

Study Report

**SCOPING STUDY FOR THE
IMPLEMENTATION OF
MOBILISE PROJECT IN THE
NETHERLANDS**

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The MOBILISE project aims at launching a scalable and institutionally entrenched circular talent development programme between the Netherlands and Tunisia, Egypt and Ethiopia for the strengthening of climate-smart agriculture. The project, which specifically targets the agricultural sector, seeks to meet the demands of the labour market in the participating countries by involving partners from the public and private sector while developing cooperation with local higher educational institutions.

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Table of Contents

Acknowledgments	3
Table of Contents	4
List of Tables	6
List of Figures	6
Acronyms and Abbreviations	7
1 Introduction	8
1.1 Objective and Rationale of the Assessment	8
1.2 Report Structure	9
2 Methodology	10
3 Literature review	11
3.1 Concept of circular migration	11
3.2 Inventory of similar projects between EU and MENA.....	13
3.3 Lessons Learned and Best Practices:	19
3.3.1 EU-funded MPF pilot projects on legal migration	19
3.3.2 Dutch temporary and circular migration pilot project	22
3.3.3 International temporary and circular migration frameworks	24
4 Mapping of the national horticulture sector	30
4.1 Overview of the national sector.....	30
4.1.1 Description of the horticulture sector	30
4.1.2 Production areas	30
4.1.3 Production volume	31
4.2 Focus on the relevant horticulture subsectors	32
4.2.1 Structure of companies and importance of sub-sectors	32
4.2.2 Vegetable cultivation.....	32
4.2.3 Seed breeding companies.....	32
4.2.4 Vegetable propagation	33
4.2.5 Floriculture sector	33
4.2.6 Fruit sector	33
5 Production and trade between EU and Egypt, Ethiopia and Tunisia	35
5.1 General overview	35
5.2 Egypt	36
5.3 Tunisia.....	39
5.4 Ethiopia.....	40
5.5 Importance of sub-sectors for MOBILISE.....	40

5.5.1	Labour demand and relations with three countries of interest	40
5.5.2	Economic importance of different types of companies	41
5.5.3	Private companies with operations in Egypt, Ethiopia and Tunisia.....	41
6	Labour market assessment	42
6.1	Labour market requirements	42
6.1.1	Employment	42
6.1.2	Functions in the horticulture sector.....	42
6.1.3	Description of functions	43
6.2	Skills gap	51
6.3	Expected developments / Trends.....	54
6.3.1	Economic Outlook Horticulture.....	54
6.3.2	Market developments.....	54
6.3.3	Energy transition, innovations and environment	55
7	Legal and Policy Framework	57
7.1	Immigration and Labor Laws	57
7.1.1	Dutch Agreements, policies and frameworks.....	57
7.2	Policy and Strategy Framework	63
7.2.1	Dutch Integral Migration Agenda	63
7.2.2	European policies and frameworks	64
7.2.3	The European Semester	65
7.2.4	Erasmus+	67
7.2.5	The European Education Area strategic framework.....	69
7.3	Supportive Mechanisms and Programs.....	69
8	Conclusions and recommendations.....	73
	Bibliography	75
	ANNEXES	80
	Annex 1a. Interviewed companies	80
	Annex 1b. Horticulture companies with connections in Egypt, Ethiopia and Tunisia.....	80
	Annex 2. Total vegetable cultivation in the Netherlands 2022	81
	Annex 3. Seed Breeding company's	83
	Annex 4. Vegetable plant propagation companies.....	84
	Annex 5. Total floriculture sector in the Netherlands 2022	85
	Annex 6. Total fruit sector in the Netherlands 2022.....	87
	Annex 7. Function descriptions horticulture	93
	Annex 8. Survey summary (performed in the Netherlands):	101

List of Tables

Table 1. Interviewed persons	10
Table 2. MSM references	13
Table 3. Aeres references	16
Table 4. Horticultural areas vs Aeres UAS Dronten	30
Table 5. Cultivated area of different types of vegetable crops in The Netherlands in 2022 (CBS).....	32
Table 6. Different types of seed breeding companies.....	32
Table 7. Vegetable plant propagation companies	33
Table 8. Cultivated area of floriculture sector in The Netherlands in 2022 (CBS).....	33
Table 9. Number of companies (2022) and cultivated area of different types of fruit crops (2020) in The Netherlands (CBS).....	34
Table 10. Export fresh vegetables and fruit in million Euro's	36
Table 11. Financial results companies horticulture sector	41
Table 12. Relevant functions in the horticultural sector	43
Table 13. Relevant functions for the horticulture sector at middle and higher (management) level and associated competencies.....	53

List of Figures

Figure 1. Agri-food export from Egypt to EU and import from EU into Egypt.....	37
Figure 2. Egyptian export of onions to EU	38
Figure 3. Trade onions between EU and other regions.....	38
Figure 4. Egypt export of sweet potato to EU.....	39
Figure 5. Agri-food export from Tunisia to EU and import from EU into Tunisia.....	40
Figure 6. Economic Outlook Horticulture	54
Figure 7. Comprehensive migration approach	63
Figure 8. Collaboration strategy for HEIs.....	71

Acronyms and Abbreviations

AERES	Aeres University of Applied Sciences
ATVET	Agricultural Technical and Vocational Education and Training
CAMM	Common Agenda on Migration and Mobility
CBS	Centraal Bureau voor de Statistiek
EC	European Commission
EU	European Union
GAMM	Global Approach to Migration and Mobility
GDP	Gross Domestic Product
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit
HBO	Hoger Beroepsonderwijs (Dutch Higher vocational education)
HE	Higher Education
HEI	Higher Education Institute
HSM	Highly Skilled Migrants
IND	Immigration and Naturalisation Service
IOM	International Organization for Migration
MATCH	Migration of African Talents through Capacity building and hiring
MBO	Middelbaar Beroepsonderwijs (Dutch Secondary vocational education)
MENA	Middle East and Northern Africa
MPF	Migration Partnership Facility
MSM	Maastricht School of Management – Maastricht University
NOK	National Occupation Classification (Netherlands)
SAWP	Seasonal Agricultural Workers Program
SME	Small- and Medium-Sized Enterprise
TVET	Technical and Vocational Education and Training
WO	Wetenschappelijk Onderwijs (Dutch Academic education)

1 Introduction

1.1 Objective and Rationale of the Assessment

The 'MOBILISE: Circular Talent Development for Climate-Smart Agriculture' project is a 4-year project (2023-2027) financed by the European Commission, via the International Centre for Migration Policy Development (ICMPD) as donor agency, and implemented by Maastricht University - Maastricht School of Management (UM-MSM) in cooperation with Aeres University of Applied Sciences (Aeres) from the Netherlands, the Mediterranean School of Business (MSB-SMU) from Tunisia, the Kafr El Sheikh University (KU) from Egypt and the Hawassa University (HU) from Ethiopia.

The main objective of the project is to contribute to the Migration Partnership Facility (MPF) program of the European Commission by setting-up a scalable, institutionally embedded circular talent development program between the Netherlands and Tunisia, Egypt, and Ethiopia in favour of strengthening climate-smart agriculture, both in Europe and in the participating countries. As such, it is meant to further explore and possibly develop new legal pathways of circular migration, with the potential to scale-up to other countries and possibly other economic sectors.

In particular, the specific objectives are:

1. To develop longer-term circular migration (regulatory) systems.
2. To successfully pilot of a circular migration scheme in favour of strengthening European climate-smart agriculture.
3. To demonstrate the benefits of the circular migration program to participants on return.

Within the framework of the first specific objective, in the first six months of the project, four needs assessment/scoping studies are conducted for the Netherlands, Tunisia, Egypt, and Ethiopia as first step for project implementation.

These studies map out available resources and lessons learned from other projects in the same and similar countries, as well as relevant actors, their roles and responsibilities, the labour needs and the possible mechanisms and targets for the talent development activities.

The overall goal of this scoping study is to guide the MOBILISE project as it decides on the design of the new circular talent development program to be developed by the Dutch and local higher education institutes.

Specifically, the scoping study should enable the MOBILISE project to prepare an agenda of priority cooperation areas within the theme; identify on-going work and lessons learned within the scope of the theme by other donors and related institutions; identify potential partners and relevant stakeholders; and provide recommendations that enable MOBILISE to build a coherent programme within the policy framework of circular migration.

1.2 Report Structure

After a brief mention of the methodology used for compiling the data and information for this study, the report develops along 5 main sections.

Chapter 3 introduces the concept of circular migration and provides a non-exhaustive inventory of similar projects in the region working on talent development programs or circular migration mechanisms, and summarizes the main lessons learned and best practices from relevant examples.

Chapter 4 provides an overview of the Dutch horticulture sector, with a specific focus on the subsector that can be of highest relevance for the project implementation.

Chapter 5 focuses on the trends of agriculture trade relations between the Netherlands and the project partner countries, namely Egypt, Ethiopia and Tunisia, trying to identify those subsectors and companies that could be of highest priority for a labour mobility scheme between the two continents.

Chapter 6 analyses more in depth the trends of the labour market in the horticulture sector and tries to identify the main job position on the market and relative skills and competences that a graduate seeking for employment must have.

Chapter 7 provides an overview of the legal and political framework for labour mobility to the Netherlands, and more in general how it fits within the EU panorama. Some mechanisms and programs that support labour mobility are mentioned in the chapter too.

Finally, conclusions and some initial recommendations for project implementers are drawn in chapter 8.

2 Methodology

Information in chapters 2 and 7 is based on an extensive, but not exhaustive, review of publications from academic journals, final project and program evaluations, news articles and online information on the website of main donor and implementing organization of international mobility projects.

Information in chapter 4, 5 and 6 is based on statistical data and information from handbooks. Information about markets, market development and trends is based on literature. Information about labour market requirements is based on information published in the 'Functiehandboek glastuinbouw', the 'Functiehandboek Tuinzaadbedrijven' and interviews with different stakeholders in the sector.

A limited number of persons is interviewed on their expectations of the developments in the horticultural sector and their expectations for labour market requirements (see Table 1). In the phase of contacting companies for internships these interviews will continue.

The interviews do not provide a complete labour market analysis but provide good indications of labour market requirements and trends. In the phase of attracting companies as an internship company further analysis will be made on labour market developments and requirements.

TABLE 1. INTERVIEWED PERSONS

Name	Organisation	Results
Rien van Tilburg	Horticulture Nederland	Chapter 6.2
Wout van Koppen	CEO of Zuqualla Horti PLC	Chapter 6.2
Bram Klaver	CEO Agro Jobs	Chapter 6.2
CEO / general manager (2)		See annex 8
Manger (2)		See annex 8
Team-leader (2)		See annex 8
Scientist-researcher (5)		See annex 8
Knowledge transfer officer (1)	WUR	See annex 8

3 Literature review

3.1 Concept of circular migration

Circular migration is a concept that refers to the temporary and repetitive movement of individuals between their home countries and host countries. It involves the migration of individuals who leave their home country to work or reside in another country for a certain period and then return to their home country, often repeating this cycle multiple times.

The primary characteristic of circular migration is the intention or expectation of migrants to return to their home countries after a certain period. This distinguishes it from permanent or long-term migration, where individuals intend to settle permanently in the host country.

Circular migration can take different forms depending on the specific context and the motivations of the migrants. It can involve various types of migration, including labour migration, seasonal migration, and circular migration for education or training purposes. The motivations for circular migration are diverse and can include economic reasons, such as seeking employment opportunities or higher wages, as well as social and cultural factors.

There are several potential benefits associated with circular migration. For the home country, circular migration can contribute to economic development through remittances sent back by migrants and the acquisition of new skills and knowledge that can be transferred to the home country upon return. It can also help alleviate labour market pressures by providing temporary relief to areas with high unemployment rates. In host countries, circular migration can address labour shortages in specific industries or sectors while allowing the country to maintain control over the entry and exit of migrants.

However, circular migration also presents challenges and concerns. It can disrupt families and communities as individuals are separated from their loved ones for extended periods. Migrants may face issues such as social integration, discrimination, and exploitation in the host country. Furthermore, the circular nature of migration can create instability and uncertainty for both migrants and their families.

Governments and policymakers have implemented various approaches to manage circular migration. These may include the establishment of bilateral agreements between countries, the creation of temporary work programs or visas, and the implementation of supportive policies to facilitate the reintegration of returning migrants into their home countries. These agreements and frameworks will be discussed in section 6.

Overall, circular migration represents a dynamic form of migration that involves the temporary movement of individuals between their home countries and host countries. It offers both opportunities and challenges and requires careful management to maximize its potential benefits while minimizing its negative impacts.

In the Netherlands and the European Union (EU), there is an increased interest in circular legal migration because of:

- Its potential contribution to the control and management of migration flows through migration cooperation between third countries and the Netherlands.
- The critical importance of international migration cooperation with third countries in the context of the negotiations regarding the European Commission Migration and Asylum Pact. An 'internal deal' between EU member states about a common European asylum system depends on an 'external deal' between EU member states and countries of origin and transit, based on common interests in controlling and managing migration (better return policies, better trajectories for legal migration).
- The urgency of better international migration cooperation to curb irregular migration in the years to come in light of the expected increasing migration pressure due to structural factors, the economic aftershocks of the COVID-19 crisis, and political crises in several African countries.
- The societal support in countries of origin and the Netherlands for managed legal migration (in contrast with rejection of irregular migration) and the potential of circular migration to accommodate societal concerns regarding legal migration.
- The potential contribution of circular migration to economic development in countries of origin, as well as to recruit talent to address shortages in the Dutch labour market.
- The financial support the European Commission (EC) offers to start pilot projects for circular legal migration between third countries and EU countries, and the availability of lessons learned by other EU countries (Germany, Belgium, France, Italy, Spain, Lithuania) in previous pilot projects.

(Clingendael, 2020)

3.2 Inventory of similar projects between EU and MENA

List similar projects in the region working on talent development programs or circular migration mechanisms (last 5 years).

TABLE 2. MSM REFERENCES

Project / Program Name	Implementing organization	Donor	Domain	Location	Target beneficiaries	Services provided
Enhancing water efficiency and food security through Egyptian TVETs	MSM	Netherlands Government/ Nuffic/OK	Water management and food security	Egypt	Technical and Vocational Education and Training (TVET) / Higher Education (HE), farmers, small enterprises and agro-industries	Interactive sessions comprised of 'sandwich programs': lectures, expert presentations, field visits and hands-on assignment in which all participants played an active role and worked on: <ul style="list-style-type: none"> - take home assignments, to enhance the linkage with participant's own workplace - teachers/trainers/experts at the Netherlands' and Egyptian side will give feedback on assignments, - improvement- and action plans on how to apply outputs in a sustainable way in practice - development of adapted training courses and curriculum development.
Bright Future in Agriculture - South (BFA - South): Enhancing employability and food security in Ethiopia through quality ATVETs in horticulture	MSM	Netherlands Government/ Nuffic/OKP	Educational Development / Food security and Nutrition	Ethiopia	Ethiopian Agricultural Technical and Vocational Education and Training (ATVET) sector (ATVET/Polytechnic teachers)	Training, Coaching, Partnership management, Project Management, Curriculum development, Applied Research, Women empowerment support, IDP support
Bright Future in Agriculture: Enhancing employability and food security in	MSM	Netherlands Government/ Nuffic/OKP	Educational Development / Food security and Nutrition		Ethiopian agricultural vocational education sector	Training, Coaching, Partnership management, Project Management, Curriculum development, Applied Research, Women empowerment support, IDP support

Ethiopia through quality ATVETs in horticulture and dairy				(ATVET/Polytechnic teachers)
Improving client-oriented Investment Service Delivery	MSM	Netherlands Government/ Nuffic/OKP	Investment attraction	AiIB staff Training, Coaching, International exposure
Strengthening Agro Value Chain Dev. in Gambella	MSM	Netherlands Government/ Nuffic	Educational Development / Food security and Nutrition	Academics and management of HE (Gambella University) Training, Coaching on the job, Facilitation of multi-stakeholder cooperation, Management consultancy, Communication Support
Gender Mainstreaming and Women Empowerment in Eastern Ethiopia	MSM	Netherlands Government/ Nuffic	Gender	HE staff (Haramaya, Dire Dawa, Jigjiga University) Training, Coaching on the job, Facilitation of multi-stakeholder cooperation, Management consultancy, Communication Support, Public Policy Support
Training on Women Empowerment in the Medical Sector of Ethiopia	MSM	Elisabeth Strouven fund	Gender	Medical experts in Ethiopian healthcare sector and HE staff Training
Hope and Opportunities for People in Ethiopia (Addressing Root Causes)	MSM	ARC / Netherlands Government	Private Sector Development	Ethiopian and migrant workers MSM was responsible for the private sector linkages in four different regions in Ethiopia. The services were linked to the work of the Civil society organisations in building a local economic foundation for private sector development involving refugees focusing on: <ul style="list-style-type: none"> - Labour Market Analysis - Market Research - Private Sector Strategy Development - TVET Strategy development - Strategy development on working with Multi-stakeholder Platforms - Capacity development TVET/ Chamber of commerce and MFI's

Development of an Executive MBA strengthening Agribusiness in Ethiopia	MSM	Netherlands Government/ Nuffic	Educational development		Academics and management of HE (Jimma University)	Training, Coaching-on-the job, Institutional and organizational development, Curriculum development, Research support, PhD supervision, University-industry relations
Professionalizing the Garment SMEs: Improving quality standards and marketing to enter the export market	MSM	Netherlands Government/ Nuffic	Private Sector Development		Women-owned Ethiopian SMEs in textile/garment sector	Training, Coaching on the job
Développement de la chaîne d'approvisionnement en légumes bio pour les tomates et les piments forts	MSM	Netherlands Government/ Nuffic/OK	Educational Development / Food security and Nutrition	Tunisia	ATVET sector in bio-horticulture	Training, Consulting, Investments, Linkages, Education, Strategy / organizational development advice

TABLE 3. AERES REFERENCES

Project / Program Name	Implementing organization	Donor	Domain	Location	Target beneficiaries	Services provided
East African regional Network for the Dairy Excellence in Dairy Training (EARNED) 2019-2021	Aeres MBO (lead) ICRA VHL Bles Dairies WCDI	Dutch Ministry of Foreign Affairs/ Nuffic	Education and agriculture (dairy)	East Africa Ethiopia, Kenya and Uganda	Federal TVET Institute, Ethiopia ENP, Kenya MUST, Uganda	<ul style="list-style-type: none"> The common learning platform will adapt existing dairy modules to 2 “blended learning pathways”: for certificate/diploma students and for farmers/practitioners. TVET trainers and private advisory services will be trained in adapting these pathways to their specific contexts and curricula. Linkages will be developed between TVETs and dairy hubs that will allow practical internships and continued feedback on training needs. Learning and Action Teams will capitalize experience in the dairy sector to further improve training materials and organizations.
WUKRO APTC 2014-2019	Aeres Groenhorst IP-Consult (lead)	German Development Bank, IP-Consult	Education and agriculture (Agricultural Engineering, Food and Business)	Ethiopia	Wukro college	<p>Staff training aiming at capacitating them to support the commercialization process of the cooperative sector. Review and technical assistance in strengthening of different study programs, by adjusting them to labour market demands:</p> <ol style="list-style-type: none"> Agro Mechanics Agro Food Cooperative Business management and marketing Didactic Skills development <p>Didactical approach: learning by doing aiming at integration of theoretical aspects and applied practical learning activities.</p>
Ardayta A TVET Agribizz Ethiopia (Niche/Eth/138) 2012-2016	Aeres – Stoas, CAH Vilentum University and Groenhorst (lead)	Dutch Ministry of Foreign Affairs/ Nuffic	Education and Agribusiness	Ethiopia	Ardayta college A TVET	<p>Staff training aiming at capacitating them to support the commercialization process of the cooperative sector. Review and technical assistance in strengthening of two study programs, by adjusting them to labour market demands:</p> <ol style="list-style-type: none"> Cooperative accounting and auditing Cooperative business management and marketing

						Didactical approach: learning by doing aiming at integration of theoretical aspects and applied practical learning activities.
Capacity development for Mizan A-TVET for better park management and wildlife conservation and utilisation Ethiopia (Niche/Eth/119) 2011-2015	Aeres – Groenhorst and Vilentum University (Stoas)	Dutch Ministry of Foreign Affairs/ Nuffic	Education	Ethiopia	Mizan A TVET	Staff training in student centered education, activating didactics and problem based practical assignments. Technical assistance in curriculum and program review, improvement and development based on labour market demands. Kick off workshops to start the competence based and professional tasks based didactical approach.
Enhancing water efficiency and food security through Egyptian TVETs 2019-2021	MSM (lead) Aeres Deltares	Dutch Ministry of Foreign Affairs/ Nuffic	Climate Smart Agriculture	Egypt	Faculty of Agriculture Kafr-el-Sheikh University “FAKU”	<p>The MSM with projects in smart agriculture (Kenya and Indonesia) and in smart water (Egypt and Palestine). It has extensive experience with project management, train the trainer methodology and value chain development (in Africa and Indonesia).</p> <p>AERES/AHD is specialised in field crops, horticulture, animal husbandry, farm mechanisation, entrepreneurship and business development in Agri- & Food.</p> <p>Many existing AHD activities are integrated: water efficiency, soil fertility, precision agriculture, urban food supply, ecology of aquatic systems etc. AHD is focusing on practical training and including more practical components in curricula and training courses.</p> <p>Deltares brings in the (ground) water expertise, working on (ground) water modelling, aquifer storage and recovery pilots (GO-FRESH) and predicting the quality and quantity of water available in the different regions.</p>
				Egypt		
Supporting a best Practice National	Aeres - PTC+	Dutch Ministry of	Education	Egypt	National Centre for Agricultural	<ul style="list-style-type: none"> A comprehensive curriculum with practical training modules

Centre for Agricultural Technical Training in Egypt. NICHE/EGY/108 2011-2015		Foreign Affairs/ Nuffic			Technical Training	<ul style="list-style-type: none"> • Adequate facilities at the training Centre • DDC staff training • An M&E system • A network of stakeholders which assures the quality of the training program and creates work opportunities for graduates • A specific training program for women
Improve employability of young professionals in the Tunisian dairy sector	Aeres	Nuffic	Education	Tunisia	Staff of TVETs	<ul style="list-style-type: none"> - Online Blended Learning training - Technical Dairy training - Curriculum development for - Entrepreneurship Training in practical assignment development - Entrepreneurship BMC training - Field visits and assignments - Coaching and Blended Learning strategies
Strengthening the opportunities of women in agricultural entrepreneurship and job creation in Tunisia	Aeres	Nuffic	Entrepreneurship	Tunisia	Staff of TVETs	<ul style="list-style-type: none"> - Female Job Creation & Bottlenecks - Entrepreneurship BMC training - Female Entrepreneurship (field trips etc.) - Business Development/ Value Chain Development

3.3 Lessons Learned and Best Practices:

Circular migration can benefit both sending and receiving countries, as it can help to address labour shortages in the receiving country while also providing opportunities for economic development in the sending country. This section of the scoping study will look into prior experiences and its best practices regarding circular migration and talent development from previous projects. Learning from previous success stories is an essential tool for achieving success in the long-term regarding circular migration.

Legal migration has been an important pillar in the EU's Global Approach to Migration and Mobility (GAMM). It has been an integral part of every Mobility Partnership (MP) and Common Agenda on Migration and Mobility (CAMM). However, the New EU Pact on Migration and Asylum⁴ presented by the EC at the end of September 2020 appears to be the furthest-reaching and most concrete attempt to create and expand opportunities for legal migration from non-EU citizens to date. The offer of dedicated Talent Partnerships promises an “enhanced commitment to support legal migration and mobility with key partners” (Stefanescu, 2020).

3.3.1 EU-funded MPF pilot projects on legal migration

The EU-funded MPF pilot projects on legal migration started in 2018 and are still in progress. In 2020 the policy brief “PARTNERSHIPS FOR MOBILITY AT THE CROSSROADS Lessons Learnt From 18 Months of Implementation of EU Pilot Projects⁵ on Legal Migration” was written by Diana Stefanescu (2020). In this policy brief the best practices and preliminary lessons learned of the first 18 months of these project are reflected upon.

These projects on legal migration have addressed different policy, practical and institutional dimensions of legal and labour migration. They covered mobility for higher education, internships, entre-level graduates and mid-level professionals.

A mobility scheme will involve a multitude of actors unaccustomed to working with each other. Not only do projects have to connect EU MS and third country actors and systems with different traditions, capacities and levels of experience, they also include a great variety of stakeholders in each national context and all with different interests.

As one staff member of the Belgian Pilot Project PALIM put it, actors speak “different languages”, project leads therefore play a key role as “interpreters” and facilitators who need to mediate and support effective communication between private and public stakeholders, such as different ministries and other national administration sectors. Multiple governance levels competent on migration need to be carefully involved with due respect to contextual political and administrative dynamics.

Key takeaways

The following bullet points give a summary of best practices that have shown to be effective during the implementation of the pilot projects:

- **Political, institutional and administrative support:** There are multiple governance levels (local, regional and national). Depending on the country context these relationships can be highly conflictual, politicised and complicated. A high degree of administrative skill, and a broad political and institutional support base are required to break down communication barriers, mediate interests and expectations, and effectively navigate the tensions of multi-stakeholder public-private partnerships. The most successful initiatives have been those that could rely on well-grounded political and administrative support networks prior to the start of the project, and were able to invest an important amount of time and resources in preparatory research, stakeholder mappings and the building of trust between participating entities in the inception phase of the project.
- **Time:** Time is an important component and prerequisite in building the necessary trust that will lead to success, meaningful engagements and sustainability.
- **Flexibility:** Due to the nature of these international collaboration projects, a certain level of flexibility is required. The implementation requires the ability to reshuffle budgets and activities, or change selection methodologies and targeted skills profiles. Being flexible will allow project implementers to stay responsive to shifting dynamics in the labour market and changing political alliances following elections, or to enable procedural changes that may deeply affect timelines and planning of candidate arrivals. Experiences from the MPF Pilot Projects have shown that flexible tailor-made approaches lead to success – getting length of employment and targeted skills profiles ‘right’ in the local context are crucial for productive cooperation and matching. remain flexible and in tune with the evolving reality on the ground. Needs might change over the lifetime of a project. Projects that have been able to continuously consult and update requirements in line with developments in the labour market have proven best equipped to ensure that the project offer can remain relevant and in demand.
- **Advisory bodies and committees:** The creation of formal advisory bodies or committees for the purpose of coordination with a wider range of impacted stakeholders have proven effective in fostering ownership for the different stakeholders in the process, in addition to close contact and collaboration between project coordinators and relevant counterparts bilaterally.
- **Local coordination:** Where many stakeholders interact, local coordination is of particular importance to ensure policy and institutional coherence, credibility and efficiency on the ground, and effectively address persisting capacity building needs in partner countries.
- **Synergies:** Embed initiatives in a wider policy framework and relevant actor networks to make the best use of joint synergies. By creating opportunities such as exchanges and formal structures for multi-stakeholder engagement sustainable impact can be enabled for legal migration and mobility of skills.

- **Public private partnerships:** These mobility schemes are often initiated by the public sector; however the private sector should be involved from the start too. As public private collaboration from the start creates the highest success rate to develop a scheme with sufficient potential for scale-up and sustainability. The most attractive pull-factor for the private sector to join a mobility project appears to be the need for support to manage the administrative burden of organising international mobility. In this way, it has been shown that the mobility projects funded under MPF have added most value for small- and medium-sized enterprises (SMEs).
- Pilots have opened up avenues for hiring migrants for actors who would otherwise not have been able to benefit from international talent. More structural engagement and exchange with relevant bodies (such as chambers of commerce, employers' associations and others), and investment into trust building, are needed in both national and international contexts.
- **Listening:** Careful listening to understand private sector motivations to participate will help in gaining companies' interest and the creation of sustainable, productive engagement.
- **Private financing:** Despite apparent important interest and vocal support from the private sector to open up legal pathways for labour migration, the MPF-funded initiatives have not yet seen direct financial contributions towards the funding of the schemes. The private sector appears to expect public actors and project coordinators to first show that they are able to serve companies' needs effectively before they will consider contributing.
- **Resource-intensive selection methodologies:** to perfect the matching between companies and candidates, face-to-face interviews or selection committees need to be arranged. It's a more time consuming and complex process that is often underestimated. Also, it is crucial to separate hiring decisions from private sector interest and commitment to participate in a Pilot Project. Cost-benefit considerations, actual needs and the quality of the match may outweigh declared commitment to the process as a driver for success.
- **Recognition of diplomas:** Recognition of skills and qualifications can be critical, depending on the partner country and targeted sectors. Where institutional relations allow, the negotiation of simplified procedures for the recognition of specific country diplomas should be considered at the outset of the project. Activities that influence and ideally improve the formal structural frameworks for recognition could be envisioned to maximise impact on legal pathways for a particular segment of labour migrants.
- **Digital tools:** the effective use of digital tools and the modernisation of migration related administrative procedures have become more important than ever. Digital infrastructure needs dedicated efforts and funding – among others to create labour market information systems and skills matching platforms that are compatible and

allow for meaningful collaboration to the mutual benefit of partners in countries of origin and destination.

- **Circular movement:** Skills mobility schemes with circular movements and additional practical elements of support (such as internships, vocational training, mentoring, business development, diaspora engagement) can help leverage more positive effects in both countries of origin and destination. Nevertheless, simplicity of design is often key to ensuring that pilot initiatives can be scaled up, replicated and transformed into permanent legal pathways that can be sustained without public funding.
- **Monitoring and Evaluation:** A dedicated monitoring and evaluation framework for mobility initiatives with specific and measurable qualitative objectives and indicators is indispensable to foster learning, and demonstrate impact and added value of the talent partnerships – looking beyond mere numbers of mobility beneficiaries as a measurement of success.

3.3.2 Dutch temporary and circular migration pilot project

Blue Birds Circular Migration Pilot – the Netherlands

The “Blue Birds” Circular Migration Pilot wanted to provide about 160 migrants, all professionals with vocational training, an opportunity to gain working experience for a period of two years in Dutch companies. They were employed in regular vacancies in sectors where there were shortages in the Dutch labour market. Upon return in their home countries the migrants would be assisted in finding a (better) job, starting up their own business and investing their remittances. However, the HIT foundation was unable to reach its target of 160 migrants working in regular vacancies within the Netherlands in shortage sectors after one year. Therefore the Blue Birds scheme was discontinued (Migration Partnership Facility, 2022). The reasons why the scheme failed have been looked into by Dr. Melissa Siegel and Vivianne van der Vorst (2012) of Maastricht University's Maastricht Graduate School of Governance. The research “Evaluation of the “Blue Birds” Circular Migration Pilot in The Netherlands” was commissioned by the Dutch Ministry of Foreign Affairs and found 10 key takeaways that impeded the successful implementation of the scheme:

1. The lack of flexibility in the project at some levels made it difficult for the “Blue Birds” Evaluation pilot to adapt to the situation on the ground.
2. Lacking flexibility in the time frame, skill level and type of jobs were a main concern for employers which made them often unwilling to participate.
3. A key difficulty was the ambiguity in framework rules leading to different interpretations. Within the time period of implementation.
4. The financial crisis made acquisitions, matching and the political environment more difficult.

5. The political climate played an important role with regard to the acceptance and political support for the project which became less and less over the duration of the pilot project.
6. There was a need to have access to employers at the right level and the right contacts with industry as well as a larger network.
7. Multiple steering groups/advisory boards made communication about different aspects of the project more difficult and particularly the resolution of problems.
8. Related to the previous point, communication was perceived to be an obstacle to smooth running. It was perceived that the HIT foundation was not always open about the severity of the problems that they faced and perhaps could have asked for more help at an earlier stage from their steering groups. There were also no clear agreements put on paper from the initial government steering group meetings.
9. The approach to acquisition seemed to be neither effective nor efficient. It was perceived that more focus and a clearer planned strategy could have been helpful.
10. The choice of countries made the project less flexible and there seemed to be difficulties getting started and prejudices by employers for people from Indonesia (Siegel & van der Vorst, 2012).

The report (2012) also provided some basic criteria that will enable a project in the future with a higher likelihood of success. These criteria include:

- A willing political environment (as in this pilot, involved Dutch ministers had competing project goals and different views)
- A capable implementer
- Flexibility: with regard to all aspects of the project including time frame, employers' needs, countries, involvement of recruitment agencies and temporary work agencies, etc.
- Clear goals and objectives (that are not in competition with each other)
- Clear focus on objectives, sectors and countries
- One advisory board made up of both government and non-governmental stakeholders or at least have the governmental stakeholders present in some of the non-governmental stakeholder meetings to ensure communication across groups.
- Clear criteria with regard to practicalities in implementation

Based on the findings of the report, the two most important recommendations for any future circular migration project are a positive political environment and flexibility. If there is no political will behind the project, it will fail. All stakeholders that will be involved in the project need to be behind the project and working together for there to be smooth implementation (Siegel & van der Vorst, 2012).

3.3.3 International temporary and circular migration frameworks

Where the Netherlands has been relatively reluctant regarding temporary and circular migration since the 1970s, other countries have been using temporary and circular migration schemes as a tool to meet their labour market needs and shortages. Below you find several examples as discussed by Siegel and van der Vorst (2012):

The Seasonal Agricultural Workers Program (SAWP) - Canada

SAWP allows migrant workers from Mexico and selected Caribbean countries to work temporary in the agricultural sector. Employers willing to participate and hire temporary migrants have to submit official requests which need to be approved by HRSDC⁶. After approval, explicit vacancies are sent out to recruiters in sending countries to make matches. An employer must offer a minimum of 240 hours of work within a period of six weeks or less, for a maximum duration of eight months. An employer has to pay for round-trip airfare and the worker's immigration visa cost-recovery fee. Furthermore, free seasonal housing must be provided and approved by the appropriate provincial/municipal body or private inspection service. Both employers and foreign workers have to sign a contract which outlines their rights, obligations and duration of employment. A specific employment contract between employer and foreign worker is signed in addition. This contract includes aspects such as wages, duties, transport, accommodation, health and related factors. A migrant worker under the SAWP scheme must earn minimum wage as stipulated in the provincial legislation and should earn the same rate as a Canadian worker performing in the same occupation.

Workers' performance is evaluated by the employer and when a foreign worker receives approval his name will be added to a list that allows return under the same scheme, often to the same employer. Practically, return rates are very high as well as repeat participation of migrants and employers.

Key Takeaway: SAWP is often beneficial for both employers and foreign workers. Temporary migrants obtain good work conditions and fair payment. Furthermore, risks involved in irregular migration are avoided. Employers can fill labour shortages while hiring well-functioning workers. Time and money regarding training of new workers can be saved since well performing foreign workers can return the next year.

Seasonal workers law - Spain

Unlike in Canada, Spain does not have special temporary worker programs but a general framework within the Organic Law 4/2000 to make issuance of residence and work permits easier for seasonal workers. Within the 'Contigente' law, regulations are outlined under what conditions seasonal workers can enter Spain. If seasonal positions cannot be fulfilled by workers in Spain, the Contigente eases procedures for employers to hire foreign workers. Every year the Contigente can be approved by the Spanish government. Each year, a specific number is estimated outlining how many third country nationals are allowed to work temporarily in Spain that year. Third country nationals entering under conditions of the

Contingente are often inhabitants of countries which have signed bilateral agreements with Spain in order to manage migration flows. A foreign worker is not allowed to stay longer than 9 months in a period of 12 months and seasonal workers have to sign commitment that they will return home after the season ends. Within this period a foreign worker is allowed to switch employers. If the foreign worker returns after the season ends (or 9 months) he can be hired the next year without going through the selection process. Furthermore, after four years migrants obtain easier access to permanent work authorization (Newland et al., 2008). Employers have to provide adequate housing, pay and organise travel.

Key takeaway: Unlike the Netherlands, Spain has put a system in place that can easily relax strict regulations if needed to hire foreign workers. Each year it is reviewed how many seasonal workers can enter which helps to manage migration flows. By leaving out the administrative selection process when returning the next year, makes it interesting for seasonal workers to come again. Similar as in Canada, time and money regarding training of new workers can be saved since well performing foreign workers can return the next year.

A triple win – Mauritius

Mauritius is promoting circular migration and trying to create opportunities for nationals to work abroad so experience and money can be obtained. By creating opportunities in countries like Canada and France through special circular migration programmes, unskilled and middle skilled workers can improve their existing skills and implement these after return in Mauritius. A 'triple win' situation in which Mauritius obtains remittances and human capital flows while the migrant has employment and gains experience and the host country gains labour is promoted. The receiving countries can fill shortages on their labour market and better regulate illegal inflows of migrants.

In 2008 a tripartite agreement between the Government of Mauritius, the International Organization for Migration (IOM) and selected Canadian employers was signed. The tripartite agreement outlines terms of collaboration between the IOM, the Government of Mauritius and Canadian employers and other stakeholders which are involved in the selection, preparation and mobilization of workers from Mauritius. Five labour migration programmes were established by the Mauritanian government and the IOM in cooperation with Canadian employers. Over 300 nationals left for Canada mostly working in the cleaning, agro industry and food processing business.

In order to successfully manage circular migration flows between Mauritius and France a bilateral agreement was signed in 2008 and ratified in 2010. This agreement allows Mauritian nationals to work in France for a fixed period while gaining experience and money which can be implemented in their home country in forms of small and medium enterprises. Individuals actively involved in economic relations, commerce, professionals, university students, scientists, cultural and sport activities etc. can obtain a multiple entry visa. Furthermore, the agreement involves a section on migration and development which provides a list of more than 60 occupations in which approximately 500 Mauritians are

allowed to work for the same salary as French nationals. A visa for 15 months can be obtained and renewed with another 15 months. Another section of the agreement between France and Mauritius is focussing on young professionals aged between 18 and 35 years old. Approximately 200 workers are allowed to enter under this section and work in wide range of categories to obtain experience. Young professionals can obtain a visa for 12 months which can be extended once more with six months and the salary is on the same level as France nationals. Around 150 Mauritian nationals who have excelled in the field of sports, science, intellectual and cultural fields are able to put their competencies at the disposal of France and indirectly Mauritius.

Key takeaway: Mauritius obtains remittances and human capital flows while the migrant has employment and gains experience and the host country gains labour is promoted. Furthermore, Bilateral agreements support the management of circular migration flow in different levels, age groups and sectors. In this way the receiving countries can fill shortages on their labour market and better regulate illegal inflows of migrants.

Triple Win Circular Migration Project – Germany

In 2011 a circular migration pilot project was carried out in Germany. This pilot project enabled small and medium sized enterprises to recruit foreign workers while endeavouring to create a triple win situation for the migrants, home country and enterprises. Within the 'Triple Win Migration' project, models for the recruitment of skilled migrants were developed and tested while reducing risks. Specific focus on recruitment of skilled migrants was in the nursing sector (in Albania and Bosnia) and in the MINT professions (IT, natural science and technology) in Indonesia and Vietnam. Vacancies were advertised in the countries by the project organisation and suitable applicants are recruited in cooperation with the International Placement Service of the Federal Employment Agency and through the local networks of the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH in the pilot countries. Matchmaking was done in accordance with the requirements of German employees. Besides the formal requirements, applicants were also assessed on language skills and further relevant qualifications. Suitable candidates were prepared upon arrival regarding professional, linguistic and intercultural aspects of their stay in Germany. During their stay continued support was provided including return and reintegration support after circular migrants returned to the sending country.

Key takeaway: for the matchmaking a comprehensive procedure was developed where there was strong involvement of multiple actors, public and private to recruit the best workers. To prepare and support workers before, during and after their stay creates a full circle experience that will benefit the workers as well as the employers.

Circular migration framework – France

In France migrants from outside of the EU are allowed to come by request of a French employer for work for a minimum of three and a maximum of six months per year. After the seasonal work they have to return home which is being checked by the French migration

office OFII. On return to their home country their circular migration document needs to be officially stamped by a local office of the French migration office OFII. Only with this official stamp they are allowed to return for the same period of time next year. The seasonal worker are employed by a French organization and receive the minimum wage, social security and medical insurance. Last year almost 20.000 workers came to France through this circular migration scheme, with the majority coming from Morocco and working in the agricultural field. There is no limit of people that are allowed to come. If French farmers or other businesses, need people, they can come (Renout, 2023).

Furthermore, there is no shady brokerage involved. The migrant is not exploited by intermediaries, but there are few or no checks on their working and living conditions in France (Renout, 2023).

Key takeaway: The French themselves are satisfied with the system. The farmers get the workers they cannot find in their own country and the French government sees that the migrants return home every year. For the migrant it is highly beneficial as they earn in a couple of months what they would normally earn in their home country in a year (Renout, 2023). A win-win on both sides.

Circular Migration Project between Belgium and Tunisia - Belgium

Through the project "Enhancing Tunisian Youth Employability through Professional Internships in Belgian Companies" 31 young Tunisians came to Belgium for a six-month period to gain hands-on work experience and develop their professional skills, with the overall objective of enhancing their employability back in their home country. The project has been financed by the Belgian Immigration Office and supported by the Tunisian Government (IOM, 2020). Partners in the project were Tunisian and Belgian Government; Universities, academic institutes and private sector in Tunisia and Belgium. The project was implemented in three phases:

1. **Identification of apprenticeship and internship opportunities:** listing of partner educational institutions in Tunisia of whom beneficiaries were selected to participate. a network of public and private enterprises, in both Belgium and Tunisia, will be created to identify apprenticeship and internship opportunities in the two countries (IOM, 2018).
2. **Selection of the beneficiaries and matching with the apprenticeship and internship opportunities:** 20 young Tunisians among the students enrolled in the professional training system and 10 recently graduated from University were identified and, according to their profile, could take part in either 1) a six-month internship in one of the enterprises identified in Belgium, 2) classes on how to draft a CV for University graduates, or 3) a three-month formation in a VET school followed by a three-month apprenticeship for the students enrolled in the professional training system (IOM, 2018).

3. **Insertion in the Tunisian Labour Market:** the 3rd phase started on return of the Tunisian beneficiaries from their internships in Belgium. They received five-month support to find employment based on the offers available in the Tunisian labour market (IOM, 2018).

Of the 31 Tunisian graduates the opportunity to intern with 12 Belgian companies to upscale their professional skills. After the internships, 24 out of 31 interns were employed in Tunisia, 2 interns decided to continue their studies, 3 were employed abroad, and 2 were dismissed by their host companies for unsatisfactory performance. The majority of the host companies evaluated the project positively and would be open to participate in similar initiatives in the future. The project also provided all parties involved with a better understanding of regular migration, and helped companies and interns to explore the complementarities and the differences between Belgium and Tunisia. It has also been an opportunity for Belgian companies to understand Tunisia's market potential: four host companies manifested the intention to open a branch in Tunisia following their experiences in the project, contributing even further to the positive economic development for both countries (United Nations, 2020).

Key takeaways: A good skills-matching process between the Belgian and the Tunisian labour markets' structure was the main enabling factor of the project. Another advantage was that this opportunity was free of charge for all parties involved. Furthermore, the support of key stakeholders benefitted the implementation of the project. Oppositely, the main constraints of the project were the multiple administrative and logistical procedures related to the intern's relocation to Belgium. Additionally, the interns' underdeveloped soft skills, and the lack of pre-departure support, were issues that had to be tackled in the course of the project implementation (United Nations, 2020).

MATCH – Belgium, Luxembourg, Italy and the Netherlands

Migration of African Talents through Capacity building and hiring (MATCH) is a 36-month initiative that provides job placements in primarily the ICT, technology and engineering sectors in Belgium, Luxembourg, Italy and The Netherlands to over 200 young graduates from Senegal and Nigeria. The project aimed to strengthen the skills and employability of the young graduates, develop the capacity of institutional partners that are part of the labour migration scheme and address sectorial labour shortages in the 4 participating EU Member States (IOM, 2020). The project is needs-driven and allows companies to retain the workers recruited through the MATCH project.

The project duration was from January 2020 until December 2022. However, several websites report that the project is still ongoing. The project operates as follows: The IOM leads the overall implementation of the project. Project partners support efforts in each of the four EU member states. They include EUROCHAMBRES (regional), Agoria (Belgium), VDAB (Belgium), VOKA (Belgium), Unioncamere Piemonte (Italy), IMS (Luxembourg), and the Netherlands-African Business Council (the Netherlands). Highly qualified candidates are invited for job placements, following profile screening and matching with companies, where

they upgrade their skills and increase their employability upon return to their home countries. Targeted recruitment takes place in Senegal and Nigeria, with the support of reputable networks, recruitment agencies, and public institutions. Applications are screened and pre-selection carried out. A shortlist is shared with European employers for their final selection. MATCH also conducts complementary activities, such as intercultural competence training, skills development, capacity building, and knowledge sharing (Global Skill Partnerships, 2021).

4 Mapping of the national horticulture sector

4.1 Overview of the national sector

4.1.1 Description of the horticulture sector

The agricultural sector ‘Tuinbouw and Uitgangsmaterialen’ or ‘Horticulture and plant materials’ is one of the ten top sectors of the Dutch economic and research sectors. The horticulture sector consists of all related activities in the whole horticulture value chain.

Two sub-sectors could be considered. First the primary production of horticultural products, for example flowers, plants, trees, vegetables and seeds. And secondly the production of all other goods and services related to the primary production.

For the economic analysis of the horticulture sector the WEcR (Wagening Economic Research) considers different sub-sectors. In this report this division in sub-sectors is used as well. The sub-sectors to be considered are:

- Floriculture, which includes production of flower bulbs, pot- and bedding plants, cut flowers and trees.
- Vegetables and fruits production, which includes production of vegetables and fruits in greenhouses and open fields.
- Production of planting materials, which consists of planting materials for horticulture, vegetables, flowers and other seeds.
- Production of crops like legumes, onions and potatoes as well as grass seeds and seed-potatoes are considered as part of arable farming.

4.1.2 Production areas

Horticultural activities take place in several regions in The Netherlands of which for greenhouse production the region Westland is well known. But also other regions are important for horticulture production. Important locations and distances between Dronten and the respective regions are indicated in Table 4.

TABLE 4. HORTICULTURAL AREAS VS AERES UAS DRONTEN

Location	km	Location	km
Dronten – IJsselmuiden	25	Dronten – Venlo	180
Dronten – Enkhuizen	94	Dronten – Aalsmeer	88
Dronten – Luttelgeest	42	Dronten – Made	130
Dronten – Betuwe (Tiel)	110	Dronten – Middelburg	235
Dronten – Westland (Naaldwijk)	135	Dronten – Almere	45
Dronten – Kring (Bleiswijk)	122	Dronten – Middenmeer	126

For arable production eight different regions are distinguished these are not included in Table 4. These areas are: Northern clay area, IJsselmeerpolders and North-Holland, South-western clay area, Veenkoloniën, Northern sand and peat soils, Eastern sand areas, River clay areas and Southern sand and Löss areas.

4.1.3 Production volume

The direct and indirect value of the whole horticulture complex is 23,6 billion euro. Which is 2,8% of the GDP in 2021. The direct contribution of the horticulture sector to the GDP of the Dutch economy in 2021 is 1,6% (CBS, 2023).

The export- and import values of the horticulture sector in The Netherlands was in 2021 respectively 27,6 billion and 12,7 billion euro. Of which cut flowers and vegetables produced in greenhouses represent the highest export value (CBS, 2023).

In the agricultural goods market, the Netherlands earned the most from exports of floricultural products in 2021 (7.1 billion euros; data for 2022 not yet available), of which 6.8 billion euros came from exports of Dutch products and 0.3 billion from re-exports. The export of floriculture products decreased in 2022 with about 4% till 11,5 billion euro. In that particular year floriculture products aren't the largest export product of The Netherlands (Jukema, Ramaekers and Berkhout, 2023).

The export value of greenhouse and open field vegetable production, potatoes and unions represent a value of 7,8 billion euro in 2022, which is 10% more than in 2021. The imports increased with 6,9%. Tomatoes, peppers, onions, cucumbers and seed-potatoes are the main export products. Imports consist of tomatoes, potatoes, peppers and sweet potatoes (Jukema, Ramaekers and Berkhout, 2023).

Avocado's, grapes, bananas, mango's, peers and blue berries are the main export product in the category fruits. The exports represent a value of 7 billion euro in 2022 and imports represent a value of 7,6 billion euro. The main part of the export consist of re-exports. Only 16% of the exports are of Dutch origin (Jukema, Ramaekers and Berkhout, 2023).

The Dutch horticulture sector is the largest contributor (34%) to the production value of the agricultural primary production. And within the horticulture sector the floriculture is the largest contributor with a share of 53%. The vegetable and fruit production and the sector plant and bedding materials contribute respectively with 32 and 15%. The production value of open field cultivation is about one third (22%) of the production of covered crops (64%) (CBS, 2023).

4.2 Focus on the relevant horticulture subsectors

4.2.1 Structure of companies and importance of sub-sectors

The production area for horticulture production is increasing except for cut flowers in greenhouses (small increase recent years) and tree production (stable). At the other hand in all sectors the number of companies has decreased between 2003 and 2022.

The size of horticulture companies is therefore increasing with some differences between the sub-sectors. Between 2010 and 2016 the growth of open field production of vegetables and fruits is stabilized or has slightly decreased.

4.2.2 Vegetable cultivation

Vegetable cultivation (90.917 ha) in The Netherlands consists of vegetables under glass (4.972 ha), Vegetables open ground (85.877 ha), Mushrooms (68 h) (CBS). In Table 5 the cultivated areas for the different vegetable crops are given.

TABLE 5. CULTIVATED AREA OF DIFFERENT TYPES OF VEGETABLE CROPS IN THE NETHERLANDS IN 2022 (CBS).

	Cultivated hectares
Mushrooms	68
Strawberry production	1.442
Leafy and stem vegetables	15.046
Tuber and root vegetables	44.777
Cabbages	11.426
Legumes	8.557
Fruiting vegetables	4.648
Other vegetables	4.953

In annex 2 a more detailed overview of cultivated areas for different vegetable crops is given.

4.2.3 Seed breeding companies

There are a number of seed breeding companies with a head-office in The Netherlands who produce seeds for an international market. There is a constant demand for qualified employees in these companies. Worldwide seed breeding companies have a large number of employees (Boekhout, Pulley & Heeffer, 2023). These seed breeding companies can be divided into different categories (Table 6).

TABLE 6. DIFFERENT TYPES OF SEED BREEDING COMPANIES

Types of seed breeding companies	Number
Seed Breeding, soil-bound vegetables	4
Seed Breeding, substrate Rockwool, soil-bound vegetables	17
Seed Breeding Tomatoes	1
Seed Breeding, Herb soil-bound vegetables	1
Seed Breeding substrate Rockwool vegetable, soil-bound vegetable	1

In annex 3 a list with names and locations of these companies is given. Most of these companies are located in the western provinces of The Netherlands (North- and South Holland).

4.2.4 Vegetable propagation

Vegetable plant propagation companies (Boekhout, Pulley & Heeffe, 2023) can be divided in three different types of companies (see Table 7) of which the category ‘vegetable plants, substrate press pot, seedlings’ with 11 companies is the largest.

TABLE 7. VEGETABLE PLANT PROPAGATION COMPANIES

	Number
Vegetable plants, substrate press pot, seedlings	11
Vegetable plants, Substrate Rockwool	5
Vegetable plants, substrate Rockwool, substrate press pot	5

Note: Boekhout, Pulley & Heeffe, 2023

In annex 4 a list with names and locations of these companies is given. Most of these companies are located in the western provinces of The Netherlands (North- and South Holland).

4.2.5 Floriculture sector

The floriculture sector in The Netherlands consists of production of cut flowers and production of flower bulbs and ornamental plants with respectively 1775 and 5705 companies in 2022 (CBS). Total floriculture production covers 6700 hectare and 3592 hectares in greenhouses (VGB, z.d.). See Table 8.

TABLE 8. CULTIVATED AREA OF FLORICULTURE SECTOR IN THE NETHERLANDS IN 2022 (CBS)

	Number of companies
Cut flowers	1.775 (1.375 in greenhouses)
Flower bulbs and ornamental plants	5.705

In annex 5 a more detailed overview of cultivated areas for different types of flower production is given. Cut flowers and more specifically roses are grown year-round by Dutch companies in Kenya and Ethiopia. These two countries are also the main exporters of cut flowers to The Netherlands.

4.2.6 Fruit sector

The fruit sector in The Netherlands consists of production of grapes, kernel and drupes and other fruits. With respectively 110, 1.420 and 660 companies in 2022. Fruit production open field consists of production of small fruit, kernel and drupes, nuts and wine grapes of which

the cultivated area for kernel and drupes is largest (17.946 ha). Small fruits in greenhouses cover 64 hectares (CBS). See Table 9.

TABLE 9. NUMBER OF COMPANIES (2022) AND CULTIVATED AREA OF DIFFERENT TYPES OF FRUIT CROPS (2020) IN THE NETHERLANDS (CBS).

	Number of companies (2022)	Cultivated hectares (2020)
Grapes	110	
Cultivation of kernel and drupes	1.420	
Cultivation of other fruits	660	
Fruit open-field production		
Small fruit		1.613
Kernel and drupes		17.946
Nuts		61
Wine grapes		148
Small fruits in greenhouses		64

In annex 6 a more detailed overview of cultivated areas for different types of fruit crops is given.

5 Production and trade between EU and Egypt, Ethiopia and Tunisia

In this chapter production and trade relations between the EU and the target countries will be described. There is a long-term objective for the trade partnerships between the EU and the so-called Southern Neighbourhood. The long-term objective is to promote economic integration in the Euro-Mediterranean area, removing barriers to trade and investment between both the EU and the Southern Neighbourhood countries (Algeria, Egypt, Israel, Jordan, Lebanon, Libya, Morocco, Palestine, Syria, Tunisia), and between the Southern Neighbourhood countries themselves (European Commission, Directorate-General for Trade, z.d.).

5.1 General overview

Tunisia and Egypt are in the top five exporting countries around the Mediterranean Sea. A quarter of the total EU27 (net) import of fresh vegetables and fruits originates from three countries: Morocco, Turkey and Egypt. Tunisia and Algeria are of much less importance. Tomatoes and oranges are the primary products from these five Mediterranean countries, followed by onions, watermelons, mandarins, bell peppers, beans, and grapes (Boon, 2020).

The import into the EU27 from these five Mediterranean countries has been growing slightly faster than the overall net import into the EU27 in recent years. Last year, the EU received 2.93 million tons of fresh vegetables and fruits from these five countries.

The export seasons of products from the Mediterranean countries often overlap with those of EU products. For example, the main season for Moroccan tomatoes runs from October to April, with average quantities of 50,000 tons per month. The Moroccan season mainly coincides with the Spanish season. The import from all five countries has a share of more than 30% in the total import in all EU countries (including trade between member states) from November to March.

The EU import of onions from these five countries fluctuates significantly. In 2019, it was high due to high demand, especially for Egyptian onions imported at the end of the Dutch export season in May and June.

Beans consumed in the EU primarily come from Morocco (140,000 tons in 2019) and, to a lesser extent, from Egypt (16,000 tons). Moroccan beans are available throughout the year, with smaller import quantities only in the summer months. Practically no Egyptian beans enter the EU during the summer (Boon, 2020).

TABLE 10. EXPORT FRESH VEGETABLES AND FRUIT IN MILLION EURO'S

	2010	2015	2018	2019
World	110.000	119.500	133.000	135.000
Together 5 countries	6.233	7.680	9.408	9.696
Turkey	2.874	3.318	4.253	3.902
Egypt	1.900	2.500	2.800	3.500
Maroc	1.295	1.618	2.084	1.991
Tunisia	186	226	215	218
Algeria	13	25	35	51

Note: Boon, 2020

5.2 Egypt

The agriculture market in Egypt is projected to reach USD 5.90 billion by 2028, growing at a Compound Annual Growth (CAGR) of 3.20% from USD 5.04 billion in 2023. Agriculture is a significant sector, contributing 11.83% to Egypt's GDP and employing 28% of the population in 2021. The government aims to increase the agriculture sector's GDP contribution to 12% by 2024 and enhance agricultural production by 30% by the same year. Key drivers include projects for food security, government initiatives to boost domestic production, and a focus on sustainable farming practices. Major crops in Egypt include sugar beet, sugarcane, wheat, maize, rice, tomato, potato, onion, orange, grapes, and dates.

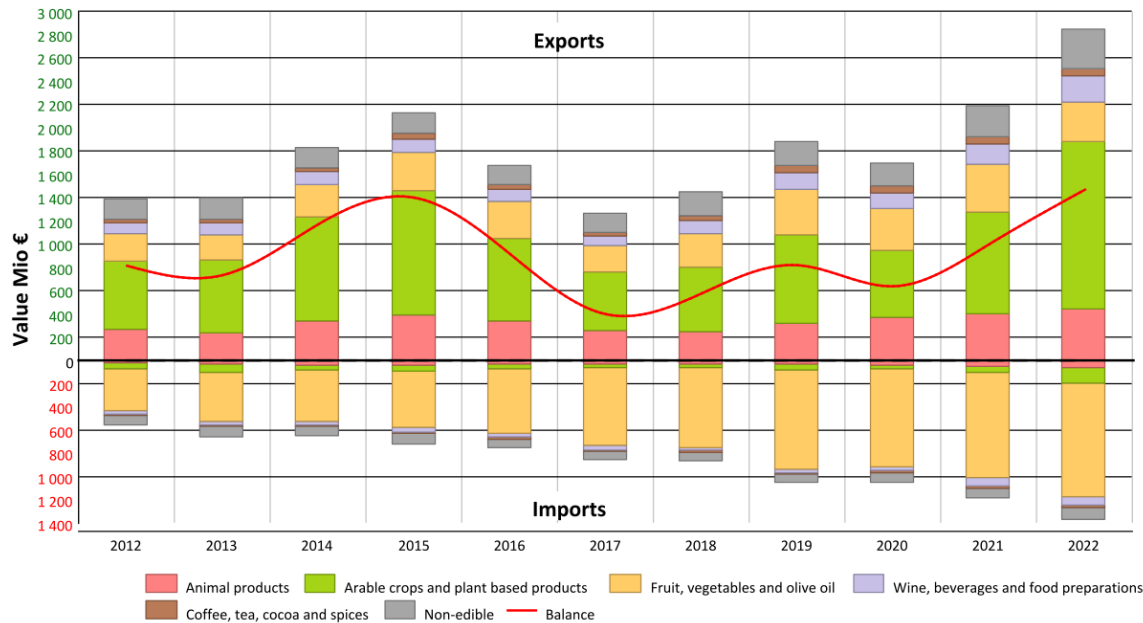
Key trends in the Egypt agriculture market include favourable government initiatives to boost domestic production. The government has increased support through campaigns and initiatives, such as the SHARI e-marketing platform, developed under the PRIME project during the pandemic. The government aims to introduce new solutions, including digital technology to enhance agricultural productivity. Partnerships with international organizations like FAO and USAID contribute to capacity building in the private sector and strengthen the importance of agriculture in Egypt (Mordor intelligence, z.d. (Egypt)).

Concerning trade in 2020 Egypt ranked as the 29th largest trading partner of the EU, constituting 0.7% of the EU's overall trade in goods globally. Conversely, the EU held the position of Egypt's foremost trading partner, contributing to 24.5% of Egypt's total trade volume during the same year. Notably, 25.8% of Egypt's imports originated from the EU, while 21.8% of Egypt's exports were destined for the EU (European Commission, Directorate-General for Trade, z.d.).

In the figure below the trade balance between Egypt and EU is shown. The trend is an increasing positive trade balance for Egypt. The sharp incline in 2022 is also the effect of the war in the Ukraine and is to be expected to normalize in 2023.

FIGURE 1. AGRIFOOD EXPORT FROM EGYPT TO EU AND IMPORT FROM EU INTO EGYPT

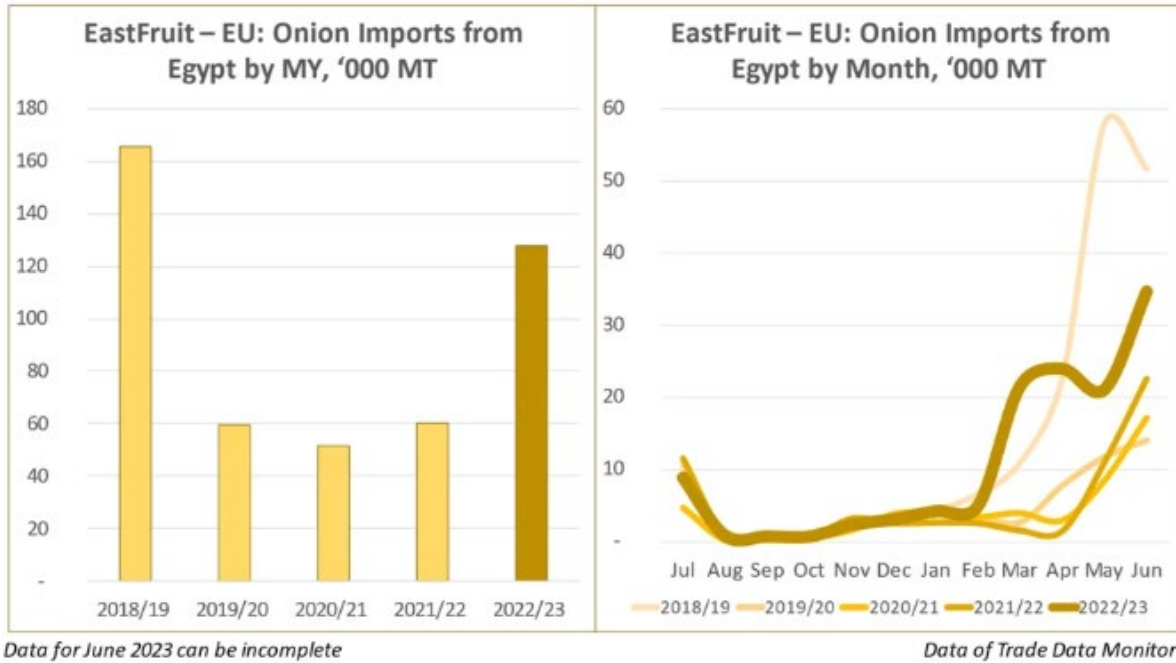
2. Structure of EU Agri-food trade with Egypt, 2012 - 2022



Note: European Commission Directorate-General for Agriculture and Rural Development (2023, April 18th). Agri-food trade statistical factsheet. European Union – Egypt.

Oranges and onions are the main agricultural products of Egypt. In 2018 and 2019 The Netherlands imported resp. 136.000 and 117.000 tons of oranges. The trade of onions between EU and Egypt is shown in Figure 2. The Netherlands is an important importer of onions from Egypt at the end of the Dutch export season.

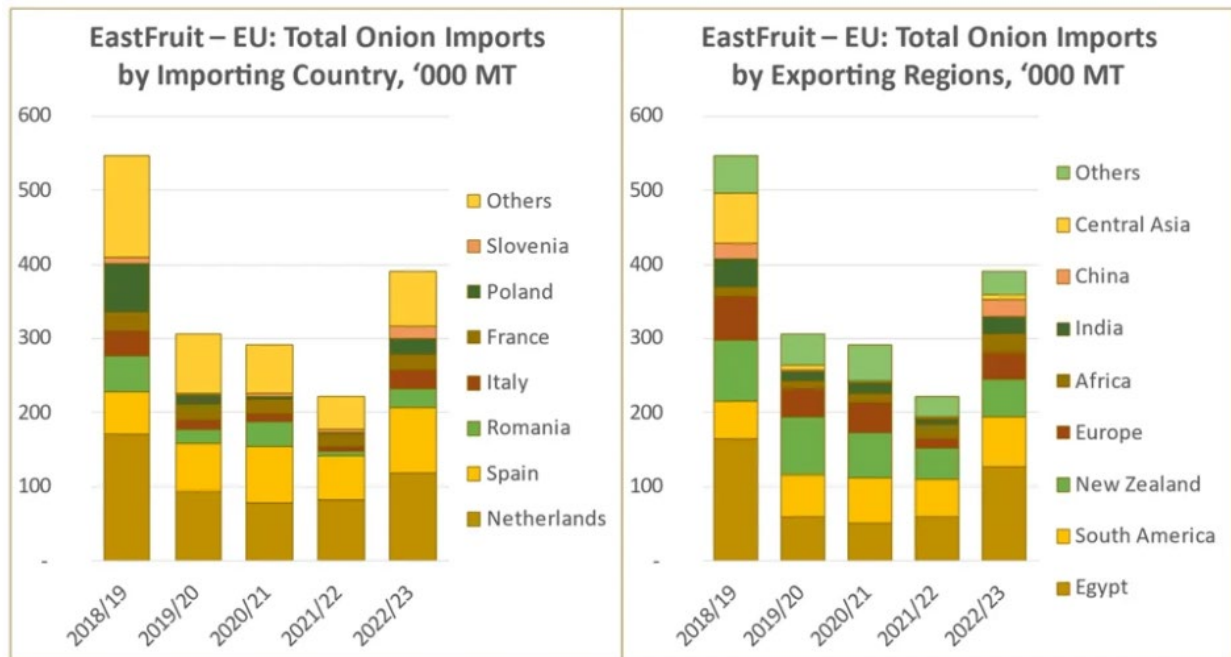
FIGURE 2. EGYPTIAN EXPORT OF ONIONS TO EU



Note: East fruit (2023, September 7th). Egypt doubles onion exports to EU in MY 2022/23.

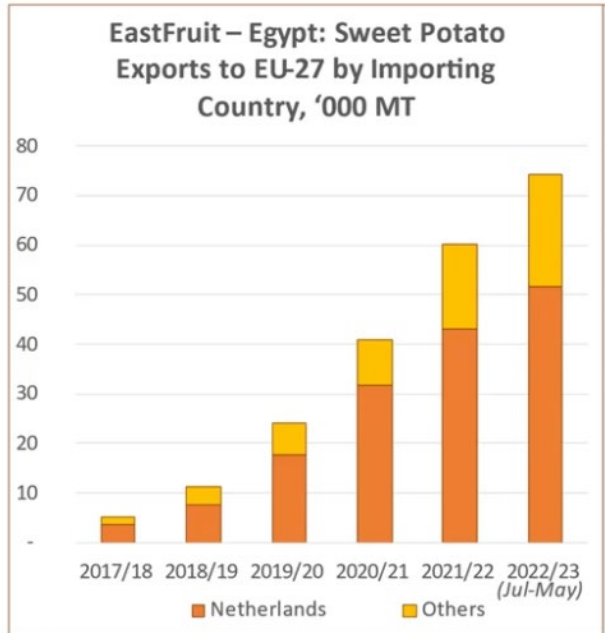
Based on the information in Figure 3, one could conclude that Egypt is a major exporter of onions to the EU, and The Netherlands in particular.

FIGURE 3. TRADE ONIONS BETWEEN EU AND OTHER REGIONS



Besides onions Egypt is the main supplier of sweet potatoes to Europe. In Figure 4 its shown that the annual increase of import volumes is significant.

FIGURE 4. EGYPT EXPORT OF SWEET POTATO TO EU



In the 2017/18, Egypt exported just 5,300 tonnes of sweet potatoes to the EU countries. Since then, exports were annually growing by almost 70% per year and reached 74,200 tonnes in the first 11 months of the 2022/23 (July-May).

Also processed vegetables and fruits are an important export product of Egypt. In 2019 Egypt exported for over 600 million dollars of processed vegetables and fruits. Mainly deep-frozen products (Boon, 2020).

Note: East fruit (2023, August 7th). Egypt keeps driving USA out of EU sweet potato market.

5.3 Tunisia

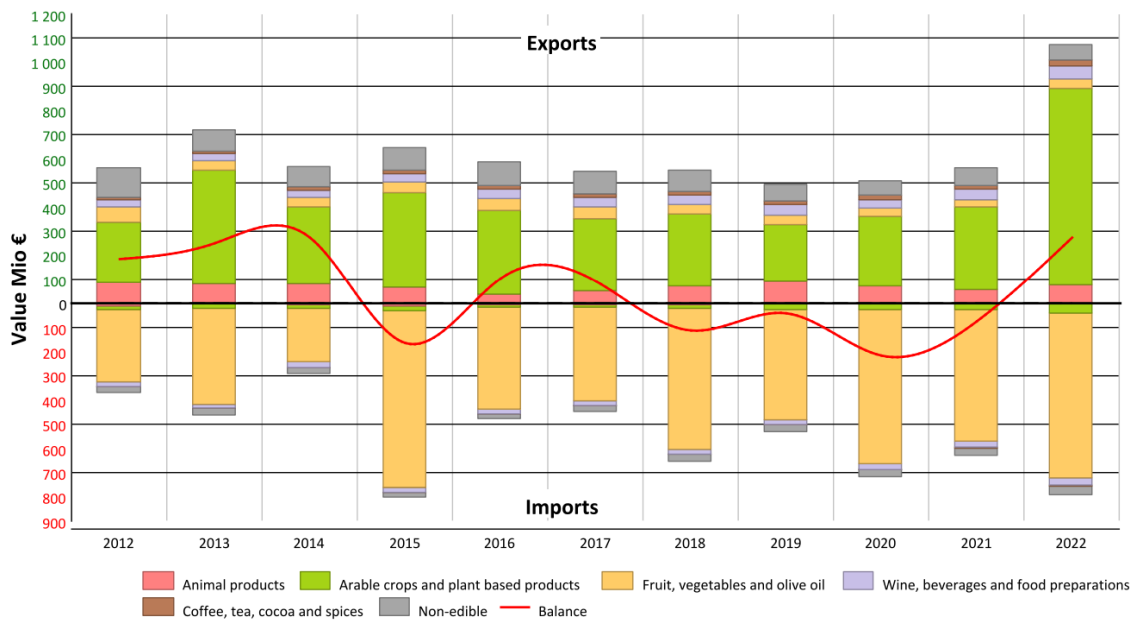
In contrast with Egypt, Tunisia is in general a net-importer from agricultural products. The main export products are olives and olive oil. The rising olive oil prices is the reason that 2022 is showing a positive trade balance, see also Figure 5 (DeAndreis, 2022).

Tunisia faces a challenge as a net importer of agricultural products due to limited domestic cereal and vegetable production. To address this issue and enhance food security while diversifying the economy, Tunisia has implemented measures with the support of global organizations.

In terms of market trends, Tunisia is experiencing a growing preference for organic farming. Despite being a relatively small country in Africa, it leads the continent in terms of organic agricultural land. The country has actively promoted organic cultivation through government policies, responding to the increasing demand for organic products in the European market. Olive and date cultivation, occupying a significant portion of organic farmland, has shown substantial growth. With established licensing agencies for organic certification, Tunisia anticipates further growth in its agriculture sector, driven by the expanding organic exports market (Mordor intelligence, z.d (Tunisia)).

FIGURE 5. AGRIFOOD EXPORT FROM TUNISIA TO EU AND IMPORT FROM EU INTO TUNISIA

2. Structure of EU Agri-food trade with Tunisia, 2012 - 2022



Note: European Commission Directorate-General For Agriculture And Rural Development (2023, April 18th). Agri-Food Trade Statistical Factsheet. European Union – Tunisia

5.4 Ethiopia

Agriculture in the Ethiopian economy engages 80% of the population, contributes 39% to the GDP, and generates 90% of foreign currency through exports. Ethiopia predominantly exports unprocessed commodities like coffee, oilseeds, pulses, live plants, and cut flowers. Reliable data on volume and values of the export are hard to find but Ethiopia’s flower exports are the second-highest foreign currency grossing export items for the East African country, next to coffee exports (Ethiopia today, feb 24, 2023).

The import of cut flowers in The Netherlands represents a value of more than 1 billion euro. Kenya and Ethiopia are the two main suppliers with a value of respectively 292 and 141 million euro. More than 80% of the Ethiopian cut flower export, which for nearly 90% consists of roses, goes to The Netherlands. Saudi Arabia is a growing market (8 million euro) (Boon, 2018).

5.5 Importance of sub-sectors for MOBILISE

5.5.1 Labour demand and relations with three countries of interest

Of the three main categories of horticulture sectors the vegetable sector and floriculture (ornamental) sector are the most relevant sectors for the MOBILISE project. These sectors

represent the main productions in volume and value. These are also the sectors which the highest labour demand and both sectors have also strong links with Egypt and/or Ethiopia and/or Tunisia either because Dutch companies have subsidiaries in one or more of these countries or products from these countries are exported to the Netherland. It provides possibilities to offer year-round production of products. Moreover, seeds and planting materials are produced by Dutch companies producing seeds, seed potatoes or planting material.

5.5.2 Economic importance of different types of companies

Of the different types of horticultural companies the vegetable farms have the highest profit and rentability. Followed by flower bulbs companies but these companies are less relevant for Egypt, Tunisia or Ethiopia because they have no companies in these countries.

TABLE 11. FINANCIAL RESULTS COMPANIES HORTICULTURE SECTOR

	Unit	Vegetable farms	Cut flowers	Pot and bedding plants	Field vegetables	Flower bulbs	Fruit companies	Tree nursery
Companies	Number	760	900	680	750	550	1210	1740
Standard yield (SO)	100 euro	2.721	2.079	2.983	478	99	327	512
Utilised area	Ha	7,5	4,8	3,1	27,2	43,2	16,4	11,8
Results								
Net profit	Euro	613.200	18.800	-126.100	-23.300	219.100	-97.200	8.700
Rentability	%	120	101	96	96	113	84	101

Note: www.agrimatie.nl Wageningen University&Research

The fruit sector mainly produces domestically especially pome and stone fruits. There are Dutch companies in the soft fruit sector which have branches abroad but not in the target area Egypt, Tunisia, Ethiopia (Boekhout, Pulley & Heeffer, 2023). Products produced abroad are Blueberries, Raspberries, Blackberries and Strawberries. Important countries for the production of soft fruits are Spain, Portugal and Morocco.

5.5.3 Private companies with operations in Egypt, Ethiopia and Tunisia

Based on the network of Aeres a first list with horticulture companies is generated containing companies which have activities in The Netherlands and one of the three target countries (Egypt, Tunisia and Ethiopia). These companies will also be the first target companies for internships.

The list with companies is added as a separate excel sheet.

6 Labour market assessment

6.1 Labour market requirements

6.1.1 Employment

The horticulture sector represents over 147.000 jobs providing work to 142.000 employees in 2021. This 1.7% of the total amount of jobs in The Netherlands. Almost two-thirds of the jobs in the horticulture sector consist of permanent contracts. Which is comparable with the number of permanent contracts in other jobs in The Netherlands (CBS, 2023). In the primary production the number of flexible contracts is higher (46% in 2021). In total 246.000 annual work unites are associated with activities in the entire T&U complex, which is 3.1% of the national employment in the Netherlands (CBS and Wageningen Economic Research, June 2023).

From the 142.000 non-temporary employees working in the horticulture sector there are 59.000 who work in primary production, 43.000 in wholesale and 40.000 in other sub-sectors related to the horticultural sector (food manufacturing, business services and R&D).

In almost all sub-sectors the amount of informal labour (in aje = arbeidsjaareenheid) is decreasing. And especially in greenhouse production, but till a certain extend also in fruit production, the amount of formal labour is increasing. In the open field production the amount of formal labour is more or less stable and in tree production the amount of formal labour is increasing since 2018 and almost back at the same level as in 2010 (CBS, 2023).

The greenhouse sector provides 82.000 jobs and due to seasonal work sometimes even 114.000. Due to developments in the sector also new jobs are emerging. For example in ICT and marketing. Constant developments, increase of scale, mechanisation and robotisation ensures a constant demand for skilled labour (Glastuinbouw Nederland, z.d.), with functions in production, supervision, technics, ICT, marketing, sales, logistics, HR and production specialists on TVET, Bachelor and Master level (Kasgroeit, z.d.).

6.1.2 Functions in the horticulture sector

Dutch companies with activities in Tunisia, Ethiopia and Egypt are mainly active in the production of flowers or vegetables. Another category of companies active in or producing for these companies are breeding companies which produce seeds and plant materials. Most of the companies active in the horticulture sector use the same type of functions. These functions are described in the 'Function Handbook Glastuinbouw and Garden sector'.

An overview of these functions is provided in the Table 12.

TABLE 12. RELEVANT FUNCTIONS IN THE HORTICULTURAL SECTOR

No.	Function	Department
1.	Production manager / Plant manager	Production department
2.		Production department
3.	Head of Labour	Production department
4.		Production department
5.	Cultivation chief	Production department
6.	Associate foreman cultivation	Production department
7.		Production department
8.	Crop specialist	Logistics department
9.		Quality and Technology Department
10.	Crop protection specialist	Engineering department
11.	Independent cultivation employee	Breeding laboratory department
12.	Head of Logistics	Breeding department experimental garden
13.	Laboratory assistant/laboratory	garden
14.	Head of maintenance	Breeding department experimental garden
15.		garden
16.	Head of experimental garden	Breeding department experimental garden
17.	Team leader greenhouses	garden
	Crop attendant C	Breeding department experimental garden
	Pollinator Beekeeper	garden
	Breeder	Breeding department experimental garden
	Assistant Breeder	garden
	Team leader cleaning seed	Processing department

In the next chapter a detailed description of the different functions is given. Complete function descriptions for three main functions (cultivation chief, head of logistics, sales and export manager) can be found in annex 7.

6.1.3 Description of functions

In this chapter the different functions relevant for the horticultural sector are described. The function descriptions are based on the information in the 'Function Handbook Glastuinbouw and Garden sector'. For each function information is given about the job and context, the position in the company, whether the person is supervising subordinates, and the job purpose is described.

1. **Function: Production manager / Business manager**

Job or function context This is the position mainly found in (medium) large greenhouse horticulture companies (vegetables and flowers/plants) in which the executive work is carried out independently. The execution is outlined. The job holder directs and supervises the execution by employees. During business peaks, relatively large numbers of employees are sometimes present.

Position in the Organization: Reports to management

Manages: approximately 5-10 department heads, group leaders, and/or assistant foremen, indirect 60-70 employees

Job purpose: Ensure efficient and effective work execution, such that the standards in terms of costs, monitoring quality and optimal use of available capacity.

2. Function: Head of Labour

Job or function context The job is mainly performed in medium-sized and large greenhouse horticulture companies (vegetables and flowers/plants). The execution is reported back to and accounted for afterwards to the manager or management. The head of labour is responsible for planning the work based on the cultivation plans and work schedules in cooperation with a head of practice and a cultivation manager.

Position in the Organization: Reports to company manager, production manager or management

Manages: around 10-20 permanent employees, supplemented by 20-50 seasonal employees

Job purpose: Draw up personnel and work planning based on cultivation plan, arrange availability of required personnel and coordinate work execution at assigned sites.

3. Function: Cultivation chief

Job or function context The position is mainly held in medium-sized and large greenhouse horticulture companies (vegetables and flowers/plants). Management takes place on the basis of approved cultivation plans and work schedules. Implementation is reported back and accounted for afterwards to the manager or management. The position also initiates adjustments/improvements in the processes, partly through trial production/experiments. The position is part of the job series of managerial positions (see accompanying National Occupation Classification (NOK)). This series is a continuation of the executive jobs of cultivation employee (see job numbers 10.03 to 10.05).

Position in the Organization: Reports to company manager, production manager or management

Manages: about 5-10 employees

Job purpose: Managing the cultivation and harvesting of horticultural crops in such a way that they are produced or delivered in accordance with the company's specifications or client.

4. Function: Associate foreman Cultivation

Job or function context This is the position mainly found in (medium-)large greenhouse horticulture companies (vegetables and flowers/plants) in which the executive work is carried out independently and in which responsibility is assigned to a defined part of the cultivation process or the company (e.g. greenhouse section). The execution is outlined. The position coordinates and supervises the execution by others, usually temporary employees. During business peaks (e.g. planting and harvesting), relatively large numbers of employees are sometimes present. The position is part of a job series of managerial positions rising in level

Position in the Organization: Reports to farm manager, production manager or crop chief

Manages: added employees (technical)

Job purpose: Cultivation preparation, growing, harvesting and preparing horticultural crops for dispatch by coordinating/arranging and co-performing the work yourself

5. Function: Crop specialist

Job or function context The position occurs in large greenhouse horticulture companies (vegetables and flowers/plants). In smaller companies, the work is usually carried out by the entrepreneur himself or the required expertise is hired externally. Requirements include variety specifications, quality, quantity, pesticides to be used, efficiency, yield and environment. Cultivation proposals are discussed in advance with the manager concerned, to whom the effects are also reported back. Frameworks have been agreed within which independent measures to promote cultivation quality can be taken

Position in the Organization: Reports to company manager, production manager or management

Directs: not applicable

Job purpose: Contributing expertise in the field of cultivation of horticultural crops. Such that these crops can be produced according to the requirements of the company and the latest knowledge and insights in (cultivation) technology.

6. Function: Crop protection specialist

Job or function context The position occurs in large greenhouse horticulture companies (vegetables and flowers/plants). In smaller companies, the work is usually carried out by the entrepreneur himself or the required expertise is hired externally. Requirements include variety specifications, quality, quantity, pesticides to be used, efficiency, yield and environment. Cultivation proposals are discussed in advance with the manager concerned, to whom the effects are also reported back. Frameworks have been agreed within which measures to improve the cultivation quality can be taken independently.

Position in the Organisation: management or company director or production manager

Directs: not applicable

Job purpose: Bringing expertise in protecting crop from the harmful effects of biological growth disruptors such that the crop can be produced according to the company's requirements.

7. Function: Independent cultivation employee

Job or function context This is the broadly employable employee who can independently perform all common operational tasks on the farm. The emphasis is mostly on crop preparation and daily crop care. Also involved in harvesting, processing, packaging and minor technical maintenance. If necessary, supervises the activities of one or more operational employees, and instructs them as to how to perform the tasks. Priorities are set and the order of execution of the work is determined. Work is usually allocated in consultation; the work is checked afterwards by means of an assessment of the performance achieved. The position is part of a job series of cultivation assistants (independent, I and II), rising in level. The differences are mainly based on employability (scope of the competences) and the freedom of action/independence (given by the organization). This job series is a continuation of the job series of greenhouse horticulture employee and forms a basis for further development into, for instance, more managerial or specialized positions, such as that of cooperating foreman and crop manager or crop specialist and crop protection specialist.

Position in the Organization: Reports to manager, or directorate

Directs: not applicable

Job purpose: Performance of tasks directed at cultivation preparation, cultivation, harvesting and packaging of horticultural crops.

8. Function: Head of logistics

Job or function context The position occurs in companies with their own warehouse for storage of starting materials and/or (finished) products or a central business area where orders are assembled according to customers' specifications. Directly manages (approx. 4 to 7) employees in the warehouse, out of the warehouse or the shipping area. At peak workloads, others from the company may be called in via the immediate supervisor. Decides on the way of working and deployment of available people and means within internal regulations and external (safety) regulations and procedures. Delivering products at home and abroad, often using regular forwarding agents based on annual contracts.

Position in the Organization: Reports to business manager, or management

Manages: 4-7 logistics staff, warehouse staff, forklift driver

Job purpose: Organizing and coordinating the logistics processes aimed at transporting, storing and issuing incoming and outgoing goods and products.

9. Function: Laboratory staff/laboratory assistant

Job or function context The position occurs in medium and large companies. The laboratory performs standard physical quality tests and determinations on products during various stages of the process. Quality controls are carried out based on precise guidelines, rules and procedures. Results are passed directly to production management.

Position in the Organization: Reports to head of production or business manager

Directs: not applicable

Job purpose: Perform standard tests and determinations to establish product quality.

10. Function: Head of maintenance

Job or function context The position of head of maintenance can be found in medium-sized to larger companies. The position is responsible for maintaining and optimizing the installations, buildings and utilities. Part of the (more specialized) maintenance/repair work is outsourced to machine suppliers via service contracts. Larger new construction or modification projects are managed by an internal project manager (management/operations).

Position in the Organization: Reports to the business manager or director

Manages: 1-5 mechanic

Job purpose: Realize and partly carry out the maintenance, modifications, expansions and/or new construction of or company installations, energy facilities and buildings, so that availability, reliability and safety are provided in an efficient and cost-effective manner from a technical point of view.

11. Function: Department Head of Trial Garden

Job or function context The position is situated within the breeding/proving gardens department of a medium-sized company. Within the department, various vegetable and ornamental crops are bred into commercial varieties. The main activities within the testing gardens department are the cultivation, care and harvesting of crops, as part of breeding programs, for the production of new varieties for commercial use. To this end, the department has greenhouses, tunnels and trial fields. The position of head of trial garden functions at the operational/tactical level. The position is responsible for the availability of required capacity and facilities for the execution of trials as part of breeding programs. Based on these breeding programs, he draws up the cultivation plan (annual plan) and work

programs (weekly planning) and is responsible for the execution of the trials. The position also contributes to the optimization of the breeding process and trials. See also explanation/department description.

Position in the organization: Reports to the site manager living labs

Manages: approx. 10-20 crop handlers, supplemented in peak periods by temporary/seasonal employees

Job purpose Achieve the implementation of crop care in the greenhouses and in the field in support of the company's crop improvement activities. G

12. Function: Team leader greenhouses

Job or function context The position is situated within the breeding/proving gardens department of a medium-sized company. Within the department, various crops are bred into commercial varieties. The main activities within the testing gardens department are growing, cultivating, caring for and harvesting crops, as part of breeding programs, for the production of new varieties for commercial use. To this end, the department has greenhouses, tunnels and trial fields. Here, the team leader is responsible for setting up and realizing the activity schedule (weekly planning) related to planned trials and crop care (i.e. cultivation preparation, cultivation, care and harvesting of (new) varieties (hybrids) and crops). He focuses on the (efficient use of) human capacity and the (realization of the) cultivation technical aspects, i.e. the care/cultivation of varieties/crops according to breeding protocols and according to grower use. In doing so, he cooperates in the execution. The team leader works weekend shifts together with colleagues according to a rotation schedule and is then responsible for monitoring all crops and acts in case of alarm situations.

Position in the organization: head of trial garden (field and greenhouse) breeders (functional, in connection with various trials)

Manages: 5-8 crop workers, supplemented in peak periods by approx. 3-8 employees (technical)

Job objective Supervising and cooperating in the activities concerning the care, treatment and harvesting of crops, i.e. the breeding of lines of several (new) varieties (hybrids) and crops, during the entire cultivation cycle (several crops simultaneously). E.g. within a given breeding program, according to cultivation protocols and grower use.

13. Function: Crop attendant C

Job or function context The position is situated within the breeding/proving gardens department of a medium-sized company. Within the department, various vegetable and ornamental crops are bred into commercial varieties. The main activities within the testing gardens department are growing, tending and harvesting crops, as part of breeding

programs, for the production of new varieties for commercial use. To this end, the department has greenhouses, tunnels and trial fields. Crop attendant C is responsible for carrying out all activities related to planned trials and the crop care of a specific crop. This includes crop preparation, care/cultivation and harvesting of (new) varieties (hybrids), according to planning and breeding instructions and guidelines. In this context, the position supervises several crop care staff and/or third-party personnel from a technical point of view. See also NOK matrix and explanation/departmental description. Position in the organization

Reports to team leader or head trial garden breeder (technical)

Manages (professionally) some crop workers

Job objective Supervising/coordinating and executing activities related to planned productions/trials i.e. the cultivation and care of a certain crop (both greenhouse and field crops), in accordance with breeding instructions and guidelines.

14. Function: Pollinator Beekeeper

Job or function context The position is situated within the breeding/proving gardens department of a medium-sized company. Within the department, div. crops are bred into commercial varieties. The team of beekeepers is responsible for insect pollination in seed crops in breeding, basic seed and commercial seed productions. Insect pollination is done with self-reared and/or purchased and maintained bee colonies, bumblebee colonies and flies. The beekeeping team makes an annual planning and division of labour regarding activities to be carried out. Timely consultation with breeders and production managers is necessary to have enough pollinators available during flowering and suitable for the crop. Each beekeeper is responsible for about 200-250 hives and has 1 or more specializations, e.g. queen breeding/propagation, bee breeding or honey production. The beekeeping season runs from March to September, outside which the beekeepers carry out (support) work in other departments. See also explanation/department description.

Position in the organization Reports to head of trial gardens/production manager/team leader beekeeping breeder (functional/professional)

Directs no

Functional purpose Breeding and maintenance of pollinating insects/populations (bees, bumblebees, flies) for crop pollination (seed crops in breeding, for basic seed and commercial seed productions).

15. Function: Breeder

Job or function context The position is situated within the breeding/proving gardens department of a medium-sized company. Within the department, div. crops are bred into

commercial varieties. The breeder is responsible for the breeding program and operates worldwide at the various trial sites, with the best climatic conditions. Breeding is supported by the research & development department, which uses biotechnological applications and biotechnological research to investigate, among other things, the genetic properties and disease resistance of varieties i.e. hybrids. See also department description.

Position in the organization Reports to manager breeding/senior breeder

Supervises (professionally) 1-2 assistant breeders 1-2 crop attendants (during part of the year)

Job objective Develop competitive varieties (hybrids) of a given crop in such a way that production and sales get the right product available.

16. Function: Assistant Breeder B

Job or function context The position is situated within the breeding department of a medium-sized company. Within the department, various crops are bred into commercial varieties. The activities take place within a breeding program (annual plan) approved by the departmental management. The breeding program of a certain crop group is under the management and responsibility of a breeder. Breeding is supported by the research & development department, where biotechnological applications and biotechnological research are used to investigate the genetic characteristics and disease resistance of varieties, i.e. crosses. See also departmental description. The position of assistant breeder B supports the breeder in the selection of plants and also focuses on the realization of the tests/crosses as established within the breeding program.

Position in the organization Reports to breeder crop group

Leads not applicable

Job objective Supervise and conduct breeding trials, crossing program, cultivation and seed production, according to the established breeding program. R Established and supervised seed programs - review seed program and advise.

17. Function: Team leader cleaning

Job or function context The position is situated within the seed treatment and packing department (processing & packaging) of a medium-sized company. Within the department, divided into 3 units, the following main activities take place: cleaning (cleaning, sorting and calibrating seeds; size, shape, weight, colour), processing (disinfecting, coating, priming, pelleting) and packaging of seeds. The department is headed by an operations manager or head of processing & packaging. A multitude of crops and varieties are processed and packaged. Team leaders are responsible for the realization of the planned production (processing) within the assigned focus area/unit. A team consists of approx. 10 employees.

Work is carried out on the basis of a weekly schedule provided by the planning department. Various cleaning techniques are used. The techniques used are described in guidelines and instructions (protocols). Based on the type (variety), size and quality of the batches to be processed, the team leader determines, partly on the advice of the operators, the techniques to be used and the order of processing batches. In case of specific deviations, the seed technology department advises on specific operations and/or treatments. Order sizes range from a few kilos to hundreds of kilos with lead times from 15 minutes to more than 20 hours. The corresponding NOK matrix lists the distinguishing characteristics and different techniques/treatments.

Position in the organization Reports to manager operations or head of processing

Manages around 10 employees cleaning

Functional objective Achieve seed cleaning in such a way that seeds become available according to schedule, specification (quantity, quality) and cost, while maintaining environmental and safety requirements

6.2 Skills gap

According to Mr. Rien van Tilburg representing Greenport Noord-Holland/ Horticulture Nederland (R. van Tilburg, personal communication, 7th November 2023) an important workforce in greenhouses is unskilled labour offered by Polish and Romanian workers. Besides this unskilled workforce there is a high demand of skilled laborers trained at diploma (MBO /TVET) or bachelor (HBO / University of Applied Sciences) level. Due to the wide variation of companies and functions it's difficult to define for which functions or positions companies are looking for employees. According to Van Tilburg the situation in the open field production is a bit different. In these companies the company owner is not only the entrepreneur but, in many cases, also the farm manager who supervises activities and employees but also provide unskilled labour him/herself. About the importance of knowledge: focus on 'general knowledge' about plant physiology, cultivation, soil, water, (greenhouse) climate, plant breeds etc...'.

In the opinion of Wout van Koppen, CEO of Zuqualla Horti PLC, one of the largest ornamentals cutting producer- and exporter in Ethiopia, there is a huge gap between the desired level of new employees and the level of graduates (w. van Koppen, personal communication, December 2023). Zuqualla Horti PLC's ultramodern greenhouse facility is built on 5,5ha surface, holds a complete automatized climate system, fully equipped with moveable screens and LED grow lights, as well as a gutter recycling system for all drain water. The company employs 600 people and recruits every year a considerable number of graduates (BSc) of Hawassa University for middle management positions. The main learning point for the new employees on the middle management positions is the problem-solving capabilities and independency. Critical thinking, creativity and the dare to decide is hard for

the young people. Additionally, there is a notable deficiency in the basic knowledge and understanding of horticultural practices among the graduates.

Bram Klaver is CEO of a medium scale employment agency named Agro Jobs (<https://www.agro.jobs/>) located in Middenmeer. His company employs on average 600 people, for a large part in horticulture production, both greenhouses and open field production. Agro Jobs hires mainly people from Central- and Eastern Europe. He selects the people on their honesty about their skills. That is the first criterium which is used. He also asks whether they want to earn money or want to learn new things. If the answer is learning new things, in his experience the main skills gap for foreign middle management employees are:

- Computer literacy: are the employees able to work with excel and are they able to use computer programs for planning, logistics and quality etc.
- Are they able to communicate via email with partners inside and outside the company
- Soft skills on leadership and coaching: are the persons able to promote and encourage desired behaviour within the company.

(B. Klaver, personal communication, December 2023)

An interview with different representatives of the sector (CEO, manager, breeder, science transfer office, etc.) from different types of companies (seed production, breeding, open field, and glasshouses/nurseries) resulted in a list with important skills, competencies and knowledge which contains the following elements:

- The ideal employee is someone who is able to troubleshoot, circumvent issues and hurdles, innovate, and think out of the box when needed. As for day-by-day tasks, these are things that he/she learns on the job
- Practical and applied experiences are highly desirable especially when linked with the theoretical knowledge
- Quantitative analyses skills such experimental design, data curation, and good time management are appreciated. And presentation skills and the ability to network are great assets

Other important skills and competencies which are mentioned are:

- Independent and solution-orientated way of thinking, while maintaining a good ability to work as a team
- Providing and receiving constructive feedback
- Familiarity with current pressing issues and market trends
- Ability to multitask and delegate
- Ability to communicate in English or German/French aside from a strong knowledge of Dutch is always a great plus

For detailed information see annex 8.

The different functions described in the 'Functiehandboek Glastuinbouw' and 'Functiehandboek Tuinzaadbedrijven' represent the main function which are of interest to train students for. The functions are presented in Table 13 and for each function the required competencies are indicated.

TABLE 13. RELEVANT FUNCTIONS FOR THE HORTICULTURE SECTOR AT MIDDLE AND HIGHER (MANAGEMENT) LEVEL AND ASSOCIATED COMPETENCIES.

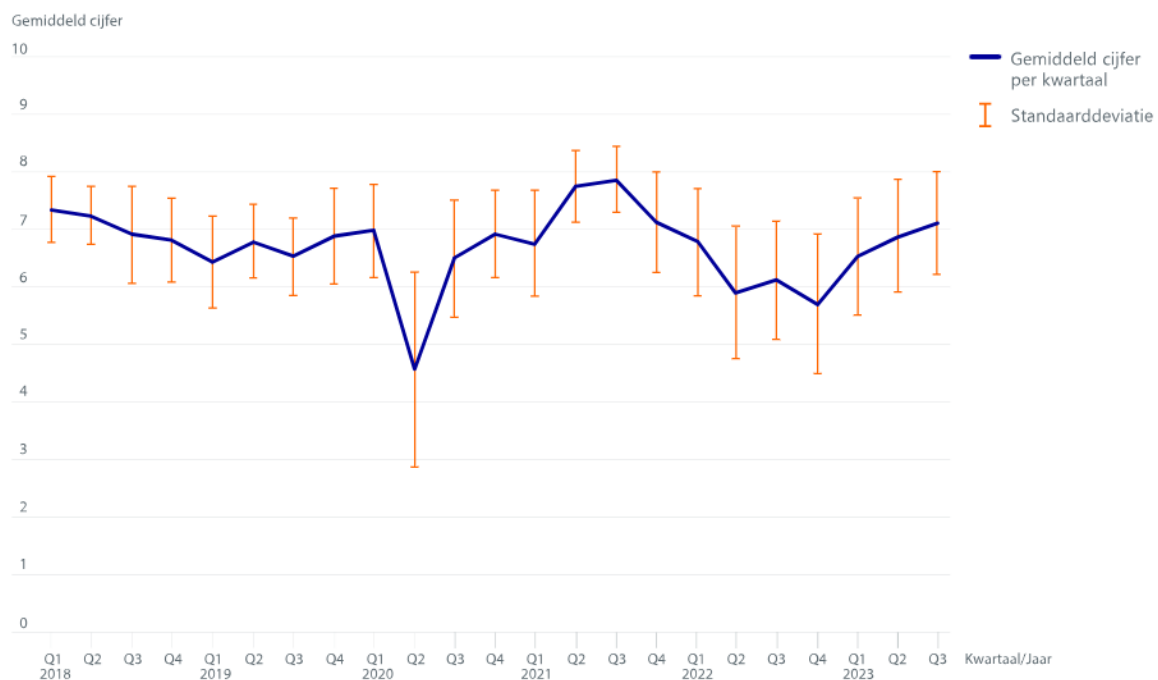
	To show leadership capabilities	To cooperate	To present	To research	To innovate	To organise	To introspect	To enterprise	To endure sustainable behaviour	To appreciate the global perspective
Glastuinbouw (CAO Glastuinbouw, 2023)										
1. Production manager / Business manager	v		v	v				v	v	
2. Head of Labour	v	v				v			v	v
3. Cultivation chief		v		v	v	v			v	
4. Associate foreman cultivation		v	v			v			v	v
5. Crop specialist			v	v	v	v			v	
6. Crop protection specialist		v	v				v		v	v
7. Independent cultivation employee		v	v	v		v			v	
8. Head of Logistics	v	v		v		v				v
9. Laboratory staff/laboratory assistant			v	v	v	v			v	
10. Head of maintenance	v	v			v	v			v	
11. Export employee										
12. Sales employee										
Seed companies (CAO Tuinzaadbedrijven, 2023):										
13. Head of experimental garden	v		v	v	v	v				
14. Team leader greenhouses	v			v	v	v			v	
15. Crop attendant C		v		v	v	v			v	
16. Pollinator Beekeeper			v	v		v			v	
17. Breeder		v		v	v				v	v
18. Assistant Breeder			v	v	v				v	
17. Team leader cleaning seed	v	v				v		v	v	

6.3 Expected developments / Trends

6.3.1 Economic Outlook Horticulture

Every quarter a panel of thirty Rabobank employees is questioned about their opinion about the financial development of the horticulture sector. After a sharp decline in 2020 due to COVID the barometer shows an increase in trust between 2020 and 2021. The second half of 2021 trust decreased with a dip caused by the energy crisis. However, thanks to co-generation of energy implemented in many greenhouses, the impact of rising energy prices are limited (Horen, Bac (Rabobank)).

FIGURE 6. ECONOMIC OUTLOOK HORTICULTURE



6.3.2 Market developments

Globally the Netherlands is the leading exporter of cut flowers, holding a 50% market share. This market share was 60% ten years ago. At the same time, the Netherlands is currently the second-largest importer of cut flowers, behind the United States. 43% of the global flower trade is farmed in the Netherlands; 10 years ago, this percentage was 57% (Boon, 2018).

Corona was an important factor in the increase in sales of cut flowers, ornamental plants, garden plants and trees. Due to high energy prices as a result of the war in Ukraine growers of floriculture products reduced their production. Although production decreased auction prices didn't change much. Probably due to the high inflation presenting consumers to

spend money on luxury goods as flowers and ornamental plants (Jukema, Ramaekers en Berkhout, 2023).

Robots are transforming Dutch horticulture, addressing labour shortages and physically demanding tasks. In this sense, it is also reducing the necessity for low-skilled manual labour, ex. over 80% of Dutch cut flower chrysanthemums are now planted by robots. Nonetheless, a higher level of automation still requires further advancement in the fields of complex visual interpretation (phenotyping and sensing) and more delicate plant handling, usually performed by highly skilled labour. This is in parallel with the relatively high capex costs and necessary training and expertise for the deployment of such technology (Murry, 2019; Siegmann, Ivosevic and Visser, 2021 and Vliet, 2015).

6.3.3 Energy transition, innovations and environment

One of the major challenges of the horticultural sector is the energy transition. Estimated CO₂ production of the sector is 7,9 Mton CO₂-equivalents (KEV, 2021) and according to Wageningen UR 5% higher in 2021. A covenant is made to reduce CO₂ production to 4,3 en 4,8 Mton CO₂-equivalents.

Promising innovations may lead to storage of CO₂ produced by industry and being used in greenhouses to improve production circumstances (Bac, Horen feb 16, 2023).

Use of CO₂ in greenhouses is one of the innovations. More innovations and new technologies are expected. Reduction of the use of energy and light (use of LED), use of geothermal energy, catching and storage of rainwater are some of them (Glastuinbouw Nederland z.d.).

Furthermore it's the objective for 2050 to use only substrates which don't have a negative impact on the environment and which are CO₂ neutral. Renewable resources should be 90% of the volume in the chain (Bac, Horen feb 16, 2023).

To further improve water quality the 7th Action Plan provides a framework which has implications for mandatory cultivation-free zones along water channels, requires rest and catch crops for specific soil types (sand and löss (loess)) and revised norms for use of fertilizers and manure (Bac, Horen feb 16, 2023).

Other measures which will be taken are a stricter use of crop protection products, strict regulations for licenses and permits and registration in public registers and the obligation to report the use of groundwater (Bac, Horen aug 15, 2023).

Specific developments and objectives in the vegetable sector are:

- Year-round production of vegetables
- Being on the shelf year-round at supermarkets
- Not depending on expensive and unstable energy market
- Policies related to related to energy transition and protection of environment are expected.

Research has shown that large vegetable companies already produce abroad (source: Handboek kasgroenten AGF 2023, Handboek fruitteelt AGF 2020). As described vegetable breeding companies have production sites around the world.

For the floriculture sector, basically the same year-round production applies and the breeding companies have had locations abroad for years. The survey shows that the few rose production producers in the Netherlands also produce abroad. Furthermore, there are some cut flower companies that produce in the target area, but this is still under investigation.

7 Legal and Policy Framework

7.1 Immigration and Labor Laws

7.1.1 Dutch Agreements, policies and frameworks

Migration of Highly Skilled Migrants (HSM) to the Netherlands has been increasing over the years. In 2016, 10.965 knowledge migrants arrived in the northwestern European country, while 2022 counted 26.145 knowledge migrants. For the latter, the knowledge migrants account only for 7% of the total migrants that arrived in the Netherlands in 2022 (NOS, 2023). The Netherlands is an interesting country to move to because of its safety and there are plenty of employment opportunities.

The country is in need of knowledge migrants as the labour market faces structural shortages of workers in the ICT, Health and specific technical professions as well as the **horticultural and agricultural sector**. According to Dutch Economist Mathijs Bouman and the Organisation for Economic Co-operation and Development (OESO), the Dutch economy cannot solely depend on European knowledge migrants and will have to look outside of the European borders.

Migration is a solution as well as a challenge for the Netherlands. If the country wants to continue to grow economically, it needs migrant workers to meet the markets' demand for more manpower. The recently published report "Migration as a Motor – How the Netherlands can use migration as a driving force" even stated that The Dutch labour market would completely derail if no action were taken (Baarsma et al., 2023). Nevertheless, there are bottlenecks that complicate knowledge migration to the Netherlands. For example, i) the country seems close to saturation when it comes to the physical living environment, as among others, the lack of available housing puts severe pressure on the society. ii) The small country has strict migration rules, which complicate entering the Dutch workforce for non-Europeans. In addition, another bottleneck not to leave unmentioned, is that for the Dutch cabinet Rutte IV, migration was a tedious topic that even led to the fall of the cabinet on 7 July 2023. The four coalition parties (VVD, CDA, D66 and ChristenUnie) had been divided on their stance on migration, in particular on family reunion of refugees fleeing from war.

Concerning labour migration in particular, the priorities of the "current"¹ Government as laid out in the coalition agreement are threefold:

- i. Periodically assess expected labour, knowledge and asylum migration in order to increase control over migration and to better anticipate trends. Possibly introduce policy targets for numbers of migrants
- ii. Support more structured labour migration in important sectors, while combating abuses associated with labour migration

- iii. Permit temporary legal, circular labour migration in return for cooperation on return of failed asylum policies as part of strict reciprocal agreements with third countries (Migration Partnership Facility, 2022).

It is therefore important to note that the pathways that currently exist are mainly for non-European HSM's through knowledge worker schemes. The Dutch system is very restrictive regarding low- and middle-skill segment workers. For a non-European knowledge migrant to be able to come to the Netherlands, the country handles specific regulations.

Temporary Residence Permits

The Netherlands offers various types of temporary residence permits that may be relevant to circular migration, such as the Highly Skilled Migrant Permit, the Intra-Corporate Transfer Permit, and the Seasonal Work Permit. These permits allow individuals to work in the Netherlands for a specific period before returning to their home country.

- **Residence permit for highly skilled migrants:** The residence permit for highly skilled migrants is a streamlined immigration process for highly skilled employees from outside the EU/EEA or Switzerland. It allows individuals with specialised skills or expertise to live and work in the Netherlands. Only a recognised sponsor can apply for a Dutch residence permit on behalf of a highly skilled migrant. The (future) employer is usually the recognised sponsor (Business.gov.nl, 2023). Almost two thirds of all labour migrants from outside the EU come through this scheme. The highly skilled migrant residence permit can be issued for a maximum of five consecutive years and on average 80% of the HSM's leave the country again within 10 years. (Migration Partnership Facility, 2022).
- **Intra-Corporate Transfer Permit:** This is a work and residence permit for managers, specialists, and trainee employees with a nationality from outside the EU, EEA or Switzerland. The permit allows you to work in the Netherlands for a company that is part of the same corporate group as your employer in your home country (Naturalisatiedienst, 2023b). This might be an option if Dutch companies who are involved in the project have branches in either Tunisia, Egypt or Ethiopia.
- **The Seasonal work permit:** With a residence permit for seasonal work, you can work in the Netherlands in the agricultural sector for up to 24 weeks. The requirements are:
 - You must have a job offer from a Dutch employer in the agricultural or horticultural sector
 - Your employer must be registered in the Commercial Register of the Dutch Chamber of Commerce.
 - You must be working as a seasonal worker in agriculture or horticulture for no more than 24 weeks.

- You must meet the income requirements. This means that you must earn at least the minimum wage for your age group €1,995 without holiday allowance / €2,154.60 with holiday allowance).
- You must have a valid passport and a visa.
- You must not have been in the Netherlands illegally in the 3 years before your application.
- You must have health insurance that covers you in the Netherlands.
- You can apply for a seasonal work permit at the Dutch embassy or consulate in your home country. The application process can take several months.

Sources: (Naturalisatiedienst, 2023), (Naturalisatiedienst, 2023a)

However, there is also an EU seasonal workers directive, which offers third-country nationals the opportunity to temporarily work in the EU. Under this directive the EU member states have the right to carry out a labour market test² before granting permits. The Netherlands makes use of this labour market test right, which according to the case study of the Migration Partnership Facility (2022), meant that it has been impossible to receive a work permit as a seasonal worker under this EU directive. So far, no third-country nationals have been admitted to the Netherlands on the basis of the Seasonal Workers directive, because the labour market test has always shown that there are other workers in the Netherlands or the EU that could carry out the work. To date, seasonal work in the Netherlands has been done mainly by workers from Poland, Romania and Bulgaria.

Even though there is a seasonal work permit available, it seems that due to the EU seasonal workers directive, this is rarely utilized. This is also stated in the case study of the Migration Partnership Facility (2022), as it mentions that the scheme is rarely used in practice as applications are rejected by the Employee Insurance Agency (Uitvoeringsinstituut Werknemersverzekeringen, UWV); based on the strict labour market tests. However, attracting workers from EU countries has become more difficult and attracting seasonal workers from outside the EU will become more important (Migration Partnership Facility, 2022).

- **Blue Card Scheme:** The Netherlands applies a wage requirement to Blue Card applicants, similar to the Kennismigrant scheme. Applicants also need to have completed a higher education programme demonstrated by a recognised diploma and hold an employment contract that lasts for at least 12 months. Under this circular migration scheme, however, only few labour migrants enter the Netherlands (Migration Partnership Facility, 2022).
- **Internship arrangement for knowledge workers short stay (stagiaire regeling):** to request a workers permit regarding this arrangement the knowledge worker has to be older than 18 years and the employer has been admitted by the Immigration and Naturalisation Service (IND) to the scheme for highly skilled workers. The intern is studying abroad and comes for in internship, not a regular job. This internship is a

mandatory part of the degree program. Furthermore, the intern remuneration is a minimum of 50% of the minimum wage for a 21-year-old. The daily allowance for a 21-year-old is 92.08 euros. Which would come to the following calculation based on 90 days: $90 * \text{Euro } 92.08 = \text{Euro } 8,287.20 / 2 = \text{Euro } 4,143.60$.

- **Duration and Renewal:** Temporary residence permits for circular migration are usually granted for a specific period, depending on the purpose of the migration and the relevant agreement or program. In some cases, permits can be renewed for additional periods, allowing individuals to engage in multiple cycles of migration between their home country and the Netherlands (Naturalisatiedienst, 2023d).

Salary threshold

Depending on age, the income requirement is between more than 3,600 and 5,000 euros gross per month. The salary threshold on migration in the Netherlands is a requirement that all non-EU/EEA/Swiss citizens must meet in order to be eligible for a work permit. If the government were to relax that requirement, more people could come as this minimum income is an obstacle for some employers (NOS, 2023).

Bilateral Agreements

The Netherlands/EU has established bilateral agreements with certain countries to facilitate circular migration. These agreements outline specific provisions and conditions for the temporary movement of workers between the countries involved. These agreements are designed to help to ensure that the migration of workers between the Netherlands and these countries is fair and orderly. They also aim to protect the rights of workers and to facilitate the return of workers to their home countries. These agreements exist among others with Morocco. The Migration and mobility partnership signed between the EU and Morocco was signed in 2013 and aims to promote the circular migration of Moroccan workers to the Netherlands. The agreement includes provisions on the recruitment of workers, the protection of workers' rights, and the return of workers to Morocco (European Commission, 2013).

Start-up scheme

This scheme was introduced in 2015 for innovative entrepreneurs. In order to receive a start-up residence and work permit it is needed to have an existing business plan, cooperation with registered facilitators³ and sufficient financial resources among others (Migration Partnership Facility, 2022).

Key essential personnel of startups scheme

This is a pilot residence scheme that has entered into effect in 2021 and makes it possible for innovative companies to hire essential personnel from countries outside the EU at a reduced salary criterion in exchange for a share in the company. This was based on the realisation that key personnel were often not able to meet the high salary threshold of the knowledge migrant scheme (Migration Partnership Facility, 2022).

Residence permit for orientation year

If someone want to stay in the Netherlands to look for work after graduation (BSc or MSc), doctorate or research a residence permit is needed. The following requirements apply: One of these situations applies to you

- You carried out research in the past 3 years. You had a residence permit in the Netherlands for research purposes according to Directive (EU) 2016/801 or for work as a highly skilled migrant for research.
- You obtained a master's degree in the past 3 years in the context of an Erasmus Mundus Masters Course.
- You completed one of the following study programmes in the past 3 years:
 - an accredited bachelor's or master's degree programme at a Dutch higher education institution.
 - a post-master's programme in the Netherlands for at least one academic year (at least 10 months).
 - a study programme in the Netherlands in the context of the Cultural Policy (Special-Purpose Funding) Act.
 - a study programme in the Netherlands in the context of the development cooperation policy of the Dutch Ministry of Foreign Affairs.
 - a master's degree programme, a doctoral programme or a post-master's programme at a designated foreign educational institution. In addition, you meet one of these requirements:
 - You obtained a minimum score of 6.0 on a test in the International English Language Testing System (IELTS). There are 2 versions of the IELTS: Academic and General Training. It does not matter which version you have.
 - You obtained a minimum score of 6.0 on another accepted English language test (TOEFL, TOEIC and Cambridge English grades & scale) that is listed in the Code of Conduct for International Students in Higher Education.
 - You have a diploma, certificate or document as referred to in Article 2.1 of the Regulation on civic integration 2021 (only in Dutch).
 - Your master's degree programme, doctoral programme or post-master's programme was in English or Dutch.
 - You previously did not have a residence permit for an orientation year after performing this research, or completing this study programme or doctoral programme. Have you performed different research projects, or completed different study programmes or doctoral programmes? The IND can issue a residence permit for an orientation year after each performed research project, and after each completed study programme or doctoral programme. However, the new study programme or doctoral programme must have been completed after your previous orientation year. The new scientific research

must also have been performed after your previous orientation year (Naturalisatiedienst, 2023c).

Study visa

If you want to study in the Netherlands and your stay is over 90 days, a residence permit is needed. This permit cannot be requested by an individual. The educational institution can only apply for a permit if the institution is recognized by the IND as a sponsor. To become a recognized institution, the institution must be affiliated with the Code of Conduct for International Students in Higher Education.

- A student has to meet the following criteria:
- You are (provisionally) enrolled at an educational institution that is recognized as a sponsor.
- You are registered for a full-time day course.
- You have enough money to support yourself for at least 1 year. This applies per month
- standard amount for HBO and WO students living away from home from the Student Finance Act, excluding tuition or tuition fees.
- You have a valid passport.
- You have not been convicted of a crime and have no war crimes, acts of terrorism or committed crime against humanity.
- You are insured against medical expenses in the Netherlands.
- In the Netherlands, you must have yourself examined by the Municipal Health Service (GGD). tuberculosis (TB). You must have this examination carried out within 3 months of the date of issue of the application form residence permit (IND, 2022).

Low and middle-skill segment

The middle segment of the labour market is not supported by a labour migration policy that is specifically geared to it. For less labour-intensive work or for lower paid specialist work which is subject to increasing shortages in the labour market, the Netherlands uses a restrictive framework. The application of a strict labour market test for workers in the low- and middle-skill section is the key reason for the low admission number of migrant workers that do not qualify for the knowledge worker scheme (Migration Partnership Facility, 2022).

Furthermore, according to the World Bank Report (2023) "Migrants, Refugees and Societies", Lower educated people can easily get a job in agriculture in the West (World Bank, 2023). Also, when migrants have the option to return to the hosting country and especially if they have citizenship, they engage more frequently in circular migration between their countries of origin and destination, especially those who have relatively lower levels of education (World Bank, 2023).

7.2 Policy and Strategy Framework

7.2.1 Dutch Integral Migration Agenda

After the increased flow of asylum seekers in 2015 and 2016 the Dutch Government developed the comprehensive approach to ensure safe and well-managed migration. The approach takes into account all aspects of migration, including the economic, social, and political dimensions and the migration movements must be in line with the needs and capacity of Dutch society. It also recognizes the importance of cooperation between countries of origin, transit, and destination. The Dutch comprehensive approach to migration is based on six pillars (Figure 7):

1. Preventing irregular migration.
2. Improving reception and protection for refugees and displaced persons in the region.
3. Achieving a robust asylum system, based on solidarity, in the EU and the Netherlands.
4. Combating illegal residence and stepping up returns.
5. Promoting legal migration routes.
6. Encouraging integration and participation.

FIGURE 7. COMPREHENSIVE MIGRATION APPROACH

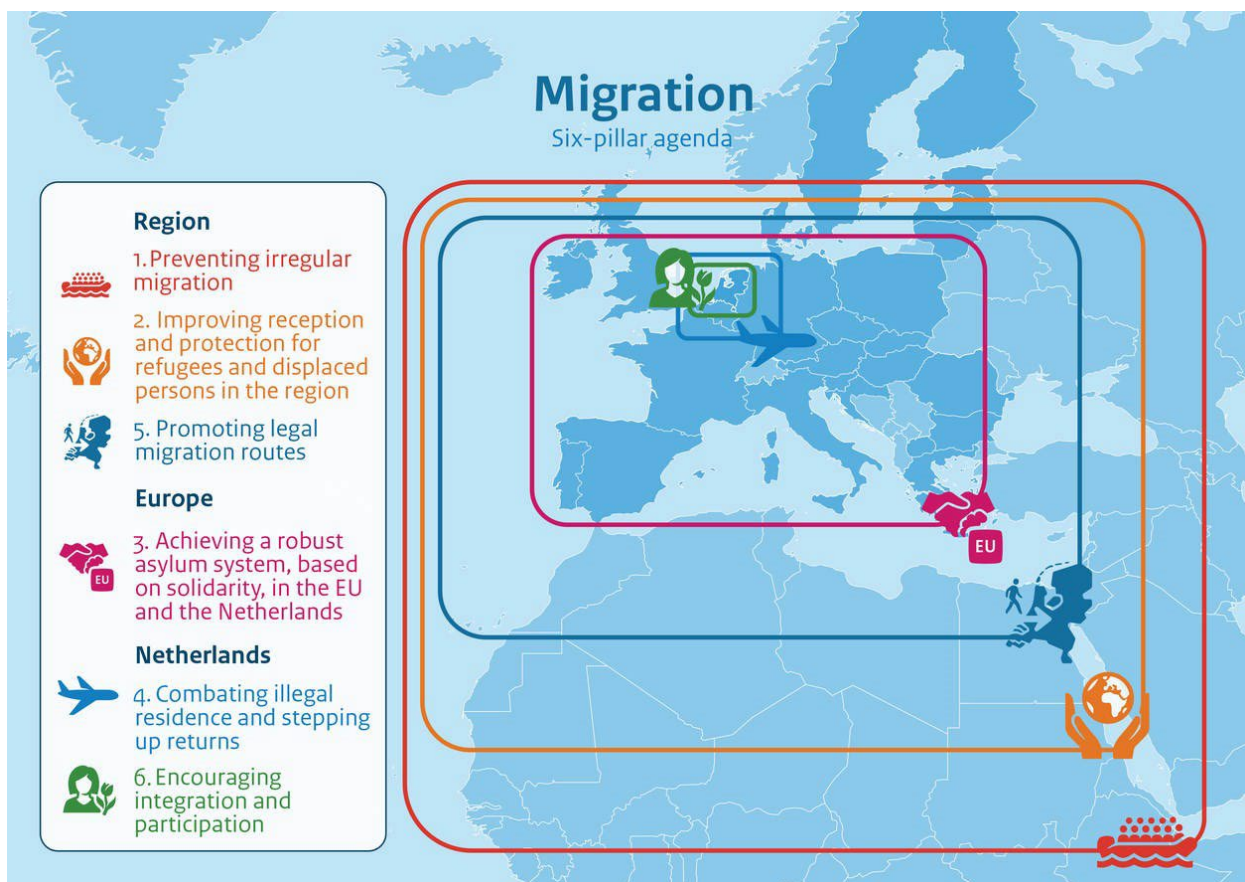


Image source (Ministerie van Justitie, 2018)

The comprehensive approach to migration is a key part of the United Nations' 2030 Agenda for Sustainable Development. The Agenda recognizes the importance of migration in achieving sustainable development, and it calls for countries to adopt a comprehensive approach to migration.

The comprehensive approach to migration is also supported by the EU, which has adopted a number of policies and initiatives to promote a comprehensive approach to migration, including the GAMM and the New Pact on Migration and Asylum (Ministerie van Justitie, 2018).

However, even though there is a comprehensive approach to migration and the current Dutch labour migration policies in place, they are unable to keep pace with the demand for workers across skill levels. Especially when it comes to migrations pathways in the middle skilled sectors. There are several adaptations to increase flexibility in the Dutch labour migration system to open pathways by adjusting its current policies. Adaptations to look into are:

- Introducing exemptions for the labour market test or work permit for specific sectors
- Lowering the threshold for the salary requirement of the knowledge migrant scheme
- Lower assessment threshold and introduce flexibility for the labour market test
- Exploring skills mobility partnerships and circular migration schemes in the framework of EU talent partnerships
- Accelerate visa issuance and skill recognition
- Linking labour market analysis, employers' needs and migration policies

To conclude, circular migration is a promising approach to combat the shortage of workers in the Dutch labour market. The Netherlands has several policies, frameworks and schemes in place to facilitate migration to support the labour market. However, there is room for improvement and there are still challenges that need to be addressed, such as the need to develop a more comprehensive policy for the low and middle-skill migrant worker segment and to relax the restrictiveness of certain thresholds.

7.2.2 European policies and frameworks

In a globalised and knowledge-based economy, Europe requires a highly skilled workforce to ensure that it can compete in terms of productivity and innovation. This is even more the case during times of rapid technological and societal change. Recent evidence suggests that there is a growing mismatch in the EU between employees' skills and the needs of the labour market. This are factors that contribute to unemployment and limit economic growth. Therefore, the EU has put several frameworks and policies regarding education and training in place that prioritize among others the following:

- Aligning skills with labour market needs

- Reducing the number of early school leavers to below 10%
- Increasing the share of graduates from tertiary education to at least 40%

While the responsibility for education and training systems lies with Member States, the EU has a key role in supporting efforts to improve and modernise national education systems. The EU does this among others through the European Semester, the Erasmus+ program and the European Education Area strategic framework.

7.2.3 The European Semester

The European Semester is part of the EU's economic governance framework for socio-economic policy coordination. During the European Semester, member states align their budgetary and economic policies with the rules agreed at EU level. The European Semester aims to:

- contribute to ensuring convergence and stability in the EU
- contribute to ensuring sound public finances
- foster economic growth
- prevent excessive macroeconomic imbalances in the EU
- monitor the implementation of national recovery and resilience plans
- coordinate and monitor employment and social policies (European Council, z.d.)

While the European Semester covers many different fields, education and training is also one of the policy areas of this framework. Within the European Semester the EC carries out country analysis. Through these country analysis' Member States are being supported to address challenges identified at EU, national and regional level. The analysis is also helpful for national governments to assess progress on implementing necessary reforms, as well as areas that need further investment (European Commission, z.d.-b). Regarding the topic of education and skills development, for the Netherlands, the following was stated in the European Semester analysis report of 2019:

- **Labour market:** Despite a labour market that is performing well overall, fostering equal opportunities regarding employment and active inclusion remains an important challenge, in particular for people with a migrant background, for those operating at the margins of the labour market and for those who are economically inactive. In addition, there is still untapped labour potential, in particular among the high number of part-time working women.
- **Education and Training:** Technical and digital skills and qualified professionals are crucial for the Dutch economy's capacity to innovate and for productivity growth. This points to the need to invest more in training, including training in digital skills, and to promote flexible upskilling and reskilling opportunities. Improving society's capacity to innovate also requires investments to support education in science, technology, engineering and mathematics. Moreover, increased investment in skills, education

and training is crucial to improving access to the labour market and the employability of those at the margins of the labour market, while fostering equal opportunities and active inclusion.

- **Research:** While the research and development investment intensity for the Netherlands rose to over 2 %, it is still well below the 2,5 % national target and the level of top performers. In terms of productivity, the Netherlands is one of the best performing countries in many sectors. Continued productivity growth is therefore highly dependent on innovation. Additional investment in research and development, and innovation, especially in the private sector, would support this (European Union, 2019).

In the European Semester analysis report of 2022, nothing was stated regarding education and training, however there were several critical points about the Dutch labour market, stating the following:

- **Labour market:** Labour shortages have increased further and have become more general across sectors in line with the overall economic recovery and pick-up in labour demand. Labour market forecasts point to a continued tight labour market in the future and in particular for education, healthcare, technical jobs and in the ICT sector. In the near term, shortages are also very high in construction. The tight labour market risks hampering the large investments needed as part of the green and digital transition. At the same time, there is untapped or underutilised labour, in particular in light of the lower employment rate for people with a migrant background and the high share of part-time employment. Incentivising an increase in the number of hours worked by part-time workers, many of whom are women (62.5% of employed women worked part-time in 2021), could further reduce the existing labour market shortages and reduce the average gender pay and pension gap. Activating and up-skilling or re-skilling of the inactive (those neither working nor seeking work), those in long-term unemployment and those at the margins of the labour market via targeted and tailored actions could help alleviate labour and skills shortages while fostering equal opportunities and active inclusion.
- **Labour market:** Address labour and skills shortages, in particular in healthcare, education, digital and technical jobs and construction, including by tapping underutilised labour potential originating from the high share of part-time employment and the lower employment rate of people with a migrant background. Strengthen up- and reskilling opportunities, notably for those at the margins of the labour market and the inactive (European Commission, 2022).

To conclude the findings of both the European Semester reports, it can be stated that the Dutch labour shortages are increasing and that there is untapped or underutilised labour, in particular among people with a migrant background and those who work part-

time (mostly women). The report recommends that governments take steps to address labour shortages, by:

- Incentivising part-time workers to increase the number of hours they work
- Activating and upskilling or reskilling the inactive, long-term unemployed, and those at the margins of the labour market
- Fostering equal opportunities for employment and active inclusion, in particular for people with a migrant background, those operating at the margins of the labour market, and those who are economically inactive

Interestingly these recommendations of the EC don't state anything about addressing the labour shortages by for example circular migration or migration from workers within the EU.

7.2.4 Erasmus+

Erasmus+ is the EU programme for education, training, youth and sport. Erasmus+ funds academic mobility and cooperation projects between the 27 EU Member States plus six other European countries associated to the programme, and countries not associated to the programme who are located all over the world (European Commission, 2021). Erasmus+ has an estimated budget of 26.2 billion euros (from 2021 until 2027). 70% of the budget will support mobility, supporting opportunities for all in a lifelong learning perspective. Erasmus+ mobility has positive effects on educational, social, personal and professional development, in that it enhances knowledge, skills and attitudes, improves employability, helps confidence-building and independence, stimulates curiosity and innovation, fosters the understanding of other people, and builds a sense of European belonging. 30% of the budget will be invested in cooperation projects and policy development activities where organisations gain experience in international cooperation, strengthen their capacities, produce innovative approaches, exchange good practices and network. Through these actions, Erasmus+ will play an important role in strengthening resilience and supporting recovery and innovation in the fields of education, training, youth and sport. (European Commission, 2021).

Erasmus+ 2021 in numbers:

- 2.9 billion budgets
- 19,000 projects funded
- Around 71,000 organisations took part
- Close to 649,000 participants took part in mobility activities

(Factsheets and statistics on Erasmus+, 2022)

Student exchange

The Erasmus+ program helps organise student and doctoral candidate exchanges that take place within countries that are part of the Erasmus+ programme or countries associated to the programme. The aim of the program is for students from Bachelor, Master and Doctoral levels to improve their communication, language and inter-cultural skills and gain soft skills highly valued by future employers. The duration of the program is a minimum of two months and a maximum of 12 months abroad. Students can also do a blended mobility, combining a virtual period with a physical short or long-term mobility. The short-term physical presence abroad as part of blended mobility lasts a minimum of 5 days and a maximum of 30 days (Studying abroad, z.d.).

To study abroad with Erasmus+, a student must be registered in a higher education institution and enrolled in studies leading to a recognised degree or tertiary-level qualification. Furthermore, the period abroad must be relevant for the students' degree and support personal development needs. Furthermore, the higher education institutions must have an inter-institutional agreement⁷(Inter-institutional agreements, z.d.). Both institutions must also hold the Erasmus Charter for higher Education⁸.

Staff exchange

Erasmus+ supports also training periods for staff working in higher education institutions in programme or partner countries. It's also possible for staff to train at an organisation outside of the education sector in a programme country such as a business, public body, social partner, research institute or NGO. A training period between two Programme countries must last a minimum of 2 days and cannot last more than 2 months. A training period between a Programme country and a Partner country must last a minimum of 5 days and cannot last more than 2 months. Similarly, as with the student exchange, the partners will need to have signed an inter-institutional agreement. Furthermore, the organization or institute must be part of the Erasmus+ National Mobility Consortium. The training will be formally recognized through the signing of on both sides of the Mobility Agreement. This document sets out the learning goals, rights and responsibilities of the training (Higher education (staff training), z.d.).

Cooperation projects

Erasmus+ supports projects that foster cooperation and exchange of practices, allowing key actors to make better use of new technologies, develop innovative teaching, training and learning methods, promote non-formal learning and develop common tools and activities. One new pillar of the 2021 – 2027 Erasmus+ program is the European Universities Initiative. The aim of this initiative is to strengthen strategic partnerships across the EU between higher education institutions and encourage the emergence of 'European Universities', consisting in bottom-up networks of universities across the EU that will enable students to obtain a degree by combining studies in several EU countries and contribute to the international competitiveness of European universities. The initiative should also support the ambitious vision of an innovative, globally competitive and attractive European Education and Research area. It furthermore should help to boost the excellence dimension of higher

education, research and innovation, while promoting gender equality, inclusiveness, and equity, allowing for seamless and ambitious transnational cooperation between higher education institutions in Europe, and inspiring the transformation of higher education (European Universities Initiative, z.d.).

7.2.5 The European Education Area strategic framework

This framework was developed to promote collaboration between EU Member States and key stakeholders and allows the monitoring of progress towards the achievement of their collective vision. The framework does so by:

- Strengthening means of policy cooperation and reaching out to stakeholders to encourage their engagement with the initiative
- Enhancing synergies with other relevant initiatives, including the European Research Area and the Bologna Process
- Identifying targets and indicators to guide work and monitor progress towards achieving the EEA
- Fostering the integration of education and training into the European Semester process

The framework has set seven targets to be reached by 2025 and 2030, which are as follows:

By 2025

- At least 60% of recent graduates from VET should benefit from exposure to work-based learning during their vocational education and training
- At least 47% of adults aged 25-64 should have participated in learning during the last 12 months

By 2023

- Less than 15% of 15-year-olds should be low-achievers in reading, mathematics and science
- Less than 15% of eight-graders should be low-achievers in computer and information literacy
- At least 96% of children between 3 years old and the starting age for compulsory primary education should participate in early childhood education and care
- Less than 9% of pupils should leave education and training early
- At least 45% of 25–34-year-olds should have a higher education qualification

(European Commission, z.d.)

7.3 Supportive Mechanisms and Programs

University-University collaboration

Outside of the Erasmus program there is little information to find on university-university collaborations and its best practices. The focus regarding university partnerships is mainly on university-industry partnerships or universities that carry out research together. Nevertheless, university collaboration is crucial in this day and age because of high competition, institutional inefficiencies or their small size. But also because of a shifted trend, as found in the United States, where there is diminished state and federal spending, lagging personal incomes of college going families, and increased accountability around outcomes, particularly the view that the role of Higher Education (HE) is to prepare graduates for a job (Lundy & Ladd, 2020). This shift doesn't mean the end for HE, but instead demands a significant shift in strategy around the idea of collaboration and development at a deeper level than higher education institutes have collaborated before.

How and when HE institutes partner depends largely on their size and stability. According to Lundy and Ladd (2020) Institutes can be put into four categories:

1. **Strong niche:** Institutions that have found a way to operate at a small scale by maintaining focus in a specific niche that is big enough to support growth
2. **Large and thriving:** Institutions at sufficient scale to operate with the financial strength that allows them to use collaboration to further their growth platform
3. **Small and at risk:** Institutions that exhibit key risk factors, in addition to being too small to leverage scale to grow
4. **Large and languishing:** Institutions that, despite having a large student body, do not operate efficiently

Collaboration at this current time involves HE institutes coming together as seemingly one institution to change their future direction. The institutions at the most risk of failure must collaborate out of necessity; those in a position of strength should work with other HE institutes for the opportunities they present. This much is for sure: the time has come for institutions to join together, because the market cannot support the number of institutions that we have today. However, what is most needed is a change in mindset among higher education leaders: they need to stop thinking that the only path forward is one that they take alone (Lundy & Ladd, 2020).

Developing a collaborative strategy

Before considering collaborating with an institute, it is wise to check certain risk factors that are fairly predictive of whether the HE institute is well suited to consider collaboration. The more factors, as listed below, describe the institute, the more at risk the survival of a strong collaboration is:

- Enrolment under 1000 students
- Annual tuition increases of more than 8%
- Tuition discount rate higher than 35%
- Dependent on tuition for more than 85% of revenue

- Endowment that covers less than 33% of expenses
- Debt payments more than 10% of expenses
- Deficit spending

There is not one ideal approach for institutions to collaborate. Although the individual HE institutes (HEI) in each of the previously mentioned four categories might seem remarkably different in their selectivity and financial resources, the approach to collaboration within each group should follow a similar playbook. Institutions will take one of two pathways depending on their situation: they are either pursuing collaboration out of survival or taking advantage of an opportunity (see Figure 8).

FIGURE 8. COLLABORATION STRATEGY FOR HEIS



Source: (Lundy & Ladd, 2020)

Institutions that have found efficiencies operating at a large scale, think enhancement, or are small but with few risk factors, think differentiation, have a unique moment to strengthen their existing offerings through collaboration. An example of a successful uni-uni collaboration is the integrated Keck Science Department in the United States. This Science Department is shared among three colleges and is housed in a state-of-the-art building that is physically located at the intersection of the three institutions and allows them to offer an array of majors with top-notch faculty that none of them could have provided individually to their students. Another example is a collaboration among three very different institutions in terms of their missions — entrepreneurship, liberal arts and engineering. The institutes saw

those differences as complementary and a consortium as practical given their geographic proximity. Important goals of the collaboration include improving opportunities for students and faculty and positioning these places to be more attractive in the future (Lundy & Ladd, 2020).

Also, important to mention, is that collaborations are not limited to institutes in close proximity. Advances in technology can now link together institutions that are separated by hundreds or thousands of kilometres.

In some cases, collaboration will mean the marriage of unequal partners. In the business world, the prevailing wisdom has long been that companies grow by merging or acquiring weaker players. But such mergers and acquisitions have been uncommon in higher education until relatively recently. Now university leaders view linking up with another institution, even sometimes a weaker partner, as a way to build a platform for future growth. That's particularly the case when a university with a relatively narrow focus joins forces with a comprehensive institution (Lundy & Ladd, 2020).

8 Conclusions and recommendations

The Dutch horticulture sector is highly diverse, encompassing a broad range of production activities. Key subsectors include floriculture, vegetable and fruit production, the cultivation of planting materials, and arable farming. These activities are concentrated in regions of the Netherlands with a historical foundation in horticulture, where favourable logistical conditions, soil types, and infrastructure—such as geothermal installations—support production.

Horticulture is the largest contributor to the economic value of Dutch agricultural production. Floriculture is the dominant subsector, followed by vegetables, fruits, and planting materials. Although production volumes continue to rise, the number of horticultural companies has decreased, with the exception of open-field production. Some subsectors, particularly seed and seed potato breeding, are notably international in orientation.

Several factors are driving the relocation of Dutch horticultural production to other countries. Ethiopia and Kenya, for example, have become prominent centres for floriculture production, while Dutch tomato producers have expanded into Tunisia to meet the demand for year-round availability of fresh produce. As companies expand and adopt advanced technologies such as ICT, the need for highly skilled labour is growing. Job opportunities span various roles, including production, supervision, technical positions, marketing, logistics, HR, and specialists in fields such as vocational education (TVET), Bachelor, and Master-level qualifications. Detailed roles and responsibilities within the sector are well outlined in the 'Functiehandboek Glastuinbouw' and 'Functiehandboek Tuinzaadbedrijven.'

In addition to technical skills, soft skills such as problem-solving, critical thinking, leadership, and decision-making are crucial. Consequently, training programs should focus on equipping workers with the professional and entrepreneurial skills necessary for success in production, post-harvest operations, and sales and marketing. Enhancing entrepreneurial skills, in particular, could open pathways for self-employment.

Within the horticulture sector, the vegetable and floriculture subsectors are the most relevant for the MOBILISE project due to their high labour demand. Both sectors also maintain strong connections with Egypt, Ethiopia, and Tunisia, either through Dutch subsidiaries or through the export of goods to the Netherlands from these countries.

However, in order to set-up and pilot a labour mobility scheme, a careful analysis of the legal requirements and regular pathways for migration must be undertaken. Regarding migration policies and frameworks, the Netherlands can be categorized as a "difficult country" for circular migration. While opportunities exist for highly skilled migrants, strict regulations are in place for seasonal workers in the low- and middle-skill segments. Although a seasonal work permit allows non-EU workers to work in agriculture for up to 24 weeks, the EU Seasonal Workers Directive requires a labour market test before granting permits. The

Netherlands consistently utilizes this test, which has resulted in no third-country nationals receiving permits, as labour has always been available from within the Netherlands or the EU.

This contrasts with other EU countries, such as Spain and France, where circular migration in agriculture has been more successfully implemented. Spain annually adjusts its policies to allow a set number of non-EU workers to enter the market for seasonal work, while France has a proven system where migrants return home after each season. This arrangement benefits both the farmers, who fill labour shortages, and the migrants, who can earn in a few months what they would in a year in their home countries.

A pilot project in the Netherlands, called "Blue Birds Circular Migration," aimed to introduce circular migration but ultimately failed due to conflicting visions among stakeholders, lack of flexibility, and poor communication. The project targeted 160 migrant workers but fell short of its goals and was discontinued. However, other avenues for temporary work in the Netherlands exist, such as internships for students over 18, and the intra-corporate transfer permit, which allows managers, specialists, and trainee employees to work in the Netherlands within the same corporate group as their home-country employer. This option may be relevant for Dutch companies involved in the MOBILISE project that have branches in Tunisia, Egypt, or Ethiopia.

In conclusion, the Dutch government has historically been unfavourable towards circular migration, and its 2023 proposal maintains this stance, focusing instead on encouraging existing residents to enter the labour market. The results of the last political elections, occurred at the end of 2023, do not seem to open to a more open and flexible policy on labour migration in the short period.

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ANNEXES

Annex 1a. Interviewed companies

TABLE 1. INTERVIEWED PERSONS

Name	Organisation	Results
Rien van Tilburg	Horticulture Nederland	Chapter 6.2
Wout van Koppen	CEO of Zuqualla Horti PLC	Chapter 6.2
Bram Klaver	CEO Agro Jobs	Chapter 6.2
CEO / general manager (2)		See annex 8
Manger (2)		See annex 8
Team-leader (2)		See annex 8
Scientist-researcher (5)		See annex 8
Knowledge transfer officer (1)	WUR	See annex 8

Annex 1b. Horticulture companies with connections in Egypt, Ethiopia and Tunisia

See separate excel document

Annex 2. Total vegetable cultivation in the Netherlands 2022

Total	(hectares)
Total vegetable cultivation in the Netherlands	90.917
Vegetable under glass	4.972
Vegetable open ground	85.877
Mushrooms	68
1 Mushrooms	68
2 Strawberry production total	1.442
Strawberry production open ground	874
Strawberry production glass and tunnels	568
3 Total leafy and stem vegetables	15.046
Endive	589
Asparagus	2.613
Tuberous cricket	153
Leek	2.635
Celery pale/green	224
Lettuce, Iceberg	2.533
Lettuce, head and other	616
Spinach	3.026
Chicory	2.958
4 Tuber and root vegetables total	44.777
Forest and wax carrots	2.566
Celeriac	1.845
Beetroot	764
Radish	105
Salsify	583
Onions	33.486
Winter carrot	5.427

5 Total cabbages	11.426
Cauliflower	2.678
Kale	359
Broccoli	2.672
Chinese cabbage	270
Green cabbage	21
Red cabbage	579
Pointed cabbage	555
Brussels sprout cabbage	2.864
White cabbage	1.427
6 Legumes total	8.557
Peas	4.216
Green beans	3.962
Beans	379
7 Fruiting vegetables total	4.648
Eggplants	132
Zucchini	429
Cucumbers	624
Sweet Peppers	1.648
Tomatoes	8
Other vegetables	4.953

Source : CBS

Annex 3. Seed Breeding company's

Seed Breeding , soil-bound vegetables

Bolster B.V.
 Pop Vriends Seed
 Tozer Seeds
 Vitalis Biologische Zaden B.V.

Seed Breeding, substrate Rockwool, soil-bound vegetables

Basf – Groentenzaden	Head office Nunhem, Limburg
Bejo	Head office Warmhuizen, Noord-Holland
Enza zaden	Head office Enkhuizen, Noord-Holland
Femix Seeds	Head office Enkhuizen, Noord-Holland
Sanna Seeds	Head office Enkhuizen, Noord-Holland
Syngenta Seeds	Head office Enkhuizen, Noord-Holland
Bayer Crop Science	Head office Bergschenhoek, Zuid-Holland de Kring
The Rootstock company	Head office Bleiswijk, Zuid Holland de Kring
Uniseeds Select	Head office Bergschenhoek, Zuid Holland de Kring
Axia Vegetable Seeds B.V.	Head office Naaldwijk, Zuid-Holland Westland
Eminent B.V.	Head office Wateringen, Zuid-Holland Westland
Evolve Vegetable Seeds	Head office Maasdijk, Zuid-Holland Westland
Ikasido Global Group	Head office Naaldwijk, Zuid-Holland Westland
Rijk Zwaan Nederland	Head office De Lier, Zuid-Holland Westland
Takii Europe B.V.	Head office De Kwakel, Noord-Holland
Totam Seeds B.V.	Head Office Naaldwijk, Zuid-Holland Westland
Westland Seeds B.V.	Head Office De Lier, Zuid-Holland Westland

Seed Breeding Tomatoes

HW Seeds	Head office Winschoten, Groningen
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Seed Breeding, Herb soil-bound vegetables

Novisem	Head office Baarlo, Limburg
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Seed Breeding substrate Rockwool vegetable, soil-bound vegetable

Hazera	Head office Made West-Brabant
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Annex 4. Vegetable plant propagation companies

Vegetable plants, substrate press pot, seedlings

West Plant Limburg	Head office Venlo, Limburg
Van den Elzen Asperge	Head office Erp, Oost-Brabant
Thwan van Gennip Asperge	Head office Lierop, Oost-Brabant
Rapo Asperge	Head office Roosendaal, West-Brabant
De Kemp Asperge	Head office Horst, Limburg
Teboza Asperge	Head office Helden, Limburg
Vissers Asperge	Head office Sevenum, Limburg
Lenders Asperge en Preiplanten	Head office Kessel, Limburg
Kapteijns B.V. Asperge	Head office Den-Bosch, Oost-Brabant
Biemans Preiplanten	Head office Gemert, Oost-Brabant
Baltussen Preiplanten	Head office Asten, Oost-Brabant

Vegetable plants, Substrate Rockwool

Waylandgroep : Hollandplant en Fortaplant Head office Bergschenhoek, Zuid-Holland

Globe Plant B.V.	Head office Vierpolders, Zuid-Holland
Vreugdenhil en Klugt de Lier/Bleiswijk	Head office De Lier, Zuid-Holland
Rob van Vegchel	Head office Horst, Limburg
WPK B.V.	Head office Made, West-Brabant

Vegetable plants, substrate Rockwool, substrate press pot

Gipmans Planten B.V.	Head office Venlo, Limburg
Brabant Plant B.V.	Head office Haarsteeg, West-Brabant
Jongerius Houten	Head office Houten, Utrecht
Gitzel B.V.	Head office Wevershoof, Noord-Holland
Beekenkamp	Head office Maasdijk, Zuid-Holland

(source: Handboek kasgroenten AGF 2023)

Annex 5. Total floriculture sector in the Netherlands 2022

		Number companies
Total floriculture sector		7.480
	Cut flowers	1.775
	Flower bulbs and ornamental plants	5.705
1	Cut flower	1.775
	Cut flowers in open ground	400
	Cut flowers in glasshouse	1.375
2	Flower bulbs and ornamental plants	5.705
	Flower bulbs	1.345
	Bedding plants open ground	345
	Bedding plants in glasshouse	410
	Potted plants in glasshouse	730
	Trees open ground	2.610
	Ornamental plants open ground	265

Total production of the Dutch floriculture sector:

Hectare production	6.700
Hectare in glasshouse	3.592

(source : VGB , ALPH/Union Fleurs)

Some high-quality breeders and propagators of flowers and plants

ABZ	Breeding	Head office Andijk, Noord-Holland
Dummen Orange	Breeding	Head office Naaldwijk, Zuid-Holland
Hoko Breeding	Breeding	Head office Aalsmeer, Noord-Holland
MNP Sunstory	Breeding	Head office Leimuiderbrug, Zuid-Holland
Prudac	Breeding	Head office Enkhuizen, Noord-Holland
Royal van Zanten	Breeding	Head office Rijsenhout, Noord-Holland
Schoneveld Breeding	Breeding	Head office Wilp, Gelderland
Takii Seed	Breeding	Head office De Kwakel, Noord-Holland

Anthura	Breeding	Head office Bleiswijk, Zuid-Holland
Beekenkamp	Breeding	Head office Maasdijk, Zuid-Holland
Evanthia	Breeding	Head office Naaldwijk, Zuid-Holland
Florensis	Breeding	Head office Hedrik-Ido-Ambacht, Zuid-Holland
PanAmerica Seed	Breeding	Head office Hoogkarspel, Noord-Holland
Van den Bos FlowerBulbs	Breeding	Head office Honselesrdijk, Zuid-Holland
Zonnebloem jong planten Holland	Breeding and propagation	Head office Oostveen, Noord-Holland
Koppe	Breeding and propagation	Head office Ermelo, Gelderland
Walter Blom Plants B.V. Holland	Breeding and propagation	Head office Hillegom, Noord-Holland
Hendrik Youngplants	Breeding and propagation	Head office Maasdijk, Zuid-Holland
Hi Breeding	Breeding and propagation	Head office De Lier, Zuid-Holland
KP-Holland Holland	Breeding and propagation	Head office Naaldwijk, Zuid-Holland
Syngenta Flowers	Breeding and propagation	Head office De Lier, Zuid-Holland
AllPlants Young Plants Holland	Propagation	Head office Heerhugowaard, Noord-Holland
Green Works	Propagation	Head office Schagerbrug, Noord-Holland
Grunewald Young Plants	Propagation	Head office Naaldwijk, Zuid-Holland
P van de Haak	Propagation	Head office 's-Gravenzande, Zuid-Holland
Schneider Young Plants	Propagation	Head office Woudrichem, West-Brabant

(source : CBS)

Annex 6. Total fruit sector in the Netherlands 2022

	Number companies
Total fruit sector	2.190
Grapes	110
Cultivation of kernel and drupes	1.420
Cultivation of other fruits	660
1 Grapes	110
2 Cultivation of kernel and drupes	1.420
Apples and Pears	1.170
Drupes	250
3 Cultivation of other fruits	660
Strawberries open ground	180
Strawberries in glasshouse	150
Woody soft fruit open ground	290
Woody soft fruit in glasshouse	40

Fruit open ground total 2020 (source : CBS)

	Cultivation area (hectares)
Total fruit open ground 2020	19.770
Small fruit open ground total	1.613
Pit and drupes total	17.946
Nuts	61
Wine grapes	148
Small fruit in glasshouse	64
1 Small fruit	1.613
Blueberries	737
Blackberries	36
Raspberries	151
Red currant	258
Black current	352

	Other soft fruit	79
2	Kernel and drupes	17.946
	Apple	7.600
	Pear	9.234
	Plums	259
	Sweet cherries	508
	Sour cherries	327
	Other spice	18
4	Nuts	61
5	Wine grapes	148
6	Small fruit in glasshouse	64

(source : CBS)

Cost per product type, labour relative to turnover

Crops in a greenhouse (10.000)m2

	(euro)	(euro)	% labour costs in
	Yields	Labour costs	relation to turnover
Softfruit Strawberry			
Bearers year round	608.000	189.000	31,04
Elsanta continuous breeding	659.400	213.750	32,42
Elsanta autumn cultivation	309.200	78.750	25,47
Sonata highlights SON-T + WKK	571.900	121.500	21,2
Softfruit Raspberry	859.900	353.250	41,08
Softfruit Blackberry	1.280.400	387.000	30,22

Fruiting vegetables

Egg-plant	558.300	146.250	26,20
Zucchini	636.300	236.250	37,13
Cucumber high wire+WKK	688.500	261.000	37,91
Cucumber high wire + fixed foil	675.400	258.750	38,31
Cucumber 3 rounds+WKK	629.500	184.500	29,31
Cucumber 3 rounds+fixed foil	617.400	182.250	29,52
Pepper Yellow+WKK	536.400	128.250	23,91
Pepper Green+WKK	544.600	144.000	26,44
Pepper Orange+WKK	534.300	126.000	23,58
Pepper Red+WKK	533.800	126.000	23,60
Tomato cherry+WKK,lighting	1.133.400	317.250	27,99
Tomato picked loose+WKK	622.500	173.250	27,83
Tomato vine coarse+WKK+lighting	971.400	186.250	19,22
Tomato Flesch+WKK	639.700	191.250	29,90

	(euro)	(euro)	% labour costs in
Cut Flowers	Yields	Labour costs	relation to turnover
Alstoemeria Dancing Queen middle	1.101.600	249.750	22,67
Dianthus large-flowered	704.300	283.500	40,25
Anthurium Andreanum	753.800	236.250	31,34
Bouvardia double-flowered+WKK	966.700	263.250	27,23
Bouvardia single-flowered	983.700	267.750	27,22
Chrysanthemum Santini+WKK	1.309.300	209.250	15,98
Chrysanthemum cable+WKK	1.039.000	128.250	12,34
Cymbidium large-flowered	544.800	189.000	34,69
Cymbidium small-flowered	515.300	148.500	28,82
Freesia year round	1.071.900	267.750	24,98
Gerbera large-flowered+WKK	1.079.800	256.500	23,75
Gerbera small-flowered+WKK	1.141.600	294.750	25,82
Hippeastrum	607.300	94.500	15,56
Hydrangea	452.200	139.500	30,85
Lily Asian+WKK	1.062.200	171.000	16,10
Lily Oriental+WKK	1.073.900	150.750	14,04
Lisianthus+WKK	2.604.200	263.250	10,11
Matricaria	594.800	128.250	21,56
Rosa Avalanche+WKK	1.970.700	558.000	28,31
Rosa Red Naomi+WKK	1.805.000	456.750	25,30
Leafy vegetables			
Endive	64.900	13.500	20,80
Lettuce	501.100	166.500	33,23
Radish bunched machinal	401.800	99.000	24,64
Salitario on water	2.187.800	220.500	10,08

(KWIN 2023 glastuinbouw Aeres Hogeschool Dronten)

Agriculture and open-field vegetable cultivation (10.000)m2

	(euro)	(euro)	% labour costs in
Agriculture	Yields	Labour costs	relation to turnover
Potatoes for clay consumption	7.070	711	10,06
Seed potatoes clay soil	11.935	1.809	15,16
Starch potatoes	3.780	657	17,38
Suger beet clay soil	3.600	949.50	26,37
Braun beans clay soil	2.116,80	486.25	22,97
Seed onion clay soil	8.145	1.251	15,36
Vegetable cultivation			
Strawberry refrigerated	42.315	39.624	93,64
Asperagus white	23.000	17.116	74,42
Cauliflower summer	21.037,50	6.234	29,64
Red cabbage storage	30.100	6.495	21,58
Brussels sprout in the middle	15.500	4.583	29,57
White cabbage storage	21.000	7.895	37,60
Coarse carrot storage	11.050	2.375	21,50
Leek autumn late	28.500	18.240	64,00
Celeriac no leaf storage	10.810	2.048	18,95
Ice lettuce summer	24.320	7.706	31,69
Spinach autumn	5.520	972	17,61
Chicory winter cultivation	7.000	1.639	23,42

(KWIN 2022 akkerbouw en vollegrond groente 2022 Aeres Hogeschool Dronten)

Fruit cultivation (10.000)m2

	(euro)	(euro)	% labour costs in
Fruit cultivaton	Yields	Labour costs	relation to turnover
Apple Elstar	83.300	45.731	54,90
Peer Conference	118.800	35.348	29,75
Plum Opal	249.000	91.980	36,94
Sweet Cherry Lapins	46.340	36.968	79,78
Red Currant RB2	67.300	32.379	48,11
Blueberry BB2	69.280	16.785	24,23

Raspberry FR3	135.520	90.676	66,91
Blackberry BR3	467.000	257.131	54,02
Black Current	5.200	463,52	8,91
Gooseberry	53.200	30.645	57,60

(KWIN 2009-2010 fruitteelt)

Flowerbulbs (10.000)m2

	(euro)	(euro)	% labour costs in
Flowerbulbs	Yields	Labour costs	relation to turnover
Dahlia	26.730	8.977	33,59
Gladiool	22.000	6.907	31,40
Hyacint	37.500	11.542	30,78
Iris	25.500	5.782	22,68
Crocus	14.400	8.145	56,56
Lily Oriental	48.000	12.780	26,63
Lily Asian	45.500	14.805	32,54
Lily Longiflorum	58.500	12.780	21,85
Narcis	10.000	5.400	54,00
Tulip clay soil	20.000	13.320	67,95

(KWIN 2005 bloembollen)

Annex 7. Function descriptions horticulture

Function: Cultivation chief

Department: Production

Function context:

The role is primarily found in (medium to large) greenhouse horticulture companies (vegetables and flowers/plants). Management is based on approved crop plans and work schedules. Regarding execution, feedback is provided, and accountability is later reported to the company manager or management. The role also initiates adjustments/improvements in processes, partly through trial productions/experiments. The role is part of an ascending series of managerial positions (see accompanying NOK). This series follows the executive roles of cultivation worker (see job numbers 10.03 to 10.05).

Position in the organization:

Reporting to: Entrepreneur or management or manager or production manager

Leading: 5-10 employees

Position goal:

Leading activities related to the cultivation and harvesting of horticultural crops in such a way that they are produced and delivered according to the specifications of the company and the customer.

RESULT EXPECTATION / FUNCTIONAL ACTIVITIES:

Results	Core activities	Result criteria
Performing employees	<ul style="list-style-type: none"> • Leading activities related to crop preparation, cultivation, and harvest aimed at achieving the estimated quantity and intended quality of the product. • Developing crop plans and work schedules into an operational plan. • Assigning tasks to and organizing employees, providing instructions/guidance. • Monitoring the quality of execution, correcting deviations. • Resolving occurring problems. 	<ul style="list-style-type: none"> • Knowledge of employees • Efficiency and accuracy of performed tasks • Effectiveness of communication • Timeliness and accuracy of solutions to deviations and problems

	<ul style="list-style-type: none"> • Conducting personnel management, including participating in the selection and hiring of new employees, training/guiding new employees, conducting performance reviews, managing leave. • Keeping various attendance records. • Performing other duties, including preparing work instructions/instructional material for employees. 	
Contribution to Quality Improvement	<ul style="list-style-type: none"> • Assessing soil quality, possibly initiating improvement measures • Assessing/controlling crop development; initiating measures for pest control, disease prevention, or growth improvement through climate, light, etc., control • Assessing crop readiness for harvest and determining harvest times 	<ul style="list-style-type: none"> • Usability and effectiveness of improvement measures • Degree of contribution to the quality of the crop
Improvement Proposals	<ul style="list-style-type: none"> • Developing (from daily practice) and proposing improvements/adjustments in processes • Scheduling and overseeing special processes such as trial productions or specific experiments. Reporting on progress; making recommendations • Quality and usability of improvement proposals 	<ul style="list-style-type: none"> • Quality/efficiency of planned and executed processes • Usability of the recommendations
Maintained Crop and Harvest Data	<ul style="list-style-type: none"> • Managing various registrations related to crop and harvest processes, including keeping data (or having it kept) on applied 	<ul style="list-style-type: none"> • Completeness and timeliness of data • Accuracy and clarity of overviews

	<p>growth control measures, nutrient supply, crop development</p> <ul style="list-style-type: none"> • Keeping data on production numbers, etc. • Providing periodic overviews 	
Maintained Regulations	<ul style="list-style-type: none"> • Ensuring the correct use and maintenance of tools • Ensuring compliance with company instructions regarding work safety, the use and application of protective equipment, etc. 	<ul style="list-style-type: none"> • Degree of compliance with regulations

WORK-RELATED OBJECTIONS:

Occasionally working or staying in spaces with relatively high humidity (approximately 80%) and/or high temperature (up to approximately 25°C).

Function: Head of logistics

Department: Logistics

Function context:

The role is found in companies with their warehouse for storing raw materials and/or (final) products or a central facility where orders are assembled according to customer specifications. Directly manages a team of approximately 4 to 7 employees in the warehouse, from the warehouse, or in the dispatch area. During peak periods, others from the company can be enlisted through the immediate supervisor. Makes decisions about work methods and the deployment of available personnel and resources within internal regulations and external (safety) regulations and procedures. Product delivery occurs domestically and internationally; often, fixed shippers are utilized based on closed annual contracts.

Position in the organization:

Reporting to: Entrepreneur or manager

Leading: 4-7; logistics employee, warehouse employee, forklift driver

Position goal:

Organizing and coordinating the logistics processes aimed at transport, storage and issue of incoming and outgoing goods and products.

RESULT EXPECTATION / FUNCTIONAL ACTIVITIES:

Results	Core activities	Result criteria
Realized goods flow	<ul style="list-style-type: none"> Organizing and arranging the warehouse and dispatch area(s). Determining modes of transportation and storage, instructing employees on these, and solving problems. Discussing matters (including complaints) with shippers and customers (in one modern foreign language). Ensuring the preparation of orders based on received order lists, mainly through instructions and directives to employees. Allocating unloading, loading, transportation, collection, and storage tasks. Planning and coordinating external transportation capacity and communicating with carriers about the execution of tasks. Overseeing the execution and compliance with procedures and regulations (including safety). 	<ul style="list-style-type: none"> Efficiency of the inbound, outbound, and storage processes. Timely delivery of goods. Accuracy in customer handling. Adherence to agreements made with customers. Timely availability of transportation capacity. Degree of compliance with procedures and regulations.
Processed and Verified Data (Goods Transactions and Transport Documents)	<ul style="list-style-type: none"> Instructing employees on established methods of administrating and recording transport, storage, and issuance/shipping. (Supervising) the creation of necessary transport documents. (Supervising) checking and recording associated (order and freight) documents. 	<ul style="list-style-type: none"> Timeliness and completeness of information. Accuracy of data. Correctness and completeness of documents.
Functioning Transport	<ul style="list-style-type: none"> Instructing employees on the proper use and (minor) 	<ul style="list-style-type: none"> Correctness and completeness of instructions.

<p>Equipment and Facilities</p>	<p>maintenance of technical tools and overseeing the execution.</p> <ul style="list-style-type: none"> Organizing and coordinating regular maintenance and repair of the equipment in use (climate and air treatment, lifting installations, etc.) and machinery (forklifts, hand pallet trucks, etc.), including through consultation and coordination with the internal technical department or with suppliers or contracted maintenance companies. 	<ul style="list-style-type: none"> Efficiency of deployment. Timeliness of maintenance.
<p>Optimized Work Processes</p>	<ul style="list-style-type: none"> Making proposals to the management regarding the improvement of operational work processes (including methods and techniques for unloading, loading, transportation and storage, maintenance, administration, equipment replacement). 	<ul style="list-style-type: none"> Feasibility and efficiency of improvement proposals. Degree to which improvement proposals are substantiated.
<p>High-Performing Employees</p>	<ul style="list-style-type: none"> Planning work activities and scheduling employees. Ensuring replacement of employees in case of temporary absence, contributing to the selection of new employees. Introducing, instructing, motivating, and evaluating employees. Instructing, motivating, and guiding employees. Transferring knowledge and insights to employees and organizational leadership. Conducting work meetings and discussing with immediate supervisors about the performance of the department 	<ul style="list-style-type: none"> Availability of employees. Employee motivation. Goal achievement by employees.

Maintained Regulations	<ul style="list-style-type: none"> Ensuring compliance with company instructions regarding work safety, the use and application of protective equipment, etc. 	<ul style="list-style-type: none"> Degree of compliance with regulations.
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WORK-RELATED OBJECTIONS:

Annoyance from temperature differences/draft and (motor) noise in warehouse and shipping areas.

Function: Sales/export manager

Department: Commerce

Function context:

The role is found in medium to large greenhouse horticulture companies and is primarily active in the Dutch market.

Position in the organization:

Reporting to: management or sales head

Leading: not applicable

Position goal:

Achieving sales objectives related to the overall (cultivation) assortment within the area of responsibility through relationship management, promoting sales to existing relationships, and acquiring new customers.

RESULT EXPECTATION / FUNCTIONAL ACTIVITIES:

Results	Core activities	Result criteria
Developed Sales Annual Plan for Assigned Area/Accounts	<ul style="list-style-type: none"> Creating a sales annual plan based on formulated company objectives. Formulating objectives for existing and new activities in the assigned area of responsibility. Indicating the strategy and actions to be followed for maintaining relationships, expanding existing contracts with customers, and acquiring new customers. 	<ul style="list-style-type: none"> Degree to which the plan contributes to the achievement of sales goals. Degree to which the plan translates into concrete actions. Degree to which the plan is accepted by the supervisor.

	<ul style="list-style-type: none"> • Discussing the annual plan with the supervisor for correction, review, and approval. 	
<p>Achieved Sales Objectives</p>	<ul style="list-style-type: none"> • Maintaining and optimizing contacts with existing customers. • Visiting (potential) customers, presenting the organization, providing product information. • Conducting sales discussions, negotiating regarding quantities, prices, payment terms. • Increasing turnover by providing information/advice (cultivation, crop care, protection, etc.) regarding the entire (cultivation) assortment. • Providing all information to the sales support department for the preparation of a quotation. • Explaining the quotation to a customer if necessary. • Drafting an annual contract (call-off) and discussing it with the supervisor. 	<ul style="list-style-type: none"> • Achieved revenue and margin. • Degree to which customer relationships are maintained and expanded. • Degree to which advice is tailored to customer circumstances. • Satisfaction of relations and customers. • Effectiveness of communication with the support department. • Accurate documentation of agreements made with customers.
<p>Knowledge of Customer Needs and Market Conditions</p>	<ul style="list-style-type: none"> • Monitoring developments within the assigned area of responsibility, the position, activities, and pricing of competitors. • Reporting on more structural developments regarding the activities of competitors. • Attending conferences or trade fairs, reading professional literature, engaging in conversations with customers about market needs. • Contributing market information to meetings and discussions. 	<ul style="list-style-type: none"> • Understanding of the market (including competitors) and customer needs. • Degree to which relevant information is contributed.

Well-Kept Administration	<ul style="list-style-type: none"> • Drafting visit reports. • Recording and maintaining customer and other relevant sales information. • Documenting sales results. 	<ul style="list-style-type: none"> • Accuracy of data. • Timeliness and accuracy of reports/summaries.
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WORK-RELATED OBJECTIONS:

- Unilateral posture during car rides.
- Risk of injury due to participation in road traffic (approximately 30,000 km/year).

Annex 8. Survey summary (performed in the Netherlands):

How can you best describe your future ideal employee/team member?

Function of surveyed (number surveyed) - Feedback
CEO/general manager (2)
<p>The ideal employee is someone who can/is:</p> <ul style="list-style-type: none"> - Troubleshoot - Innovate (think outside of the box when needed) - Act as a team-player/builder while being able to work independently - Report and present properly and accurately - Show long-term thinking and commitment
Manager (2)
<p>The ideal employee is someone who can/is:</p> <ul style="list-style-type: none"> - Independent and solution-oriented, while being a team-player (a positive asset to the team) - Able to multi-task and delegate - Report and present properly accurately - Good time-management - Multilingual (depending on the function)
Team-leader (2)
<p>The ideal employee is someone who can/is:</p> <ul style="list-style-type: none"> - Able to perform under pressure and multitask - Troubleshoot and innovate - Work both independently and in a team - Have good analytical and quantitative analyses skills (depending on the function), or practical acumen, or theoretical background/ knowledge - Able to handle and provide constructive feedback
Scientist/Researcher (both academic and commercial) (5)
<p>The ideal employee/researcher is someone who can/is:</p> <ul style="list-style-type: none"> - Networking and team working (especially for project acquisition) - Reporting (writing) and presenting accurately - Innovative and multitasking - A troubleshooter/ problem reducing or solver - Robust analytical and quantitative skills - Work independently - Good time management and planning skills
Knowledge transfer officer (Wageningen University) (1)
The ideal employee/researcher is someone who can/is:

- Networking and team-building and working
- Ability to reduce complex datasets into public (and policy-maker) friendly disseminations
- Having a robust theoretical knowledge (in domain of expertise -a 360-degree view of the function-)
- Innovative (an out-of-the-box thinker and planner)
- Familiarity with current and pressing issue (what drives the market)
- Multitasking and good time and budget management