

Edible Pot Plant

Market feasibility research for FloriPro Services, Syngenta Seeds.

Commissioned by:

FloriPro Services™

Syngenta Seeds B.V

Company Supervisor:

Niels Steenvoorden

Monique Hoeijenbos

Thesis Coach:

Geert Houwers

Jia Wan / Wayne

Student, International Horticulture and Marketing

Van Hall Larenstein University of Applied Science

Email: wayne.wan@wur.nl

Date:6-28-2010

University of Applied Sciences

The Syngenta logo, consisting of the word 'syngenta' in a lowercase, blue, sans-serif font. A small green leaf icon is positioned above the letter 'y'.

Copying

This report is only allowed for purpose of academic study or discussion. The information related to the company management and finance is considered as company' s confidential business information. People who read this report have the obligation to keep the information confidential. It is not allowed to make copies for the purpose of any public library storage or any other commercial use. Syngenta Seeds B.V does not accept liability for any pecuniary loss arising from the use of or reliance on the report.

Abstract

Due to a rising demand for vegetable, fruits and herbs plants for pot growing with which consumers can produce their own food. FloriPro Services conducts a market entry analysis/market feasible research, based on the UK, Netherlands and German market. Wan Jia/Wayne, the student from Van Hall Larenstein, joined into this project and conducts a market feasibility research as his thesis project. The objective is to deliver a final proposal of go-no go decision for further investment on edible pot plants including vegetables, fruits and herbs. Based on the literature study and internal interviews, the relevant information was collected and an SWOT analysis was conducted. According to the result, there are many reasons push the self growing trend rising up and attractive sales value and margin space on young plant distributor level, but also strong competition and strict regulation on this market. Based on the FloriPro Services current situation, the final proposal suggests going to this market. In order to make the concept more completed, and also satisfied the company, a concept development were conducted by Wayne, which including assortment identification, cost benefit calculation and market entry strategy.

Acknowledgement

This report and the expertise I discuss in the following pages were partly gathered and processed from secondary sources and interviews. Many people have contributed to this effort, directly or indirectly, in various ways. So I would like to thank all the people who supported me for my thesis study:

Mr. Niels Steenvoorden, Student company supervisor, Regional Marketing Manager FloriPro Services EAME.

Miss. Monique Hoeijenbos, Student company supervisor, Regional Marketing Manager Flower EAME.

Mr. Geert Houwers, student Larenstein supervisor, professor in Van Hall Larenstein University of Applied Sciences.

Mr. Jos Leeters, professor in Van Hall Larenstein University of Applied Sciences.

Mr. Steve Waters, local product manager FloriPro Services EAME.

Mr. Guenter Buckermann, local product manager FloriPro Services EAME.

Mr. Matthijs Post, local product manager FloriPro Services EAME.

Mr. Hans van Geest, Strategic Account Manager Flower EAME

Mr. Reinier van Markus, Global Marketing Analyst & Business Process Expert, Syngenta Flowers Professional at Syngenta Seeds

Table of content

1	INTRODUCTION	8
1.1	BACKGROUND INFORMATION	8
1.1.1	<i>Research background</i>	<i>8</i>
1.1.2	<i>Company overview</i>	<i>8</i>
1.2	RESEARCH OBJECTIVES AND QUESTIONS	9
1.3	RESEARCH METHODOLOGY	10
1.4	PROJECT MANAGEMENT	11
1.4.1	<i>Team</i>	<i>11</i>
1.4.2	<i>Communication.....</i>	<i>11</i>
1.4.3	<i>Assumptions and Risks.....</i>	<i>11</i>
1.4.4	<i>Research limitations</i>	<i>11</i>
1.5	CHAPTER OVERVIEW	12
2	PRODUCT SEGMENTATION	13
2.1	PRODUCT FORM.....	13
2.1.1	<i>Grow Your Own.....</i>	<i>13</i>
2.1.2	<i>Done For You.....</i>	<i>14</i>
2.2	RETAIL CHANNEL.....	15
3	EXTERNAL ANALYSIS	16
3.1	STEEP ANALYSIS.....	16
3.1.1	<i>Social.....</i>	<i>16</i>
3.1.2	<i>Technological.....</i>	<i>18</i>
3.1.3	<i>Economic.....</i>	<i>19</i>
3.1.4	<i>Environment.....</i>	<i>20</i>
3.1.5	<i>Political</i>	<i>20</i>
3.1.6	<i>STEEP summary</i>	<i>22</i>
3.2	MARKET SIZE ANALYSIS.....	23
3.2.1	<i>Market sector</i>	<i>23</i>
3.2.2	<i>Market value in end consumer lever.....</i>	<i>24</i>
3.3	VALUE CHAIN ANALYSIS	25
3.3.1	<i>Structure</i>	<i>25</i>

3.3.2	Value	26
3.4	COMPETITION ENVIRONMENT ANALYSIS (FIVE FORCES)	27
3.4.1	Supplier power	27
3.4.2	Buyer power	27
3.4.3	Threat of substitute	27
3.4.4	The threat of the entry barriers	28
3.4.5	The intensity of competitive rivalry	28
3.4.6	Competitor analysis	28
4	SWOT ANALYSIS	31
4.1	STRENGTH	31
4.2	WEAKNESS	31
4.3	OPPORTUNITIES.....	32
4.4	TREATS	32
5	CONCLUSION	34
5.1	FINAL PROPOSAL	34
5.2	DISCUSSION	34
6	CONCEPT DEVELOPMENT	35
6.1	ASSORTMENT IDENTIFICATION	35
6.2	COST BENEFIT CALCULATION.....	36
6.2.1	Cost price calculation.....	36
6.2.2	Margin calculation.....	37
6.3	MARKET ENTRY STRATEGY (5P's).....	38
6.3.1	Product	38
6.3.2	Price	39
6.3.3	Place	39
6.3.4	People	40
6.3.5	In sales value level	40
6.3.6	In different behaviour	41
6.3.7	Promotion	42
7	RECOMMENDATION FOR FEATHER RESEARCH	43

REFERENCE..... 44

 WEBSITE: 44

 LITERATURE 44

APPENDIX 1..... 45

APPENDIX 2..... 46

APPENDIX 3..... 47

APPENDIX 4..... 48

APPENDIX 5..... 49

1 Introduction

1.1 Background information

1.1.1 Research background

This report was researched and written by Jia Wan/Wayne, a final year undergraduate from Van Hall Larenstein University of Applied Science, majoring in International Horticulture and Marketing. Due to the organic trend, rising vegetable and fruit prices in supermarkets and 'back to basics' trend, there is a rising demand for vegetable and herbs ornamental plants with which consumers can produce their own food. FloriPro Services is really interested in this market and want to conduct a market enter analysis/market feasible research, based on the UK, Netherlands and German market.

1.1.2 Company overview

Syngenta Seeds B.V. is officially established on 1st January 2001. Syngenta Seeds B.V., with a total of 730 employees, has four subdivisions in the Netherlands. In De Lier two adjoining subdivisions are Development and Young Plant production. At Development they perform research on breeding of cucumber, tomatoes and more. The other location produces and sells Young Plants. In Zeewolde, the employees are involved in breeding and trade in corn and sugar beets. The majority of trial fields for vegetable field crops are located here. Here the assessment trials of these vegetables take place. Syngenta Seeds B.V. has around 550 employees in Enkhuizen. Together they are working on production, R&D and marketing of vegetable seeds and flower seeds.¹

Syngenta Flowers is the global market leader in the breeding and production of seeds and cuttings for high-quality pot and bedding plants. With their broad and innovative assortment, they are committed to being the partner of choice for young plant raisers and professional growers.²

FloriPro Services™ is Syngenta's distribution organization serving Europe, Africa and the Middle East, that focuses its activities mainly on providing high-quality young plants and also sells seeds and un-rooted cuttings. FloriPro Services operates a dedicated independent

¹ <http://www.syngenta-seeds.nl/>

² <http://www.syngenta-flowers.com/about/index.html>

network throughout the region to provide their customers with a wide range of products and services to increase customers' efficiency and profitability.³

1.2 Research Objectives and Questions

- The main objective is:

Based on the market feasible research for UK, Germany and Netherlands, deliver a final proposal of go-no go decision for further investment of edible pot plants including vegetables, fruits and herbs.

- The main research question is:

Is the edible pot plants market feasible to entry for FloriPro Services?

- Specific questions:

What kind of products appear on the edible pot plant market?

What is the trend of edible pot plant market?

How big is the estimated market size?

How big is the estimated margin space?

How strong is the competition in the edible ornamental market?

What is our strength and weakness?

What is our opportunity and threat?

Which kind of plants could be chosen as our products on species level?

How much will be cost for young plant production

How much benefit we can get from this market?

³ <http://www.floriproservices.com/about/index.html>

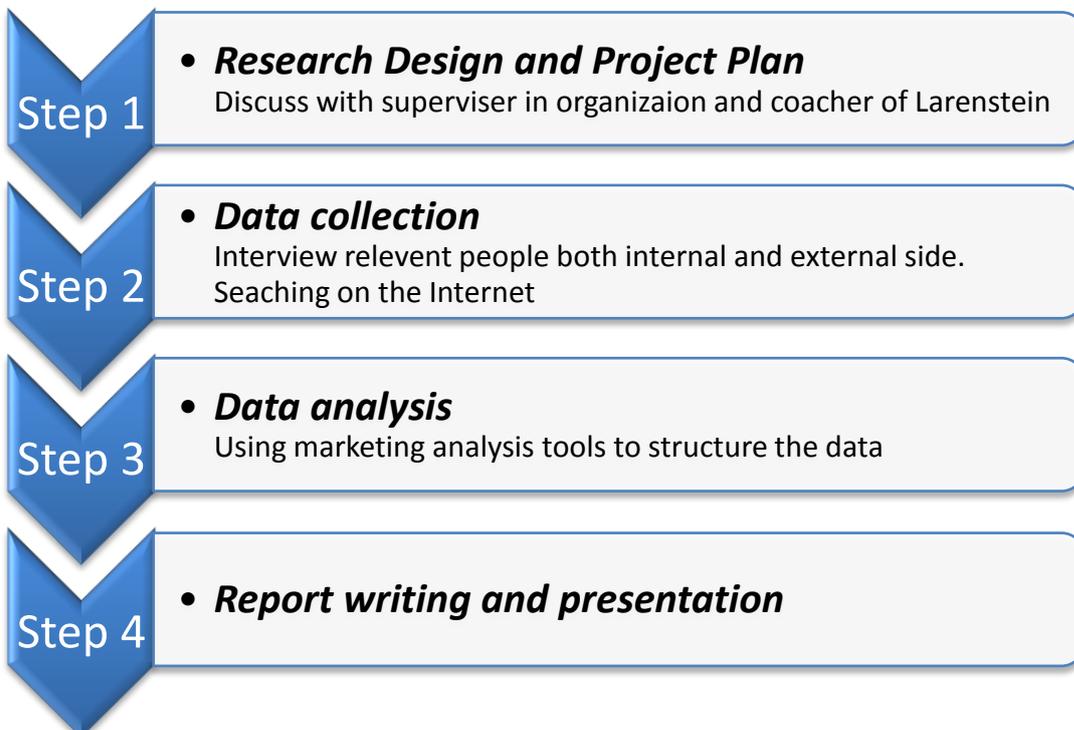
1.3 Research methodology

The research method will be taken in two different ways: literature review and interviews with experts inside the company.

Literature review on edible pot plant is obtained after gathering and selecting relevant information over the internet, company documents, and the library. Information is obtained from academic published articles, commercial magazines, and government websites, etc.

Structured interviews with experts from inside of Syngenta Seeds will be conducted. The interview will be carried out by face-to-face interview in the company.

I will process the research in following steps:



1.4 Project management

1.4.1 Team

The project is lead by Wan Jia/Wayne, a student from Van Hall Larenstein University of Applied Science. The project will be supervised by Miss. *Monique Hoeijenbos*, Regional Marketing Manager Flowers EAME, and Mr. *Niels Steenvoorden*, Regional Marketing Manager Flower EAME. Mr. *Geert Houwers* is thesis coach that will guide and coordinate with the project from begin to end.

1.4.2 Communication

The mode of communication with the commissioner will be face to face, since I am working at office 5 days a week. The contact with experts and resource persons is through e-mail, telephone and face to face interview if it is possible. The discussion with thesis coach is through e-mail or meets at university. Additionally, the project progress will be updated to thesis coach by e-mail weekly.

1.4.3 Assumptions and Risks

The project depends mostly on internet, literature research and company internal interview. The main concern is that if the relevant information/data is accessible, accurate, and reliable. To overcome these risks I will approach multiple channels to searching information. By doing so the chance of availability increases and I can compare the information given by different sources on the same subject, which makes it more valid. Another risk involves the interview with experts. The concern is that if they are available, willing to assist during the time-frame, and give the right information. For this risk, I will ask for help from my supervisors in the company to introduce me to those experts in relevant fields.

1.4.4 Research limitations

The research was limited in several ways. The primary limitation is that all the desk and field research were carried out in the Netherlands. Therefore the information about sourcing sector is more difficult to acquire, and the single-faceted information may influence the final results and conclusions. The second limitation is that the research time frame is relatively short; it may bring down the depth and thoroughness of the research. Some part of information need longer time to investigate.

1.5 Chapter overview

In chapter 1, I mainly described the background, the objective and questions, the research methodology and project management.

In chapter 2, I conducted product segmentation to show which kind of products are selling in the market and different retail channels.

In chapter 3, an external analysis was conducted to describe the current market situation, which includes STEEP analysis, Market size analysis, value chain analysis and competition environment analysis.

In chapter 4, I used a SWOT analysis model to summaries the information from previous research.

In chapter 5, based on the SWOT analysis, the conclusion was come out.

In chapter 6, in order to complete the concept, I conducted a concept development afterward, which including assortment identification, cost benefit calculation and market entry strategy.

In chapter 7, I gave my recommendation for feather research.

2 Product segmentation

2.1 Product form

There are two kinds of requirements from end consumer for edible ornamental plants. One group of consumers wants to grow their own food by themselves, at least partly control the growing process. Another group doesn't want to do it themselves because they are lacking time and/or growing knowledge. Productschap Tuinbouw, Dutch statistic services company, gave a nice definition in their report⁴: "Growing Your Own" and "Done For You".

2.1.1 Grow Your Own

The concept of 'Growing Your Own' has taken place over the last couple of years. Now it has become a key product category. It means growing your own vegetables, fruits and herbs for yourself. The promotion of "Grow Your Own" can be seen on famous TV programs from celebrity chefs. In UK, there is also a big push at the moment on health and the "5 a day" program is part of that. There are multiple benefits to "Growing your own": the enjoyment of growing and eating it, cheap, healthy – you control what goes onto your plants and how they are grown, and the environment – no food miles, low carbon footprint. This concept of 'Growing Your own' attracts all types of consumers, even those who want ready – made solutions. It fits nicely with the current general concern about the environment and finding greener solutions.

Three main types of 'Growing Your Own' products appear on the market: seeds, young plants and half-finished plants.

Seeds

There are different type of crop seeds in the market, vegetables, fruits and herbs. Usually, 30-40 seeds are packed in a small package with a picture of the finished plant and instructions for cultivation.



⁴ Productschap Tuinbouw PT2008/64

Young plants

Also be called plugs. Normally 84-200+ young plants are placed in one tray, 3-5cm high. Compared with seeds, it is much easier to grow, but also more expensive. Mainly delivered to professional growers, but also can be seen sometimes in retail with small mix trays.



Half-finished plants

Mainly fruity vegetables, 20-70cm tall, grown in 10-12cm pots with substrate and a label with instructions for further cultivation. Easy to grow for end consumers.



2.1.2 Done For You

Both in the DIY market and the gardening market, there has been a switch from “DIY – Do It Yourself” to people having it done for themselves, “DFY – Done For You”. The consumer has the idea that it is fresher and healthier, but they don’t actually want to do it themselves. They either do not have the knowledge or the time. It could also be that they have failed growing them themselves in the past.

There is only one type of ‘Done For You’ product: **finished plants**. Mainly plants in pots which can be harvested already. It could be leafy vegetables, fruity vegetables, fruits and herbs.



2.2 Retail channel

	Grow Your Own			Done For You
	<i>Seeds</i>	<i>YPL</i>	<i>Half-finished plants</i>	<i>Finished plants</i>
UK	DIY, Garden Centre and mail order	DIY, Garden Centre and mail order		DIY
Germany	DIY, Garden Centre, flower shop and mail order		Garden Centre and flower shop	Flower shop
Netherlands	Garden Centre and supermarket	Garden Centre	Garden Center	Supermarket, street market and furniture store

Table 1

The Table 1 shows the main retail channels for different types of product in these three countries.⁵ In the Grow Your Own group, most frequently at the summit is the word ‘Garden Centre’, which is main sales channel for the gardening plants.

⁵ Info from Steve Water, Guenter Buckermann and Matthijs Post

3 External analysis

3.1 STEEP analysis

The STEEP analysis tool is extended from PEST analysis, adding Environmental factors. STEEP analysis gives an overview of the different macro-environmental factors that the company has to take into consideration. It will be classified as opportunities and threats in SWOT-analysis later.

3.1.1 Social

“Back to nature, really fresh and biological”, the concepts of ‘edible in garden’ and ‘outdoor cooking’ will become more popular in the coming years. People want to pick fresh vegetables, fruits and herbs from their own garden and use them for cooking.

The reason to buy

- **Fresh and tasty**

Compared with purchasing from supermarket, it is obvious that fruity vegetables growing in your garden is much fresher. Because they are being consumed directly after harvest, so consumer can wait for the fruits to contain more sugars. Then the fruit will be tastier!⁶

- **Clean and healthy.**

The assumption is that most people will not be happy to spray too much chemical on their own plants. So it should be clean. People care more about their health, mainly driven by the promotion from governments (UK 5 a day) and TV programs.⁷

- **Interest for nature growing**

Growing your own vegetables in the garden is not just green your world, but also make your own food. People enjoy controlling the food production by themselves. It is kind of hobby for them.⁸

- **Ornamental function**

⁶ Info from *Josef Clodius*.

⁷ Info from Productschap Tuinbouw PT2008/64, *Steve Waters* and *Matthijs Post*

⁸ Info from *Steve Waters*

It is common to use plants which present colorful fruits for indoor decoration, such as fruiting tomato pot plants.

- **Education for Children**

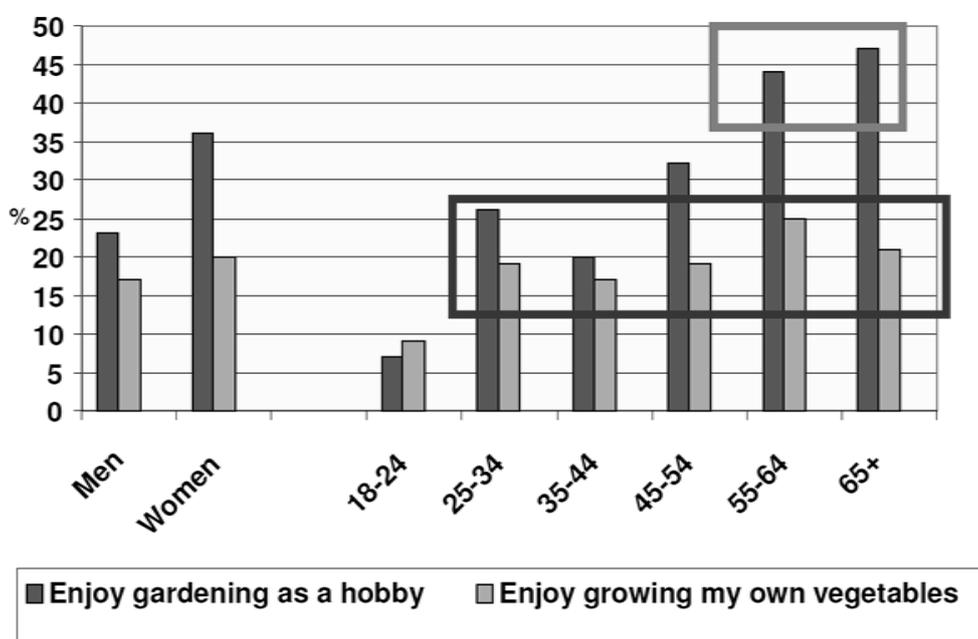
Grow your own vegetable could be a good concept to educate children. After looking at something miraculous from start to finish, children will get to know about where the food comes from and understanding better importance of healthy eating.⁹

- **Financial crisis impact**

Due to recent economic down turn resulting in much of the population spending more time around the house instead of taking a holiday. Gardening is benefiting from this. Especially in the UK and Germany people tend to spend more and more time and money on self growing during the financial crisis.

Age structure

- *UK*



Graph 1

⁹ <http://www.frugal-living-freedom.com/growing-vegetables.html>, <http://www.mychild.co.uk/articles/grow-your-own-food-encourage-healthy-eating-children-914>

Graph 1 shows the age structure of doing gardening in UK. The dark black block shows that the 55+age group, mainly retired people, is still the 'hobby gardening' group. However, the gray block point out that 'Grow Your own' has a similar popularity amongst all groups 25+. ¹⁰

- *Germany*

In Germany, the main target group is the retired people who have more time to spend on gardening. ¹¹

- *Netherlands*

The target group of doing gardening is females between 20-47 years old. ¹²

3.1.2 Technological

Eco- friendly packaging use

There is currently pressure from the government to reduce the amount of packaging used in the UK grocery supply chain, tying in to strategies to reduce the volume of waste going into landfill sites. This is creating a trend for increased use of compostable, biodegradable and recyclable plastics being used to make packing for everyday products bought at supermarkets including pots, trays, sleeves, wraps and bags used for flowers and plants.

For the gardening use, several kinds of substitutes of plastic pots appear in market, such as grow bags, peat pots, paper pots and coir pots, which are much easy to reuse or degrade in soil. It is good news for the end consumer who needs really organic growing.

¹⁰ Source: Horticultural Trades Association Garden Futures Conference October 2009, *Martin Bredy, Scotts Miracle Gro*

¹¹ Conclude from *Guenter Buckermann*

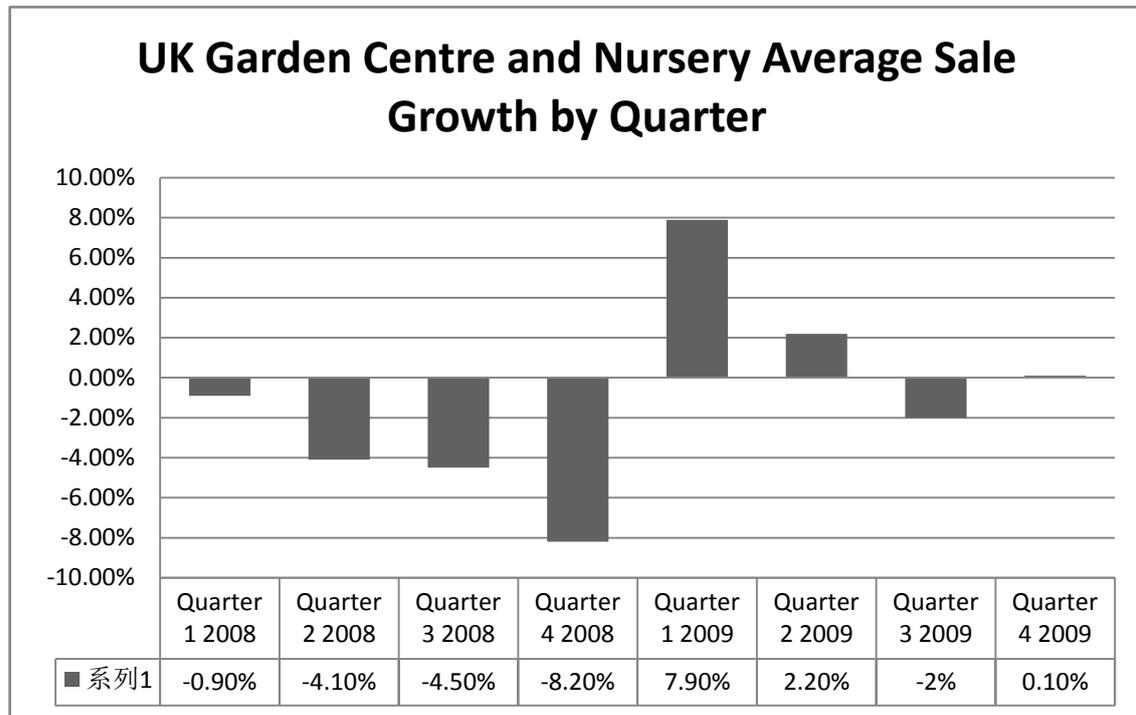
¹² Conclude from *Matthijs Post*

3.1.3 Economic

Impact on sales

In 2007, a financial crisis was triggered by a liquidity shortfall in the United States banking system. It still has a big impact on the global economy.

- UK



Graph 2

In the Graph 2, data comes from HTA Market Update, shows the average sales growth in UK retail market. The news that the UK economy emerged from recession-just-in the final quarter of last year highlights how the garden market, while impacted by wider economic considerations, can show a life of its own and operate within a different set of dynamics. Although garden, like many other retail sectors, had a disappointing 2008, garden centre and nurseries saw a strong rebound at the start of 2009, sustained growth during the season.¹³

- Netherlands

Dutch consumers have spent in 2009 more money on Garden plants vs. 2008. Main growers: fruit trees (+9%) and annual bedding plants (+6%). Due to some declining sales in

¹³ HTA Market Update, winter 2010

trees, pots and lighting equipment and Christmas articles the total sales stabilized at the 2008 record level of € 4.2 billion. This results show that the gardening branch is standing up straightly during the 2009 crisis year.¹⁴

- Germany

Lack of relevant information.

3.1.4 Environment

Environment change

The winter of 2009-2010 gave unexpected heavy snow to Europe. The frequency of this kind of extreme weather is much higher than before, which attract more and more attention on environment problem.

In the UK, one of the main consumer trends in the current gardening marketplace is that people want the products to have a positive impact on the environment. 'No food miles, low carbon footprint', the concept 'grow your own' fits nicely with the current general concern about the environment and finding greener solutions. No food miles, low carbon footprint.¹⁵

3.1.5 Political

*Food Safety*¹⁶

To ensure the food safety, the EU has setup legislations for pesticide-residue on food.

The European Commission has identified food safety as one of its top priorities. The White Paper on Food Safety of January 12, 2000 sets out the plans for a proactive new food policy: modernizing legislation into a coherent and transparent set of rules, reinforcing controls from the farm to the table and increasing the capability of the scientific advice system, so as to guarantee a high level of human health and consumer protection.

*Environment protection*¹⁷

¹⁴Info from *Niels Steenvoorden*

¹⁵ Info from Productschap Tuinbouw PT2008/64

¹⁶ http://ec.europa.eu/food/food/intro/white_paper_en.htm

¹⁷ <http://ec.europa.eu/environment/ppps/objectives.htm>

On 1 July 2002, the European Commission adopted a Communication "Towards a Thematic Strategy on the Sustainable Use of Pesticides" COM (2002) 349

Objectives of the Thematic Strategy are:

1. Minimizing the hazards and risks to health and environment from the use of pesticides
2. Improved controls on the use and distribution of pesticides
3. Application of the substitution principle
4. Encouraging low-input or pesticide-free crop farming
5. Feed-back, indicators to evaluate progress
6. Candidate countries
7. International aspect

3.1.6 STEEP summary

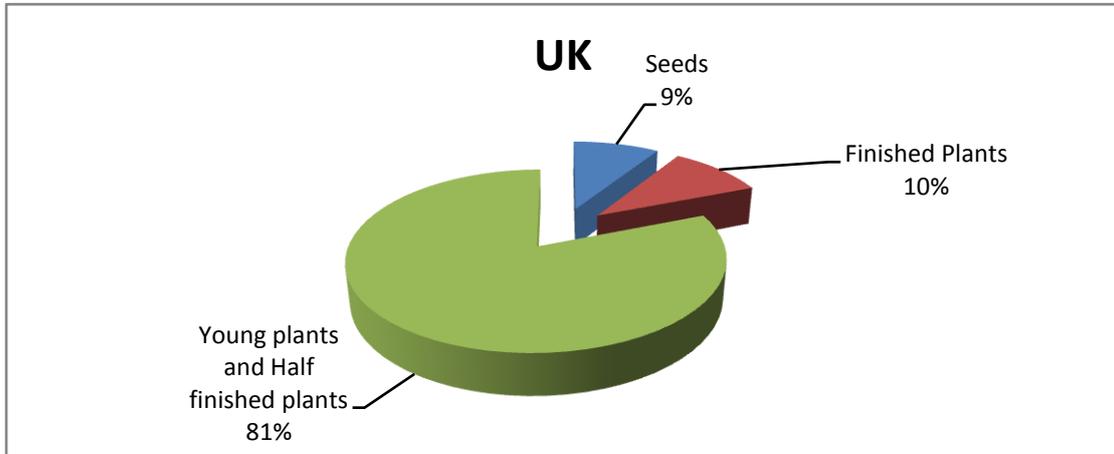
In general, different reasons attract consumers to grow their own vegetables, fruits and herbs. The trend “Grow Your Own” will be stronger in the coming years. The target group for gardening is still 50+ years group, but there is a trend that younger people show increasing interest in growing their own food.

The UK garden center average sales growth figure shows its own life during the financial crisis. After the disappointing sales in 2008, garden centre and nurseries saw a strong rebound at the start of 2009. On the other hand, consumer spends more time on around the house instead of taking a holiday during the financial crisis. Garden centers really benefit from it.

The political part mainly is the European Commission legislation for residue check on food, which makes sure the vegetables are safe and also not too harmful for the environment. The new concept suggests implementing sustainably pesticide using in food production. Meanwhile more and more chemical will be banned for food production.

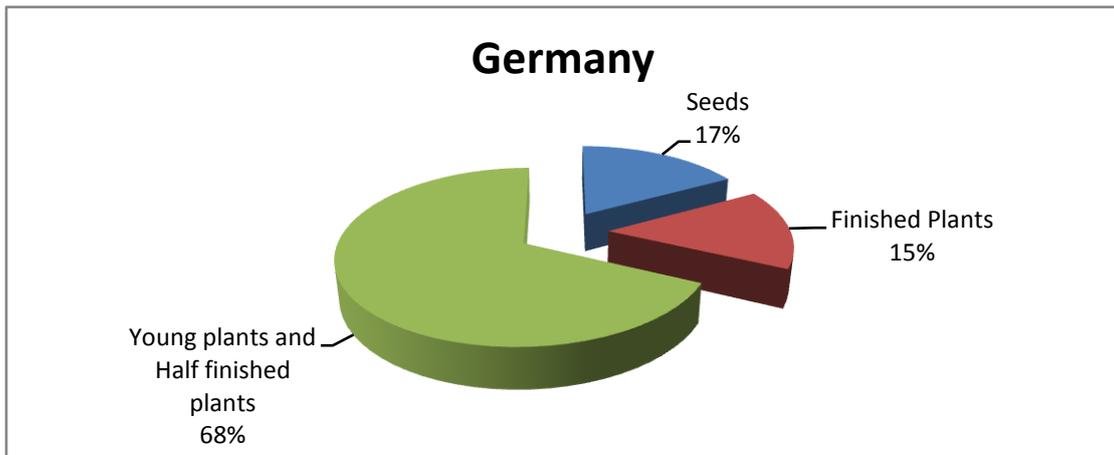
3.2 Market size analysis

3.2.1 Market sector



Graph 3

The Graph 3 shows the estimated weight occupied of different product forms in the UK retailer market.¹⁸

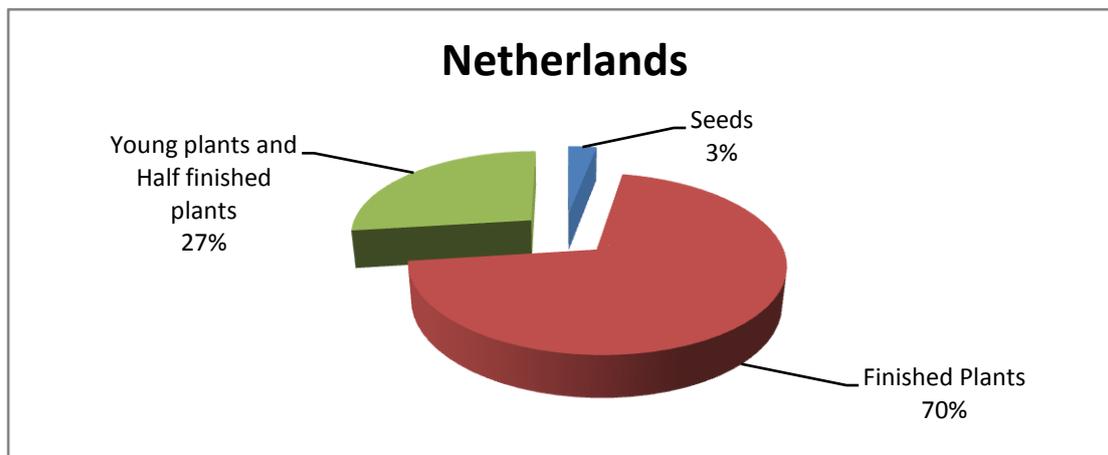


Graph 4

The Graph 4 shows the estimated weight occupied of different product forms in the Germany retailer market.¹⁹

¹⁸ Info from *Steve Waters*

¹⁹ Info from *Guenter Buckermann*



Graph 5

The Graph 5 shows the estimated weight occupied of different product forms in the

	Inhabitants	Spending on		Average	edibles	total market	YPL and HFP	Finished Plants	Seeds
		Flowers	Plants						
UK	62,300,000	€ 49	€ 13	€ 62.00	€ 0.91	€ 56,693,000	€ 45,921,330	€ 5,669,300	€ 5,102,370
D	83,000,000	€ 36	€ 51	€ 87.00	€ 1.53	€ 126,990,000	€ 86,353,200	€ 19,048,500	€ 21,588,300
NL	16,500,000	€ 43	€ 23	€ 66.00	€ 0.69	€ 11,385,000	€ 3,073,950	€ 7,969,500	€ 341,550
total						€ 195,068,000	€ 135,348,480	€ 32,687,300	€ 27,032,220

Table 2

Netherlands retailer market.²⁰

3.2.2 Market value in end consumer lever

Based on the statistic data from Productschap Tuinbouw²¹, some numbers about average spending on the green goods (flowers and plants) per each inhabitant in three countries are found. The estimation about the percentage of spending on edible plants per inhabitants comes out; it is about 3% on plant spending²². Then I calculate out the total market size in value. Based on the weight percentage of different product form in the market, the corresponding of value also is being calculated. The results are showing in Table 2.

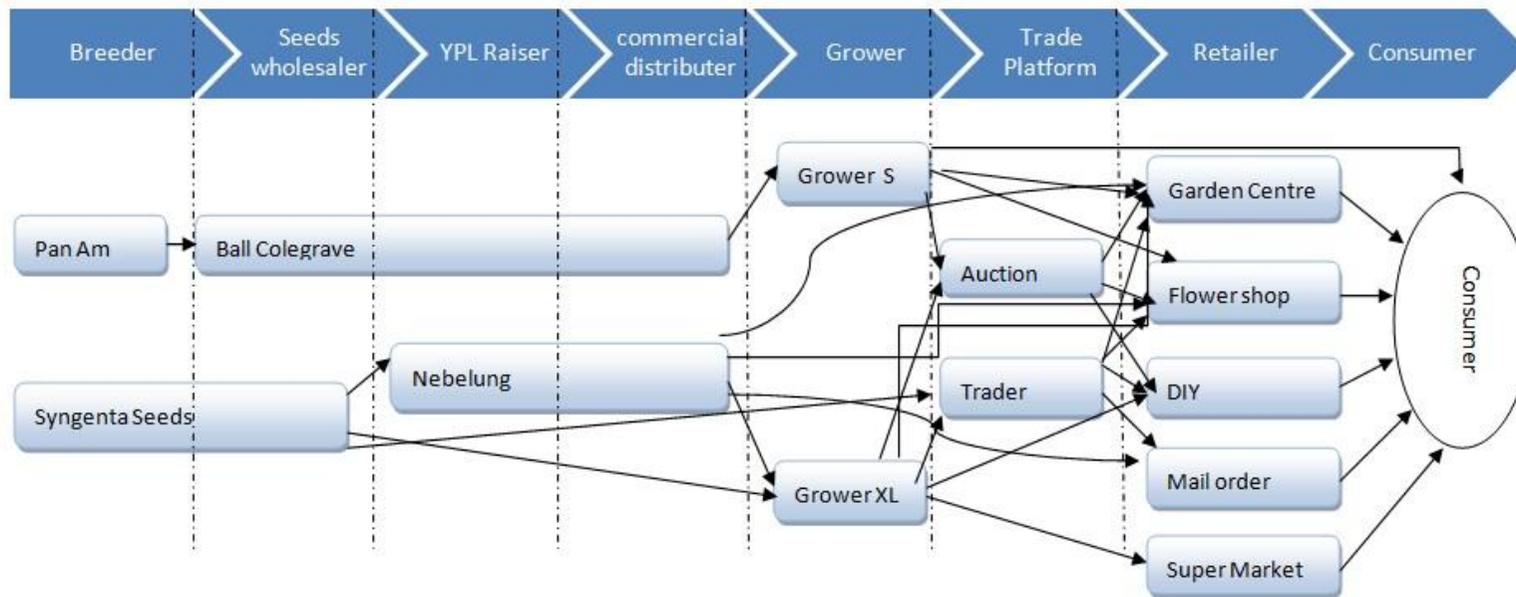
²⁰ Info from *Matthijs Post*

²¹ Productschap Tuinbouw PT2008/44, PT2008/52, PT2008/59

²² Info from *Hans van Geerst*, checked with *Steve Waters*, *Guenter Buckermann* and *Matthijs Post*.

3.3 Value chain analysis

3.3.1 Structure



Graph 6

In the Graph 6, blue arrows show the main chain structure. This chain is same as ornamental chain because edible pot plant went through the same sales channel with ornamental staff. The boxes under arrows show the different kinds of roles active on the chain. The black arrow lines display how values go through from different roles.

3.3.2 Value

	Breeder + Seeds	YPL Raiser + Distributer	Grower	Trade Platform	Retailer	Consumer
Finished plants	Sale Value	€ 0.05	€ 0.25	€ 2.25	€ 2.48	€ 4.95
	% of end vale	1.01%	5%	45.45%	50%	100%
	Total Sales Value	€ 330,174.75	€ 1,650,873.74	€ 14,857,863.64	€ 16,343,650.00	€ 32,687,300.00
	Gross Margin %	70.00%	30.00%	45%	5%	100%
	Total Gross Margin	€ 231,122.32	€ 495,262.12	€ 6,686,038.64	€ 817,182.50	
YPL and HFP	Sale Value	€ 0.05	€ 0.25	€ 0.70	€ 0.81	€ 1.62
	% of end vale	3.09%	15%	43.21%	50%	100%
	Total Sales Value	€ 4,177,422.22	€ 20,887,111.11	€ 58,483,911.11	€ 67,674,240.00	€ 135,348,480.00
	Gross Margin %	70.00%	30.00%	15%	5%	
	Total Gross Margin	€ 2,924,195.56	€ 6,266,133.33	€ 8,772,586.67	€ 3,383,712.00	

Chart 3

Chart 3 shows the sales value and gross margin of each part of chain. In this chart, the Sale Value and Gross Margin % are set up as assumption²³. Total Sales Value of consumer is come from market size estimate at previous step. The other data are calculated based on this foregone data. Seed is not be involved because it go throw different chain and the margin is relatively low for distributor.²⁴

²³ Info from Josef Clodius.

²⁴ Info from Niels Steenvoorden

3.4 Competition environment analysis (Five forces)

In order to describe the competition environment of the edible pot plant market, a Five forces analysis was conducted.

3.4.1 Supplier power

As a young plant raiser and distributor, seed is the most important and expensive input because it directly determines the quality of the young plant. Now several big seed originators occupy most of the vegetable seed market share in the world. They do the breeding by themselves and deliver their own genetic seeds to growers. Because of the exclusive genetic, the switch cost for a young plant raiser and distributor is quite high. In Europe, Monsanto, Syngenta Seeds, and Rijk Zwaan are the most famous and active vegetable seed breeders.

FloriPro services are active as a young plant raiser and distributor of Syngenta in the ornamental chain. Syngenta Vegetable could be the main supplier which provides sufficient genetic pool for variety selection and internal cheap price.

3.4.2 Buyer power

The main buyer group of young plants is growers. They will purchase young plants in a tray from a young plant raiser and transplant young plants into pots. After a period of cultivation, they deliver bigger plants to a trade platform or retailer. Normally, a young plant raiser and distributor has a stable exclusive genetic supplier and a big enough production scale. The customer group is built up with a big number of growers and there is no really big grower who could purchase an effective quantity from a young plant raiser. So the grower has low bargaining power. In most of the time, the price of young plants is set up by the young plant distributor. However, growers are price sensitive. If they are not satisfied with the quality and price of the young plant, they could switch to another young plant supplier. However, the risk is also big when they don't have enough experience on the new product.

For FloriPro Services, the big customer base of ornamental plants will be the potential customer group for edible pot plants. This will be the main channel to introduce the new product.

3.4.3 Threat of substitute

For self-growing vegetable young plants, the seed is the most powerful substitute. Compared with using young plants, sowing by themselves from seeds could save a lot of costs for

growers. However, the risk of self sowing is also higher than producing from young plants (geminata risk). So young plants could provide quick and stable benefit for less experience grower, even it cost more than seeds.

3.4.4 The threat of the entry barriers

Because of the different requirement of self made food, the demand of self grow vegetables is growing. It will attract more and more firms to join in. However, the barriers to enter this market are also high. For young plant distributor, the barriers include cost of investment, product differentiation, experience and sales channel development.

FloriPro Services had less focus on the edible plants. In their assortment, they do have several tomato and paprika varieties, but no special focus on it because of limited sales. So there is no any special selection on the varieties and special treatment for edible production.

3.4.5 The intensity of competitive rivalry

For the self grow vegetable market, the main competitive pressure comes from the big young plant distributor which has already built competition with FloriPro services in ornamental plants market, such as Ball and Kiepenkerl Nebelung. They have already entered to this edible self grow market and got a lot of experience from it. More detail will showing in following Competitor analysis.

3.4.6 Competitor analysis

*Ball Colegrave*²⁵

After the merger with Florensis Ball Colgrave is only EU subsidiary of Ball US. They took over the activities of Florensis UK. Florensis still produces YPL for key accounts in UK with high price level, top service and absolute quality product.

In the edible field, Ball Colgrave is very active in UK market and they got more than 75% market share. They use their own genetics (=PanAm) and also third party genetics. They provide vegetable seeds, cuttings and young plants to growers, retailers and professional finished product producers. They have a strong catalogue for growers which include a full assortment of vegetables, fruits and herbs. Growers can order the seeds and young plants online by themselves in the UK.

²⁵info from *Steve Waters*

- **Strength**

- Full assortment of vegetables, fruits and herbs
- Good customer services
- Strong catalogue
- High market share
- Online ordering
- Smaller tray size
- Seed and young plant available on all main species
- Labels possible with order(essential as sold green, in mass, by growers)

- **Weakness**

- Cooperation with Florensis cause the business loss
- High price
- Not good enough logistical system

- *Nebelung*²⁶

In the edible ornamental field, Nebelung is a big player in German market which provides young plants, seeds for flowers and vegetables, flower bulbs and grass seeds for market gardening and gardening retailers. Now their business is also coming to the Netherlands. Kiepenkerl is their trademark and is perceived as a brand for best quality and reliable customer advisory service. They have limited breeding activities mainly focus on Viola, Vegetable crops and bulbs. They buy genetics mainly from third parties. For young plant production, they do a small part by themselves. They play in two amateur chains:

Profi-Line: They close contracts with young plant raiser to response the big production. They present very good promotion on the retail level with their brand 'Kiepenkerl' in the garden centers and flower shops. Almost every garden centre and many flower shops have a contract with Nebelung to give a private space for Kiepenkerl products, both seeds and half-finished plants in blue pots. Kiepenkerl also provides online ordering services with strong catalogue.

25 million plants are sold from Profi-Line. 25%-30% is edible plants. =7.5 million.

²⁶ info from *Josef Clodius, Ulrich Eberhardt, and Wim Hink*

Starting materials deliver to the Profi-Line growers:

20% young plants, most of them are grafting young plants

80% Seeds, benefit more for growers.

Distributor: They deliver seeds and young plants to the big professional edible ornamental growers. The difference compared with Profi-Line is 'Kiepenkerl' will be not use on retailer part.

Nebelung is one of the larger customers of Syngenta Vegetables. They are buying some exclusive vegetable seeds for their amateur production.

- **Strengths**

- Full assortment of vegetables, fruits and herbs
- Good customer services
- Strong catalogue
- High market share
- Online ordering
- Good reputation in consumer level
- Good logistic
- Opportunity for the best market genetic

- **Weakness**

- Not active a lot in other European countries
- No own genetic, cost high
- No uniform quality in plants because of a lot of grower

4 SWOT analysis

Based on previous information collection, a SWOT analysis was conducted to structure both current internal and external situation in clear content. It will help to analysis the situation and come out the final decision.

4.1 Strength

Good genetic from Syngenta Vegetable

Within Syngenta Vegetables there are several varieties with a good performance in edible pot plant use.

Large customer base

Stable customer group provide efficiency network, which could be helpful when we are searching customers for edible ornamental production.

Good reputation

Good reputation of ornamental young plants among customers could be helpful to promote edible ornamental products

4.2 Weakness

Limited focus

The FloriPro Services mainly focus on the ornamental products and didn't focus more on the edible side. So they don't have enough knowledge and experience on the edible young plant production

Limited assortment in edibles

The assortment of edible ornamentals is limited. There are only few tomato, strawberry and paprika variety in current assortment.

4.3 Opportunities

The 'Grow Your Own' trends are going up

'Grow Your Own' is a strongly upcoming trend. Because of fresh and health requirements and also the idea of saving the environment, people tend to try growing food around their house themselves. It could lead to a bigger demand on the vegetable, fruit and herb seeds and young plants market.

Good trend on sales performance

Garden center sales figure shows rebound in 2009. It could mean that gardening market is not affected a lot by financial crisis.

Attractive market size and possible margin space

Based on the market size analysis and value chain analysis, the total sales value of young plant and half finished plant for young plant distributor is € 20,887,111, the gross margin is € 6,266,133. The total sales value of finished plant is € 1,650,874; the gross margin is € 495,262. Compare with finished plant, the young plant and half finished plant sales value and margin space are much attractive.

4.4 Treats

Strong competition

Nebelung are performing well in German market, 40% market of young plants.

Ball is performing well in the UK market.

Political limited still unclear

To ensure the food safety, European Union setup legislation to implement strict residue check on the edible product. However, based on current research, there is no clear regulation have been found for the edible young plant production. As new entrants, FloriPro Services has no experience about the limited for edible plants production. That could be a risk.

Strict requirements from retail chain

IKEA is the first retail organization requiring strict regulations for the starting material like young plants. The main supplier of IKEA is one of our young plants customers. They forwarded a list²⁷ of banned chemicals for young plants production from IKEA, which is much stricter than the legal legislation of the European Union.

²⁷ Info from *Vincent Kuijvenhoven*, the list could be found in Appendix 1

5 Conclusion

5.1 Final proposal

Based on the market feasible research, the current situation could be showed as following:

Positives		Negatives	
✓	Different reasons for self growing push “Grow Your Own” and “Done For You” trend growing up.	x	Strong competition in “Grow Your Own” segment
✓	Good performance on the gardening sales market.	x	FPS has limited focus on this market before, limited experience
✓	More attentions on edibles in retailer.	x	Limited assortment in edibles
✓	Attractive market size and possible margin space	x	Unclear young plant production regulation from government
✓	Attractive potential margin possibilities and good absolute margin in euro	x	More strict regulation from retailer part

Based on current situation, the attractive market shows considerable profit, but the barriers for FloriPro Services to entering this market are also obvious. Considering FloriPro Services build as a new organization, which really need extend the assortment to gain more market share and make more chance to profit. **I strongly suggest FloriPro Services go into this market.** Several negatives could be overcome by further concept improvement.

5.2 Discussion

Based on previous research, it is obvious that Grow Your Own plants occupied much more market than Done For You plants. For another reason that the residue check on the finished plants especial herbs is much stricter, so we decide to only focus on the Grow Your Own plants. Seed is not taken into account because the relative low market shares. In order to make the concept more completed, a concept development has been conducted afterwards.

6 Concept development

6.1 Assortment identification

On the current market, most genetic be used to Grow Your Own concept is commodity variety because it is cheap. However, when consumer use commodity genetic for self growing, the problem is coming. Because of lack of knowledge and limited experience of food production, the plants are easily dead through the disease. Then the urgent demand of easy growing variety appeared. Compared with commodity genetic, semi-genetic has a relative high price, but it also has good performance. Depends on the different varieties, semi-genetic could means good disease resistance, good performance on yield or even attractive appearance. These characteristic could fully satisfied consumers' demands.²⁸

With strong suggestion of semi-genetic use from Syngenta Vegetable, FloriPro Services decide to make a selection mainly focus on the high value genetics. According to the amateur market assortment of Syngenta vegetable²⁹, and also requirement list from UK sales department, one rough selection comes out. In order to make it competitive, to develop a broader range of assortment is the key driver building up competitive advantages over other competitors. Several tomato varieties and all three strawberries are come from current assortment of FPS. In total 12 different types of crop, 29 different varieties are selected into the assortment. A detail table which include crop name, variety name, Xtray size and uncial point of variety can be found in Appendix 2

²⁸ Info from *Martin van Gheluwe*

²⁹ Info from *Guido de Wit*

6.2 Cost benefit calculation

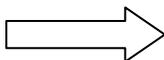
6.2.1 Cost price calculation

The cost price calculation is based on current cost price model, which includes sowing cost, material cost, gapping cost, Xtray cleaning cost, transport cost and overhead. Apart from which, there are mainly three elements affecting the production cost price in different varieties, Seeds price, germination rate and growing time. So the principal of calculation is replace the price of these three elements in different varieties, and set up other elements in uniform, such sowing cost, cleaning cost, transport cost, Xtray size and number of Xtray. For convenience, on calculation model is setup in excel. It can be found in Appendix 3.

The result of cost price calculation including crop name, variety name, seeds price, Xtray size, growing time, cost price per tray and cost price per plant is showing in one chart. It can be found in Appendix 4.

6.2.2 Margin calculation

To calculate the benefit, the sales price should be set up first. According to the estimation from UK sales department, the sales price for UK market is come out, which is regarded as minimum price because it is based on commodity variety sales price estimate. In order to figure out an average price, maximum price is assumed as 40% higher than minimum price. Based on the cost price, the gross margins and profit percentages are calculated out in three levels. According to the estimated weight percentage of sales value in different varieties³⁰, an average margin percentage per Xtray is calculated out in three levels.

Minimum price (UK)		Minimum margin % (UK): 38.1%
Maximum price (40 %+)		Maximum margin %: 56.2%
Average price		Average margin %: 48.9%

According to the result of Value Chain analysis, the total sales value of young plant and half finished plant for young plant distributor in UK, Germany and Netherlands is: € 20,887,111. If we take average price at final price level, and make three assumptions of market shares level, the margin could be calculated as following:

- 5% Market shares: € 1,044,355 × 48.9%(Average%) = € 510,689
- 10% Market shares: € 2,088,711 × 48.9% (Average%) = € 1,021,379
- 15% Market shares: € 3,133,066 × 48.9% (Average%) = € 1,532,069

³⁰ Detail can be found in Appendix 5

6.3 Market entry strategy (5P's)

6.3.1 Product

- **High value genetic**

The amateur assortment identification mainly based on the high value genetics from Syngenta vegetable. These varieties provide different characteristic compare with normal ones. Good disease resistance, attractive appearance and good performance on yield will attract enough attention from end consumers. Some special varieties could also be found in our competitor's assortment, but only in seeds. High value genetic is one highlight of our product which helps us to differentiate from our competitors.

- **Uniform Xtray produce young plants**

The S&G® X-tray™ young plant container was launched in Europe. In a unique Xtray PSF could deliver young plants from seeds and cuttings to professional growers throughout Europe. Not only is the Xtray key for efficiency in our automated production process. It delivers young plants with real power and allows automation of potting at the grower's end. It is perfectly fit for storage and recyclable. Every Xtray is returned to De Lier where it is cleaned and disinfected ready for reuse. It is 100% eco-friendly. The innovative features of Xtray™, coupled with the strength of the germplasm and the power of the sales organization, will allow FPS to further strengthen its market leadership.³¹

- **MPS-GAP certificate**

MPS-GAP is a label with which plant grower can anticipate the market demands of the retail channel. The MPS-GAP certification scheme is based on the criteria formulated by the European retail organization EUREP for safe, sustainably-cultivated, high-quality and traceable products. These criteria are expressed in Good Agricultural Practice (GAP). MPS-GAP is benchmarked with the GlobalGap flowers and plants scheme.³²

Based on the De Lier production situation, it is possible to achieve the requirement of MPS-GAP certificate. If FloriPro could get this label, it could be helpful for product quality

³¹ http://www2.syngenta.com/en/downloads/Syngenta_2001_Form_20-F.pdf

³² <http://www.my-mps.com/Default.aspx?tabid=193&language=en-US>

guaranty in floriculture field. After that, Globe Gap will not too difficult to achieve, which could guaranty the quality in food field.

6.3.2 Price

The price of young plant should be set up higher (at least 20% higher) than commodity price.

The reasons for premium price are:

- Premium price with high value genetic

The seeds FloriPro Services using are high value genetic seeds which have better performance. The price of seeds is higher than commodity genetic.

- Premium price with good product quality

The young plants FloriPro Services delivering are growing in Xtray, which guaranty the relatively uniform quality. The young plants also has MPS-GAP certificate guaranty on the quality. So the price should be higher than normal price

- Premium price with good customer services

FloriPro Services could provide different services depend on customer's demand, such as online ordering, label and growing material providing together with young plants.

6.3.3 Place

Based on Wayne's research, UK and Germany has much attractive market size for Grow Your Own young plants. So conduct the business in these two countries firstly, then could extend to other European countries. France has also big demand on Grow Your Own plants, so next option of target market could choose France.

The Grow Your Own young plants could be delivered through the current ornamental chain. So the target retail channel could main be Garden Centre which provide year around fixed place to show the Grow Your Own plants.

6.3.4 People

In order to identify the target customer group, two types of segmentation are conducted. One is segmented in sales value, another is segmented in behaviour.

6.3.5 In sales value level

In FPS, potential customers are identified by the estimated potential sales value. There are four types of potential customers which are named as A, B, C and D.

Name	Sales Value
AAA	>€150,000
A	€50,000-€150,000
B	€10,000-€50,000
C	€1000-€10,000
D	<€1000

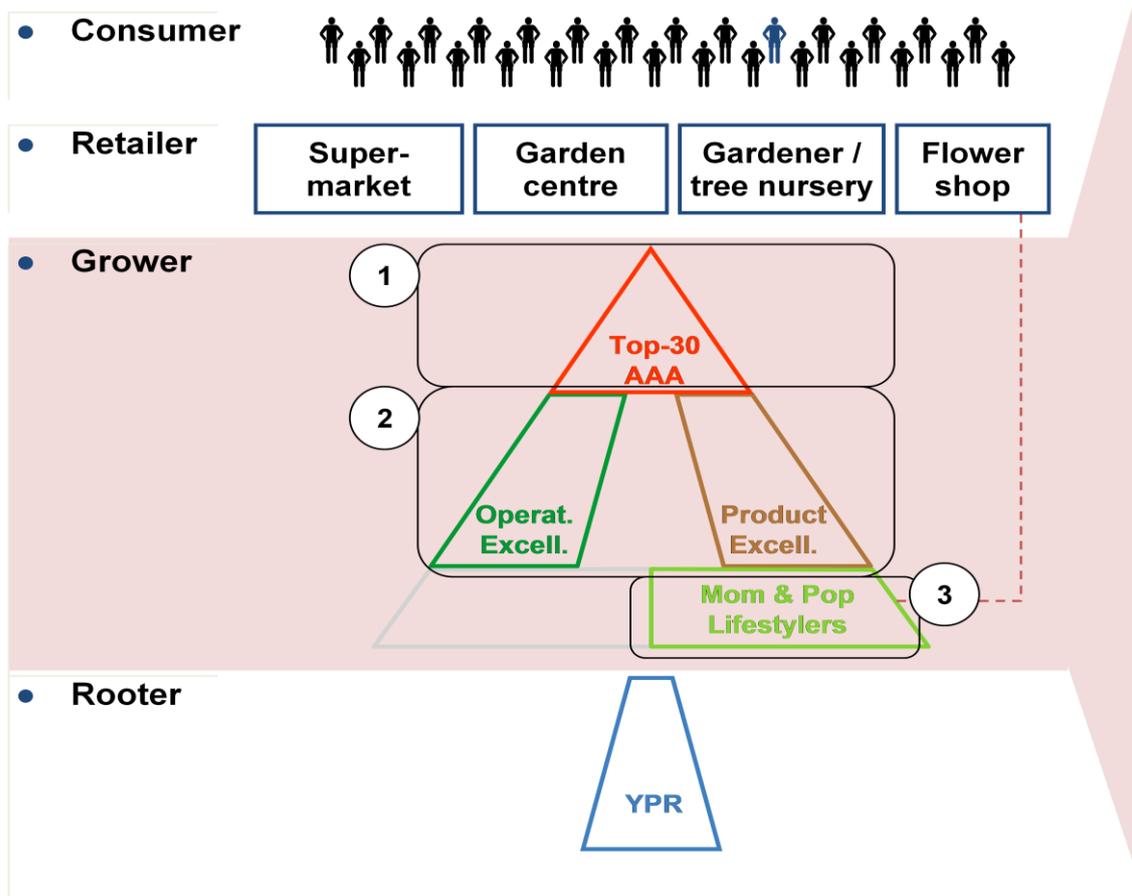
Table 4

In table 4, potential customers are divided into 5 groups with different potential sales value. Because of the large production quantities, AAA type customers prefer to buy seeds (sometimes exclusive) because they have enough experience on germination and they don't need to buy young plant for their production. So AAA type customers are not in our potential target customer group. For D type of customers, the sales value is quite low. If we provide same customer services for them, it will cost a lot on commercial part. So we decide also remove D type of customers from our potential target customer group.

In summation, we will choose the customers which have potential €1000-€50,000 sales value as our target group.

6.3.6 In different behaviour

There are four type of customers deliver to the retailer. The following chart shows the structure.



In frame 1, AAA customers (key opinion leader within industry) always serve the same retailers.

In frame 2, growers are divided in two directions, Operational Excellence and Product Excellence. For the supermarkets who don't have fixed place for plants and only sell plants in campaigns, Operational excellence grower could satisfied their requirement with providing programmable finished products in all varieties in the contracted week with cheap price. Time is more important because Supermarket would not accept green plants which delay of one week. Other Retailers with fix space have a year round need of higher quality plants. They require a wider range of varieties. Excellent products are more important than the lowest price. Very often growers do both directions according to their customers' needs.

In frame 3, Mom & Pop Lifestylers have often a direct link to the Flower shop.

Based on FloriPro Services current situation, we focus on the frame 2 growers, mainly on the Product Excellence direction. This group mainly delivers products to Garden centre and Gardener/ tree nursery which with fix space have a year round need of higher quality plants.

6.3.7 Promotion

- Catalogue

The special assortment only for Grow Your Own concept should appear in the Catalogue. Attractive title, nice pictures and highlight high value genetic unique selling point are showing in it.

- Website

The Grow Your Own assortment should be displayed as a separated part from ornamentals. The genetic information could directly link to the Syngenta Vegetable website which showing more detail information of the varieties.

- E-newsletter

Send newsletter to current customers to draw an attention on Grow Your Own concept.

- Trial assessment

Make a concept show on next coming trial assessment for Grow Your Own product with nice looking samples. The purpose is to attract the sight and collect feedback and suggestion of improvement.

7 Recommendation for feather research

- Finalizing the offer
 - Xtray production test July 2010

Implement a small scale test growing including all the varieties in current assortment. Collect the information of growing difficulties, growing time, cost price per each variety. Show the success product sample to our customers in next trial assessment event.

- Interview the interested customers

Conduct interview with interested customers and collect requirement information about species, product form, customer services, reasonable price and so on.

- Assortment fixed

Based on the requirements from customers, evaluate the assortment. New varieties mainly selected from Syngenta Vegetable genetic.

- Competitor analysis fixed

The current competitor analysis is not completed. Uniform information could benefit on the concept innovation. Different country competitor positioning

- Cost benefit calculation fixed

The current cost benefit calculation is based on several assumptions which come from personal estimation. The result is quite rough. The data comes from Xtray production growing could be helpful to evaluate the data more practically.

Reference

Website:

- <http://www.floriproservices.com/about/index.html> Accessed on 01-07-2010
- <http://www.syngenta-seeds.nl/> Accessed on 01-07-2010
- <http://www.syngenta-flowers.com/about/index.html> Accessed on 01-07-2010
- <http://www.frugal-living-freedom.com/growing-vegetables.html> Accessed on 01-07-2010
- <http://www.mychild.co.uk/articles/grow-your-own-food-encourage-healthy-eating-children-914> Accessed on 01-07-2010
- http://ec.europa.eu/food/food/intro/white_paper_en.htm Accessed on 01-07-2010
- <http://ec.europa.eu/environment/ppps/objectives.htm> Accessed on 01-07-2010
- http://www2.syngenta.com/en/downloads/Syngenta_2001_Form_20-F.pdf Accessed on 01-07-2010
- <http://www.my-mps.com/Default.aspx?tabid=193&language=en-US> Accessed on 01-07-2010

Literature

- van Dijk, J (2008), British Retail Chains – Management & future strategies, Josephine van Dijk, July of 2008, report from Productschap Tuinbouw, report number PT 2008-64
- van Dijk, J & Thompson, I (2008) MARKTMONITOR 2008, SNIJBLOEMEN EN POTPLANTEN, VERENIGD KONINKRIJK, Josephine van Dijk and Iain Thompson, May of 2008 report from Productschap Tuinbouw, report number PT 2008 – 52
- Linssen, V & Oosterwijk, M (2008) MARKTMONITOR 2008, SNIJBLOEMEN EN KAMERPLANTEN, NEDERLAND , Veronique Linssen and Marly Oosterwijk, May of 2008 report from Productschap Tuinbouw, report number PT 2008-59
- Hassefras, R & Vermeire, R (2008) MARKTMONITOR 2008, SNIJBLOEMEN EN POTPLANTEN, DUITSLAND, Rokus Hassefras and Remy Vermeire, May of 2008 report from Productschap Tuinbouw, report number PT 2008-44.
- Bredy, M & Miracle Gro, S (2009) Horticultural Trades Association Garden Futures Conference Martin Bredy and Scotts Miracle Gro, October 2009
- Green it yourself trend drives garden market, Market Update, winter 2010, from HTA

Appendix 1



**SELF-DECLARATION FORM FOR GREEN PLANTS AND
CUT FLOWERS PRODUCERS REFERRING TO SPECIFICATION
IOS-MAT-0067**

For use at sub-suppliers (supplier of raw material) (YoungPlants)

We hereby certify, that the materials listed in table 1 complies with the list of banned chemicals:

IKEA Art.No.:	Product name	IKEA Art.No.:	Product name

Table 1
List of banned substances according IOS-MAT-0067:

1,2-Dichloroethane	Dichlorvos	Furfural	Prothiophos
Aldrin	Dieldrin	HCH-Isomers	Pyrazophos
Ancymidol	Difethialon	Hexachlorobenzene	Quinalphos
Benomyl	Dinoseb, its acetate and salts	Lindane (gamma-HCH)	Quintozene
Binapacryl	Disulfoton	Mercuric oxide	Sethoxydim
Bioallethrin	Edifenphos	methyl bromide	Tomth
Bioresmethrine	Emamectin benzoate	Mevinphos	Terbufos
Butocarboxim	Endosulfan, sum	Monocrotophos	Thiometon
Calcium cyanide	Endrin	Monolinuron	Trialomethrin
Camphechlor	EPTC	Nitrofen	Triazofos
Captafol (THPI)	Ethylene dibromide	Omethoate	Tridemorph
Carbosulfan	Ethylene oxide	parathion-ethyl	Zineb
Chlorfenapyr	Etrimfos	Permethrin	
Chlordane	Fenpiclonil	Phenthoate	
Chlorthiamide	Fenthion, sum	Phorate	
DDT, sum	Fentin-acetate	Piperalin	
Dichloran	Fentin-hydroxide	Propham	
Dichlorophen	Fonofos	Propoxur	

Appendix 2

Crop	Variety	Xtray size	Unique selling points
Broccoli			
	<i>Monterey F1</i>	AS	Strong against Downey Mildew
Cauliflower			
	<i>Clarify F1</i>	AS	Fast clubroot resistance variety
	<i>Grafitti</i>	AS	Purple cauliflower
	<i>Collage</i>	AS	Orange cauliflower
Cabbage			
	<i>Tekila F1</i>	AS	White cabbage Early, clubroot resistance variety
	<i>Regilius F1</i>	AS	Red cabbage, good storage variety
	<i>Kamchatka F1</i>	AS	Winter savoy cabbage, with good resistance to Xanthomonas
	<i>Kilakin F1</i>	AS	Chinese cabbage, clubroot resistance
Lettuce			
	<i>Funtasia</i>	AS	Green Batavia, resistant Downey Mildew and nas
	<i>Iceking</i>	AS	Iceberg with good heath tolerance and Nas resistance
	<i>Klausia</i>	AS	Lollo rossa with good resistances against Bremia
Brussel sprouts			
	<i>Crispus F1</i>	AS	Early and clubroot resistance variety
Courgette			
	<i>Brice F1</i>	AS	Round Courgette
	<i>Golden delight F1</i>	AS	Yellow Courgette
Melon			
	<i>Pancha F1</i>	AS	Charentais hybrid with extra sweet taste
Pepper			
	<i>Blondy F1</i>	AS	White pepper
	<i>Lustro</i>	AS	Yellow pepper
	<i>Yecla</i>	AS	Red pepper
Tomato			
	<i>Super sweet 100</i>	AS	The reference with cherries
	<i>Harzfeuer F1</i>	AS	Beef tomato with good outdoors performance, large fruits, early variety
	<i>Olivia F1</i>	AS	with good outdoors performance, large fruits, early variety
	<i>Oskar</i>	AS	San marzano tomato
Cucumber			
	<i>Grendel F1</i>	AS	
	<i>Pepinova</i>	AS	very reliable variety
Aubergine			
	<i>Diva F1</i>	AS	Black fruit
	<i>Bonica</i>	AS	Round aubergine
Strawberry			
	<i>Fragoo™ F1 Deep Rose</i>	AS	
	<i>Fragoo™ F1 Pink</i>	AS	
	<i>Fragoo™ F1 White</i>	AS	

Appendix 3

Activity type	Materi	BU	per netto tray	14 days	21 days	28 days	35 days		
SOWING SET UP		MIN	0.01	–	0.01	0.01	0.01	0.01	
SOWING SET UP/LABOUR		MIN	0.08	–	0.08	0.08	0.08	0.08	
SOWING ASSETS		H	0.04	–	0.04	0.04	0.04	0.04	KS price 7.5
SOWING LABOUR		H	0.48	–	0.48	0.48	0.48	0.48	germ rate 70%
	323206	KS	26.87	–	2.77	2.77	2.77	2.77	
	QS0Z03	L	0.15	–	0.15	0.15	0.15	0.15	
	QS0Z05	L	0.02	–	0.02	0.02	0.02	0.02	
GROWING LABOUR		DAY	0.27	–	0.07	0.13	0.20	0.26	
ASSETS WINTER		DAY	0.82	–	0.20	0.40	0.60	0.79	cost are based on 137
ENERGY WINTER		DAY	1.60	–	0.39	0.77	1.16	1.55	
MOVEMENTS ((RE-)PLACEMENTS)		PC	0.53	–	0.53	0.53	0.53	0.53	
GAP UP MANUAL		H	3.47	–	3.47	3.47	3.47	3.47	
GROWING LABOUR		DAY	0.10	–	0.05	0.05	0.05	0.05	assumption: 7days lea
ASSETS WINTER		DAY	0.30	–	0.14	0.14	0.14	0.14	the rest of the lead
ENERGY WINTER		DAY	0.59	–	0.28	0.28	0.28	0.28	
TRAY CLEANING LABOUR		BOX	0.04	–	0.04	0.04	0.04	0.04	
TRAY CLEANING OTHER		BOX	0.01	–	0.01	0.01	0.01	0.01	
TRAY CLEANING LABOUR		BOX	0.08	–	0.08	0.08	0.08	0.08	
TRAY CLEANING OTHER		BOX	0.02	–	0.02	0.02	0.02	0.02	
LOSING LOW TRAY		BOX	0.00	–	0.00	0.00	0.00	0.00	
YPL SEEDS OVERHEAD		BOX	0.30	–	0.30	0.30	0.30	0.30	
YPL MARK. & DIST. STANDARD OVERHEAD		BOX	0.77	–	0.77	0.77	0.77	0.77	
YPL GEN. & ADMIN. STANDARD OVERHEAD		BOX	1.71	38.24	1.71	1.71	1.71	1.71	
					11.57	12.22	12.87	13.52	
transport cost					1.50	1.50	1.50	1.50	
			total	€ 13.07	€ 13.72	€ 14.37	€ 15.02		

Appendix 4

Crop	Variety	Seeds price €/ks	Germination rate	Growin g time in Day	Cost price €/Xtray	Cost price € / plants
Broccoli				35		
	<i>Monterey F1</i>	€ 7.50	90%		€ 14.44	€ 0.05
Cauliflower				35		
	<i>Clarify F1</i>	€ 33.48	90%		€ 22.03	€ 0.08
	<i>Grafitti</i>	€ 40.50	90%		€ 26.62	€ 0.10
	<i>Collage</i>	€ 40.50	90%		€ 26.62	€ 0.10
Cabbage				35		
	<i>Tekila F1</i>	€ 17.30	90%		€ 18.06	€ 0.07
	<i>Regilius F1</i>	€ 10.80	90%		€ 15.66	€ 0.06
	<i>Kamchatka F1</i>	€ 11.30	90%		€ 15.84	€ 0.06
	<i>Kilakin F1</i>	€ 8.30	90%		€ 14.73	€ 0.06
Lettuce				21		
	<i>Funtasia</i>	€ 13.73	95%		€ 15.67	€ 0.06
	<i>Iceking</i>	€ 11.86	95%		€ 14.98	€ 0.06
	<i>Klausia</i>	€ 7.50	95%		€ 13.37	€ 0.05
Brussel sprouts				35		
	<i>Crispus F1</i>	€ 25.40	90%		€ 21.05	€ 0.08
Courgette				14		
	<i>Brice F1</i>	€ 68.00	95%		€ 35.22	€ 0.13
	<i>Golden delight F1</i>	€ 55.00	95%		€ 30.43	€ 0.12
Melon				14		
	<i>Pancha F1</i>	€ 80.00	95%		€ 39.65	€ 0.15
Pepper				14		
	<i>Blondy F1</i>	€ 65.00	80%		€ 34.21	€ 0.13
	<i>Lustro</i>	€ 66.50	80%		€ 34.76	€ 0.13
	<i>Yecla</i>	€ 66.50	80%		€ 34.76	€ 0.13
Tomato				14		
	<i>Super sweet 100</i>	€ 45.00	80%		€ 26.82	€ 0.10
	<i>Harzfeuer F1</i>	€ 25.81	80%		€ 19.74	€ 0.07
	<i>Olivia F1</i>	€ 55.00	80%		€ 30.51	€ 0.12
	<i>Oskar</i>	€ 94.52	80%		€ 45.10	€ 0.17
Cucumber				14		
	<i>Pepinova</i>	€ 110.00	95%		€ 50.72	€ 0.19
Aubergine				14		
	<i>Diva F1</i>	€ 18.00	90%		€ 16.80	€ 0.06
	<i>Bonica</i>	€ 10.00	90%		€ 13.84	€ 0.05

Strawberry				28		
	Fragoo™ F1 Deep Rose	€ 72.80	70%		€ 39.74	€ 0.15
	Fragoo™ F1 Pink	€ 72.80	70%		€ 39.74	€ 0.15
	Fragoo™ F1 White	€ 72.80	70%		€ 39.74	€ 0.15

Appendix 5

crop	weight in sales	seeds price/ks	seeds price in weight/ks	end price	end price in weight
Broccoli	2.0%	7.5	0.15	0.13	0.0026
Cauliflower	5.0%	40	2	0.38	0.019
Cabbage	10.0%	12	1.2	0.3	0.03
Lettuce	7.0%	12	0.84	0.13	0.0091
Brussel sprouts	2.0%	25	0.5	1	0.02
Courgette	5.0%	60	3	1	0.05
Melon	5.0%	80	4	2.5	0.125
Pepper	15.0%	65	9.75	1.5	0.225
Tomato	30.0%	55	16.5	2.5	0.75
Cucumber	10.0%	110	11	3	0.3
Aubergine	3.0%	15	0.45	1	0.03
Strawberry	6.0%	70	4.2	1	0.06
					1.6207