.

Quality labels can influence the farmer to invest in FMIS, only five respondents work with quality labels on their company. The following quality labels are used:

- Label Rouge
- Red label
- Agroecology carrefour specifications
- HVE
- Zeró residus
- IGP
- Bio

Label rouge is being adapted by two farmers.

All three professionals are familiar with farm management systems, and one is a seller of Decision support tools. All three think that the farmers in France need farm management systems, however there are already a lot of programs offered which are not always as good as they expected. They are also all think that the French farmers are open for a product from the Netherlands, however it should be adapted to the needs of the French market and all communication must be in French.

3.2 Attitude towards farm management systems

On what do farmers base their choice to adapt farm management systems on their farm?

According to the study conducted by the RVO on the Agri Tech market in France the following factors are important for the adaption of technology on their farm. Nine respondents find Reliability of the program important, followed by return on investment, efficiency, accuracy, price, accessibility, transparency and present social benefits. The answers to this question are viewed in figure 2.
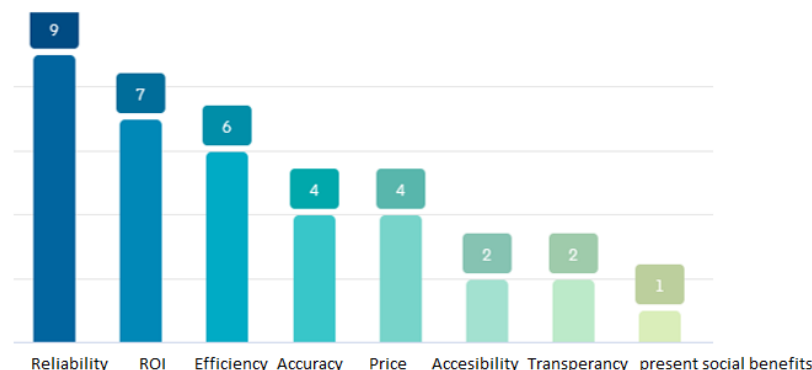

Figure 2 Deciding factors for adapting FMIS and decision support tools and the amount of respondents that mentioned their importance.

It is also asked if French farmers are interested in a program which is made in The Netherlands. Six respondents would adapt a program which is made outside France and four farmers did not know if they would. They said that they would not know if it would be adapted to their needs and if it would be applicable. One farmer specifically said he would only use a program made by a French company.

According to the professionals, French farmers are interested in a program if it adds value to their daily way of working. They also need a program which is trust full and which is in their own language. According to Conny Graumans, general manager Agroconnect and AgGateWay, a new company makes a change in France if a program or product can be linked with all different programs and decision support tools. There also should be a link to all the stakeholders which the farmers have. This is also confirmed by Francois Broutin. It is important that the farmer can have the digital communication between his program and the suppliers and purchasers. For example, the advisors should have access to his registrations regarding the use of crop protection products. The professionals find it also very important that the program is not in English but in correct French, so not translated with a translations tool.

A key barrier to the adoption of technology on the farm well represented within the literature is the role of financial or cost factors. Simply, the cost of many technological innovations is prohibitive, especially early in the diffusion process due to difficulties in initial commercialisation efforts. The expense of establishing production facilities, as technology developers transform themselves into technology producers, often means that profits are hard to obtain and increase the costs of the innovative product or service. Other key factors advanced in the literature include the impact of uncertainty and risk perceptions (del Río González, 2005, Johnson, 2010), market failures (such as information asymmetries) (Weber and Rohracher, 2012), and internal and external stakeholder pressures (Montalvo, 2008). Cultural barriers (linked to consumer habits and expectations (Ceschin, 2013) can also be identified and the credibility and authority of advisers or consultants (Long et al., 2016).

3.3 Behaviour towards purchasing a farm management system.

Which sources do French farmers prefer to gather information about management systems and advisory programs/ decision support tools?

Eight out of ten respondents find the information regarding FMIS and decision support tools on the Internet, this can be seen in figure 3. Also, six respondents find it on magazines or via colleagues. Five respondents find it on social media or via their advisors. And also via trade shows and study groups.
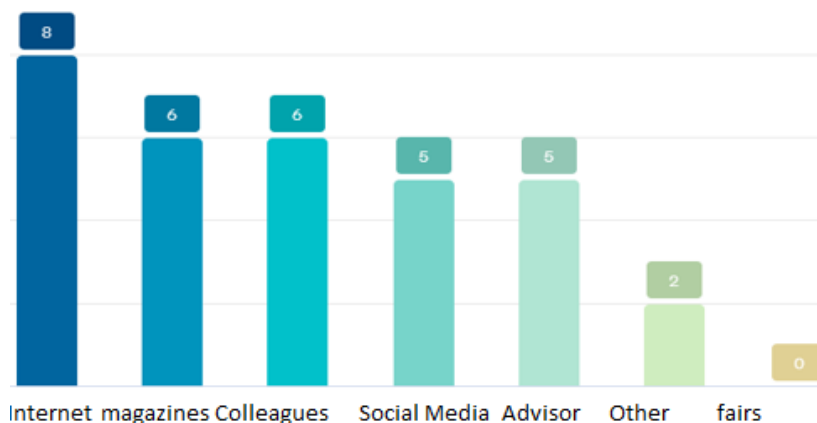

Figure 3 Information sources for farmers regarding FMIS and decision support tools and the amount of respondents that mentioned them.

Farmers where asked who can influence them to purchase a FMIS or decision support tool. Four farmers do not take other's opinion into consideration while buying a farm management system or decision support tool.

The professionals were asked how a company can enter the market. According to Yannick, 90% of the target group can be reached via the industry. However, because France is so big a company should have people directly in the field who can talk to farmers and show the product in real life. It is also important that a company is present at social events and at business fairs to increase awareness. A company must be present in the company via multiple channels, they can have multiple partnerships or mergers. According to Bas Hureau a multi channel is indeed important, for a new company partnerships and dealerships are the most important. Francois thinks that a good commercial partner gives opportunities for a new company, also associations such as '' la ferme digitalle'' who brings together multiple start-up companies and has a big role in Ag tech. Multiple interesting partners of la ferme digitalle can help a new company to enter the market.

Considering marketing a key factor is to have all communication in French. All three professionals know that French people prefer communication in their own language. This will make it easier for a company to get the farmers' trust in their products. They also said that it is important to work from the country itself and not from the Netherlands, this is also needed to react quicker on new market developments and to be able to visit the social events and the business fairs. Most farmers are member of a study groups or a small association with fellow farmers, new companies can be present at their meetings and if possible, show their programs. Furthermore, since this year the sale and the advice regarding crop protection chemicals have been separated. This means that farmers can also request the advice for the optimum spraying method from a program (Yannick Chevray, personal communication, April 28, 2021).

3.4 Customer journey
Based on all the information the customer journey for a Dutch company that provides FMIS can be filled in. The customer journey is viewed in figure 4.

Figure 4 The customer journey

The latent need and concrete need at the start of the customer service are part of the awareness phase. Most farmers are aware of Farm management systems and Decision support tools, however they do not know the details or they don't know companies which offers them. The orientation phase is also part of the awareness. The way farmers orient themselves is mostly on online platforms, via the internet, or via magazines or social media, such as YouTube and twitter (Rijksdienst voor Ondernemend Nederland, 2020). They like to read the experiences of other farmers on those platforms before they even consider the product.

In the next stap they gather information, this is the consideration phase. In this phase they will attend video conferences to hear more about digital products (Rijksdienst voor Ondernemend Nederland,

2020), and they will ask their advisors and other colleague farmers for their experiences. If it is possible, they will visit business fairs to talk directly to the company so they can see the product in real life (Rijksdienst voor Ondernemend Nederland, 2020).

The decision making is important to stand out as a brand. In the previous phases the customer considered multiple brands and products and then they will choose one. As a company you must prove your product will make the work easier and to create more added value (Rijksdienst voor Ondernemend Nederland, 2020). Not only added value is important to farmers the product must be reliable, have a good return on investment and work efficiently. A company can use this in their advertisement.

During the purchase phase it is important to keep the customer in and make sure they do not loose interest. Farmers need to be informed about the product, if there is a waiting time they should be informed. The way of selling is very important in this phase. If a salesman makes the sale, he should make sure everything is taken care of and that the farmer can use the product soon. If it is an online product the program should be easily accessible and if it is possible an explanation should be given (Rijksdienst voor Ondernemend Nederland, 2020). By helping the customer and tell him he can be helped he will not lost interest.

The delivering phase is important to leave a good impression at the farmer. This can be done via email or other personal contact, this depends on the way it has been sold. The farmer can receive a training and support if this is needed (Silvert & Warner, 2019). A company can add a training program to their product this can be individual with learning material in the product or with a service employee of the company. The company should be careful with those trainings, make sure they don't push the farmer, they should make a clear and easy learning guide which is easy to follow (Silvert & Warner, 2019).

In the after sales, also the applying phase and loyalty phase, a lot can come along. Such as trainings, which also can be in the delivering phase, but also free services are important for a farmer. The farmer may run into problems later and then he will expect that he will be helped. Because farmers work 24/7 he will expect the company is reachable 7 days as well. Therefore, it is advised to a company they have a good self- service available where the farmer can find the answer to his questions if the company can't be reached (AgroVision, personal communication, May 11 2021). For a company it is important to give the farmer the best service as possible to keep them satisfied and bind them to the company. If there is a bond it will be easier to make them loyal to your company. Not only providing them with good service is needed, but also to listen to the users. If there is something that needs to be changed in a program or on a product the company must answer to this, otherwise the farmer won't be satisfied and can leave (AgroVision, personal communication, May 11, 2021).

For a new company in the market it can be interesting to work with big influencing companies who can be an ambassador. They can show their followers how the product or program works and give their review on it (Rijksdienst voor Ondernemend Nederland, 2020).

4. Discussion of result

The objective of this research was to assess the knowledge and demand for knowledge of various farmers within the agricultural sector in France on FMIS and decision support tools. In order to find out how a company can reach them, via which way and with which information, the topic has been divided into three subjects, the knowledge of the farmer, their behaviour towards FMIS and their attitude towards purchasing FMIS. After which the customer journey could be filled in. Literature research has assisted in the writing of chapter one and has supported in forming a basic understanding of the different topics.

The qualitative research that has been executed consisted of ten surveys and three interviews. It was originally intended to receive more respondents to the enquiry, however due to the period and the specification of the enquiry it was difficult to reach the right farmers. Only ten of eighty reached farmers could answer the enquiry fully. Moreover, because it was an online survey the answers received were relatively short, compared to what was expected and this method has lend no opportunity to dig deeper on the answer as would be the case in a verbal enquiry. Because of the COVID-19 crisis the interviews with the three professionals were held online via a teams meeting. This has had a slightly negative impact on the research: due bad internet access in rural areas in France the professionals were not easy to understand which made the conversation difficult. That is why not all answers were equally well elaborated. Nonetheless, all surveys and interviews were by far sufficiently filled out to still execute the research. All three research questions have been answered fully and so it is fair to say that the method used in this research, supported by literature review, has been successful nonetheless.

Compared to the existing literature, the knowledge of the respondents on all three topics were less than expected. This may have two reasons: or they did not think of it at the moment of filling out the enquiry or answering my questions or they genuinely did not have the knowledge. However, the respondents had been requested to be as completely as possible in their answering. For this reason, it is expected that this was truly the knowledge they possessed at the moment of filling out the enquiry.

One of the most important findings in this research is that studies already have been conducted about the French market and how it can be entered, however the focus in those studies is mainly on the companies that help with entering the country and not necessarily on how the farmer can be reached and which customer journey belongs to this target group. Furthermore, the required information is often not available in one place, causing people to be forced to consult multiple sources.

Knowledge of FMIS and Decision support tools

The knowledge is difficult to find out. Most of the farmers questioned are familiar with the systems and with the decision support tools. However, because it was an online survey, I could not find out what they specifically know about those systems. In practice this is not a problem, they already know some companies who provide those systems. The companies that are mentioned are also the most well-known companies in France. Therefore, it can be said that the programs are known and that the decision support tools are being used, however because not enough farmers are questioned it cannot be said if the whole market is familiar with the programs and products already. However, according to the study done by the RVO, AgTech is a growing sector. Therefore, it can be assumed more farmers will become more familiar with it the coming years.

Attitude

The attitude of farmers in this study is based on their openness towards new technologies and on which factors they base their choice to adapt them on their farm. According to the result farmers find reliability of the program or product important and then the return on investment. This is logical, they want a program they can trust and they want to earn their investment back. What was surprising in this area was that four respondents did not know if they would adapt a program or product on their farm which comes from outside France. It is known that French citizens support their own companies and prefer their own build programs, however it is known from the interviews with the professionals, that farmers are open for a new and innovative program and that the origin is not important when the new program overrules the other programs or products on the market.

In this study the whole attitude of farmers is not examined enough, it was for example possible to also look at the differences between sustainable arable farmers and conventional farmers. However, this was not the focus for this study and therefore not included.

Behaviour

The behaviour of farmers is examined via their way of searching for information. Eight out of then respondents look for information on the internet, which was expected on the beginning. Followed by magazines and colleagues. Based on the information founded in the market study of the RVO most farmers find the experiences of other farmers very important. They have study groups and they look on Facebook and YouTube and they visit business fairs to find information. However, only 5 farmers questioned said that they use social media and zero said that they visit the business fairs. This can also be the result of the COVID-19 crisis because for the past 1,5 years there were a lot of fairs cancelled.

The answers of the professionals on the question: ''how can a Dutch company enter the French market?'' were all totally in line with the information of the study of the RVO therefore it can be said that this information is reliable. Considering the cultural differences, in the first chapter the literature study showed that the most important barrier would be the language, in the interviews this is confirmed and is therefore reliable.

Customer journey

Based on all the founded information the customer journey could successfully be filled in. However, this is done for a farm management system which can be entered online. If the study was on for example a weather station the customer journey would be slightly different. The difference is in this case in the way of delivering, the phases before the delivering phase can be similar to the customer journey for the farm management system, and the after sales can be similar as well. Customer service is always important to keep a loyal customer.

5. Conclusion and recommendations

The purpose of this thesis is to find an answer to the question: ''What is the optimal way for a Dutch smart farming software company to reach out to French arable farmers with their products?'' with the purpose to provide all information needed to write an advisory report about the French arable market and its stakeholders. It was important to find out the knowledge, attitude and behaviour of the farmers. The following sub-questions have supported in finding the answer:

1. Which knowledge and need for knowledge do French farmers have concerning farm management systems?
2. On what do French farmers base their choice to adapt farm management systems on their farm?
3. Which sources do French farmers prefer to gather information about farm management systems and advisory programs?

For a company it is important to know how they can reach their potential customer in the most efficient way. In order to find information to give an advice about this an enquiry had been sent out and answered by ten people and three interviews with professionals have occurred.

To give a Dutch company a clear direction is impossible. There are to many factors which makes all ways to enter the French market unique and different per company. To enter the market, it is important to understand that France is a country which already is focussing a lot on technical innovations and they have appointed universities and organisations for this. However, the country is open for new technologies coming from the Netherlands and are open for partnerships and alliances with Dutch companies.

However, it is not only a matter of entering the agricultural tech market, but it is also important for a company to reach the farmers. The most important factors to reach the farmers is understanding their knowledge, behaviour and attitude. Farmers are aware of the technologies that exist, however not all farmers use them already. It is therefore important as a new company to convince the farmers about the added value that the program or product provides. The customer journey is also important to use as a guideline for sales, marketing and after sales. A company must be visible at the places where farmers look for their information, on the internet, via advisors and they should be present at business fairs. Farmers in France rely on the experiences that other farmers have on the program or product. That is why it is important for a new company to have positive reviews on multiple channels, such as on YouTube, twitter, on the website, on multiple French associations and in magazines.

After the purchase of the farmer, it is the responsibility of the company that the farmer receives a clear explanation of the program or product and that they can be reached for questions at any time. If a company cannot provide the farmer with the right service, he will stop using the program or he will leave.

The most important social factors for the successful acquisition of the company are mastering the language and understanding the culture. A big difference between a Frenchman and a Dutchman is directness. It is also important to see the area in different seasons and to remain realistic. For a good chance of success, it is important to have a clear picture of the wishes and expectations of the company. For a Dutch company it is important to work with French employees who already know the company and

who know how to communicate with all stakeholders on the market. They also can easily react in certain situations because they are closer to the market then the employees who work from the Netherlands.

The answer on the main question ''What is the optimal way for a Dutch smart farming software company to reach out to French arable farmers with their products?'' is that there are multiple ways to enter the market and to reach the farmers. For a new company on the French market it is advised to make alliances and build partnerships with multiple companies on the market. Also, partnerships with associations such as ''la ferme digitalle'' can help a new company to create a network and brand awareness. It is advised to make alliances with companies on the market farmers already know and trust to show them that the program or product is reliable.

Based on the conclusions, recommendations can be made to Dutch companies that are interested in entering the French market with their programmes or products.

- It is important to work from the country itself and to learn the culture and language. If not, farmers will not be willing to work with your company.
- Farmers are open for new technologies created in the Netherlands, however it should work for them and therefore it can be needed to adapt the program to their needs and expectations.
- It is important to present a new and innovative program or product, do not come up with something that already is being used.
- Be visible in the market via multiple channels, associations and create partnerships.
- Make sure to have a good customer service department who can help the farmer.

For further research it is recommended to question a larger group of people, in order to find out more precisely the knowledge farmers already have regarding agricultural technologies. The focus on this research was on the customer side, for further research it is also recommended to look at the whole market, which stakeholders are important to work with and which competitors are active on the market. This is per type of program or product different which makes further research very specific.

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Annex I: Survey questions farmers.

1. Are you male or female?
   a. Male
   b. Female
2. How old are you?
   a. 18-25   d. 41-50
   b. 26-30   e. 51-60
   c. 31- 40   f. 61 or older
3. In which region do you live?
4. What is your profession?
5. What type of company do you have? Which crops do you grow?
6. What is the highest level of school you have completed or the highest degree you have?
   a. Less than high school   d. Master
   b. High school degree   e. Doctorate/ PhD
   c. Bachelor/license   f. Other:
7. Are you familiar with Farm management systems?
   a. Yes: (fill in which one you know)
   b. No
8. Do you know companies who offer farm management systems?
   a. Yes: (fill in which one you know)
   b. No
9. Are you currently working with decision support tools?
   a. Yes: (fill in which one)
   b. No
10. Are there quality labels for the products you grow?
    a. Yes: (fill in which one)
    b. No
11. What is your deciding factor for adapting such technologies on your farm?
    a. Reliability   e. Return on investment
    b. Efficiency   f. Present social benefits
    c. Accessibility   g. Price
    d. Accuracy   h. Other: (think of; the ease of use, obligations etc.)
    e. Transparency
12. Would you adapt technology on your farm that is created in The Netherlands?
    a. Yes
    b. No, because:
13. Where do you find information regarding decision support tools and farm management systems?
    a. Magazines   e. Consultant/ advisor
    b. Trade fairs   f. Colleagues/ acquaintances/ family
    c. Internet   g. Other:
    d. Social Media
14. Do you take other people's opinions into account during your purchasing process?
    a. Yes: (fill in who)
    b. no

Annex II: Interview questions professional

1. Who are you?
2. For which company do you work?
3. In which area/country are you active
4. Are you familiar with the French Agricultural/arable sector?
5. Do you think farmers will be interested in an online registration program?
    a. And do they need a program which gives them advice on the optimum time for spraying crop protection products?
    b. As well as a program that gives a risk analysis for potential diseases?
6. Do you see opportunities for Dutch technological companies, do you see threats?
7. What are the possible ways to enter the French market and how to reach the farmers with a farm management product? Thick of cooperatives, dealerships, partnerships etc.
8. What is your experience with French farmers? Are they open for new technologies which are created in the Netherlands?
9. Taking marketing into consideration, what are key factors for a good marketing campaign?
10. Do you have recommendations for Dutch companies who want to enter the French market?

Thank you for your time.

Annex III: Interview Francois Broutin

1. Who are you?
   a. Francois Broutin
2. For which company do you work?
   a. Aviko, I am working in the potato sector for around 20 years. Since one year for Aviko, this year a new factory is being build.
3. In which area/country are you active
   a. France, not one specific area.
4. Are you familiar with the French Agricultural/arable sector?
   a. Yes, already 20 years.
5. Do you see opportunities for Dutch technological companies?
   Yes of course there are many opportunities, also for Dutch companies. When there is a good program which farmers can use to optimize their farm management, the program can be sold on the French market. It needs to be fully adapted to the French market with connection with cooperatives, suppliers, purchasers and advisors. The program needs to be in French and it must be sold from France, not from The Netherlands. It is also needed that there is a team operating in France, think of sales agents, account managers, help desk etc.
   a. Do you see threats?
      - Do not work from the Netherlands, French people prefer to have contact with a French person.
      - The program should not be too complicated, French farmers prefer a program which is easy to use.
      - The program should be new and innovative, really distinguish yourself from your competitors. Do not come with a program which is already in use for a long time.
6. What are the possible ways to enter the French market and how to reach the farmers with a technological product?
   a. Cooperatives
   b. Partnerships
   c. private companies
   d. Chamber of agriculture (government)

However, almost all easy ways are already taken, therefore it will be needed to look for another way. AgroVision can think of investing in Partnerships with for example purchasers or suppliers of agricultural goods and services. A good commercial partner gives opportunities, as well as associations such as '' la ferme digitalle'' they have members and contacts who can start using your product. Agriculture and digital activity. To find partners.

There are farmers who are active on YouTube, and very popular in the agricultural sector, that could also be a good way to identify the farmers who have most followers.

7. What is your experience with French farmers? Are they open for new technologies, or those who are created in the Netherlands? What is their character?
   a. Yes, French farmers are open for programmes which are made by another country, however it really should be fully adapted to the French market. With the right links with

suppliers, purchasers/ cooperatives and advisors. It is also important to communicate in the French languages, otherwise the farmers will not be interested.

8. Taking marketing into consideration, what are key factors for a good marketing campaign?
   a. Good language
   b. Events, it is important that a company such as AgroVision is visible, therefore they need to be among the farmers. They must see you and the products you offer. It is possible to demonstrate the program to farmers on such events.
   c. Do not go directly to farmers, farmers do not have time to speak to a sales agent which they do not know. They have lot of meetings and events.
   d. Attend such meetings, get to know them and then you can approach them to ask if they are interested in your program.

9. Do you have recommendations for Dutch companies who want to enter the French market?
   a. Do not start from the Netherlands, you must be identified as local. Office in France and French dedicated team that will be very important.

Thank you for your time!

Annex IV: Interview Bas Hureau

1. Who are you?
   Bas Hureau - Haitjema
2. For which company do you work?
   Sencrop
3. In which area/country are you active
   France, Belgium, Netherlands
4. Are you familiar with the French Agricultural/arable sector?
   Yes
5. Do you think farmers will be interested in an online registration program?
   Yes
   a. And do they need a program which gives them advice on the optimum time for spraying crop protection products?
      Yes
   b. As well as a program that gives a risk analysis for potential diseases?
      Yes
6. Do you see opportunities for Dutch technological companies? / Do you see threats?
   Yes of course, it is important that farmers can easily register everything. However, it is important that they adapt their products and programs to the specific need of the French arable farmers. Furthermore, the communication is really important. This has to be in French, also the mentality of French people is different. Keep an close eye on the differences in culture and the way of doing business.
7. What are the possible ways to enter the French market and how to reach the farmers with a farm management product? Thick of cooperatives, dealerships, partnerships etc.
   All these ways are possible, however, keep in mind which ways are already be used by the big companies. Partnerships and dealerships are the most interesting.
8. What is your experience with French farmers? Are they open for new technologies which are created in the Netherlands?
   Yes, they already use some products and technologies from the Netherlands, for example, DST Rimpro.
9. Taking marketing into consideration, what are key factors for a good marketing campaign?
   Never give up and keep pushing. It will take a while before earning your spot.
10. Do you have recommendations for Dutch companies who want to enter the French market?
    Make sure you speak the language or have natives in your team. Be visible in the country and not only from a Dutch office.

Annex V: Interview Yannick Chevray

1. Who are you?
    a. Yannick Chevray
2. For which company do you work?
    a. Bejo production side and sales manager
3. In which area/country are you active
    a. France
4. Are you familiar with the French Agricultural/arable sector?
    a. Yes, already for over 20 years. We do in France the same as in the Netherlands. We provide the seeds for onions, carrots, red beet, lettuce, etc. all outdoor productions. Small growers grow a lot of crops in small quantities, this is 80% of our customers. The larger growers are mostly specialized in 1 crop, this is 20% of our customers. Furthermore, they deliver to plant raisers, cooperatives such as Agrial and industrial clients such as Bonduelle. They produce on contracts with farmers and can deliver the seeds for them. Only 10% of the production is on contracts with the cooperatives.
5. Do you think farmers will be interested in an online registration program?
    a. And do they need a program which gives them advice on the optimum time for spraying crop protection products?

    Yes of course, however Isagri is already very well known and is already 25 years old producing tools. Now it is quite mandatory to have a program for subsidies and trace ability for crop protection. Conventional agriculture and zero residue agriculture they need the registration program and already a lot are using them. They also use AOD's (Decision support tools), these are still in development.

    b. As well as a program that gives a risk analysis for potential diseases?
        i. Yes, for example for the risk of mildew in potatoes. They need the advice, but there is no program yet which farmers trust. The different climate throughout France is important to adapt in the advice.
6. Do you see opportunities for Dutch technological companies? / Do you see threats?
    a. Sure, if there is a program with added value, so no equal value such as Isagri. If there is a good product with a good advice it will be good.
    b. The mobility is important. We see that it is important when it can be used everywhere. The interface needs to be in French. It is hard to work in English and it is mandatory that the interface is in French.
7. What are the possible ways to enter the French market and how to reach the farmers with a farm management product? Thick of cooperatives, dealerships, partnerships etc.
    a. Depends on the Target, 90% via the industry, directly to Industry, they impose the way of the work of the farmer and their protocol. France is big so you need people in the field who can present the program to the growers. Multi channel requirements, you need to be able to sell your product locally.
    b. For example, Isagri has a lot of people in the field who understand the job of the farmer, they have a stand at fairs, and they visit their competitors on those fairs.
8. What is your experience with French farmers? Are they open for new technologies which are created in the Netherlands?

      a. Yes, they like products which are easy to use and who can add value to their management.
9. Taking marketing into consideration, what are key factors for a good marketing campaign?
      a. Work from the country and make sure you understand the needs of the farmers.
10. Do you have recommendations for Dutch companies who want to enter the French market?
      a. The key factor is to be innovative with your product. There are already a lot of products sold to growers, you need to be different and innovative.

Annex VI: Results survey

Farmer 1

1. Are you male or female?
   a. Female
2. How old are you?
   a. 26-30
3. In which region do you live?
   a. Somme
4. What is your profession?
   a. Sales Manager, farmer's son
5. What type of company do you have? Which crops do you grow?
   a. Sale of tillage equipment/potatoes
6. What is the highest level of school you have completed or the highest degree you have?
   a. University
7. Are you familiar with Farm management systems?
   a. Yes: Agiris
8. Do you know companies who offer farm management systems?
   a. Yes: Agiris
9. Are you currently working with decision support tools?
   a. No
10. Are there quality labels for the products you grow?
    a. No
11. What is your deciding factor for adapting such technologies on your farm?
    a. Reliability   d. Return on investment
    b. Efficiency   e. Accessibility
    c. g. Price
12. Would you adapt technology on your farm that is created in The Netherlands?
    a. Yes
13. Where do you find information regarding decision support tools and farm management systems?
    a. Magazines
    b. Colleagues/ acquaintances/ family
    c. Internet
    d. Social Media
14. Do you take other people's opinions into account during your purchasing process?
    a. no

Farmer 2

1. Are you male or female?
   a. Male
2. How old are you?
   a. 18-25
3. In which region do you live?
   a. Seine-Maritime
4. What is your profession?
   a. Farmers son
5. What type of company do you have? Which crops do you grow?
   a. Arable crops: seed potatoes, sugar beet, fibre flax, onions, wheat, barley, rape
6. What is the highest level of school you have completed or the highest degree you have?
   a. University
7. Are you familiar with Farm management systems?
   a. Yes: Smag, BeApi, Agrinity
8. Do you know companies who offer farm management systems?
   a. Yes: Smag, FieldView
9. Are you currently working with decision support tools?
   a. Yes: Sencrop weather stations
10. Are there quality labels for the products you grow?
    a. Yes: Zero residues, red label, PGI, organic
11. What is your deciding factor for adapting such technologies on your farm?
    a. Return on investment
    b. Efficiency
    c. Present social benefits
12. Would you adapt technology on your farm that is created in The Netherlands?
    a. Yes
13. Where do you find information regarding decision support tools and farm management systems?
    a. Magazines
    b. Colleagues/ acquaintances/ family
    c. Internet
    d. Social Media
    e. Consultant/ advisor
14. Do you take other people's opinions into account during your purchasing process?
    a. Yes: other farmers

Farmer 3

1. Are you male or female?
    a. Male
2. How old are you?
    a. 26-30
3. In which region do you live?
    a. Hauts-de-France
4. What is your profession?
    a. Sales, farmers' son
5. What type of company do you have? Which crops do you grow?
    a. Now I sell weather stations, my father cultivates vegetables such as potatoes and onions
6. What is the highest level of school you have completed or the highest degree you have?
    a. Master
7. Are you familiar with Farm management systems?
    a. Yes
8. Do you know companies who offer farm management systems?
    a. Yes
9. Are you currently working with decision support tools?
    a. No
10. Are there quality labels for the products you grow?
    a. No
11. What is your deciding factor for adapting such technologies on your farm?
    a. Reliability
    b. Accessibility
    c. Price
12. Would you adapt technology on your farm that is created in The Netherlands?
    a. Yes
13. Where do you find information regarding decision support tools and farm management systems?
    a. Internet
    b. Social Media
    c. Business fairs
14. Do you take other people's opinions into account during your purchasing process?
    a. no

Farmer 4

1. Are you male or female?
   a. Male
2. How old are you?
   a. 41-50
3. In which region do you live?
   a. Cher, centre- Val
4. What is your profession?
   a. manager
5. What type of company do you have? Which crops do you grow?
   a. Field crops. Wheat maize sunflower barley triticale rye
6. What is the highest level of school you have completed or the highest degree you have?
   a. Middle school for agriculture
7. Are you familiar with Farm management systems?
   a. Yes: (fill in which one you know)
   b. No
8. Do you know companies who offer farm management systems?
   a. Yes: MesParcelles, isacompta
9. Are you currently working with decision support tools?
   a. Yes: Isacompta of Isagri, MesParcelles of the chambres de agriculture
10. Are there quality labels for the products you grow?
    a. Yes, HVE, high environmental value
11. What is your deciding factor for adapting such technologies on your farm?
    a. Reliability
    b. Return on investment
    c. Efficiency
12. Would you adapt technology on your farm that is created in The Netherlands?
    a. Maybe isacompta I'm not sure
13. Where do you find information regarding decision support tools and farm management systems?
    a. Magazines
    b. Colleagues/ acquaintances/ family
    c. Internet
    d. Study group
14. Do you take other people's opinions into account during your purchasing process?
    a. Yes: other users

Farmer 5

1. Are you male or female?
   a. Male
2. How old are you?
   a. 31- 40
3. In which region do you live?
   a. oise
4. What is your profession?
   a. manager
5. What type of company do you have? Which crops do you grow?
   a. Vegetables and cereals
6. What is the highest level of school you have completed or the highest degree you have?
   a. Master
7. Are you familiar with Farm management systems?
   a. No
8. Do you know companies who offer farm management systems?
   a. No
9. Are you currently working with decision support tools?
   a. Yes: Mileos
10. Are there quality labels for the products you grow?
    a. Yes: Carrefour specifications
11. What is your deciding factor for adapting such technologies on your farm?
    a. Reliability
    b. Return on investment
    c. Accuracy
12. Would you adapt technology on your farm that is created in The Netherlands?
    a. No
13. Where do you find information regarding decision support tools and farm management systems?
    a. Magazines
    b. Consultant/ advisor
    c. Colleagues/ acquaintances/ family
14. Do you take other people's opinions into account during your purchasing process?
    a. Yes: Colleague farmer / technician

Farmer 6

1. Are you male or female?
    a. Male
2. How old are you?
    a. 26-30
3. In which region do you live?
    a. Normandie
4. What is your profession?
    a. employee
5. What type of company do you have? Which crops do you grow?
    a. Multi-crop/livestock farming. Wheat, barley, rape, sugar beet, fodder, silage maize
6. What is the highest level of school you have completed or the highest degree you have?
    a. Engineer
7. Are you familiar with Farm management systems?
    a. No
8. Do you know companies who offer farm management systems?
    a. No
9. Are you currently working with decision support tools?
    a. Yes: Farmstar for nitrogen fertilization
10. Are there quality labels for the products you grow?
    a. No
11. What is your deciding factor for adapting such technologies on your farm?
    a. Reliability
    b. Return on investment
    c. Accuracy
    d. Transparency
12. Would you adapt technology on your farm that is created in The Netherlands?
    a. Yes
13. Where do you find information regarding decision support tools and farm management systems?
    a. Magazines
    b. Colleagues/ acquaintances/ family
    c. Internet
    d. Social Media
14. Do you take other people's opinions into account during your purchasing process?
    a. Yes: Other users

Farmer 7

1. Are you male or female?
   a. Male
2. How old are you?
   a. 26-30
3. In which region do you live?
   a. Normandie
4. What is your profession?
   a. manager
5. What type of company do you have? Which crops do you grow?
   a. Field crops: wheat, winter barley, spring barley, rape, sunflower, winter peas, spring peas, alfalfa, sugar beet, potatoes, fibre flax, miscanthus.
6. What is the highest level of school you have completed or the highest degree you have?
   a. University
7. Are you familiar with Farm management systems?
   a. Yes I use one. It allows me to have a written record of the interventions carried out on the farm.
8. Do you know companies who offer farm management systems?
   a. Yes: ISAGRI
9. Are you currently working with decision support tools?
   a. Yes: Meteus, Geofolia
10. Are there quality labels for the products you grow?
    a. Yes: Red label wheat, sustainable erucic rape.
11. What is your deciding factor for adapting such technologies on your farm?
    a. Reliability
    b. Efficiency
    c. Price
12. Would you adapt technology on your farm that is created in The Netherlands?
    a. Yes
13. Where do you find information regarding decision support tools and farm management systems?
    a. Magazines
14. Do you take other people's opinions into account during your purchasing process?
    a. Yes: other users

Farmer 8

1. Are you male or female?
    a. Male
2. How old are you?
    a. 26-30
3. In which region do you live?
    a. Normandie
4. What is your profession?
    a. Employee
5. What type of company do you have? Which crops do you grow?
    a. Wheat barley rape flax beetroot potatoes
6. What is the highest level of school you have completed or the highest degree you have?
    a. Master
7. Are you familiar with Farm management systems?
    a. No
8. Do you know companies who offer farm management systems?
    a. No
9. Are you currently working with decision support tools?
    a. No
10. Are there quality labels for the products you grow?
    a. No
11. What is your deciding factor for adapting such technologies on your farm?
    a. Reliability
    b. Return on investment
    c. Efficiency
    d. Accuracy
12. Would you adapt technology on your farm that is created in The Netherlands?
    a. Yes
13. Where do you find information regarding decision support tools and farm management systems?
    a. Consultant/ advisor
    b. Internet
14. Do you take other people's opinions into account during your purchasing process?
    a. Yes: Equipped companies

Farmer 9

1. Are you male or female?
   a. Male
2. How old are you?
   a. 26-30
3. In which region do you live?
   a. Haure-Saône
4. What is your profession?
   a. Employee
5. What type of company do you have? Which crops do you grow?
   a. Multi-crop livestock farming
6. What is the highest level of school you have completed or the highest degree you have?
   a. Bachelor
7. Are you familiar with Farm management systems?
   a. Yes
8. Do you know companies who offer farm management systems?
   a. No
9. Are you currently working with decision support tools?
   a. No
10. Are there quality labels for the products you grow?
    a. Yes, red label
11. What is your deciding factor for adapting such technologies on your farm?
    a. Reliability
    b. Return on investment
    c. Price
12. Would you adapt technology on your farm that is created in The Netherlands?
    a. No
13. Where do you find information regarding decision support tools and farm management systems?
    a. Consultant/ advisor
    b. Internet
14. Do you take other people's opinions into account during your purchasing process?
    a. no

Farmer 10

1. Are you male or female?
   a. Male
2. How old are you?
   a. 26-30
3. In which region do you live?
   a. Seine et Marne
4. What is your profession?
   a. Farmer
5. What type of company do you have? Which crops do you grow?
   a. Cereals / beet / rape / maize
6. What is the highest level of school you have completed or the highest degree you have?
   a. University
7. Are you familiar with Farm management systems?
   a. Yes, piloter sa ferme of Geofolia
8. Do you know companies who offer farm management systems?
   a. Yes: Isagri, Mes Parcelle
9. Are you currently working with decision support tools?
   a. Yes: Sencrop, Geofolia
10. Are there quality labels for the products you grow?
    a. No
11. What is your deciding factor for adapting such technologies on your farm?
    a. Reliability
    b. Efficiency
    c. Accuracy
    d. Transparency
12. Would you adapt technology on your farm that is created in The Netherlands?
    a. No
13. Where do you find information regarding decision support tools and farm management systems?
    a. Consultant/ advisor
    b. Colleagues/ acquaintances/ family
    c. Internet
    d. Social Media
14. Do you take other people's opinions into account during your purchasing process?
    a. no