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CLOSING THE GAPS BETWEEN MINIMUM AND LIVING WAGES IN THE CUT FLOWERS SUPPLY CHAINS

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WageIndicator Foundation

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CHAPTER 1 Introduction

This report is the result of Phase 1, Desk research and writing of overall report, as laid down in the project proposal of the WageIndicator Foundation to FNV Mondiaal of January 2022 under the same title, 'Closing the gaps between Minimum and Living Wages in the Cut Flowers Supply Chains'. Phase 1 is the basis of the project, aiming to ensure a solid mapping, inventory and hence understanding of six countries and players along the global supply chains of cut flowers. In Phase 2 the organisation of a webinar is planned with trade unions that explores, based on the mapping done, how to close the gaps between Minimum Wages and Living Wages along the supply chain of cut flowers. Topics and questions to be considered here will be: are Living Wages feasible in the cut flowers industry? What are the main barriers for implementation and what can be done to tackle them? Who should take the lead in closing the gaps?

The main aim of the project is to deepen insights in the cut flower sector or 'floriculture', more particular in wages, working conditions and workers' representation in the global supply chains of cut flowers among all social partners (trade unions, employers' associations, governmental representatives) and occupational groups, and, based on such insights, contribute to the resilience and sustainability of these chains. Crucial for the realisation of this aim is awareness of the importance of bridging the existing distances (gaps) between minimum wages and living wages in the main countries involved in the global supply chain. It is vital to approach the goal, ensuring living wages throughout the supply chain on a scale as broad as possible, in an orchestrated and coordinated way that includes the relevant social partners and occupational groups. Such an approach is needed to minimise the risks of having companies compete on wages and contracts. In this regard, the actual and potential roles of trade unions in wage-setting will be important.

This report consists of three Chapters, a list of references and a Statistical Appendix. In this introductory Chapter 1 we present the main outcomes on the gaps between (statutory) minimum wages or average wages on the one hand and living wages on the other hand - often in shorthand called 'the living wage gap'. This presentation covers floriculture or agriculture in the five countries in the Global South selected for Phase 1 of the project as being major suppliers/exporters of cut flowers (between parentheses their ranking as cut flower exporting countries in 2021): Kenya (4), Ethiopia (5), Uganda (18), Colombia (2) and Ecuador (3). We also present information about a set of characteristics of these countries, such as the numbers of workers and companies and the size of the areas cultivated in the floriculture industry. In these overviews characteristics are included of the Netherlands, being the number 1 cut flower exporting country and the key flower trading hub. After this presentation we pursue with setting out the contents of Chapters 2 and 3.

Table 1, below, shows an overview of our findings on the gaps in the five cut flower exporting countries between the statutory minimum wages and/or average wages (A) and the calculated living wages (B), for floriculture or agriculture. The formula used for calculating these living wage gaps is as follows: [[(B -A) /A] x 100], or in words: (living wage minus minimum/average wage) divided by minimum/average wage. We needed, as indicated in the table, to use various sources. The value of statutory minimum wages could not always be the starting point. Sometimes the value of the ***average*** actual wages had to be used because statutory minimum wages do not exist (like in Ethiopia) or because current minimum wage

rates should be regarded as outdated (like in Uganda). Moreover, in three countries (Kenya, Ethiopia and Ecuador) the recent wage data does not apply on floriculture but on agriculture at large.

In the floriculture or agricultural sectors of Kenya, Ethiopia, Uganda, Colombia and Ecuador the gaps existing between statutory minimum wages (SMW) and/or average wages (AW) and living wages (LW) turn out to be wide. Overall and based on recent data calculated for 2020-2022, gaps vary between 43 and 493 per cent. As said, these outcomes are the result of varying comparisons. The following range of gaps in percentages can be composed:

Floriculture / SMW - LW: 43 (Colombia) - 493 (Uganda)

Agriculture / SMW - LW: 60 (Ecuador) -- 341 (Kenya)

Floriculture / AW - LW: 301 (Uganda)

Agriculture / AW - LW: 84-391 (Ethiopia), in between 154 (Ecuador)

Table 2 shows an overview, also over time, of the number of companies active in floriculture and the cultivated areas (in hectares) for floriculture in the six countries scrutinized. Except for the agricultural statistics of the Netherlands, we did not find official statistics for these categories at this level of disaggregation. As the middle column shows, for the other five countries a variety of sources had to be addressed: research reports, but also information from national industry associations (KFC, UFEA, Asocolflores) and specialized websites. In the latter two instances, political expediency may be lurking in delivering figures but we believe to have contained the danger to be misled through cross-checking. Anyway, the information presented is the best we could trace though we are aware of the uncertainties that this data sticks to.

For the five countries in the Global South the most recent data (2021-2022) ends up at 1,271 companies in total. That adds up together 3,181 when adding the 1,910 cut flower cultivation companies for 2021 counted by Statistics Netherlands (CBS Statline).

Table 1
Gap between statutory minimum / average wages and living wages in floriculture or agriculture: Kenya, Ethiopia, Uganda, Colombia and Ecuador, various years

country	year	average or minimum wages (A) / source	living wages (B) / source	sector	gap: [(B -A) /A] x 100
Kenya	2014	average wages/Anker and Anker 2014	living wages/Anker and Anker 2014	floriculture	27-90
	2014	stat. minimum wages	living wages/Anker and Anker 2014	floriculture	282
	2021	stat. minimum wages	living wages/Andersen et al. 2021a	agriculture	144-341
Ethiopia	2015	average wages/Melese 2015	living wages/Melese 2015	floriculture	250-300
	2021/ 22	average wages/ WageIndicator	living wages/Andersen et al. 2021b	agriculture	82-391
Uganda	2022	stat. minimum wage	living wages/Khan and Buyinza 2020	floriculture	493
	2022	average wages/ WageIndicator	living wages/Khan and Buyinza 2020	floriculture	301
Colombia	2020	stat. minimum wage	living wages/WageIndicator	floriculture	43-83
Ecuador	2021	average wages/ILOStat	living wages/Andersen et al. 2022b	agriculture	154
	2022	stat. minimum wages	living wages/Andersen et al. 2022b	agriculture	60-65

Sources: see References

We assume that these 3,181 companies operate integrated in the global supply chains of cut flowers, that is, they cultivate cut flowers and export these themselves or have links with flower exporters.

Besides these 'first tier' firms, 'second tier' companies may exist that function as their suppliers. For Kenya we traced such suppliers through references to the practice of smallholder networks (see the Profile of that country).

We do not exclude the existence of 'second tier' floriculture companies in the other countries though we did not find concrete indications in this regard.

The right-hand column presents the results when dividing the hectares of the cultivated areas by the number of floriculture companies. Based on this data, the Netherlands shows by far the smallest average area per company (2.51 hectares) and Ethiopia the largest (63.45 hectares). With 6.09 hectares averaged, Ecuador also has a relatively small area per company.

Table 2
Number of companies and area (hectares) in floriculture; Netherlands, Kenya, Ethiopia, Uganda, Colombia and Ecuador, various years

	year	no. comp.	sources	area (hect.)	hect./no. comp
Netherlands	2000	6,660	CBS, Statline		
	2010	3,090	CBS, Statline		
	2020	1,890	CBS, Statline		
	2021	1,910	CBS, Statline	4,790	2.51
Kenya	2000	25	Barrientos et al. 2003: 1513		
	2008	54	Awuor 2012: 67		
	2016	145/190	Kazimierczuk et al. 2018: 17-18, 56		
	2022	110	KFC 2022	4,100	37.27
Ethiopia	2018	84	SOMO 2020: 10 (Eth. Herald 2018)		
	2020	100	Ethiopian Investment Commission		
	2021		MOTU	3,490	
	2022	55	flowercompanies.com-ET		38.78
Uganda	1998	22	Evers et al. 2014: 14		
	2001	20	Evers et al. 2014: 14		
	2012	20	Evers et al. 2014: 14		
	2016	20	Kirigia et al. 2016: 9-10		
	2019-21	11	WageIndicator DWC Survey		
	2022	12	UFEA 2022	200	16.67
Colombia	2002	450	Wijnands 2005: 66		
	2006	300	Asocolflores 2006		
	2020	300/400	Asocolflores / WFP Sol. Collective		
	2022	320	flowercompanies.com-CO		
	2022		Asocolflores	7,300	22.81
Ecuador	2002	375	Wijnands 2005: 66		
	2018	517	Garcia 2018: 11, 16 (Expoflores)		
	2021	739	Quinaluisa Morán et al. 2021: 113		
	2022		Expoflores	4,500	6.09

Sources: see References

Table 3 allows an overview similar to Table 2, also over time, of direct, indirect and total employment in floriculture in the six countries. Between the columns 'direct' and 'indirect' we included a column stating the percentage of female workers in direct employment. In this case an even greater disadvantage was that, except for the Netherlands, such information cannot be obtained from official statistics. Employment statistics are not available at this level of industry disaggregation, neither from national statistical offices nor from international sources (United Nations, ILO, OECD). For the Netherlands we had to use the official agricultural statistics to gain the employment figures presented. The sources we used for the other countries are to a large extent similar to those for Table 2. Again, political expediency may be lurking due to the origin of some sources but again, we assume to have contained possible misuse through cross-checking. The numbers of employed workers we most recently identified, are indicated as **bold.**

Table 3
Direct, indirect and total employment in floriculture; Netherlands, Kenya, Ethiopia, Uganda, Colombia and Ecuador, various years

	year	direct	%F	indirect	total	source
Nether-lands	1995	35,000		46,000	81,000	Elshof 1998: 11-12
	2019	39,000				CBS/WEcR 2020: 9
	2022	**40,000**		50,000	90,000	CBS/ + SEO/WEcR 2020
Kenya	2006	50,000	75			Riisgaard 2008: 329
	2016	90,000	70	500,000	590,000	Kazimierczuk et al. 2018: fn. 3 Kirigia et al. 2016: 34
	2018	**100,000**	75			Barrientos 2019: 84
Ethiopia	2010	50-60,000	70	>200,000	>250,000	Aman 2011: 14
	2012	30,000				Schaefer and Abebe 2015: 26
	2015	35,000	70	50,000	85,000	Kirigia et al. 2016: 60
	2018-20		64-68			WageIndicator DWC Survey
	2022	**45,000**	70			WageIndicator; MOTU
Uganda	2001	4,000	75			Evers et al. 2014: 14
	2012	6-7,000	75			Evers et al. 2014; UWEA 2011
	2014	8,500	80	42,500	51,000	Kirigia et al. 2016: 50
	2018	>9,000	70	51,000	60,000	UFEA (Bwambale 2019)
	2019-21	7,600	68			WageIndicator DWC Survey
	2020	**8,000**				UHISPAWU (Nassali 2020)
Colombia	1989	70,000	70	50,000	120,000	Mendez 1991: 1
	2004	94,300		80,100	174,400	Asocolflores in Wijnands 2005: 61
	2009	99,000	65	84,000	183,000	Asocolflores in SOMO/ENS 2018: 7
	2020	111,000		94,000	205,000	Squires 2020
	2022	**100,000**	70	>80,000	180,000-190,000	Asocolflores / flowercompanies.com-CO
Ecuador	2016	36,400		22,000	58,400	Expoflores in Garcia 2018: 16
	2016	58,000		60,000	118,000	Flowerweb
	2021	46,000	70			Quinaluisa Morán et al. 2021
	2022	**50,000**				Calculation WageIndicator

Sources: see References

The gender division is quite clear. At a glance the reader can see that recently in the five countries in the Global South the female share in direct floriculture employment fluctuated between 64 and 75 per cent, with 70 per cent as the common denominator. Remarkably, for the Netherlands reliable indicators about the gender division are missing. Based on our personal observations, we assume that the female share in direct employment in Dutch floriculture is, at between 50 and 60 per cent, lower than in the other five countries.

Besides the gender division, three other divisions need to be explained: (a) the division between direct and indirect employment; (b) that between permanent workers and workers with a non-permanent employment status or contract, and (c) that between full- and part-time workers.

Direct floriculture employment in the producer countries, as indicated in Table 3, can be related to primary activities in plant development, in growing (planting, harvesting, grading) and in the packaging of cut flowers. Indirect employment is related to secondary activities in support of floriculture, in providing materials, greenhouses, chemicals, fertilizers, and in logistics and transport, marketing, auctioning, sales and insurance. Though these descriptions may seem clear-cut, in everyday practice the definitions of 'indirect' prove to vary widely. This variation hampers comparisons of the employment effects of cut flower production across countries. Two issues in particular are at stake here. First, that of labour turnover. Massive turnover, often pushed by employers' use of short-term contracts, may generate large numbers of employed (if everyone is counted who is working at any time of the year at a flower farm). Second, once more the issue of political expediency pops up: ministries and investment commissions that aim to attract foreign investors tend to produce rosy figures as regards the (potential) indirect employment effects of their efforts.

Another division, not included in Table 3, is that between permanent workers and those with another, non-permanent employment status or contract. The country outcomes here depend to quite some extent on (compliance with) the national labour legislation and with cultivation annex labour patterns. As to start with the latter, in particular in Dutch floriculture peaks in cultivation related to patterns of seasonal work show up, while these peaks are based on temporary jobs – jobs for 90 per cent fulfilled by labour migrants. As we show in the Profile of the Netherlands, this recently meant that 40,000 workers (persons) employed here were equal to some 34,000 FTE (Full-Time Equivalents).

In the African and Latin American countries the permanent / non-permanent divide is more a matter of national labour law and compliance with that legal framework. A first issue is here that the labour law allows casual, fixed-term or temporary workers to be hired for work (tasks) described as of permanent nature, though repeatedly under certain conditions regarding prolongation of fixed-term contracts. The division between permanent and 'fixed term' is legally rather vague, like in the case of Kenya: "Kenyan labour Law allows hiring fixed term contract workers for tasks of permanent nature. No provisions could be located in the Employment Act on regulating the fixed term contracts (their maximum duration and renewals)" (Ahmad 2021c: 15). In some countries, for example in Colombia (Ahmad and Leon 2021: 13), these prolongation conditions have recently been tightened in applicable law. In other countries, like in Kenya, the law does not include provisions on regulating the maximum duration and renewal of fixed term contracts (Ahmad 2021c: 15).

Even if labour legislation, like in Kenya, has explicitly opened up pathways for workers' transition to regular employment and permanent contracts, experiences in floriculture indicate that such pathways may be of limited value in times of slack business. Then, it often proves far from simple to effectuate legal rights -- especially if trade unions cannot exert much

power in the workplace. This may well have been the case in Kenya. In the Kenyan Profile we report that early in the COVID-19 crisis over 30,000 temporary workers at cut flower farms lost their jobs while a further 40,000 permanent workers were sent home on annual leave – with unclear prospects. Although labour legislation in the five exporting countries shows some variation on the 'permanent labour' issue, the practical problems looming for wage workers to move from non-permanent to permanent work seem remarkably similar.

The third divide is that between full- and part-time work(ers). Overall, at cut flower farms in all six countries only small minorities may under normal conditions work part-time work. Though once more adequate statistics are missing, this is our dominant impression arising from all available reporting. In floriculture the use of part-timers seems mainly related to the hiring of qualified staff on behalf of improvement and/or certification activities. Independent of the country, these experts are mostly temporarily (and indeed sometimes part-time) lent by institutes to farmers though some can act as independent consultants as well (On closer inspection the term 'freelancer' is less appropriate here). Our treatment of both the permanent/non-permanent and the full-/part-time divides makes us abstain from calculating FTEs next to mentioning the amounts of workers, as presented below.

Table 4 presents an overview of the basic data we gathered and ratios based on this data. In columns A-D, the table integrates for the six countries and for 2021 four sets of data, that is, per country: export value (x USD million, Statistical Appendix, Table A1); number of workers (x 1,000, Table 3); number of hectares cultivated (Table 2), and number of companies (Table 2). Based on these four sets, columns E-J show six sets of ratios per country: the average company size (E: B/D); the USD export value per worker (F: A/B); the USD export value per hectare (G: A/C); the USD export value per company (H: A/D); the number of hectares cultivated per worker (H: C/B), and the number of hectares cultivated per company (I: C/D).

The outcomes indicate major differences between the Netherlands on the one hand and the five Global South countries on the other. When looking at the ratios, it is clear that the differences in export values (column A), derived from the international trade statistics, generate considerable differences in other characteristics. When divided by the number of workers (column F) or hectares (column G), concerning F the outcomes for the Netherlands are eight- to 24-fold those for the five countries, and concerning G some five-fold the outcomes for Uganda, Colombia and Ecuador, and for Kenya and Ethiopia even more. These differences decrease to some extent when the weight in tons of cut flowers exported is taken into account. (In 2020 the unit values of Dutch exports were some 40 per cent higher than the values per ton of the flower exports of Colombia, Ecuador and Uganda, and about 80 per cent above the values per ton exports of Kenya and Ethiopia – see Table A13 in the Statistical Appendix). Nevertheless, in the end the differences remain considerable. The ratios in columns F and G show, in purely economic terms, that Dutch floriculture does not only enjoy a quantitative or size advantage but also a qualitative or price advantage.

These advantages can be derived from the strengths of Dutch floriculture that in the last six decades or so have developed -- as we will analyze in the Profile of the Netherlands, largely through inputs of 'collective goods' such as education, research and cooperative services. Maybe surprisingly, these strengths cannot be traced back to a large size of ***individual*** Dutch floriculture companies. By contrast, they have by far the smallest average size of the six countries, both in terms of number of workers employed (column E) and number of hectares cultivated (column J). Yet, the number of workers ***per hectare*** (column I) and the export value ***per hectare*** (column G) show up as by far the highest of the six. These are indications that highly ***intensive*** types of floriculture dominate in the Netherlands.

At the other extreme, with the lowest number of workers per hectare (column I) Uganda suggests that in this country ***extensive*** types of floriculture prevail. However, the other ratio, the export value per hectare (column G), positions this country in the middle bracket. The explanation -or at least part of it- may well be that the decrease of Uganda's floriculture in the last decade has created areas of wasteland, still included in the available statistics and the ratios calculated here but not delivering productive contributions. Ethiopia shows a remarkably low export value related to the area cultivated (column G) that may also indicate the existence of quite some wasteland. However, because there is not much proof in this respect, floriculture cultivation at Ethiopian farms seems anyway quite extensive.

We now pursue with the contents of Chapters 2 and 3.

Chapter 2 opens a broad perspective on the world trade in cut flowers. It points out that innovations in storage and transport opened options for employers, traders and buyers to shift the locus of cut flower growing to areas where 'cheap' low-skilled labour was in abundance – though favourable climate and soil conditions were crucial as well. From the 1970s on this stimulated the rise of a truly international industry, through the integration of countries close to the equator in global supply chains comprising the production, transport, marketing and sales of floricultural products. In Latin America Colombia and Ecuador, and in Africa Kenya, Ethiopia and Uganda became integrated in such chains. The Dutch flower auctions seized the role of 'chain director'.

Chapter 2 presents and explains statistics on the international trade in cut flowers, labelled as category 0603, and its seven sub-categories 060311 to 060390. Though for some readers the load of figures may feel at the top of what can be digested, we believe it worthwhile to show them: external trade provides an import-

Table 4
Four sets of data and six ratios based on these sets, floriculture; Netherlands, Kenya, Ethiopia, Uganda, Colombia and Ecuador, 2021-22

	A	B	C	D	E	F	G	H	I	J
Netherlands	6,578*)	40	4,790	1,910	21	144,150	1,373	3,444	0.120	2.51
Kenya	726	100	4,100	110	909	7,260	177	6,600	0.041	37.27
Ethiopia	255	45	3,490	90	500	5,667	73	4,833	0.078	38.78
Uganda	48	8	200	12	4,000	6,000	240	4,000	0.025	16.67
Colombia	1,727	100	7,300	320	313	17,270	237	5,397	0.073	22.81
Ecuador	927	50	4,500	739	68	18,540	296	1,254	0.090	6.09

*) production value
Sources: A: Table A1 (Netherlands: see text); B: Table 3; C: Table 2; D: Table 2

A export value (x USD million), 2021
B number of workers employed (x 1,000), 2021-2022
C number of hectares cultivated, 2021-2022
D number of companies, 2021-2022
E number of workers / number of companies (B/D)
F export value / number of workers (A/B)
G export value / hectares (A/C) (x USD 1,000)
H export value / number of companies (A/D) (x USD 1,000)
I hectares / number of workers (C/B)
J hectares / number of companies (C/D)

ant context for efforts to achieve significant social change within a country, such as the reduction of the living wage gap (without us claiming that this context by definition imposes restrictions for such efforts). Anyway, the chapter documents the rapid growth of international cut flower trade since 2000; its abrupt dip in 2019, the disruption the COVID-19 pandemic caused in 2020, and the strong recovery in 2021. Consecutively, concerning the international trade in cut flowers tables are presented (in the Statistical Appendix) and explained:

- exports of both the top-20 exporters and 'our' six countries for 2000, 2010, 2019, 2020 and 2021 (Tables A1, A2A and A2B);
- the top-10 exporters of the seven sub-categories, for 2021 (Tables A3A and A3B);
- exports of the Netherlands to its top-10 and top-4 countries of destination, for 2000, 2010 and 2019-2021 respectively, and 2021 (Tables A4 and A5);
- imports of the top-10 importers for 2000, 2010, 2019, 2020 and 2021 (Table A6);
- exports of 'our' six countries into main importing countries, for 2021 (Tables A7A and A7B);
- imports into the Netherlands from the top-20 sourcing countries, for 2000, 2010, 2019, 2020 and 2021 (Table A8);
- imports of the seven sub-categories to the top-4 importers, for 2021 (Table A9);
- the trade balance of the top-10 importers for the seven sub-categories, for 2021 (Table A10);
- exports from 'our' developing countries into main importing countries, for 2021 (Table A11);
- exports of roses from 'our' developing countries into main importing countries, for 2021 (Table A12);
- average unit values of exports of the top-20 exporters, for 2011, 2020 and 2021 (Table A13).

In between the sections on 'Global and Dutch exports' and 'Global imports' we treat the effects of the COVID-19 pandemic on the global trade in cut flowers. Here we conclude that, influenced by the pandemic, the trend towards country concentration in flower exports has continued and even accelerated. Telling in this regard are the 2021 trade balance figures for the top-10 cut flower-importing countries, from which the Netherlands showed up as the only country with an overall positive balance. Also relevant are the outcomes concerning developments in the unit value of exported cut flowers. The exports of Colombia, Ecuador, Kenya, Ethiopia and Uganda are characterized by relatively low average values, and 'premium' export opportunities have remained small.

Chapter 3 provides Profiles of the six countries. The Profiles of Kenya, Ethiopia, Uganda, Colombia and Ecuador are written along a similar outline, each containing seven sections. Largely in line with the list of ten issues included in the project proposal (below: 'including….' and numbered), these sections have successively been named:

- ***history, local conditions and exports***, including (1) the development of the national cut flower industry, including relevant trade agreements, and (2) the local natural conditions and (dis)advantages;
- ***government policies and infrastructure***, including (3) relevant government policies and (4) transport conditions and facilities;
- ***employment, number of farms, ownership,*** including (6) the level and rate of employment, number and size of cut flower companies, and company ownership;
- ***working conditions and environment***, including (9) compliance with decent work in the cut flower industry;
- ***minimum and living wages***, including (10) compliance with minimum wage and living wage in the cut flower industry;
- ***labour relations and trade unions***, including (5) the main institutions, including the indu-

strial relations);

- *position of women*.

We have chosen for the Profile of the Netherlands a somewhat different outline, containing five sections named as follows:

- *international trade*;
- *strengths and weaknesses*;
- *employment and number of companies*;
- *labour relations and trade unions*;
- *productivity and concentration*.

We did not consistently cover in the country profiles two issues mentioned in the project proposal: (7) effects the COVID-19 pandemic on the cut flower industry, perspectives after re-opening, and (8) longer-term growth forecasts of the cut flower industry. We have put these issues in a wider perspective in Chapter 2 and in Chapter 3 in the Profile of the Netherlands. To a limited extent, though, social consequences of COVID-19 have also been addressed in the Profiles of Kenya and Uganda.

Finally, it is relevant to draw attention to the participation of the FNV in the IRBC Agreement (in Dutch ***IMVO Convenant Sierteeltsector***) as of September 2019 concerning floriculture, together with wholesalers and retailers, government bodies, industry organisations and Hivos. The agreement's aim is to promote international responsible business conduct (IRBC) within the floriculture industry pursuant to the OECD Guidelines for Multinational Enterprises and the United Nations Guiding Principles on Business and Human Rights (UNGPs). The OECD Guidelines and UNGPs require companies to carry out risk-based due diligence to avoid and address adverse impacts on people and planet associated with their value chain. Through signing the IRBC Agreement, companies have committed to ensuring a sound due diligence process.

The Agreement builds on the Floriculture Sustainability Initiative (FSI). FSI has a clear target, known as 'FSI-2025': by 2025, FSI members aim to ensure that 90 per cent of the flowers and plants they produce, buy and trade are sustainable. Concerning living wages, the goal has been stated: "Reduction of the living wage gap of workers at farm level by 2025. FSI recognizes that decent work and living wages are fundamental and globally recognized human rights. FSI will engage stakeholders along the supply chain to join this ambition by using data and uniform methodologies to reduce the living wage gap of workers at farm level by 2025".

The parties involved in the IRBC Agreement have identified seven issues that would deserve priority attention in the cut flower sector (IMVO 2019: 14):

- *living wages*;
- *women's rights (including fighting sexual harassment);*
- *health and safety in exposure to plant protection products*;
- *land rights*;
- *climate change*;
- *water use*;
- *environmental impact of the use of plant protection products*.

We have woven attention to these issues as a common thread through the Profiles of the five developing countries.

CHAPTER 2
The world trade in cut flowers

The rise of an industry

Floriculture production, a section of horticulture, creates a wide variety of types of plants and plant materials. It comprises the commercial production of cut flowers, loose flowers, cut greens, seeds, bulbs and landscape plants, and their marketing and trade. Over the last 20 years, the top four cut flower-crops worldwide have been roses, chrysanthemums, carnations and lilies, followed by orchids and gerbera. Floriculture is an industry of substantial size that supports the existence of millions of people who grow, transport and sell cut flowers across the world. For 2019 the global production of commercially sold cut flowers has been estimated at USD 55 billion (IMVO 2019: 13). In that year 2019 the global exports of cut flowers reached USD 9 billion (Statistical Appendix, Table A1). The combination of these figures and some additional information tell that about 85 per cent of the current global cut flower production is sold in the same country where it is produced, leaving some 15 per cent for trade through international supply chains. It should be noted that 90 per cent of the international floriculture trade is currently duty-free: most commerce takes place under free-trade agreements or preferential trading schemes with countries in Africa and Latin America (website International Flower Trade Association / Union Fleurs).

Technically speaking, the beginning of the supply chains of cut flowers lies in the breeding of new kinds of flowers, their selection and propagation. Breeders sell their flower plants as cuttings to growers, who sell their cut flowers, directly or through an auction, to wholesalers or retailers. Once cut from the plant, cut flowers are highly perishable (in contrast to ornamental plants; though traded in a similar supply chain, these plants are almost non-perishable). For example, roses last three to five days after cutting, carnations seven to 10 days, and chrysanthemums seven to 12 days. Clearly, time and speed are critical factors, and nowadays in flower trade (like overall in agri-food chains) very high demands are made on logistics. Before the advance of cold (refrigerated) storage and transport technology as well as commercial air transport, most cut flower producers had to be located near the main consumer markets. For example, prior to 1950 cut flower cultivation in the United States was mainly located close to the large consumer markets in the North-Eastern states, in spite of unfavourable natural conditions and relatively high labour costs. This changed with the advance of air transport and cold storage. In a remarkable parallel to what happened with garment manufacturing in Western Europe (Van Klaveren 2016), in the 1950s and 1960s the production of cut flowers started to be relocated to where comparative advantage for the growing and packaging of flowers was found in the relative abundance of 'cheap' low-skilled labour. As a result, within the United States the locus of cut flower production shifted to growers in Western and Southern states, notably in California (Mendez 1991: 4-6). That state could already boost on more than a century of flower industry (website CalFlowers / history), and is currently home to three-quarters of the cut flower production in the US (website Petal Republic).

From the 1970s on, the integration in global supply chains (also called global value chains, GVCs) comprising production, transport, marketing and sales of floricultural products could be noticed that included developing countries located close to the equator. A major 'push' factor was the oil crisis of the 1970s, increasing the cost of heating greenhouses in the global North. Crucial 'pull' factors for employers,

traders and buyers were, next to cheap labour and low labour standards, a favourable climate with maximum hours of sunlight, cool nights and good soil conditions. Uninterrupted 'cold chains' were created with effective transport arrangements and mechanisms for rapid financial transactions. The new GVCs meant the end of seasonal production and the beginning of all-year-round international trade in floricultural products. In Latin America Colombia and Ecuador, and in Africa Kenya, Ethiopia and Uganda became integrated in such supply chains. The resulting floriculture GVCs are fresh-product chains. In this they share quite some characteristics with the GVCs of fresh vegetables, dairy, fruit or meat products. The conduct of growers and wholesalers in these chains is quite similar (Wijnands 2005: 17-18). Throughout this development, the Dutch flower auctions increasingly seized the role of 'chain director'.

As noted in Chapter 1, the floriculture supply chains include in the producer countries a variety of companies in activities such as plant development, growing and packaging, mostly defined as direct employment. Around this core business, indirect employment is created by firms providing materials, greenhouses, chemicals, and fertilizers, or firms active in logistics and transport, marketing, auctioning, sales and insurance. Flower farms constitute the most visible part of the chain. Here three main activities can be distinguished: breeding (developing new varieties), propagation (multiplying by natural reproduction from the parent stock), and the growing of plants. The third activity, growing, provides most employment opportunities for rather low-skilled, for which employers hire predominantly women. Due to the nature of their activities, breeders and propagators employ less but overall higher qualified staff (cf. Kazimierczuk et al. 2018: 5).

The statistics

In statistical terms this report concentrates on 'Fresh or dried cut flowers and flower buds of a kind suitable for bouquets or for ornamental purposes', hereafter 'cut flowers': in the Harmonized System of the International Trade Statistics (HS-ITC) labelled as category 0603 and fully named 'Flowers, cut flowers and flower buds of a kind suitable for bouquets or for ornamental purposes, fresh, dyed, bleached, impregnated or otherwise prepared'. Until recently, the global market for cut flowers grew rapidly – even surprisingly rapid in view of their character of 'luxury goods' or 'feel-good items'. For quite some years his growth went on rather untouched by the business cycle. Over the past two decades, the production of cut flowers has increased at a compound annual rate of 7.5 per cent while exports increased at 4.3 per cent, both ahead of worldwide inflation figures (authors' calculations based on website World Economics and ITC Trade Map).

In 2019 global export growth cut flowers nearly came to a standstill, showing only 0.6 per cent increase. 2019 was a year in which overall the world's output growth slowed down somewhat, from 3.0 per cent in 2017-18 to 2.6 per cent (UNCTAD 2022: 13) but obviously cut flower trade did even worse. Next, the COVID-19 pandemic led to a disruption of global supply chains UNCTAD registered, including that of cut flowers. Sector organisations in horticulture called the worldwide economic losses they registered, including falling profits, that they registered "brutal". In March-April 2020 the cut flower sector across the EU lost some 10 per cent of its annual total market value (Union Fleurs 2020). Though in the second half of 2020 global trade recovered, this 'COVID-19 year' saw in the end a decrease in global cut flower exports of 4.3 per cent. After about a year the disruption, at least temporarily, turned into its opposite: 2021 witnessed a rise in the world trade in cut flowers with an amazing increase of 26.2 per cent of its export value (see Statistical Appendix, Table A2B, last row).

In the 2010s cut flowers made up about 40 per cent of the global export value of the wider ITC 06 trade category, 'Live trees and other plants, bulbs, roots and the like'. In 2021 this cut flower share again reached 40 per cent, or USD

10.9 billion (by then Euro 9.3 billion) out of the USD 27.7 billion (Euro 23.6 billion) value of the '06' global trade at large. The other 2-digit ITC 06 trade categories are (see also Van Horen 2021):

- 0601: flower bulbs, or, officially, 'bulbs, tubers, tuberous roots, corms, crowns and rhizomes, et cetera', with a global export value in 2021 of over USD 2.0 billion (Euro 1.75 billion, 6.6% of the 06 total) with the Netherlands dominating and accounting for 75-80 per cent of total exports (in 2021 78%);

- 0602: living plants, or, officially, 'live plants including their roots, cutting and slips; mushroom spawn (excluding bulbs, tubers, et cetera)': global exports in 2021 worth USD 12.9 billion (Euro 11 billion, 46.8% of the 06 total) of which the Netherlands since 2010 accounted for 45-48 per cent (in 2021 for 48%)[1];

- 0604, cut foliage or, officially, 'foliage, branches and other parts of plants, and grasses, misses and lichens, of a kind suitable for bouquets or for ornamental purposes', with a supportive role in international trade and a global export value in 2021 of nearly USD 1.7 billion (Euro 1.4 billion, 6.6% of the 06 total), diversified across exporting countries with the Netherlands, Italy and Denmark on top.

Forms of floriculture can be found all over the world, in some 140 countries. Leading floriculture countries are the Netherlands, the United States, China, India and Japan. In terms of areas under cultivation, China and India are dominant, followed by the US and Japan. Quite some other countries are importing or exporting cut flowers and hence form part of the global cut flower supply chain. A division of trade, production and consumption in four country groups makes sense (based on information of Rabobank, Wageningen University and Research (WUR) and International Flower Trade Association / Union Fleurs):

1. the self-sufficient. The US, Japan, India and China are nowadays largely self-sufficient; these four countries have the largest areas for floriculture and mainly produce for domestic markets while their exports of cut flowers are by comparison minor. Except for China (see below and Table A1), the other three populous countries stay outside the 'top-10' of cut flower exporters. According to Eurostat's Economic accounts for agriculture[2], in the European Union in Spain, France and Italy considerable areas are in existence for the cultivation of flowers and plants that mainly service their domestic markets[3];

2. the importers: countries with sizeable domestic markets and relatively large imports, such as Germany where imports cater for some 75 per cent of the domestic demand for cut flowers;

3. the exporters: countries with large cut flower exports and small domestic markets, such as Colombia, Ecuador, Kenya, and Ethiopia. As a rule, these middle- and lower-income countries export over 95 per cent of their cut flower production;

4. the 'hubs': countries with sizeable domestic cut flower production combined with substantial import and export volumes. The outspoken example is the Netherlands, with a key intermediary role for the Royal FloraHolland (RFH) auction.

1 Incidentally, researchers have tried to link world trade and competitive structures for cuttings (creating a plant section originating from stem, leaf, or root and capable of developing into a new plant) in order to analyse the working of the relevant supply chains in a country's floriculture (here: Uganda's) next to analysing the same factors for cut flowers. The researchers in question became aware that in the ITC 0602 category cuttings "are percentages of a much larger basket of goods than just cuttings of flowers and pot plants" (Evers et al. 2014: 7, fn. 7), which seriously complicated matters.

2 The definition of (sub)sectors in Eurostat's Economic accounts for agriculture differs from the definition in the (ITC and Comtrade) international trade statistics; for outsiders (like us) comparing between the two sets of data is hardly or not possible. For example, Eurostat's 'Plants and flowers' (4200) category is broader than the ITC 06 'Live trees and other plants etc.' category, and Eurostat's 'nursery plants' (4210) sub-category only partly overlaps with the ITC 0603 'cut flowers' sub-category. As the global supply chains of (trade in) cut flowers is central in this report, we have abstained from referring to the Eurostat agriculture data other than in the next footnote.

3 The Netherlands produced Euro 8,046 million (34.0%) of plants and flowers (4200) in current prices on a total production value of Euro 23,637 mln in the EU-27; Spain's produce was worth Euro 2,991 mln (12.7% of the EU-27 total), France's 2,873 mln (12.2%), and Italy's 2,823 mln (11.9%) (Eurostat Economic accounts for agriculture, Production value at basic price).

The statistical data presented below and in the Statistical Appendix is mainly derived from the UN Comtrade Database (https://comtrade-plus.un.org/data/). If needed, the ITC Trade Map (https://www.trademap.org/Index.aspx) has also been used. The tables contain information on recent world trade in the 2-digit ITC 0603 cut flowers category as well as in its 3-digit sub-categories. These sub-categories are (between parentheses their shares for 2021 in the global 0603 exports– for the substantiation see Table A3B):

060311: fresh cut roses and buds (32.1%);

060312: fresh cut carnations and buds (5.3%);

060313: fresh cut orchids (1.7%);

060314: fresh cut chrysanthemums and buds (8.1%);

060315: fresh cut lilies (2.3%);

060319: other fresh cut flowers and buds (42.4%);

060390: other flower products (8.1%).

Global and Dutch exports

As regards **global exports**, Table A1 shows the 20 countries that in 2021 attained the largest values in exporting cut flowers, adding these values for 2000, 2010, 2019 and 2020. In 2021 the export share of the Netherlands increased to 52.7 per cent of the global total. With respectively 15.8 and 8.5 per cent, Colombia and Ecuador ranked in 2021 second and third, followed by Kenya (4th, 6.6%) and Ethiopia (5th, 2.3%). Next, Belgium, China, Italy, Israel and Malaysia came in ranks 6 to 10. In 2021, this left 8.3 per cent for the cut flower exporting countries outside the 'top-10' ranks. In 2000 their share was still 15.8 per cent while in 2010 it had decreased to 11.8 per cent and in 2020 to 10.7 per cent: indications of the concentration of cut flower exports. After 2010, the main factors in play here were the (renewed) growth of the Dutch market share and the rise of Kenya and Ethiopia as cut flower exporters. In the 2010s Ethiopia was the only country that succeeded to raise its exports above the 2 per cent mark.

In 2021 some 40 countries each showed an export value of cut flowers between USD 125 and 5 million (Euro 107 and 4.3 million), that is, between 1.1 and 0.06 per cent of world exports. These smaller exporters form a mixture of high-, middle- and lower-income countries. Apart from the four countries just mentioned, middle- and lower-income countries with notable exports of cut flowers are, in Asia: China (ranked 7th in 2021 with 1.3%); Malaysia (10th, 0.8%); Vietnam (16th, 0.5%), and Thailand (17th, 0.5%), as well as, in Africa, South Africa (12th, USD 70 mln, 0.6%) and Uganda (18th, USD 48 mln, 0.5%), and in Latin America, Mexico (19th, USD 44 mln, 0.4%). As we will see, a number of the latter countries has specialized in cultivating and exporting just one flower sub-category or a few sub-categories.

Cut flower exports on the African continent below the 'top-20' threshold showed Nigeria (in 2021 USD 21 mln, 0.2%), and, with exports in 2021 each worth less than USD 10 million, Zambia, Morocco, Zimbabwe, Rwanda, and Tanzania, in this order. In 2021 the nine African cut flower exporting countries jointly accounted for USD 1,133 million, 10.4 per cent of the global total.

Besides Colombia, Ecuador and Mexico, Latin American countries with cut flower exports below the top-20 threshold were in 2021 Costa Rica (USD 37 mln, 0.3%), Guatemala (USD 26 mln, 0.2%) and, with less than USD 10 million exported each, Peru and Chile. In 2021 these seven Latin American countries jointly accounted for USD 2,775 million of cut flower exports, 25.4 per cent of the global total.

The Netherlands is also leading in the exports of the three other categories of floriculture products. The Dutch share in exports of the ITC 06 category at large fluctuated in the 2010s around 48 per cent, and in 2020 came at 48.8 per cent before rising to 50.5 per cent in 2021

-- USD 14,040 mln out of a global total in 2021 of USD 27,779 mln. For the Netherlands this last amount meant an increase of 28.2 per cent compared with 2020.

In the overall '06' exports ranking for 2021 Colombia came second with 6.3 per cent of the world total; Ecuador ranked 5th (3.5%), Kenya 7th (2.9%), and Ethiopia 13th (1.0%). Italy (4.9%) and Germany (4.3%) ranked third and fourth, respectively, while Belgium came in 6th ranking (2.9%).

In the 0601 category, flower bulbs, the Netherlands dominated heavily; in 2021 its exports were worth USD 1,616 mln or 78.4 per cent of the world total. In the large 0602 category, live plants etc., the Netherlands exported for USD 6,179 mln, 47.9 per cent of the global total. Finally, the Netherlands was less dominant in the smaller world market for the 0604 category, foliage etc., though still being the largest exporter with USD 479 mln or 28.9 per cent of the global total.

Tables A1, A2A and A2B document the growth in the world trade in cut flowers as strong in the 2000s and again in 2021. As noted, in 2021 this trade in total increased by 26.2 per cent, up to nearly USD 11 billion. Between 2000 and 2010 the global exports of cut flowers doubled, from over USD 3.7 billion to nearly USD 7.5 billion, an increase at an average annual rate of 6.5 per cent. Between 2010 and 2020 the growth of the global trade in cut flowers slowed down to averaged 1.3 per cent yearly, as to reach USD 8.66 billion in 2020.

Because we depart from the 2021 ranking of exporting countries, Table A1 obscures the importance that some countries had earlier on. This notably holds for the United States and Zimbabwe. In 2000, the US exported cut flowers worth USD 58 million, or 1.6 per cent of world exports; in 2021 their exports had dwarfed to USD 25 million (0.23%). Zimbabwe was a relevant cut flower exporter until the mid-2000s, in 2001-2005 showing exports on average yearly worth USD 52 million, or 1.0 per cent of the global total. Thereafter, related to the country's political and economic turmoil, exports fell drastically (though a 'landing-rights war' between Zimbabwe's national airline and KLM / the Dutch government also played a role – Gebhardt 2014: 213). In the course of the 2010s Zimbabwe's cut flower exports were only worth 0.1 or 0.2 per cent of global exports.

Table A2A shows the development in cut flower exports of the five most important exporting countries as well as of Uganda, for 2000 and 2010 and over 2015-2021. The most remarkable development in the 2010s was the rise of Ethiopia as a flower exporter, with according to the UN Comtrade Database a sudden 'jump' from USD 7 million exports or 0.1 per cent market share in 2010 and 2011 up to USD 162 million and a 2.1 per cent share in 2012 (not in the table). Between 2015 and 2020 Ethiopia consistently accounted for 2.2 to 2.4 per cent of world flower exports.

Table A2B, presenting the development in cut flower exports in percentages, shows that between 2010 and 2020 Ethiopia's exports increased on average 35 per cent yearly. Admittedly, already between 2000 and 2010 these exports showed a high growth rate but that rate departed from a very low point. In the 2000s Kenya took off as a major cut flower exporter, notably between 2002 (2.4% world market share) and 2009 (5.8% share, not in the table). Between 2000 and 2010 Kenya's exports increased over 14 per cent averaged per year. Though the country's growth slowed down, Kenya from 2015 on maintained a share between 6.1 and 6.6 per cent of world flower exports, the latter percentage reached in 2020 and 2021.

Colombia, with a take-off in cut flowers cultivation earlier than the other new exporters, had reached already between 1991 and 2000 an export growth of 7.6 per cent averaged per year (source: UN Comtrade Database, not in table). As Table A2B shows, in 2000-2010 that continued at only a slightly lower pace (7.1%).

In 2010 Colombia reached a 17.1 per cent world market share and its share remained until 2020 at 16.3-16.7 per cent. Ecuador's exports showed a growth pattern similar to that of Kenya albeit at a higher level, with between 2000 and 2010 an increase of over 13 per cent averaged per year. Throughout the 2010s, Ecuador maintained with 2.8 per cent averaged per year a much lower --but in international perspective respectable-- export growth.

Table A3A presents more detailed, at 3-digit level and for 2021, the cut flower exports of the five main exporting countries. The table shows that, with 70 per cent or more, fresh cut roses and buds (060311) was the dominant flower sub-category to be exported from Kenya (76%) and Ethiopia (87%) as well as from Ecuador (70%). The composition of the Dutch and Colombian '0603' exports was more diverse: the heterogeneous sub-category 'other fresh cut flowers and buds' (060319) accounted for about half of their export values. Uganda (not in the table) concentrates nearly fully on roses.

Table A3B gives a more nuanced picture of the world's cut flower exports by specifying the top-10 exporting countries for 2021 at 3-digit level. For five of the six countries studied (except Uganda, for which data is missing) the ranking reflects the data from Table A3A. In six of seven rankings the Netherlands are on top; the exports of carnations (060312), with Colombia leading over the Netherlands, are the exception. So much for the familiar image. However, the table shows other countries than the usual suspects in a number of rankings: China even in all seven, Spain in five, Italy in four rankings. Supported by a large home market, exporters from these countries are obviously able to compete in a variety of cut flower supply chains. By contrast, a second country group proves to have their floriculture specialized in specific cultivations and the related supply chains. They are either caught in one sub-category: Thailand and Taiwan in orchids (060313); Turkey in carnations (060312); Costa Rica in lilies (060315); Israel in other flower products (060390), or in two sub-categories: Guatemala in roses (060311) and lilies (060315), and Malaysia in orchids (060313) and chrysanthemums (060314). In 2021 these specific exports represented at least 57 per-cent (Costa Rica) or 74 per cent (Guatemala) of the country's '0603' exports to over 90 per cent of '0603' exports in the other five countries mentioned, for Israel even making up the full 100 per cent (UN Comtrade Database).

Table A4 shows the **cut flower exports from the Netherlands** for 2000, 2010 and 2019-2021, with outcomes for their top-10 countries of destination (as of 2021). The table clarifies that the position of Germany as a major country of destination for Dutch cut flowers has been stable, in 2021 accounting for 30 per cent of these exports. In the 2010s relatively less was exported to the UK, France, Italy and Switzerland, and more to Poland, Denmark and Sweden. In 2021, exports to other EU27 countries jointly accounted for 71 per cent of Dutch flower exports. The 34.9-per cent-large growth of these exports in 2021 was spread over the main countries of destination. Strong increases could be seen for Italy, the UK, Switzerland and Poland, though double-digit increases also showed up for the six countries in the 'top ten' destinations. From 2015 on the intra-European trade in cut flowers reached record percentages of growth. However, the expectation of experts did not materialize that new cut flower producers annex exporters would rise such as those based in the Baltic states (cf. Gabellini and Scaramuzzi 2022: 7).

Table A5 presents more in detail, at 3-digit level and for 2021 only, the composition of cut flower exports of the Netherlands, including data for the top four countries of destination: Germany, the UK, France and the Russian Federation. The table shows that 'other fresh cut flowers and buds' (060319) represented over half of Dutch cut flower exports to Germany (51%) while that share for the other three countries was below 40 per cent. Exports to

the UK were rather evenly spread across the sub-categories with some preference for lilies (060315) while France showed some preference for roses (060311) and the Russian Federation for chrysanthemums (060314). These exports were rather concentrated across countries. In 2021 the joint share of the four countries in the Dutch cut flower exports was 57 per cent (last column), across the sub-categories varying from 46 per cent (060313, orchids) to 74 per cent (060315, lilies).

COVID-19

2020 and 2021 can be marked as special years for global trade, not least for the trade in cut flowers. The COVID-19 pandemic played a major role here. Below, taking the position of the Netherlands in the global flower trade as a starting point, an account follows on what happened in those years. We have in particular used information from the Royal FloraHolland (RFH) auction.

When facts about the rapid spread of the pandemic became world news, that immediately had negative effects on the global trade in cut flowers. On Friday March 13, 2020, demand at Royal FloraHolland's Aalsmeer auction "went completely flat" (Fredenburgh 2020). Already in March the value of Dutch exports of '06' products at large fell by 22 per cent compared to March 2019; exports of the '0603' cut flowers category even decreased by 26 per cent (website CBS). On March 16, 2020, business media worldwide picked up the rumour that auction prices had fallen by 70 per cent, good enough to dramatically label this 'the crash' (Faux et al. 2020). Contributing to the dramatic impression events made on the general public may well have been that flowers had to be massively destroyed -- as they would have again during lockdowns, also in 2021. However, for the real drama one had to focus on the developing export countries. Here, serious social consequences came to the surface: see the Profiles of Kenya and Uganda, the countries among 'our' five where the immediate consequences of COVID-19 have been well documented.

During three consecutive months the cut flower turnover of Royal FloraHolland fell heavily compared to the corresponding 2019 months: in March 2020 by 37 per cent, in April by 40 per cent and in May by 22 per cent. Yet, already in June a recovery could be seen, with RFH's turnover increasing 37 per cent, followed by a 34 per cent rise in July – though in August another 4 per cent decrease took place (Benninga 2020; RFH 2020). Simple arithmetic learns that by September 2020 the auction's flower turnover stood at only some 62 per cent of its February 2020 level. Afterwards a recovery persevered though over the year not to the turnover level of 2019.

Overall, in 2020 the events of that year resulted in decreases in cut flower exports for four of the six countries under study. Compared to 2019 the cut flower exports of Ecuador and Uganda remained at the same level, but those of the other four countries showed some hick-ups (Netherlands -1.6%; Kenya -2.0%; Colombia -4.3%; Ethiopia -5.0%). Thereafter, 2021 saw cut flower exports worldwide booming, with the Netherlands (34.9% increase) and Ethiopia (34.2% increase) on top though with considerable hikes also for Kenya (+26.9%), Colombia (+22.4%), and Ecuador (+12.1%). With 4 per cent decrease, Uganda formed an exception here (Table A2B).

Experts of Wageningen University and Research saw the developments in 2020 and 2021 in three ways connected with the COVID-19 pandemic, after the 2020 dip all three working towards increasing prices, consumption (purchases) and exports. First, supply restrictions of the Dutch auctions and the compulsory temporary closure of the country's florist stores pushed Dutch exports, albeit after a time lag. Second, both the limitations on passenger air traffic (with which a considerable part of flowers from Africa are exported to western Europe) and the worldwide lack of refrigerated sea containers (reefers) on the right spot lifted prices. Third, the worldwide

increase of working from home stimulated the purchase of flowers aimed to make 'home' a more convenient workplace; obviously, the related positive consumption effects more than compensated the negative income effects of lockdowns and less hours worked (Jukema et al. 2022: 33, 70-71).

Other experts underlined the last point. Sylvie Mamias, Secretary General of Union Fleurs (the International Flower Trade Association), stated that "Simply put, flower consumption increased with the lockdown", though she also pointed – even before the Russian attack on Ukraine-- to the inherent uncertainties of current geopolitical developments (Pizano 2022). An expert of Rabobank concluded that from June 2020 on the cut flower market restored itself through high price levels (Van Horen 2021). In the same vein the CEO of Royal FloraHolland stated that 2021 "(....) was an extraordinary year for our cooperative. Records are made to be broken, but a jump in revenue from USD 4.8 billion in 2019 to USD 5.6 billion in 2021 is unheard of. With the coronavirus pandemic continuing, the demand for flowers and plants remained high all year long, which is the most important reason for the positive movement in prices" (RFH 2022: 2). RFH's increase in revenue was largely due to the substantially prices for both flowers and (ornamental) plants: their average unit price rose in 2021 overall by 17 per cent to USD 0.48 (2020: USD 0.41). By contrast, the volume traded in 2021 at the auction was with 3 per cent only slightly higher than in 2020 (and still 5 per cent lower than in 2019 -- RFH 2022: 22). According to Table A13 the unit value of cut flower exports from the Netherlands also showed a positive development in 2021 (+13.3%): that can be regarded as a price effect.[4] In case cost increases are lower than those of prices, that effect can to a considerable extent be converted into profits. For the Dutch auctions this seemed to have happened in 2021.

It is worthwhile to trace what the 'COVID-19 intermezzo' did with global trade in cut flowers, though trade data for 2022 is not yet at our disposal -- a year of recovery but also a year in which production, consumption and trade in some countries are still hampered by lockdowns and other measures against the spread of COVID-19, and a year in which patterns of international trade were distorted related to the Russian invasion in Ukraine. We focus on comparing 2021 with 2019 data. This comparison shows that in these two years:

- total cut flower exports expanded by 20.8 per cent;
- cut flower exports of the top-5 exporting countries increased by 25.6 per cent;
- cut flower exports of the top-10 exporting countries increased by 24.7 per cent;
- cut flower exports of the next 10 exporting countries (ranked 11 to 20) increased by 13.8 per cent;
- cut flower exports of all exporting countries outside the top-20 ***decreased*** by 13.4 per cent.

These outcomes underpin that the trend towards country concentration in flower exports that became visible after 2000, continued and even accelerated. Obviously, countries with relatively small flower exports have been confronted with fewer opportunities to increase exports – maybe, as we indicated earlier, unless they have their floriculture specialized in specific cultivations and the related supply chains.

Global imports

Concerning **global imports**, we present Table A6 for an overview just like Table A1 concerning exports. Over 2019-2021 the United States appeared as the world's largest importer of cut flowers, absorbing in 2021 nearly 21 per cent while taking over the no. 1 position in

4 Yet, in 2021 Dutch flower exports increased in total 34.9 per cent, implying that about four-fifth of that increase can be regarded as a volume effect. Thus calculated, the price effect made up only about 20 per cent of the total change. This price effect in exports cannot directly be compared with the price effect generated at the auction; among other 'deviations', the latter effect also comprises profits.

2000 and 2010 held by Germany. In 2021, the US were followed by five European countries (Germany, the Netherlands, UK, the Russian Federation, and France), Japan, and another three European countries: Switzerland, Italy and Poland. In contrast to the country concentration on the exporters' side in the course of the 2010s, over time the global imports of cut flowers spread over more countries. Between 2010 and 2021 the 'Total all others' category of importing countries increased by 9.2 percentage points though most recently, between 2019 and 2021, the share of this category diminished by 4.8 percentage points. Obviously, among the general public in quite some countries buying flowers gained popularity, at least until 2019.

Tables A7A and A7B show an overview of the world trade in cut flowers in 2021. The horizontal axis (Netherlands etc.) displays importing countries, the vertical axis (Kenya etc.) exporting countries. Table A7A presents imports in million USD. Table A7B, indicating percentages, clarifies that the Netherlands and the United States to some extent mirror each other's flower imports. Lately, the Netherlands relies for two-thirds on imports from Kenya, Ethiopia, Ecuador and Colombia, while the US relies for over 60 per cent on imports from Colombia and to a lesser extent on imports from Ecuador. Yet, the similarity has its limits: in the case of the Netherlands flower imports from 'other countries' made up almost 30 per cent against less than 15 per cent in that of the US.

The development of cut flower **imports into the Netherlands** is important for the purpose of this report: see Table A8, comprising data for the 'top-20' sourcing countries (countries of origin) in 2000, 2010 and 2019-2021. It may be noted that from 2014 on the value of cut flower imports into the Netherlands each year reached nearly USD 1 billion (not in table). In 2020 imports surpassed that mark and reached USD 1,038 million (Euro 910 mln). As noted, 2021 saw a major increase, by 23.2 per cent to USD 1,279 million (Euro 1,092 mln).

Table A8 also shows that already since the turn of the century Kenya has been the most important sourcing country for the Netherlands. Kenya's share in Dutch cut flower imports reached on average 41 per cent over 2001-2010 and 36.4 per cent over 2011-2020. Although in 2021 imports from Kenya increased slightly less than Dutch imports did overall (18.5% versus 23.2%), with 30.7 per cent Kenya remained in the lead. In 2021, Ecuador ranked second, thanks to a 88 per cent hike in its imports into the Netherlands in that year. Over 2011-2020, Ecuador was the third largest importer, with a share of on average 9.8 per cent. In this respect it was surpassed by Ethiopia, ranking second with a 10.8 per cent share averaged over that period of time.

Although in 2021 Ethiopia's total cut flower ***exports*** increased by over 35 per cent, the ITC trade statistics indicate that Ethiopia's ***imports*** into the Netherlands in that year fell 6 per cent, to USD 109 million or 8.5 per cent share. It is well possible that in this case the 'missing amount' has --at least partly-- reached the Netherlands through Belgium. It has been reported (for example in Jukema et al. 2022: 33-34) that at times a substantial part of cut flower imports into Belgium and Belgian exports to the Netherlands consisted of trade with the Dutch auctions as destination. Over 2011-2020, the domestic production of cut flowers in Belgium was on average worth USD 24 million per year (website Statbel). This information, compared with data from the UN Comtrade and ITC statistics, makes it plausible that in particular in 2020 and 2021 considerable amounts of cut flowers originating from Ethiopia went as transit trade from Belgium to the Netherlands, probably in the range worth USD 75 to 80 million.

In the 2010s also Colombia developed as a sourcing country for the Dutch cut flower market, over 2011-2020 accounting for 4.9 per cent of Dutch imports. In 2021, Colombia's imports into the Netherlands even rose by 79 per cent, bringing its share at 7.8 per cent. Uganda showed over 2011-2020 an average share in

the cut flower imports of the Netherlands of 3.2 per cent though with a decreasing trend, resulting in 2021 in a 2.7 per cent share. Over 2011-2020 the five supplier countries studied in this report jointly were good for 65.2 per-cent of Dutch cut flower imports, rising to 66.1 per cent in 2021 (Table A7B). In that last year nine African countries other than the three studied here jointly contributed 3.6 per cent. In order of their amounts/shares, these were South Africa, Zambia, Rwanda, Zimbabwe, Tanzania, Morocco, Tunisia, Ghana, and Cote d'Ivoire. Including the contributions of Kenya, Ethiopia and Uganda, this brought Africa's share in Dutch cut flower imports in 2021 at 45.6 per cent, representing USD 584 million.

Table A8 also provides information on the level of country concentration in the cut flower imports into the Netherlands. Most strikingly, the share of countries outside the ranks of the top-20 countries importing flowers into the Netherlands proves has fallen drastically, from 14 per cent in 2000, via 2.8 per cent in 2010 to just over 2 per cent in 2020-2021. These figures are in line with the finding that countries with relatively small flower exports are confronted with less opportunities to export flower products. The table shows that this is strongly the case for entering the Dutch market.

When returning to the data of Table A6, it can be seen that the increase of some countries' cut flower imports in 2021 even surpassed that of imports into the Netherlands. By then, the flower imports of the USA increased by no less than 41 per cent and those of the Russian Federation even by 82 per cent. In 2021 the imports of other European countries also showed strong growth albeit less than the Dutch imports, such as the increases of 24 per cent for Germany and 29 per cent for France.

Table A9 details the **imports in the four largest cut flower importing countries** of the 3-digit sub-categories. It appears that in 2021, with 43 and 53 per cent respectively, fresh cut roses and buds (060311) made up the largest sub-category imported in both the United States and the Netherlands. With 63 per cent, 'other fresh cut flowers and buds' (060319) formed the largest sub-category in the imports of Germany. In the imports of the UK both sub-categories were well represented; jointly, imports of fresh cut chrysanthemums and buds (060314) and fresh cut lilies (060315) were equally important. In 2021 the four countries jointly accounted for 54 per cent of global cut flower imports. Across the sub-categories this share varied from 29 per cent (060313, fresh cut orchids) until 93 per cent (060315, fresh cut lilies). The low share of the four countries in the imports of orchids can largely be explained by the substantial imports of orchids into Japan: USD 56 million in 2021, or 38 per cent of the world total.

Trade balance

Table A10 shows for 2021 the **trade balance figures** (values of exports minus imports) for the top-10 cut flower-importing countries, again for the 3-digit sub-categories. The Netherlands showed up as the only country with an overall positive trade balance, in 2021 making up for no less than USD 4,487 million (Euro 3,792 mln). Elsewhere, positive balances were only partial and even in those cases they remained exceptions, to be found for France (category 06031, chrysanthemums) and Italy (four categories: 060312, 060314, 060319 and 060390). In 2021 the trade surplus of the Netherlands as regards cut flowers had increased by 39 per cent. At the same time the trade ***deficits*** of most other countries grew: for the US by 41 per cent, for Germany by 26 per cent, and for the Russian Federation even by 82 per cent.

Table A11 shows for 2021 the **cut flower export structures of the five exporting developing countries**, at 2-digit level. The table clarifies that Kenya and Ethiopia continued to have their cut flower exports oriented towards the Netherlands, to a varying extent:

in 2021 for 54 respectively 43 per cent. Over 2011-2020, these shares were, with respectively 51 and 83 per cent (not in table), even higher (though in 2020 and 2021, as indicated, the 'Belgian connection' may have played a role). For Kenya the UK has remained an important outlet, accounting for 24 per cent in 2021, even higher than the nearly 20 per cent averaged for 2011-2020. For both Kenya and Ethiopia in 2021 other destinations contributed less than 5 per cent, except for Ethiopia the share of Saudi Arabia (10.5%; see additional figures below Table A11). By contrast, the cut flower exports of Colombia remain strongly oriented towards the US. This was the case for 75 per cent of Colombian exports, both in 2021 and over 2011-2020. The export pattern of Ecuador was and is more diversified. In 2021 55 per cent of its value was derived from exports to the US, 23 per cent went to the Netherlands, and 21 per cent to 'other countries'.

Table A12 shows for 2021 statistics composed similarly to those in Table A11, though now for the sub-category roses (060311).

For Kenya the picture is quite similar to that in Table A11, with rose exports to the Netherlands in 2021 taking nearly 57 per cent while nearly 24 per cent went to the UK. Over 2015-2020 these shares were respectively 49 and 22 per cent (not in table; we have to limit the presentation to 2015-2020 as for Kenya detailed trade data over 2011, 2012 and 2014 is missing).

In 2021, according to these figures the rose exports of Ethiopia to the Netherlands fell to 39 per cent of that country's total rose exports though over 2015-2020 the share for roses was averaged 80 per cent (as for Kenya, data for some earlier years is missing). As mentioned, transit trade via Belgium may have been at hand here.

Throughout the 2010s as well as in 2021, the rose exports of Uganda went fully to the Netherlands.

For Colombia, the 2021 picture for rose exports was rather similar to that exposed in Table A11: 83 per cent of their value was derived from exports to the US and 11 per cent from exports to 'other countries'; only 3 per cent went to the Netherlands. With 66 per cent, the US share was lower over 2011-2020; that for the Netherlands was by then just 2 per cent.

Concerning Ecuador, in 2021 52 per cent of their rose exports went to the US, 22 per cent had the Netherlands as destination and 24 per cent went to 'other countries'; of which a substantial part (13%) to the Russian Federation (not in table). Averaged over 2011-2020, with respectively 47 and 17 per cent the percentages of Ecuador's roses exported to respectively the US and the Netherlands were somewhat lower.

Unit value of exports

The unit value of exported cut flowers, measured in US dollars per exported ton, is relevant. Table A13 presents average unit values for the main exporting countries (except Belgium and Canada, see the explanatory note below the table) and for 2011, 2020 and 2021, including their development between 2011 and 2020 and 2020-2021. These values are not the same as consumer prices though they may provide indications of (the development of) these prices. First of all, the table shows that country averages are widely dispersed. For example, the recent average value for the Netherlands shows up as four-fold that for Spain, and the (preliminary) average value for Italy as more than five-fold. Such differences have a lot to do with the specialisation taking place in the export patterns of countries, in other words, with the composition of flower cultivation and exports by sub-categories. Ultimately these outcomes are linked with the purchasing power and the preferences of end consumers.

The interplay of multinational enterprises as producers and exporters, (multinational) supermarket chains as buyers and, last but not least, the Dutch flower auction has beco-

me crucial here. Indications of the impact of these factors can be found within the export packages of the large exporting countries. For instance, in 2021 Dutch cut flower exports showed a wide variation in values, ranging from exports to Switzerland worth averaged USD 14,281 per exported ton of flowers and exports to Italy averaged USD 10,248 per exported ton, to USD 7,795 and USD 7,461 per exported ton respectively to Hungary and Romania (not in table). The recent exports of, for instance, Italy and Germany show patterns that similarly vary.

However, the composition of cut flower exports of Colombia, Ecuador, Kenya, Ethiopia and Uganda shows a different picture. These exports are characterized by relatively low average values for most countries of destination, with only a few exceptions: destinations with high values per ton such as exports to Japan in the case of Kenya or to Qatar in the case of Ethiopia. For the five countries such 'premium' export opportunities have thus far remained small. Concerning the bulk of exports, they are squeezed between the growing supply of cut flowers from low-income countries (ie. their own expansion and the entry of other low-income countries as exporters) on the one hand and the rising costs of maintaining effective cold (refrigerated) supply chains on the other hand.

Table A13 reflects the problems the four exporting countries have met in breaking away from this squeeze. Between 2011 and 2020 both Colombia and Ecuador saw their average export values decreasing by over 6 per cent, whereas for both countries 2021 only saw a minimal recovery. Kenya and Ethiopia did only slightly better, showing modest increases in the 2010s as well as in 2020-2021. These outcomes situated the four countries among the worst performers as regards the development of export value per ton. In the 2010s they were only surpassed in this regard by Germany and Thailand (though both countries recently showed a strong recovery) and by Spain.

By contrast, between 2011 and 2020 on five low- and middle-income countries among the top-20 exporters (China, Malaysia, South Africa, Vietnam, Uganda and Taiwan) succeeded to lift the value per ton of their cut flower exports considerably. Thus, while cut flowers grown in the Netherlands 'moved up the value chain', flower exports from four of the five developing countries covered in this report (Uganda is the exception) continued to be positioned lower in that chain. Remarkable enough, that has also been the case where Dutch entrepreneurs got considerable interests in flower production, like in Kenya and Ethiopia. From 2008 on, with the full acceptance of Kenyan and Ethiopian exports in the Dutch auction system, cost advantages related to flower cultivation in these countries could be effectuated through that system. According to the international trade statistics these advantages are mainly seized by farm owners, traders, wholesalers and retailers in the Netherlands and a few other countries in the Global North (cf. Gebhardt 2014: 215-217).

Retail channels

Finally, we map developments in the retail channels through which cut flowers are sold to end consumers. Based on the 2015 and 2021 editions of the Rabobank World Floriculture Map, Table A14 presents a division over these channels for the four European countries with the largest flower imports: the Netherlands, France, Germany, and the United Kingdom. At some points diverging patterns across these Western European countries show up. In three countries florists form the largest points of sale, but not in the UK, where the supermarkets have seized that position. In the years between 2015 and 2021 the florists have maintained their positions in the Netherlands and France but not so in the UK and Germany; in that last country they swapped a 10 per cent share with the supermarkets. The British supermarkets jointly form anyway an outlier with their coverage of half of the national market for cut flowers. Already in the 2000s the main

supermarket chains in the UK imported directly –bypassing the Dutch auction system-- considerable volumes of flowers from Kenya (cf. Wijnands 2005: 34, 51; Riisgaard 2008: 329). Kiosk and street sales lost market share in all four countries while garden centres won, in Germany stronger than elsewhere. The share of online sales increased in three countries, by even 19 per cent most so in the UK, but decreased in Germany.

In the Netherlands and Germany, garden centres –though still the most important channel for selling ornamental plants, not cut flowers-- showed the largest ***long-term*** growth in cut flower sales. In the Netherlands garden centres saw their share increase from 3 per cent in 1992 to 8 per cent in 2021, in Germany their equivalents could even note a massive increase in these three decades, from 2 per cent in 1992 to 17 per cent in 2021. The other retail channels noted smaller changes (cf. Elshof 1998: 10; Van Horen 2021).

In recent years marked gender differences in consumer behaviour have come to the surface. For example, market research in Germany showed that, in 2016, men accounted for 73 per cent of online purchases of cut flowers and potted plants, leaving 27 per cent for women (Van Horen 2017a).

CHAPTER 3
Six country profiles

Profile: The Netherlands

International trade

A difference that distinguishes the floricultural supply chains from virtually all other chains that supply consumer goods on a global scale is that one high-income country, in this case the Netherlands, has succeeded to consolidate a dominant position in international trade and to (over)compensate high wage costs. In this regard we earlier used the term 'chain director'. Before diving into explanations for this special position, a statistical overview details the position of the Dutch floriculture in international trade.

Table A2A indicates that in 2021 the Netherlands exported for a value of USD 5,766 mln on cut flowers (2-digit ITC 0603), 34.9 per cent higher than in 2020. The share of the Netherlands in the global value of exported cut flowers increased in 2021 to 52.7 per cent, a share that had been surpassed earlier but not in the preceding decade (In 2000 it was 56%, and in the 1980s in some years even 60%; Kijne et al. 1992: 27). In Chapter 2 we detailed developments in the cut flower exports in 2020-2021, and placed these in the perspective of the COVID-19 pandemic. We add that between 2010 and 2020 the Dutch cut flower exports had shown only moderate growth: over the years 15.8 per cent, or just 1.3 per cent averaged yearly (Table A2B).

The 2021 data on the composition of cut flower exports from the Netherlands (Table A3A) show that this composition is rather diverse. Overall, the heterogeneous sub-category 'other fresh cut flowers and buds' (060319) accounted for nearly half of their value (48.3%) whereas 'fresh cut roses and buds' (060311) took 26.9 per cent; with 9.6 per cent, 'fresh cut chrysanthemums and buds' (060314) ranked third. Comparison with 2010 data (not in table) learns that roses (060311) by then took about the same share (in 2010 26.9%) while the other two sub-categories lost importance: 53.2 per cent was the share of 'other', 11.6 per cent that of chrysanthemums. Concerning the less exported sub-categories, orchids (060313) lost in share (2.3% in 2010, 1.4% in 2021) while 'other flower products' (060390) won (4.5% in 2010, 7.0% in 2021). Table A3B gives an in-depth picture of the world's cut flower exports by specifying the top-10 exporting countries for 2021 at 3-digit level. For five of the six countries studied (except Uganda, for which data is missing) the ranking reflects the data from Table A3A. In six of seven rankings the Netherlands are clearly on top, in each with a massive advantage over the number second. The exports of carnations (060312), with Colombia leading over the Netherlands, are the exception.

Concerning the countries of destination for Dutch cut flower exports, Table A4 shows that since 2000 the position of Germany as the major destination country has been stable; in 2021 Germany accounted for 30 per cent of Dutch cut flower exports. Over the years, the UK ranked second, in 2021 taking 14.5 per cent. Until 2022, the impact of Brexit seemed minimal and consumers' demand for Dutch cut flowers remained high in the UK. In December 2020 Royal FloraHolland (RFH) came at a 4 per cent negative impact of Brexit on Dutch floriculture exports to the UK, though by then negotiations between the EU and UK were ongoing with many uncertainties attached (Van den Berg 2020). Market uncertainty has grown in view of the introduction of a British government policy for the "comprehensive and

full monitoring of flowers and plants from the Netherlands", that requires flowers and ornamental plants to be subject to a mandatory 100% inspection at the UK border. That introduction was postponed until July 1, 2022.

In 2021 France (10.6%) was the third largest destination for Dutch cut flowers with over double the percentage of the number four, the Russian Federation. The table indicates that between 2010 and 2021 relatively less was exported to the UK, France, Italy and Switzerland, and more to Poland, Denmark and Sweden.

As regards the top four countries of destination, Table A5 indicates that in 2021 'other fresh cut flowers and buds' (060319) represented over half of Dutch cut flower exports to Germany (51%) while that share for the other three countries was less than 40 per cent. Exports to the UK were rather evenly spread across the sub-categories with some preference for lilies (060315) while France showed a preference for roses (060311) and the Russian Federation for chrysanthemums (060314). In 2021 57 per cent of Dutch cut flower exports went to these four countries, a share that across the sub-categories varied from 46 per cent (060313, orchids) to 75 per cent (060315, lilies) (Table A5, most right-wing column).

Concerning ***imports***, Table A6 shows that from the mid-2010s on the Netherlands took the third position among the world's cut flower importing countries, behind the United States and Germany. Between 2010 and 2020, the import of cut flowers in the Netherlands grew strongly, by 64 per cent overall and 4.6 per cent averaged per year. In line with the recovery of the world market described in Chapter 2, in 2021 followed a major increase of 23.2 per cent as to reach USD 1,279 million (Euro 1,092 mln). However, with 34.9 per cent the increase of the value of Dutch ***exports*** in 2021 was even larger.

Table A8 covers the development of cut flower imports into the Netherlands; in Chapter 2 we already gave a detailed overview. In 2021 these imports relied for nearly one-third on Kenya (30.7%). In that year Ethiopia´s share fell to 8.5 per cent though we noted that transit trade through Belgium may have played a role here. Instead, with 16.5 per cent imports from Ecuador took the second position. Another country in 2021 experiencing strong growth (58%) was Colombia, recapturing its fifth position with 7.8 per cent. While contributing in 2021 each between 6.5 and 2.5 per cent, the positions 6 to 10 were for imports from Italy, Germany, Turkey, Uganda and Spain. In 2021 Uganda took 2.6 per cent.

Jointly the three East African countries accounted in 2021 for 41.8 per cent of cut flower imports into the Netherlands. When adding the joint share of Ecuador and Colombia (24.3%), the five supplier countries this report covers accounted for 66.1 per cent (USD 846 mln) of cut flower imports.

Roses were and are the most popular sub-category of cut flowers imported into the Netherlands. Table A9 shows that in 2021 with 52.5 per cent roses (060311) made up 52.5 per cent of the total import value of cut flowers. These imports were at quite some distance followed by those of 'other fresh cut flowers and buds' (060319, 23.4%) and 'fresh cut carnations and buds' (060312, 9.6%). With 60.2 per cent averaged over 2011-2020 (not in table), the share of imports of roses was relatively speaking even higher by then. In the years 2012-2017 this share moved consistently above 60 per cent (2017: 64.0%), before it fell 8 to 12 percentage-points lower (2018: 56.3%; 2019: 51.7%; 2020: 54.9%).

Table A12 places the Dutch imports of roses in global perspective. In 2021 these imports accounted for 28.5 per cent of the global total; in 2011-2020 this share was even close to 35 per cent (not in table). Although their shares fell in that year, in 2021 Kenya and Ethiopia together still contributed two-third (66%) of the Dutch imports of roses. One may assume that to some extent deliberate decisions of Dutch importers of roses in connection with Dutch farm

owners in Kenya and Ethiopia play some role here. Such connections are understandable. We estimated that recently Dutch-owned firms controlled some 40 per cent of Kenya's cut flower area and that fully and partly Dutch-owned firms resided over about 65 per cent of Ethiopia's cut flower area (see the respective Profiles).

The trade balance figures presented in Table A10 for the top-10 importing countries underline the special position of the Netherlands in the global cut flower supply chains. In 2021 the Netherlands was once more the only developed country with an overall positive trade balance, totalling USD 4,487 mln, as well as a positive balance for the separate sub-categories of flowers. The strong position of the Netherlands is also expressed in the –in international perspective-- continuously high average unit values of flower exports. Yet, it should be mentioned that other countries also showed strength and progress in this respect. Table A13 clarifies that the cut flower exports of the Netherlands had the highest unit values among the 'top-20' countries in 2011 and 2020, except for the exports of Italy and Taiwan. In 2021 the unit value of Germany's cut flower exports also surpassed the average Dutch unit value, by then (preliminary) worth USD 8,249 per ton exported.

The trade surplus of the Netherlands can be used to estimate the value of the domestic cut flower production. Our starting point is at figures for 2018 as needed for comparing. Over that year Dutch exports amounted to USD 4,343 mln and imports to USD 821 mln, resulting in a trade surplus of USD 3,522 mln (Euro 2,976 mln). Next, we are looking after the size of the domestic sales ('consumption') of cut flowers. These figures are not easy to trace but an annex to the IMVO covenant mentions for 2018 cut flower sales in the Netherlands amounting to Euro 1,750 mln (by then USD 2,070 mln). Added together, these amounts provide an indication of the value in 2018 of the Dutch cut flower production worth about Euro 4,720 million (at the rate of 2018 USD 5,595 mln).[5] This was about 0.65 per cent of the Gross Domestic Product (GDP) of the Netherlands in 2018. If extrapolating these figures to 2021, the cut flower production value of the Netherlands ended up at Euro 5,570 million (USD 6,578 mln). We used the latter amount in our calculations in Chapter 1.

Departing from 17.1 million Dutch inhabitants as of January 1, 2018, the Euro 1,750-million domestic sales value of cut flowers implied sales worth Euro 102.40 (USD 120.80) per inhabitant in 2018. In 1990 the value of domestic consumption was an estimated Dfl. 1,150 million (Kijne et al. 1992: 27), or Euro 522 million – with 15.0 million inhabitants equal to Euro 34.80 per inhabitant. These outcomes imply an increase of the domestic consumption of cut flowers of 4.4 per cent averaged yearly between 1990 and 2018, or 3.9 per cent averaged yearly per head of the population. Over these years inflation in the Netherlands, measured by the increase of the Consumer Price Index (CPI), was on average 2.2 per cent yearly (CBS Statline). Thus, it can be concluded that in almost three decades the ***real*** expenses of the Dutch population on cut flowers per head increased by nearly 1.7 per cent averaged per year.

In the Netherlands trade press media occasionally ventilate discomfort about the very low consumer prices of (sub-categories of) imported flowers. The website Floranews (2019), for example, took over a message from a renowned Dutch business journal that noted extremely low retail prices for roses and wondered 'how come': "(….) a bouquet of ten roses each for less than five Euro (….) And for that price these roses made a whole journey by air (….)". The journal added that the origins of roses were often unclear: "Only one of the six supermarkets we visited referred to rose farms

5 We abstained from using Eurostat's Economic accounts for agriculture here because it is not possible to isolate the cut flowers' sub-category from these statistics (cf. footnote 2).

in Africa. Yet, who wants to know more about the growers, the female pickers and the environmental impact feels in the dark"[6]. As noted, quite some Dutch importers of roses are bound to have suppliers in Kenya and Ethiopia, notably farms fully or partly owned by Dutch entrepreneurs. Their exports to Europe can be effectuated either through the Dutch auctions or through direct selling. In the latter trade, taking about 55 per cent of flower volumes, flowers are sent directly to a handling agent and then to the supermarkets. If sold through auctions, flowers are first received by a handling agent at the airport, and then further processed by an importer who prepares them for auction. At the auction they are bought by a wholesaler who can sell them to European, mostly British and to a lesser extent German, retailers.

Strengths and weaknesses

In the Netherlands, floriculture developed from three sections of horticulture and their respective centres in the 'Randstad', the country's early urbanized western part: a centre north of Amsterdam (Broek op Langedijk) with growers concentrating on vegetables; a second south-west of Amsterdam (around Aalsmeer) originally concentrating on trees, and a third centre between Rotterdam and The Hague (Westland and Rijnsburg) that concentrated on vegetables and flower bulbs. From the 1960s on, many farmers in this last group switched to flower cultivation because of higher profits, limited possibilities to expand their cultivation areas and the availability of nearby markets where disposable incomes (and the inclination to buy flowers) increased.

Over the years, using favourable physical conditions, in the Netherlands an advanced infrastructure has been created for horticulture and in particular floriculture largely through 'collective goods' -- combining education, research, product innovation, transport, marketing and other services such as banking and insurance. Of major importance were "the high levels of specialisation in supportive institutes and the interests of large chemical companies in for example seed breeding, crop protection and disease control" (Jansma and Schroor 1987: 487). Along this way the Netherlands achieved strong competitive advantage in the cultivation of cut flowers, with continuous product differentiation based on freshness, quality and variety. Until now this advantage could be maintained though increasingly vulnerabilities come to light.

An inventory of which factors have contributed to the strong position of Dutch floriculture, as the number 1 exporting country and as a key trading hub, adds up to seven --currently maybe five or six-- **strengths** (sources: Benninga 2020; Elshof 1998: 2-18; Garcia 2018; Gebhardt 2014; Jacobs et al. 1990: 109-119; Levelt 2010: 149-189; Patel-Campillo 2010b: 86-97; Porter 1998: 85; Porter et al. 2011; Van Wijk 2017):

1. **The traditionally strong demand in the Netherlands for fresh flowers ye-ar-round.**

2. **The physical infrastructure**.
   In the Netherlands massive investments in physical infrastructure, in roads, waterways and railways, have complemented conditions favourable for the cultivation of cut flowers in terms of soil and water. The soil is flat and traversed by small canals, facilitating low-cost internal transport. Due to their proximity to the North Sea the cultivation regions have a mild climate; nevertheless, for a range of cut flowers cultivation heated greenhouses are indispensable. In the last decade a number of these physical advantages is encountering limits, and strengths in these regards may turn into weaknesses: see below.

6 In Dutch: "Afrikaanse rozen zijn spotgoedkoop, zo constateert het ***Financieele Dagblad*** na een rondgang bij een zestal Amsterdamse supermarkten. Bij Albert Heijn kosten twee bosjes van tien roosjes elk nog geen vijf euro (....). En voor die prijs hebben de rozen een hele vliegreis achter de rug (....). Op de vraag hoe dat kan, krijgt de klant in de winkel geen antwoord. Van fruit is de herkomst altijd te achterhalen, maar van rozen niet. In slechts één van de bezochte winkels hangt een bord met 'eerlijke rozen' en een verwijzing naar rozenkwekerijen in Afrika. Maar wie meer wil weten, over de telers, de pluksters en de milieu-effecten, tast in het duister".

3. **Cooperative structures, in particular cooperative auctions**.
As early as 1887, vegetable growers started the first cooperative auction at Broek op Langedijk: a system to better control how their products were sold, acting in defence against powerful wholesalers. Soon thereafter, growers in other regions, like in 1899 flower farmers near Aalsmeer who supplied Amsterdam, started own auctions. In 1916 the system was consolidated by the Dutch government through enacting the mandatory use of grower cooperatives. A series of mergers followed, the latest effective in 2008 between the Aalsmeer Flower Auction (VBA) and FloraHolland resulting in Royal FloraHolland (RFH, with a 98% share in Dutch flower auctioning, leaving 2% for the Plantion auction in Ede, the Netherlands (website)). By then, the auction's terms of membership were liberalised so that growers worldwide could participate under the same conditions. Earlier, the share of imported flowers had been subject to quota; in the course of the 1990s a pressure group of Dutch growers gave up their resistance against its suspension. The auction also consolidated its position by stimulating the re-export of flowers from abroad. This was a major factor in the decline of the domestic production of some bulk flowers (roses, chrysanthemums, carnations) but reinforced the trend in Dutch floriculture towards diversification to higher value-added products. RFH's main export auction in Aalsmeer --combined with its warehouse facilities under one roof-- functions as the global trading hub for cut flowers. The auction plays a key role in worldwide price formation. Fuelled in the 2010s by DAVINC3 I, a major collaboration and information project, virtualization has helped the auction to become an even more efficient hub in the floricultural supply chain (Van der Vorst et al. 2012). In majority, through a B2B platform flowers traded directly from, say, Kenya to, say, Tokyo are sold in reference to the day's prices set at RFH. Also if flowers do not physically pass the auction, the related financial transactions do.[7]
RFH is also an important forum for the exchange on standards for product information and coding as well as on process and product innovations in cultivation, packaging, et cetera. The VBN (*Vereniging van Bloemenveilingen in Nederland*, or Dutch Flower Auctions Association), the umbrella organization for the Dutch cooperative floriculture auctions, plays a major role here (website).

4. **An efficient infrastructure for internal and external logistics.**
We already noted the physical conditions favouring the logistics of Dutch flower growers. The internal logistics of Aalsmeer auction are complementary. As to facilitate handling and to shorten the handling chain, RFH owns over 100,000 trolleys or pallet carts, about half of them leased to suppliers/growers and buyers/traders all over Europe, and the other half used at the auction. RFH's main building in Aalsmeer, also home to the unloading and collecting activities of traders (wholesalers, exporters and importers), is located close to Schiphol airport's freight handling. Since 2000 Schiphol has become even more important in the floriculture industry, not least thanks to the increasing flower imports from the five countries discussed in this report. Yet, for export purposes the good road networks of the Netherlands and other Western European countries are even more important. About two-thirds of the Dutch export shipments of cut flowers are carried out by truck, to markets ranging 1,000-1,100 kilometres from Aalsmeer (Belgium, Germany, North France, North Italy, Austria, Switzerland, Denmark, parts of the UK – see Table A4). For shorter distances (until some 400 km) Dutch exporters use refrigerated trucks that each day on fixed routes deliver fresh flowers to individual florists and consumers: the so-called '*lijnrijders*'.

5. **Large and relatively cheap supplies of natural gas.**
In the Netherlands floriculture has over many years taken advantage of non-renewable energy sources, in particular of the relatively cheap supplies of natural gas: since the mid-1960s mainly gas from the vast Groningen field in the Netherlands and since 2011 until recently, through the Nord

7 One may assume that the auction operations--at least in Europe and parts of Asia-- have an equalizing effect on the wholesale prices of tradable cut flowers, and that price differences to a significant degree reflect quality differences as perceived by wholesalers and retailers (and, ultimately, end consumers).

Stream 1 pipeline also of Russian gas. We should add that in the 21st century the sector has devoted much attention to all kinds of energy-saving measures and recently intensified these efforts, as annual reports of Royal FloraHolland (RFH 2020, 2021, 2022) and the VBN website testify. Nevertheless, the recent international developments have put gas supplies as such into question.

6. **Specialized research, educational and other supportive facilities.**
On behalf of the horticulture sector a highly developed educational and knowledge infrastructure has been attained in the Netherlands, 'from bottom to top' comprising:

- over 100 VMBO (lower occupational education) schools offering basic specialisation in agriculture called VMBO Groen (Green), streamlined with MBO (medium occupational) education in 10 Agrarische Opleidingscentra (AOCs, Agricultural Education Centres);

- four 'Hogescholen' (universities of applied sciences) offering education to master degrees in Higher Agricultural Education (HAO);

- a network of agricultural test stations and regional training centres;

- study courses and working groups related to advisory agencies, farmers' organisations and auctions;

- public-private partnerships initiating research, like through foundations initiated by cooperating horticulture farmers such as Glastuinbouw Nederland and the regional 'Greenports';

- Wageningen University and Research (WUR), a public university globally renowned as a leading centre for agricultural research and education;

- other Dutch universities, like those of Maastricht, Utrecht, Amsterdam (UvA), Leiden and Groningen, also offering courses and research in agriculture and food sciences.

We add the importance of Naktuinbouw, the Netherlands Inspection Service for Horticulture, promoting and monitoring the quality of products, processes and product chains with an emphasis on seed and planting materials. Naktuinbouw (website) is controlled by the Dutch Department of Agriculture, Nature and Food Quality.

7. **A network of specialized Dutch suppliers** of inputs such as greenhouses (aluminium, glass); sorting, packaging and other machinery; packaging materials; chemicals; fertilizers; 'starting materials' ('uitgangsmaterialen' in Dutch); specialized banking (Rabobank) and insurance (Hagelunie) services; subsidies and information from the Ministerie van Landbouw, Natuur en Voedselkwaliteit (Department of Agriculture, Nature and Food Quality; website), and information of the Rijksdienst voor Ondernemend Nederland (RVO; Netherlands Enterprise Agency; website).

As noted, lately a number of **weaknesses** (or vulnerabilities) of Dutch floriculture has come to the surface. We point to five (sets of) constraints, that may also frustrate attaining a truly sustainable sector:

- **limits to physical advantages**: first, constraints concerning space: scarcity of land for agricultural ie. floricultural use (prices per hectare for agricultural use have more than doubled in 10 years' time); second, constraints concerning other scarce resources: fertilizer and pesticide emissions to soil, air and water; scarcity of clean irrigation water and sharper requirements for clean water (all factors already mentioned in Rabobank 1992 reporting, cited in Elshof 1998: 16);

- **the end of cheap gas supplies.** In the course of 2022 floriculture's strong dependency on non-renewable energy sources like gas turned into a serious disadvantage. Gas prices multiplied to over seven times their long-run level due to the combined effect of a. the phasing out --after many earthquakes—of the Groningen gas production and b. the Russian invasion in Ukraine, followed by a boycott and the subsequent reaction of the Putin regime to stop gas deliveries to EU countries. In September 2022 the fear arose among farmers' organisations and local authorities

that at least one-third of Dutch greenhouse farmers would face acute bankruptcy due to the excessive gas prices. The Dutch government has announced a support package for, albeit likely not operational before 2023. Both Royal FloraHolland and the employers' association ***LTO Nederland*** (see next sections) have shown an open eye for the risks inherent to the sector continuing to be ´gas dependent´, though ventilating caveats such as "(.....) these are large, multi-year investments that involve complex financing and processes, and also long-term collaboration with growers, the energy company and the government" (RFH 2022: 37)[8]. However, and paradoxically, most recently investments meant to make flower farms under glass less ´gas dependent´ seem --in relation to current government policies-- to enlarge the financial vulnerability of the sub-sector[9];

- **increasing problems with labour supply**: see below, under 'Employment and number of companies';
- **lack of cooperation in education, research and policy-making.** A few years ago, Rabobank voiced critical remarks that still seem relevant: "Cooperation in research and policy-making is needed (....) The sector does not realise sufficiently that this a precondition for growth. Research is currently highly dispersed and inadequate to effectuate major breakthroughs towards a sustainable sector" (Van Horen 2018, translated from Dutch). The decision to move the green education sector from the Ministry of Agriculture to the Ministry of Education may not be helpful either because it may well be disadvantageous for the co-operative relations between government, education and business -- which, in spite of all limitations, remain the backbone of the Dutch agri-food sector (Mulder and Biemans 2018);
- **the vulnerability of the global supply chains of cut flowers**. In March 2020 the COVID-19 pandemic brought this vulnerability abrupt and worldwide to light. Although, as described, in the Netherlands a strong recovery took place in terms of exports and RFH's turnover, there is no guarantee that such 'lucky escapes' will be repeated in the (near) future. Moreover, combinations of the weaknesses indicated may coincide. In the Netherlands as well, such coincidences can hamper economic and social recovery, especially in view of the trade wars between the main blocs that are currently unfolding on a global scale.

We add that until a few months ago forecasts on the 'consumption' of and trade in cut flowers were highly optimistic. For example, early in February 2022 a leading forecaster projected the world market for cut flowers to reach USD 43 billion in 2027, assuming a compound annual growth rate of 4.8 per cent between 2020 and 2027 (website ReportLinker 2022). However, the impact of the Russian invasion in Ukraine that was set in motion only a few weeks later tends to exacerbate the uncertainties that are inherent to such predictions. Under the current conditions of the world economy and international relations, any detailed projections of consumer behaviour, economic growth and exports of whatever products contain highly speculative elements; thus, they have quite limited value.

8 Citations from Royal FloraHolland's 2021 Annual Report concerning steps towards a sustainable sector: "With our approach to sustainability we can increase our contribution to making the floriculture industry more sustainable, improving the sector's reputation and meeting the Sustainable Development Goals (SDGs) of the United Nations" (RFH 2022: 11); "The Green Agenda programme is an initiative of The Green City Foundation and Royal FloraHolland" (34); "Royal FloraHolland participates in the IRBC (International Responsible Business Conduct) agreement for floriculture" (34). Concerning sustainability, it may be added that in 2021 56 per cent of all flower units (and 50% in terms of value) traded through the Royal FloraHolland auction were FSI-certified products in accordance with the FSI-2025 requirements (RFH 2022: 28; see Chapter 1). RFH earlier announced the switch to geothermal energy to be at the core of their sustainability policy (Richter 2020). See also website ***Glastuinbouw Nederland*** (EN version) and the publications referred to on that site.

9 Already since about 2010, Dutch flower farmers have invested in advanced energy-saving techniques like cogeneration (CHP, see Wikipedia; Dutch: ***warmtekrachtkoppeling***) and the use of geothermal energy. However, recently problems have arisen for investors in CHP as the market price for electricity is increasing even more than that of gas, while government subsidies for CHP are planned to end in 2023 (***De Ondernemer*** 2022).

Employment and number of companies

Statistics Netherlands and Wageningen Economic Research have reported, with data covering 2000-2019, on the 'T & U' (***Tuinbouw en Uitgangsmaterialen)*** chain, that is, the horticulture supply chain at large in the Netherlands. Included were those production processes deployed by firms providing (breeding, propagation) materials, greenhouses, chemicals, fertilizers, distribution, and specialized technical knowledge; firms processing horticultural products (including vegetables and fruit), and the wholesale trading of horticultural products. Thus defined, the horticulture chain was one of the nine 'top sectors' in the Dutch economy the Ministry of Economic Affairs labelled as such in 2012. A number of relevant outcomes are (CBS / WEcR 2020):

- imports of the 'T & U' chain at large into the Netherlands reached in 2019 Euro 11.5 billion, or 2.5 per cent of total Dutch imports in that year;
- exports of the 'T & U' chain reached in 2019 Euro 24.5 billion, or 4.5 per cent of Dutch exports in that year;
- expenditure on R & D (Research and Development) of the 'T & U' chain was in 2017 4.5 per cent of the Dutch private R & D expenditure;
- in 2018 the 'T & U' chain had 126,000 employees (124,000 FTE, Full-Time Equivalents), of which 56,000 in primary processes (direct employment), 40,000 in wholesale and 30,000 elsewhere (jointly indirect employment);
- 94 per cent of 56,000 employees working in primary processes in the 'T & U' chain did so in 2018 in small and medium-sized enterprises (SMEs: 1-250 employees);
- in 2019 29,000 employees were employed in the Netherlands in ***horticulture under glass,*** of which some 3,000 were 'unpaid' (entrepreneurs and family members);
- between 2000 and 2019 the official number of employees employed in the Netherlands in horticulture under glass fluctuated between 25,500 and 30,000, whereas the average number of employees per company increased from 5.9 in 2000 to 14.1 in 2019.

Based on another official (social insurance) dataset, SEO Economisch Onderzoek and Wageningen Economic Research (2020: 9) calculated that in 2019 Dutch floriculture employed 39,081 persons[10] of which 11,033 labour migrants, or 28.2 per cent. The percentage of labour migrants was somewhat lower than that in agriculture and horticulture at large (174,171 total employed of which 58,412 migrants, or 33.5%), but still considerable. In four regions over 50 per cent of all employed in agriculture and horticulture were labour migrants, including the Haaglanden region between Rotterdam and The Hague where horticulture under glass is concentrated in the Westland municipality (58% labour migrants -- SEO / WEcR 2020: 9-10). In 2019 a majority of about 60 per cent of all labour migrants working in agriculture and horticulture did so in temporary jobs. The other way around, in this sector temp work has become virtually synonymous for work of labour migrants: between 2006 and 2019 the share of labour migrants in all temp workers active in the sector grew from 50 to 90 per cent (SEO / WEcR 2020: 6-7, 11).

In March-June 2020 the COVID-19 outbreaks in the Netherlands hit labour migrants in particular -- once more indications of their precarious conditions. SEO / WEcR produced estimates of the effects of COVID-19 on employment in Dutch agriculture and horticulture. By June 2020 nearly 9,000 labour migrants less worked here in temporary jobs as could be expected based on employment in 2015-2019. Changes that took place in January 2020 in the legislation on temp (agency) work explained over half this decrease, COVID-19 explained the rest. By June about 40 per cent of the decrease was compensated by attracting extra workers of Dutch nationality, such as working students. By

10 The available data would imply some 11 per cent increase compared to Elshof's (1998: 11) estimate for 1995 of 35,000 directly employed.

then employment in agriculture at large had fallen by some 10,000 employed, or 6 per cent (SEO / WEcR 2020: 17, 19). In June floriculture employment –in 2019 making up 22 per cent of agriculture and horticulture employment -- likely had decreased equally, to some 37,000 persons. In view of the massive growth of cut flower exports in the second half of 2020 continuing in 2021, it may be assumed that by mid-2022 employment in the Dutch floriculture sector had not only been restored to the level of January 2020 but had surpassed that level and had reached 40,000 employed. Based in the information presented in the above, we may assume these 40,000 persons in 2022 were equal to about 34,000 FTE (Even though counted per month nearly all persons employed worked full-time).

Adding the available information on employment in Dutch floriculture in 2020-21, **we may assume that by mid-2022 40,000 workers are directly employed here. Indirect employment can be estimated at 50,000.** We calculated the latter amount by assuming that the relation between direct and indirect employment valid for the 'T & U' chain in 2018 (56,000 : 70,000 or 4 : 5) could be applied on floriculture.

Problems with labour supply have been commonplace throughout the history of Dutch horticulture over the five decades. From the early 1990s on the sector has been dependent on labour migrants from Eastern Europe, at least needed to cover seasonal peaks. Recently, labour shortages have become even larger. From 2018 on it became clear that notably many Polish workers were looking for jobs closer to their home (country) and had no longer an inclination to return to the Netherlands. Concerning the causes, criticasters pointed first and foremost to employers' behaviour. Already in the 1980s and 1990s, investigative journalists documented the lack of respect and discrimination many labour migrants met, as well as their bad working conditions; the unjustified withholding of wages, and their often deplorable housing conditions – abuses for which horticulture became infamous (Kagie 1987; Braam 1994). The recent report of the state-appointed 'Roemer commission' (*Aanjaagteam Bescherming Arbeidsmigranten* 2020) proved that such abuses have an equally remarkable and disappointing continuity. In 2021 the *Algemene Rekenkamer* (General Court of Auditors) concluded that also the expansion of the Labour Inspectorate in recent years did not prevent perpetrators -- employers not complying with relevant legislation – to go free, and that, moreover, labour migrants as victims of exploitation were not even helped.

From the 1980s on, the FNV union federation and the *Voedingsbond FNV* (Food Workers' Union FNV) had complained about the lazy attitude of the Dutch Labour Inspectorate (*Arbeidsinspectie)* if confronted with abuses as regards labour migrants. At the time compliance with labour and housing legislation left quite a lot to be desired as was the case with official control on compliance. In particular the regulatory framework regarding temporary (agency) work was weak. It lasted until 1996 before significant improvements in this framework were effectuated and it lasted until 2003 before the Labour Inspectorate was endowed with stronger authority to sanction firms that employed workers illegally (Tijdens et al. 2006: 28-31). The criticasters in question have emphasized that horticultural farmers should invest more in good employership in order to attract labour migrants and to motivate them to return for seasonal work 'next year' (for example Cremers in Sleegers 2021; see also the debates (in Dutch) on website *Nieuwe Oogst*).

On top of the specific shortages for seasonal labour in horticulture, in 2021/2022 the Dutch labour market at large has become extremely tight. By mid-2022 labour shortages reached record heights in virtually all sectors and occupations. Concerning the auction's shortages, RFH's Annual Report 2021 stated: "Tight labour market conditions have made it difficult for us to deploy enough employees in operational

positions at peak times (.....) The staff shortages in operational positions are expected to continue in the coming year" (RFH 2022: 46).

Labour relations and trade unions

Labour relations in Dutch floriculture should be seen in the context of the wider labour relations in the country at large and in agriculture. Separate trade unions have not been in existence for floriculture. After 1945, as with labour relations in the Netherlands in general, in agriculture these relations have been rather consensual though unions organizing workers in food and agriculture maintained a tradition of activism. The ***Voedingsbond FNV*** stood in this tradition; the union was formed in 1980 in a period of time when unions affiliated with the NVV and NKV confederations merged. In 1976 the two confederations had formed a federation, followed in 1982 by their full integration in the ***Federatie Nederlandse Vakbeweging*** (FNV). The third main confederation, ***Christelijk Nationaal Vakverbond*** (CNV), stayed outside this merger; their food workers' union was later to become part of ***CNV Vakmensen*** (CNV craftsmen).

Under the presidency of Cees Schelling (1980-1984) and Greetje Lubbi (1984-1988), the Voedingsbond FNV demanded substantial wage increases in CBAs (collective bargaining agreements) for the low-paid, referring to the low wages and bad working conditions of agricultural workers. The outcomes of these claims were rather modest -- not surprisingly as in the early 1980s the Netherlands faced an economic down-turn, unemployment rose to unparalleled levels and the union movement had to accept wage moderation (Visser and Hemerijck 1997). At the same time an influx of labour migrants took place in horticulture. We already pointed at the deplorable working and living conditions that often accompanied their engagement. We also referred to the lack of compliance and weak regulatory frameworks.

In spite of all this, by 1997 the Voedingsbond FNV counted 64,000 members, some 40 per cent increase from 1984 on. In 1997 the density rate of all unions in Dutch agriculture was 22 per cent (Visser 2000: 454 and CD ROM).

Between 1954 and 1995 bipartite institutions caused a lot of fuss in Dutch agriculture. Inspired by pre-war corporatism, employers and union representatives in secret talks in 1943-45 had great expectations of such institutions. Indeed, directly after the war, in 1945, the ***Stichting van de Arbeid*** (STAR, Labour Foundation) was founded as a bipartite top institution. The ***Stichting*** still functions though at top policy-preparatory level the tripartite ***Sociaal-Economische Raad*** (Socio-Economic Council, founded in 1950) dominates. Already in 1954, the governmental decision to extend corporatist structures to the level of industries got a lukewarm reception. Eventually, in a long 'death process´ between 1995 and 2014 these bipartite ***Productschappen*** (Product Boards) were dissolved. In the forty years in between, the 'schappen' got the largest impact (and unpopularity) in agriculture: they had to carry out parts of the European Union's Common Agricultural Policy and to collect levies from farmers (Van Bottenburg 1995).

In floriculture, the ***Productschap voor Siergewassen*** (Product Board for Ornamental Plants) was created; it was dissolved in 2003. Here, initially three trade unions met with three employers' associations, later reduced to two unions (FNV- and CNV-affiliated) and one employers' association, ***LTO Nederland*** (website). The latter organisation profiles itself as representing the interests of small and medium-sized enterprises/farmers and self-employed.[11] Collective bargaining remained outside the competences of the Product Boards but not outside their scope. Union representatives in the agricultural and food industries used the Boards as a testing ground for bargaining proposals or to settle 'unfinished

11 LTO Nederland has an "entrepreneurial network in the Dutch greenhouse horticulture sector", called ***Glastuinbouw Nederland*** (website). This network maintains a 'Water & Environment Programme'.

business' in periods between CBA negotiations (source: interviews for Van Klaveren and Tom 1990).

In 1998 concentration in the FNV took a next step. In that year, the Voedingsbond FNV with the three FNV-affiliated unions in manufacturing industry, commercial services and transport formed ***FNV Bondgenoten*** (FNV Allies). Bargaining structures and decision-making procedures, though now covering larger entities, were largely kept intact. This changed with the new structure the FNV adopted in 2014 as the outcome of a renewal process. Affiliated in the new Federation are both individual members and unions with their own affiliates. The 108-member parliament is the FNV's highest body. All 26 sectors covered by the FNV have one or more elected or appointed representative(s) in this parliament. The FNV organisation covers floriculture through its sector ***Agrarisch Groen*** (Agricultural Green), in particular through two sub-sectors --of 14 in total -- with a collective agreement (CAO, or CBA) of their own: the ***CAO*** (CBA) ***Glastuinbouw*** (Horticulture under glass (greenhouse)) and the ***CAO*** (CBA) ***Open Teelten*** (Horticulture open field (outdoor). See the references under CAO). A few other CBAs may be relevant for limited groups of floricultural workers (see website FNV Agrarisch Groen). Also, as noted in Chapter 1 the FNV participates in the ***IMVO Convenant Sierteeltsector (***IRBC agreement) in 2019 agreed for floriculture.

Productivity and concentration

A section on productivity and concentration in Dutch floriculture is relevant here. The massive productivity increases of the 1950s, 1960s and 1970s in horticulture and floriculture are common knowledge, as is the shake-out of small horticultural farms in these decades. Farmers could mainly survive the competitive struggle through high levels of investment and intensive input of family labour, allowing year-round cultivation schedules and the use of hydroponic cultivation (in Dutch ***substraatteelt***; Jansma and Schroor 1987: 489-491; Van Wijk 2017). Between 1980 and 1995 concentration and upscaling continued, though at a slower pace (Elshof 1998: 3) That happened also under pressure of 'large spatial pressure': the expansion of cities and villages that left areas under cultivation decreasing (website Compendium voor de Leefomgeving, 2022).

Between 2000 and 2019 the relationship between the number of employees and the area under cultivation was fairly constant. This led CBS / WEcR (2020: 29) to conclude that this period of time saw hardly any productivity growth. However, the export figures of the Netherlands do speak a different language. They indicate the continuation of productivity growth. Between 2000 and 2019 the Dutch exports of cut flowers (0603) increased in tons weight by no less than 27 per cent and between 2019 and 2021 even by 23 per cent (UN Comtrade Database). Increasing re-exports can only explain a limited part of these increases in weight. Also, if one compares the cut flower cultivation area as existing in 2021 (see below) with the value of cut flower exports in that year, the export 'yield' per hectare came at USD 1,203,800. In 2000, that yield was USD 314,900 per hectare: a compound annual increase between 2000 and 2019 of 6.6 per cent, much higher than inflation rates.

Thus, in Dutch floriculture substantial output increases have taken place without an equivalent increase of employment. Outright work intensification, as dominant in floriculture in Colombia and Ecuador (see the respective Profiles), may have played a role here, especially where the input of labour migrants was involved (A workers' category the CBS / WEcR 2020 reporting neglected). However, most productivity gains have been realised through mechanisation and automation and through the clever use of plant materials and other advanced cultivation techniques applied by highly knowledgeable Dutch farmers (confirmed in SEO / WEcR 2020: 25, for the Haaglanden region).

Table A15 bears testimony of the main trend in Dutch horticulture: the survival of less growers combined with the upscaling of the remaining companies / farms. That trend was visible between 2000 and 2021 for all four categories that could be distinguished:

- horticulture under glass: on average 0.95 hectares per company in 2000, against 2.84 in 2021. While the total area under cultivation remained the same, the number of companies fell drastically by 66 per cent, from 11,070 to 3,720;
- cut flowers (floriculture) under glass: on average 0.91 hectares per company in 2000, against 1.92 in 2021. While the area under cultivation fell by 47 per cent, the number of companies decreased even stronger, by 75 per cent from 4,110 to 1,030;
- horticulture open field: on average 4.88 hectares per company in 2000, against 9.95 in 2021. While the total area under cultivation increased by 17 per cent, the number of companies fell by 43 per cent, from 16,590 to 9,530;
- cut flowers (floriculture) open field: on average 1.17 hectares per company in 2000, against 3.19 in 2021. Whereas the area under cultivation fells slightly (by 4 per cent), the number of companies decreased by 65 per cent, from 2,500 to 880.

In the Netherlands cut flower cultivation in total covered an area decreasing from 6,660 hectares in 2000 to 4,790 hectares in 2021, or by 28 per cent, against a decrease from 6,230 companies involved in 2000 to 1,910 in 2021: a fall of 69 per cent. For 2021 this resulted in an average cultivation area of 2.51 hectares per company, more than double the average 1.07 hectares as of 2000.

Concerning the cultivation of sub-categories of flowers in the Netherlands, Table A15 shows that in 2019 peonies (in Dutch 'pioenrozen') covered the largest area (1,080 hectares, fully in open field cultivation), followed by chrysanthemums (570 hectares, both under glass and in open field). Yet, the area for chrysanthemums diminished in particular in the 2000s, as did the areas for other sub-categories. In spite of earlier optimism about the cultivation of roses in the Netherlands (Van Horen 2018), between 2000 and 2019 areas with that cultivation showed the most drastic decrease, from 930 to only 170 hectares. The other major sub-categories cultivated under glass in the Netherlands (gerberas, lilies and orchids) also showed diminishing areas, though over time the picture was uneven. Between 2000 and 2010 the area destined for orchids increased, whereas the areas for gerberas and lilies decreased. For the latter two flower categories, however, 2019-2021 showed a recovery and some area expansion. That could also be seen for the cultivation of chrysanthemums. In the Netherlands orchid growing, finally, facing a decreasing area and demanding a high heat-component, may currently have become at risk.

Profile: Kenya

History, local conditions and exports

The sunny climate of Kenya is the prime factor allowing for high quality blossoms, in particular long-lasting roses, to be grown throughout the year, mostly without the need for greenhouses. Foreign investors and technical experts, notable Dutch and Israeli, played a critical role in launching and expanding Kenya's floriculture industry. Dutch expertise and entrepreneurship left their mark, as they would later in Ethiopia and Uganda. Initially, most large and medium-sized flower farms were owned by foreigners, mostly Dutch, Kenyans of foreign descent or members of the Kenyan political elite. Yet, in 1969 the first major investment in Kenyan cut flower production, heavily facilitated by the first government after independence (1963), was not Dutch but Danish; it was partly taken over by a British firm that under the Sulmac label by 1980 had become one of the world's largest growers of carnations and roses. The current largest exporting firm from

Kenya, Oserian, was a Dutch start-up in vegetables and switched in 1982 to roses. Initially, also the Kenyan practice of smallholder flower farmers, existing since the early 20th century and practising floriculture on small, inherited plots of land continued to be in existence. Their production was often sold to larger farms and then exported. In doing so, they acted quite like the 'second-tier' firms as existing in garment manufacturing. However, in the 1990s these smallholder outgrower networks went into decline. They met difficulties to adapt to the demands of the new regimes (air transport, quality control, certification) that came to dominate GVCs in floriculture (Wijnands 2005: 53; Kazimierczuk et al. 2018: 26-28).

In 1996, (larger) independent growers and exporters of flowers established the Kenya Flower Council (KFC), a voluntary association. According to the KFC website, Kenyan flowers are currently sold in over 60 countries. The rise of Kenya as an exporting country dates from 2002-2009, when the country's 2.4 per cent world market share increased to 5.8 per cent. Over 2001-2010 averaged, Kenya's market share came at 4.5 per cent. In the 2010s Kenya succeeded to gain a stable position as the world's no. 4 exporter, behind the Netherlands, Colombia and Ecuador. Over 2011-2020, the country's cut flowers exports averaged USD 521 million yearly, 6.0 per cent of global exports.

In 2021, a record high USD 726 million (Euro 620 mln) was exported (Table A2). By then, the Kenyan share in global exports reached 6.6 per cent (Table A1). In 2021, roses and buds (060311) accounted for 76 per cent of Kenya's cut flower exports; 'other flowers and buds' (060319) took 22 per cent while exports of the remaining flower categories were negligible (Table A3). In 2021, USD 392 million cut flowers' value (54%) was exported to the Netherlands (Tables A7A and A11), nearly fully to the Dutch auction system. Through the auctions a considerable volume of roses from Kenya (and Ethiopia) is re-exported to the UK, Germany and other European countries (Jukema et al. 2022: 84). With USD 174 million (24%) in 2021, the United Kingdom was Kenya's second largest ***direct*** destination, and with USD 61 million (8.4%) Germany the third. Other countries in 2021 where Kenya´s flower exports catered for were the Russian Federation, Saudi Arabia, United Arab Emirates (UAE) and Norway (see *) in Table A11).

On its website KFC states that the growing share of Kenyan exports to the UK can be linked to the expansion of direct sales. Leaving the auction system aside and facilitated by handling and sales agents direct exports are mostly initiated by supermarket chains. Most chains acting like this are UK-based and serve the British market. Such direct selling has given Kenyan producers room to add value to cut flowers through sleeving, labelling and bouquet production along the demands of the respective chains. In doing so they may have become better informed on price setting. Whether the conclusion from the early 2010s still holds that "this has allowed Kenyan producers to control the distribution and marketing process more effectively" (Riisgaard and Hammer 2011: 181), remains to be seen. Moving from 'being informed' to 'being in control' is not self-evident. Most large buyers consider Kenya as a cheap supplier of notably roses due to its low labour costs, favourable exchange rate and good air connections. In 2017-18 buyers argued that Kenyan roses were increasing their quality and size, but in general they were not yet regarded as 'premium' (Garcia 2018: 26). The figures in Table A13 suggest that recently Kenyan growers did not succeed in keeping the value per ton of cut flower exports at par, let alone in raising that value substantially.

Government policies and infrastructure

The Kenyan government has encouraged floriculture by creating intellectual property rights and product quality controls as well as through the provision of loans (Adeola et al. 2018: 332). Kenya has also managed to build an infra-

structure suitable for production and export of cut flowers; key in this regard is Jomo Kenyatta International Airport near Nairobi. From this airport also most cut flowers produced in Tanzania are exported. The website of the investment agency, Kenya Investment Authority, advertises the country's physical infrastructure as "well-developed", with "four international airports, an extensive road and railway network, a modern deep-sea port at Mombasa (....), an expanding, liberalized energy sector and digital telecommunication networks". These terms seem rather rosy. For example, messages on various social media voice complaints on the accessibility of Kenyatta Airport.

Concerning trade agreements relevant for Kenya's export of cut flowers, most important is the ACP/Cotonou Partnership ('Cotonou Agreement') with the European Union. Under this regulation, exports from Kenya entering the EU are entitled to duty reductions and freedom from all quota restrictions. Trade preferences include duty-free entry of all industrial products and a wide range of agricultural products. It is expected that soon a new partnership agreement will serve as the legal framework for EU relations with 79 African, Caribbean and Pacific (ACP) countries including Kenya (website Consilium Europa). Although Kenya until 2025 has qualified for duty-free access to the United States under the US African Growth and Opportunity Act, agricultural products are not yet included. This may change with the STIP agreement the Kenyan and US administrations announced in July 2022 (website Kenya/trade agreements).

Corruption can develop into a major hurdle for the further development of Kenya's floriculture. It is persistent and widespread in Kenya. Over 2021, the country ranked a quite low 128th on the Corruption Perceptions Index (CPI, website), though somewhat improving compared to its rankings in that Index between 2011 and 2020. Several surveys confirm that despite market reforms business corruption is still widespread. Companies frequently encounter demands from government officials for bribes and informal payments to 'get things done'. In spite of the country's anti-corruption legislation dating back to 1956, the wikipedia site Corruption in Kenya documents a continuous array of corruption scandals.

Employment, number of farms, ownership

The number of farms and the size of employment in the Kenyan floriculture sector has to be constructed based on a few sources. Recent KFC estimates suggest that the sector generates about 90,000 jobs directly at flower farms and about 500,000 indirectly, bringing total employment at 590,000. It should be noted that direct employment figures of this magnitude are circulating from 2014 on, though since then the sector has expanded some 45 per cent in terms of yearly output (cf. Anker and Anker 2014: 3; Kirigia et al. 2016: 34; Kazimierczuk et al. 2018: fn. 3). This is an indication that in some seven years major productivity rises had taken place. By 2021 this may have come to limits. Most likely the 25 per cent-increase in exports in that year could not be captured by productivity gains but by attracting additional workers. Though the estimate of the researchers led by Barrientos (2019: 84) that in 2018 Kenya's flower companies employed approximately 100,000 workers (of whom 75% women) might have overestimated the real number, for 2021 this amount seems realistic. **Currently 100,000 directly employed seems a realistic figure for Kenya's floriculture sector.**

Admittedly, the above number is far from static. It should be remembered that in 2020 the COVID-19 pandemic hit Kenya's floriculture hard. As noted in Chapter 2, on March 13, 2020, Royal FloraHolland's Aalsmeer auction "went completely flat". For Kenya airfreight capacity traffic was the next bottleneck. By early April 2020, as to avoid the spread of the pandemic, many passenger flights were grounded that would have transported flowers from

Africa to Europe in their bellies (In what must have been June 2020, Royal FloraHolland took the initiative to set up sea freight lines between Kenya and Europe – Van Tol 2020). By the end of April Kenya's flower exports had dropped 85 per cent (Fredenburgh 2020). Already earlier, KFC had sounded the alarm bell, and with good reason. From the third week of March 2020 on, over 70 per cent of the workforce was hit: over 30,000 temporary (fixed-term) workers at Kenyan cut flower farms lost their jobs and a further 40,000 permanent workers were sent home on annual leave -- with their prospects unclear. Others kept their job through working in shifts, on half pay or on pay per hour modules. Overall, women bore the brunt of the crisis (Wasike 2020).

In May-June 2020, when exports picked up and rose gradually to 65 percent of the February 2020 level, the workloads of those who had kept their job often more than doubled because employers were hesitant to re-hire those sent home. A trade union, the Kenya Plantation and Agriculture Workers Union (KPAWU)[12], negotiated with companies the retention of workers on revised terms which included unpaid leave and reduced hours of work for half pay. A result KPAWU could claim was the securing of housing allowances as well as of sickness and security fund allowances (Hivos 2020: 21).

As the next section will show, experiences concerning health and safety in the exposure to plant protection products were already mixed before the pandemic. This was also the case with information on the provision of adequate personal protective equipment (PPE) and other essentials to workers in view of the pandemic. From a survey among 100 female workers from 12 flower farms the picture arose that employers were rather timely in adopting measures and changing workplace practices to protect workers from COVID-19 infection (Hivos 2020: 19-22). Other reporting, however, concluded that even in June 2020 farms in Kenya, Ethiopia and Uganda were not able to replenish sanitary essentials such as face masks on time (Fairtrade Foundation and MM Flowers et al. 2021: 5).

Concerning the number of floriculture farms in Kenya, Wijnands (2005: 49) in 2005 counted 140. For 2016 a Dutch research team found that 145 companies (owned by multinational enterprises as well as domestic medium-sized firms) owned 190 flower farms devoted to commercial floriculture; these farms ranged from three to 250 hectares. Concentration in the industry has remained at about the same level: both in 1999 and in 2016 some 25 large-scale farms were estimated to deliver 75 per cent of Kenya's flower production (Wijnands 2005: 52; Kazimierczuk et al. 2018: 18). These and related figures suggest a modest but rather continuous expansion of Kenya's floriculture between 2005 and 2016. However, by mid-2022 the KFC website reported the existence of only 110 cut flower farms, of which 92 were mentioned as KFC-certified. Possibly the COVID-19 pandemic has led to the breakdown of a number of cut flower growers. Anyway, we have taken 110 companies for Kenya as point of departure.

KFC (website) mentions 4,100 hectares as the current area under floriculture cultivation in Kenya. Cut flower growing is predominantly run by Kenyan-owned farms, whereas Dutch companies dominate the flower-breeding and propagation activities in the country (Kazimierczuk et al. 2018: 6). The various figures shown above imply an average size of Kenya's cut flower growers of 909 employed and 37.27 hectares cultivated.

We explored a website (TUKO) providing for 2019 detailed information (though not on employment) on 15 major Kenyan cut flower producers annex exporters. All 15 were rose growers, sometimes combined with the cultivation of other flowers. They jointly produced at 28 locations, varying from 11 to 2,000 (Oserian) hectares. One firm started producing in the 1980s (again Oserian), four in the 1990s,

12 The other union in the sector is the Kenya Export Floriculture Horticulture & Allied Workers Union (KEFHAU).

nine between 2000 and 2010, and one in the 2010s. Some showed a time lag of a few years before they started exporting flowers. It can be estimated that in 2019 fully and partly Dutch-owned firms took about half of the cultivation area of these 15 producers annex exporters; the overall share of such firms in the total Kenyan cut flower area (and production) would be lower, likely about 40 per cent.

The current extent of smallholder ownership in Kenya is particularly difficult to estimate, and is said to vary between 2,500 and 5,000 flower farmers (Kirigia et al. 2016: 22-23; Kazimierczuk et al. 2018: 27). In view of the decline in their ranks we noted earlier, their number may nowadays be closer to 2,500.

Working conditions and environment

Based on a research visit in 2010, including interviews with workers, visits to farms and meetings with stakeholders, Leipold and Morgante stated to have found quite some improvements in working conditions compared to earlier reporting on health and safety at Kenyan flower farms. That reporting, like from Hale and Opondo (2005), the Ethical Trading Initiative (ETI, 2005) and Working Women Worldwide (WWW, 2007), came at rather dramatic results. Leipold and Morgante (2013: 11, 13) registered improvement in measures to limit the exposure to plant protection products:

- only male workers interacted with pesticides;
- pesticides were clearly marked with warning signs, with greenhouses shut during spraying;
- personal protective equipment (PPE) was required and provided freely.

Leipold and Morgante made the reservation that, as the visited farms were contacted through the Kenya Flower Council (KFC), they were likely to have had a positive bias. Nevertheless, their findings seem to contrast both with the older reports mentioned and with more recent reporting. The latter points out that for female pickers their contacts with pesticides continue to create health problems: see below, under 'Position of women'.

Apart from working conditions and wages, it makes sense to take the context of cut flower production in Kenya into consideration. Four issues from the *IMVO Convenant Sierteeltsector* are at stake here: land rights; climate change; water use, and the environmental impact of plant protection products. Various reports show that the expansion of cut flower production has led to increased competition in land use. This problem is not limited to Kenya. In most East African countries land under floriculture cultivation was previously used either for food production or as pastureland or forested land. All three were of critical importance to local livelihoods. Also, relative to other plantation crops grown in East Africa, floriculture investments are more water- than land-intensive. This has brought investors repeatedly into conflict with local communities who use water from the same sources. In Kenya this is the case in the Naivasha area: most flower farms are situated around Lake Naivasha. In 1995 Lake Naivasha has been recognized as a wetland site of international importance under UNESCO's Ramsar Convention, leaving Kenya with the obligation to protect such a site from ecological damage. After 2000 reports piled up concluding that flower production posed ecological problems to the lake, like pollution as a result of the heavy use of pesticides and fertilisers (cf. Evarard and Harper 2002; Awuor 2012: 68; Kirigia et al. 2016, 14-16). Already in 2013 this evidence led experts to conclude that "The use of Lake Naivasha water (is) in urgent need of governmental regulation" (Leipold and Morgante 2013: 22).

In response, local floriculture farms supported an initiative to promote sustainable practices among smallholder farmers aiming to protect Lake Naivasha. However, experts regard smallholder farming no longer to be the key problem. They emphasize that due to the gap

in technological advancement between local public institutions and the larger floriculture companies, the latter can easily violate regulations to control water use (Kirigia et al. 2016, 14-16). In spite of a clean-up action in and around Lake Naivasha stakeholders and volunteers undertook in 2017, three years later one of the initiators, Clean Up Kenya, characterized the Lake as 'a ticking time bomb'. This NGO expressed fears that the realisation of urbanization plans would result in rapid population growth around the lake, adding sewage to the existing environmental threats (website Clean Up Kenya 2020). Fears are indeed widespread concerning the long-term stability of Lake Naivasha's ecosystems -- systems upon which ultimately floriculture and the local community depend (wikipedia Lake Naivasha).

Living wages

Around 2000 a study examined the impact of Kenyan horticulture on poverty reduction, comparing households inside and outside horticulture. The study suggested "that the sector is making a contribution to poverty alleviation in rural areas" and "that export horticulture appears to contribute to improvements in the economic situation of rural households" (McCulloch and Ota 2002: 29). Be that as it may (have been), concerning wages and based on an extensive country visit the Ethical Trading Initiative reported in 2005 a list of failings in Kenyan horticulture related to the supply chains of their ETI members ((!)ETI 2005: 9):

- low basic rates of pay per day on some farms;
- no payslips received, just cash in hand;
- lack of severance pay/dues owing not paid;
- when laid off, no payment received for previous days worked;
- deductions made from wages or unfair dismissal when pay questioned;
- medical expenses deducted from wages.

More recent reporting has also been far from positive on the level of wages in Kenyan floriculture. In a 2012 survey of the Kenya Human Rights Commission (KHRC), 86 per cent of the workers/respondents expressed dissatisfaction with the sector CBA (collective bargaining agreement) as a tool of moving towards better wages. This proved mainly the case because the CBA provided a very low wage floor: a minimum of KES 4,050 per month (KHRC 2012: XI, 41-42). In line with this finding, Leipold and Morgante (2013: 12, 15) concluded their 2010 research results on wages to be in stark contrast to their rather positive findings on working conditions. The average monthly wages flower employers on the one hand (KES 5,485) and workers on the other hand (KES 5,257) presented to them hardly differed. Interviews with workers clarified that these amounts were far below any living wage level. Monthly expenditure for an average worker with two children came at KES 9,260, or 80 to 90 per cent higher than existing wage levels. According to these authors the average wage level they found was barely sufficient to meet basic needs; it implied that workers could hardly rely on any savings (2013: 21-22). Anker and Anker (2014: 3-4) noted that most farm workers had to live in unplanned urban areas that lacked paved roads, decent housing, sustainable and affordable water supply, and sanitation infrastructure. This setting, they argued, significantly increased living costs.

Estimates of a living wage for Kenya for March 2014 with a focus on the cut flower area near Lake Naivasha came at KES 18,542 (USD 216) before consideration of taxes (gross) and KES 17,276 (USD 201) per month after that consideration (net). In comparison, in the Kenyan 2014 flower farm CBA with a typical pay package for workers who joined the farm in respectively 1997 and 2014, monthly pay ended up at respectively KES 14,592 and at KES 9,741 (Anker and Anker 2014: 39-40). These outcomes were much higher than the statutory minimum wage for agriculture for 2014 (KES 4,854). Based on this information, we can state that **in 2014 the gap between average wages and**

living wages in Kenya's cut flower industry varied between 27 and 90 per cent. The gap with the statutory minimum wages was much wider. Based on the above information, we can state that **in 2014 the gap between the statutory minimum wages and living wages in Kenya's cut flower industry varied was 282 per cent.**

A March 2021 update of the 2014 study just summarized, taking into account inflation and changes in payroll deductions between 2014 and 2021, concluded to living wages of net KES 26,257 (USD 239) and gross KES 29,702 (USD 270) per month in 2021 (Andersen et al. 2021a). The comparable statutory minimum wages in Kenya's agriculture were those set with effect from May 1, 2018 and valid until May 1, 2022, in a range between KES 6,736 per month for an unskilled worker (lowest) and KES 12,152 per month for a farm foreman (highest). Based on this information, **in 2021 the gap between statutory minimum wages and living wages in Kenya's cut flower industry varied between 144 and 341 per cent.** We add that the minimum wages with effect from May 1, 2022, were lifted by 12 per cent to respectively KES 7,545 per month for an unskilled worker and KES 13,610 per month for a farm foreman (website WageIndicator MW Kenya – Agricultural Industry).

Labour relations and trade unions

Concerning the position of trade unions in Kenya's floriculture, based on their 2010 research Leipold and Morgante confirmed critical remarks expressed in the older WWW and ETI reports as well as in the case study of Kangogo et al. (2013: 249), by stating: "Trade union membership is often discouraged and penalised" (2013: 12). At this point, Kenyan law is overall not on the side of workers and unions: it does not specifically protect workers from anti-union discrimination. The Labour Relations Act also poses restrictions on the right to elect representatives and self-administer in full freedom (ITUC 2021, 2022; see also LRI (Labour Rights Index) Kenya). Leipold and Morgante (2013: 16) argued that frequent complaints included the denial of promotions to members of the main union, KPAWU; KPAWU members subjected to discrimination and more easily sacked than others, and restrictions to KPAWU's access to farms. These problems showed up in particular with non-accredited farms, that is, farms not covered by Fairtrade schemes.

Later studies once more provided examples of managers of cut flower farms threatening workers with job losses to deter them from joining unions. These studies also pointed to challenges KPAWU has encountered in terms of lack of member training and of efforts to join workers at their workplace – the latter hampering workers' registration and the reception of membership fees (Kabiru 2018: 224-5). Interestingly, a study as of 2018 established that the union density rate of KPAWU in Kenya's cut flower industry was with 53 per cent much higher than the KPAWU density rates that were mentioned in older studies (Kabiru 2018: 221; cf. Riisgaard 2008; Masta and Omolo 2011; Leipold and Morgante 2013; Odhong' and Omolo 2014). This would also be much higher than the overall union density in Kenya, for 2019 set at 9.7 per cent (website LRI Kenya).

Recently trade unions in Kenya and the United Kingdom in close cooperation have opposed the UK-Kenya trade agreement of November 2020. As one of the risks of this agreement the unions regard that cheap UK agricultural exports would put Kenyan farmers out of business. Overall, the agreement is seen as posing a threat to decent work and workers' fundamental rights. While the deal was agreed by the Kenyan parliament in March 2021, under union pressure the government agreed for a review in 2022, opening the possibility that the agreement be amended or dropped (Muhika and Crawford 2022).

Position of women

"The workforce in the flower sector is largely female. Women make up to 75 percent of the

workforce in the horticulture sector in Kenya. This trend is similar to other countries across the region," Virginia Munyua, program manager of the Dutch NGO Hivos, said in 2019 -- thus confirming the share of women workers that various sources indicated from 2005 on (Chimbi 2019).

Two surveys in particular have documented the problems female workers have encountered in Kenya's cut flower industry. The 2012 survey of the Kenya Human Rights Commission, covering 738 workers in 10 cut flower companies, found that (KHRC 2012: XI-XIII):

- 69 per cent of respondents reported women and men was not paid equally;
- concerning sexual harassment, though improvement was noted compared to pre-2007 period**,** 67 per cent of respondents reported sanctions against sexual harassment were not adequate;
- 84 per cent reported obvious cases of unfair dismissal with 65 per cent reporting dismissals to be used to deny employment benefits.

The KHRC report went into the backgrounds of the workforce and their implications. Over 55 per cent of the women surveyed turned out to be single mothers, predominantly between 20 and 25 years of age, with on average three children. As with many of the female workers recently surveyed in Ecuador (see the Profile of that country), they live in 'time poverty' because of their dual roles in the household and the labour market -- a situation often forcing them to accept temporary and/or casual jobs**.** Here the Kenyan survey found some improvements: 41 per cent of respondents indicated that casual workers also transited to regular employment, and seven of 10 farms employed workers as 'short-term employees' who after some time automatically transitted to permanent contracts (KHRC 2012: 59). Nevertheless, also in view of the recent indication that at least 30 per cent of the workers at Kenyan cut flower farms were temporarily employed, labour turnover in this group must be massive; here, employers' 'hiring and firing' practices cannot be excluded.

In 2017, the Federation of Women Lawyers - Kenya (FIDA Kenya)- conducted a survey on the violation of women's labour rights in Kenyan horticulture. This report identified as main problems:

- women workers being on constant temporary contracts;
- lack of written contacts;
- violations of health and safety rules, especially within greenhouses,
- and in some cases, rampant sexual harassment by male supervisors.

This FIDA Kenya survey found that women workers' need for jobs to respond to family needs --such as education and health care for the children-- pushed them to accept jobs poorer and riskier than men's. The survey had the strong conviction that most women did not report workplace violence and sexual harassment out of fear to lose their job. Poor working conditions were a challenge, for example as female pickers were exposed to the frequent spraying of pesticides. The redress mechanisms as regards health and safety in the flower farms were found to be ineffective (FIDA 2017: 7-9). Various factors led to weak compliance with the law. FIDA Kenya assessed in this regard as most important, on the one hand, the abdication of representation responsibilities by KPAWU and, on the other hand, a lack of employers' commitment to enforce and align work policies with their legal obligations (FIDA Kenya 2017: 11).

The FIDA Kenya findings as of 2017 were largely similar to earlier critical reporting on the position of women in Kenya's cut flower sector (Dolan et al. 2003; Hale and Opondo 2005; ETI, 2005; Working Women Worldwide (WWW) 2007). For example, WWW, between 2005-2007 focusing on specific abuses against women, found for floriculture besides poor health and safety conditions:

- wages too low to live a decent life;
- serious sexual harassment and discrimination;
- limits on the freedom of association.

The continuity and even tenacity of the problems for women at work in Kenya's cut flower farms are remarkable. They underline that real improvement needs massive public consciousness and concerted pressure of trade unions and NGOs.

Profile: Ethiopia

History, local conditions and exports

Besides Ethiopia's garment industry, another emerging exporting sector is the country's floriculture industry. The climate of the country, its fertile soils and its varying height levels allow for the cultivation of a wide variety of flower species throughout the year, in particular roses. The availability of a large labour force and a 'business-friendly environment' has been regarded as helpful. Though in Ethiopia the cultivation of cut flowers emerged in the 1980s, it lasted until the 2010s before floral exports substantiated. Over 2001-2010 Ethiopia's cut flower exports totalled only USD 61 million, resulting in an averaged world market share of 0.1 per cent. In Chapter 2 we noted as most remarkable development in the 2010s the country's rise as a cut flower exporter, with a sudden 'jump' (at least in the trade statistics) from USD 7 million exports or 0.1 per cent market share in 2010-2011 to USD 162 million exports and 2.1 per cent share in 2012. Between 2011 and 2020 in total USD 1.7 billion worth of Ethiopia's cut flowers was exported, or 1.9 per cent of global exports; from 2015 on Ethiopia consistently took 2.2 to 2.4 per cent of those exports (Table A2A).

Ethiopia went along with the global cut flower sales boom of 2021 and exported by then a record USD 255 million worth on cut flowers -- accounting for 8.5 per cent of the value of Ethiopian commodity exports (UN Comtrade Database). It seems that Ethiopia's cut flower exports were hardly hindered by disarray caused by the military offensive the federal government has deployed since November 2020 against the Tigray regional government, the military interventions of Eritrea, and the retaliation from the Tigray side.

In 2021, as in the preceding years exports of roses dominated. By then, they were worth USD 222 million, or 87.4 per cent of total Ethiopian cut flower exports, while 'other fresh cut flowers and buds' accounted for 12.2 per cent (Table A3). Remarkable was that in 2021 both the country's total flower exports and its exports of roses were, with 54 and 57 per cent respectively (Tables A11 and A12), less oriented to the Netherlands than the Dutch shares averaged over 2015-2020 had been, accounting for respectively 74 and even 80 per cent (not in table). Other countries in 2021 important for Ethiopia's flower exports were, in this order, Saudi Arabia, Norway, Japan, and the UAE (see **) in Table A11).

Government policies and infrastructure

Controlled by the stalinist Derg regime, state-owned farms were targeted when in 1981-82 the governmental Ethiopian Horticulture Development Agency (EHDA), in collaboration with the German Development Service (GTZ), imported planting materials for cut flowers. After the economic liberalization and deregulation of the early 1990s, when the Ethiopian People Revolutionary Democratic Front (EPRDF) took over power, two private Ethiopian entrepreneurs established open-field cut flower farms and began in 1993-94 exporting summer flowers. In doing so they triggered the interests of the new government and of foreign investors. In 1999 a UK-based company, Golden Roses, started rose production using steel-structured greenhouses; in 2000 this firm and a US-owned investor began to export roses to the Dutch auction system. The first Dutch investors, to become (and stay) a

backbone of the industry, arrived from 2003 on. An example was, in 2005, the entry of Sher-Ethiopia, leasing land from the Ethiopian Government in Ziway, 165 km South of Addis Ababa. The Dutch investor behind Sher, now in charge of this largest flower farm in Ethiopia, had already been engaged in flower farming in Kenya. Other Dutch investors followed suit. Like foreign investors from Germany, India and Israel as well as local owners they tended to hire Dutch expatriates for management and technical expertise. When the Ethiopian cut flower industry began its take-off, it lacked managers and qualified technical staff experienced in the complex art of cut flower cultivation and cutting (Haug et al. 2008: 22; Taylor 2010: 12; Beyene 2014: 5, 25; Yeshiwas and Workie 2018: 2).

In 2006, as part of the Ethiopian Government's Plan for Accelerated and Sustained Development (PASDEP), a number of incentives were offered to foreign investors in floriculture, such as the duty-free import of machinery; options to lease at a low rate the previous state-owned (and significantly under-performing) farms, and a five-year corporate tax holiday (Taylor 2010: 7). With the addition of an improved investment code, these incentives are still intact. The website (Sourcerace) mentioning this, managed by a company that focuses on sustainable agriculture, points to the "need for a regulatory system, without which the industry can become a threat to the natural environment", and explains: "Ethiopia has developed its own national code of practice based on other international norms and labels like EuroGAP and WHO standards. The government is also empowering regulatory offices to give due attention to adverse environmental impact". Which ´regulatory offices´ these are, has thus far remained in the dark.

The Ethiopian Horticulture Producers and Exporters Association (EHPEA, founded in 2002) has been instrumental in attracting the attention of the Ethiopian government and foreign investors towards the cut flower industry. Other relevant institutions are Ethiopia's Horticulture and Agriculture Investment Authority (EHAI), the Ethiopian Investment Commission (EIC), the Ministry of Trade and Industry (MOTU) and the Ministry of Agriculture (MOA).

Concerning trade agreements important for Ethiopia's exports of cut flowers, we already mentioned the most relevant regulations in the Profile on Kenya: the reader has to read there 'Ethiopia' instead of 'Kenya'. African exporters may in particular meet hurdles in adhering to the MRL (Maximum Residu Levels) requirements of the European Union (EU), other EU regulations on pesticide usage and, worldwide, to phytosanitary certificates (related to plant health) needed for the export of flowers.

Corruption is widespread in Ethiopia, especially concerning land distribution and administration, although its level is suggested to be less than in comparable countries (Ethiopia Corruption Report). Yet, comparing corruption across countries is not that easy: since 2015 Ethiopia is no longer included in the worldwide Corruption Perceptions Index (CPI, website).

A developed infrastructure like road and electricity facilities is only to a limited extent available in Ethiopia's countryside. Because the floriculture sector requires such an infrastructure as well as qualified manpower, floriculture farms are concentrated in the outskirts of Addis Ababa, the capital, with easy access to nearby Bole International Airport, as well as in the Rift Valley area. Around 2010 Ziway, on the shore of Lake Ziway, developed as a 'flower company town' – through that may sound nicer than the realities of what are basically slums (see below under 'Living wages'). By 2013 about 60 per cent of Ziway adults –in majority women—reported to work or having worked on a flower farm (Cramer et al. 2014: 49). More recently Debre Zeit in western Ethiopia, and Sebeta, Holeta, Sululta and Sendafa, all within the regional state of Oromia (around Addis

Ababa) became flower cultivation areas. Flower farms have also emerged near the capital cities of regional states like Bahir Dar and Hawassa. In the new areas problems with infrastructure often prevail. Even main roads urgently need maintenance and improvement; they are partly unsuitable for refrigerator trucks (Yeshiwas and Workie 2018: 5).

Employment, number of farms, ownership

The number of farms and the size of employment in Ethiopian floriculture have to be derived from a few sources. Kirigia et al. (2016: 60) reported that by 2005 31 cut flower farms had been established and that in 2007 this amount had more than doubled to 67. According to this source over 80 flower farms in 2013 together would use 1,200 hectares. By then, fully and partly Dutch-owned firms took about 65 per cent of the total production area. An article in the Ethiopian Herald mentioned for 2018 136 companies involved in the export of flowers, vegetables, herbs, and fruits; 84 of these companies were referred to as 'active flower farms' (SOMO 2020: 10).

In 2020 the Ethiopian Investment Commission mentioned the existence of 100 flower farms, 60 of which were either fully run by foreigners or by foreigners in cooperation with local businessmen. In June 2022, the website flower-companies.com also traced 100 flower companies. Most recently (September 30, 2022) the website of EHPEA stated the organisation had 120 members. Based on EHPEA's most recent member list we assumed that 75 per cent, thus, 90 of them qualified as flower producers, and that the others were vegetable and fruit growers, or servicers.[13] Two years earlier EHPEA's full list contained 119 names (SOMO 2020: 10). It is unclear what happened in the meantime; it may be that the COVID-19 pandemic played a role in wiping out firms, at least as EHPEA members, but EHPEA's website has kept silent on this issue. We decided to depart from 90 flower-growing companies in Ethiopia in 2022 on behalf of our statistical overviews.

All larger flower producers have the flowers grown in steel-structured greenhouses, definitely at their farms in Bahir Dar and Hawassa (Beyene 2014: 25). According to MOTU (website), the total Ethiopian floriculture area in 2021 was 3,490 hectares.

Concerning employment, Aman (2011: 14) already for 2010 mentioned 50-60,000 directly employed in the Ethiopian floriculture sector and over 200,000 indirectly employed, bringing total employment to over 250,000. These numbers seem exaggerated, projected against the development of the floriculture sector at the time. Nevertheless, if massive labour turnover and the use of short-term contracts prevail, large numbers of employed may be the outcome if everyone is counted who is working at any time of the year at a flower farm.

Schaefer and Abebe (2015: 26) referred to surveys ("censuses of all flower farms between 2007 and 2013") of the Ethiopian Development Research Institute (EDRI) showing an increase in the total number of workers in the cut flower industry from 12,000 in 2007 and 25,000 in 2010 up to 30,000 in 2012. These authors wrote that not all farms seemed to have been covered and that thus "The employment figures used here may understate the actual number of jobs created in the sector" (Schaefer and Abebe 2015: 27). Unfortunately, the EDRI-related websites –ie. the websites of supporting institutes such as IFPRI -- do not refer to more recent surveys.

For 2015, Kirigia et al. (2016: 60) noticed 85,000 employed ***in total***, from which amount about 35,000 directly employed can be derived. Between 2015 and 2021, Ethiopia's cut flower exports rose by 45 per cent. If we subtract 15 per cent for productivity increases, the 30 per cent employment hike that may reasonably be assumed would bring its size at 45,000 directly employed**. Currently, 45,000**

13 The most recent, and obviously not complete, member list of EHPEA (September 30, 2022) contains 81 names of which 61 (75%) could be identified as flower producers.

directly employed seems a realistic figure for Ethiopia's floriculture sector. The above figures imply an average company size of 500 employed and 38.78 hectares cultivated.

Detailed information on 14 flower companies, exclusively located in the Oromia region assembled on behalf of WageIndicator's DecentWorkCheck (see below), results in 18,967 totally employed at these 14, of which 12,123 women (64%). In the survey outcomes all workers are labelled as having a permanent contract. One firm (Sher Ethiopia) stood out with 11,982 employed, of which 7,062 women (59%). Employment in the other 13 varied between 150 and 1,413 workers. As far as could be traced, 10 of these 14 farms were in majority foreign-owned (see data on the Flower Farm Pages of the Ethiopian Mywage (WageIndicator) website).

Working conditions and environment

It may be taken for granted that a considerable part of jobs in Ethiopian floriculture is characterized by short-term contracts, mostly on a daily basis. Working for a prolonged period for one farm seems rather rare. The standard working week is 48 hours; working overtime is generally compulsory (Aman 2011: 9). A 2013 report summarizes: "The industry has created employment opportunities for low-skilled and poor rural women who have never been in paid employment before. This may positively contribute to their income and status. However, about 70-80 per cent of all workers in the sector are temporary" (Ute 2013: 24). More recently, Ethiopian researchers concluded that in such a employer-worker relationship it is difficult to keep the rights of workers upright that should protect them from repression and unfair dismissal. They pointed to the potential violation of women's rights: "(....) seasonal and casual workers in the flower farms are worried to become pregnant, sick or injured since they risk losing their jobs. Such job insecurity has also specific gender implications where some women will be excluded from benefits such as maternity and sick leave" (Yeshiwas and Workie 2018: 9).

In view of increasing concerns about working conditions and wages, the WageIndicator Foundation has developed the DecentWorkCheck: a survey that allows workers to test whether their working experiences comply with 37 topics in the national labour law. Funded by FNV Mondiaal, in Ethiopia and Uganda the WageIndicator Foundation has rolled out the project 'How Decent is my Flower Farm' (website). Within this framework, the Ethiopian DecentWorkCheck survey has been carried out among workers of flower farms in the Oromia region. The survey took place in two waves, the first from July 2018 to December 2018 and the second from October 2019 to January 2020. 1,072 flower farm workers responded (68% female), covering 29 flower farms. Survey outcomes were quite relevant for seven topics covered in this report:

- the employer provides on-site medical facilities: 'yes' 82 per cent (males 87%, females 80%);
- the employer provides free protective equipment (PPE) without any cost to the employees: 'yes' 90 per cent (males 93%, females 88%);
- the employer follows a policy to train workers on health and safety issues: 'yes' 84 per cent (males 80%, females 85%);
- in the company cases of sexual harassment at work have been reported in the last year: 'yes' 11 per cent (males 12%, females 10%);
- the employer employs children under the age of 16 years: 'yes' 3 per cent (males 3%, females 4%);
- the employer allows workers to join trade unions or associations: 'yes' 85 per cent (males 85%, females 86%);
- the employer acknowledges the right to strike, within the limitations stated in the labour law: 'yes' 30 per cent (males 28%, females 31%).

Detailed results can be found on the Flower Farm Pages of the Ethiopian Mywage (WageIndicator) website. A WageIndicator report based on the DecentWorkCheck results analysed which factors (gender, age, skill level, firm size) for garment factories and flower farms influenced compliance in Ethiopia. That report noted that enforcement of compliance could be considered weak: "Inspectors in Ethiopia cannot fine violations of labour regulations, but need a court order to do so. Their power is limited to warning employers to remedy unlawful working conditions within a given period. If the employer does not improve the situation, the inspector may then issue a formal order to the employer requiring him or her to do so" (Hartman and Tijdens 2021: 8). Ahmad (2021a) has detailed the country's relevant labour regulations, being the basis for the DecentWorkCheck, for 2021.

As regards health and safety in exposure to plant protection products, an older study found grounds to recommend for Ethiopian floriculture "the full provision of effective protective clothing and strictly enforced rules to ensure a safe time lapse between the spraying of flowers and workers' re-entry to the greenhouses, as well as proper time for breaks in the working shift". The study placed this recommendation in a broader perspective concerning women's rights: "(.....) this should also include measures to prevent and police sexual harassment" (Cramer et al. 2014: 126).

Issues regarding working conditions and environmental impact – the latter regarding land rights, climate change and water use --are often connected in the Ethiopian floriculture industry, as shown below based on various reporting (Ute 2013; Cramer et al. 2014; Yeshiwas and Workie 2018: 5-8):

- pollution of soil, water and air is widespread because of inappropriate use of fertilizers and pesticides as well as of poor waste disposal systems and depletion of water resources;
- negative effects of greenhouses constructed close to residential areas have come to light;
- local communities claim shortages of agricultural farm lands and of woods to be used for construction and fuel, and accordingly claim compensation for owners of land changed into floriculture farms;
- micro-climate changes have been traced that seem associated with the expansion of floricultural areas.

Living wages

A particular weak spot in Ethiopia is the lack of a national statutory minimum wage. Although the country's administration has ratified the eight 'fundamental' conventions of the ILO aiming to protect workers and their rights, it has not ratified ILO Convention No. 131, on minimum wage fixing. The main argument for this policy has been that wage flexibility is desirable for the labour market and that ratification of Convention 131 is unattainable (Hartman and Tijdens 2021: 7, 27). Statutory minimum wages exist only for six occupational groups in the public sector, and even these are outdated (as valid since January 1, 2011; in 2021 for most ranks stood these at around Birr 422 per month, or by then USD 8 per month; source: WageIndicator minimum wage database). For 2015, Melese (2015: 37) reported that "in setting wages, many flower farms appear to make a reference to a minimum wage that is applicable to a certain segment of public servants: around Birr 600 (USD 29) per month".4

By July 2015, an estimate of a living wage of (families of) workers working for Ethiopian flower farms in the Ziway area, using the Anker methodology, ended up at Birr 3,367 (USD 163) per month. This estimate was calculated considering mandatory deductions from pay of Birr 784 (USD 38) per month. Living expenses were also calculated for a reference family of five with 1.65 full-time equivalent (FTE) workers per couple. The resulting estimated living wage was much higher than all 'wage comparators',

and 2.5-3.0 times higher than the prevailing wages paid by flower farms. In conclusion, the wages of flower farm workers in the Ziway area were low by any measure of human decency, not being enough even for nutritious food. Similar to the reporting we cited on Kenya's Lake Naivasha area, Melese (2015: 3, 40-43) reported that the urban area around the flower farms in the Ziway region has grown almost entirely unplanned, with most migrant workers living in slums without basic infrastructure. For most worker families housing here meant renting one small room. Based on the available information, we can state that **in 2015 the gap between average wages and living wages in Ethiopia's cut flower industry varied between 250 and 300 per cent**.

A July 2021 update of the 2015 living wage study just covered, taking into account inflation and changes in income taxes and mandatory deductions from pay in the years 2015-2021, concluded to living wages of gross Birr 10,119 (USD 231) per month and net Birr 6,169 (USD 140) per month. This update, however, did not contain information on earned wages (Andersen et al. 2021b). For 2022, the WageIndicator salary survey indicated that Ethiopian farmers (cultivation not specified) with 5 to 10 years of experience earned Birr 2,069 per month. More specifically, agricultural technicians with 5-10 years of experience earned between Birr 2,434 and Birr 5,526 per month (Mywage website). Combining these pieces of information would imply that **in Ethiopian agriculture in 2021-22 the gap between average wages and living wages varied between 82 and 391 per cent.**

In between the two living wage studies just mentioned, in 2017 Fairtrade International introduced a Floor Wage for floriculture. Fairtrade applied the World Bank absolute poverty line (USD 1.90 per hour) corrected for purchasing power parity (PPP), related to typical family size and number of wage earners to create a minimum requirement for base wages. In Ethiopia this Floor Wage ended up approximately 80 per cent higher than entry-level base wages (Birr 1,500 against Birr 800). The Fairtrade organisation argued that "(.....) this Floor Wage is also meant to help level the playing field between Ethiopian and Kenyan producers, the latter having to comply with minimum wage laws and CBA rates" (website GLWC / East Africa flower industry). In our opinion acting according to this argument carries the danger of undermining efforts to introduce living wages for Kenyan (cut flower) workers. It also brings elements of international business competition into living wage discussions that seem at odds with productive debates.

Labour relations and trade unions

The availability of a large and cheap labour force and business-friendly conditions has been advertised as attractive for foreign investment in Ethiopia's cut flower industry. Schaefer and Abebe (2015: 23) argued that wage levels in Ethiopia are lower than in competing flower-producing countries, even more than making up for lower labour productivity. They stated that the Ethiopian workforce was largely pliant, and organized only through a single state-run labour union. However, already in 2015 the Confederation of Ethiopian Trade Unions (CETU) and most of its affiliated Industrial Federations were involved in a process of loosening ties with the national government. Recently an Ethiopian observer argued that in the first half of the 2010s, CETU "with a new batch of leaders and a progressive weakening of government control over the confederation, embarked on a path of revitalisation and growth" (Admasie 2022: 1). This observer summarized recent results of CETU campaigns, such as in 2021 lifting the ban on unions that employers (in collusion with state institutions!) had issued in the country's largest industrial park. He referred to the fact that the membership of those unions affiliated to CETU nearly doubled between 2015 and 2021, though recognizing that "the share of (union) income generated by (membership) dues remains alarmingly low" (Admasie 2022: 2).

The current Ethiopian labour legislation is an obstacle for the deployment of trade union power. In spite of some modifications in recent years it is still very 'business-friendly'. Especially concerning dismissal and employers' contractual obligations the laws of 1993 and 2003 are highly flexible, also in comparison with the labour legislation of other low-income countries. A new law, passed in September 2019, contained some improvements outside the legal framework, such as an extension of maternity leave. At firm level, however, 'parties' --in practice employers-- remain free to conclude, modify or terminate employment contracts. The law allows the use of a wide variety of temporary employment contracts. Moreover, in 2003 and 2019 the number of reasons that allow employers to hire workers under a temporary employment contract has been widened. As a result, employers can easily recruit workers on a temporary basis for permanent work. The rules protecting workers against dismissal have also been subject to relaxation (Ute 2013; Hartman and Tijdens 2021; Ahmad 2021a; see also ITUC 2021, 2022, and LRI Ethiopia). We already noted that Ethiopia lacks a national statutory minimum wage.

Position of women

The amount and the conditions of female Ethiopian cut flower workers are less well documented than those of their Kenyan sisters. According to MOTU (website), in 2021 over 85 per cent of Ethiopian cut flower workers were women. That percentage most likely refers to those working in growing and packaging. If one includes breeding and propagation as well as management and administration, the female share in the industry at large may end up at about 70 per cent, a percentage also mentioned in older sources (for example in Kirigia et al. 2016: 60). As noted, most recently WageIndicator's DecentWorkCheck found 64 per cent women working in 14 Ethiopian flower farms, all labelled as having a permanent contract, and 68 per cent women workers among those interviewed in 22 flower farms.

As this survey was undertaken in farms which were open to the trade union, the outcomes on the situation of women may have captured a relatively positive picture of contractual relations. Other reporting indicates that in Ethiopian flower farms overall a majority of women workers, notably those working in growing and packaging, were employed in temporary, low-skilled and low-paid positions and face problems of inequality. Practical problems arose due to the lack of transport facilities for the workers. Most workers have to walk to and from the job, resulting in that pregnant females repeatedly have had to quit their job. Such walks, often in darkness, also enlarge the risks of sexual harassment. Moreover, in a minority of (large!) farms female sanitary facilities was lacking (Cramer et al. 2014).

In the DecentWorkCheck survey for Ethiopia 12 per cent of males and 10 per cent of females answered 'yes' when asked whether cases of sexual harassment at work had been reported ***in the last year***. This outcome was similar to that of a survey undertaken ten years earlier, in 2011, but here a caveat is needed. By then a large majority (87%) of workers answered that sexual harassment had not occurred in their workplace, but many added that irregularly it would take place outside the company premises when female workers went back home late after having worked overtime (Aman 2011: 8).

The report of Cramer et al. gave details for 2012 and offered some perspectives on fighting sexual harassment at work. A focus group of workers of an Ethiopian cut flower farm ***with*** Fairtrade certification identified unwanted touching, obscene language and supervisors attempting to obtain sexual favours to retain their jobs or get better ones. A focus group on a farm ***without*** Fairtrade certification reported these practices even more clearly. Yet, in the last case "there was some evidence that the incidence of sexual harassment by supervisors may have lessened over time." This led the researchers to conclude: "As more flower farms opened and the vacancies for women workers increased, women reported being better able

to resist pressures for sexual favours and it being far less common to be asked for sexual favours/bribes in order to get employment" (Cramer et al. 2014: 90). Actual and broad evidence is needed to find out whether in the Ethiopian cut flower sector such a perspective exists on a wider scale. A project could be supportive here for which trade unions and institutions in Ethiopia, Uganda and Tanzania together with the NGO Hivos developed a 'model sexual harassment policy' (Hivos n.d.).

Profile: Uganda

History, local conditions and exports

After Ugandan floriculture started in 1992 with three cut flower farms, initially rapid growth followed. Kirigia et al. (2016: 9) stated the number of farms had increased to over 20 in 2007. Amidst this growth process Wijnands (2005: 57) saw various hurdles in Uganda, such as "All inputs required for production are available but have to be obtained from foreign countries. Although unskilled labour is abundantly available, the industry still lacks qualified labour". A decade later, Evers et al. (2014: 4) turned these and other reservations into a success story: "Wages and benefits of floriculture workers had improved substantially, with the position of women workers' greatly improved. These successes were driven by the economic upgrading of producers who diversified away from buyer-driven flowers GVCs to cuttings – a GVC driven by vertically integrated operations of multinational corporations (.....) significant gains for workers, particularly women workers." It has to be seen whether this assessment holds in view of more recent information. At least one point asks for nuance. The finding is correct that in Uganda's floriculture a number of farms, in particular with Dutch owners, has switched to cuttings.[14] This switch was mainly due to financial constraints and less deliberate than suggested. Profit margins on cuttings were higher, also because the Ugandan climate seems better suited to cuttings than to flowers; in particular, it is not well suited to growing high-quality roses; it exports mainly 'small' roses (Evers et al. 2014: 26-27; Kirigia et al. 2016: 10). The Ugandan floriculture sector has remained small compared to the expansion that took place in Kenya and Ethiopia.

Over the years the Netherlands has been by far the largest destination for Uganda's floricultural exports. In 2011-2020 on average USD 45 mln yearly went to the Netherlands: 85 per cent of the averaged USD 53 mln exported jointly in the 0602 and 0603 categories. Germany was the second destination in this period of time, taking 4 per cent in these categories; the UK accounted for another 2 per cent. In 2021 these shares were respectively, for the 0603 category, 71 per cent (Netherlands), 6 per cent (Germany) and 5 per cent (UK). In 2021 Uganda's roses were fully exported to the Netherlands (Tables A11 and A12).

14 Uganda's switch to cuttings has led to statistical inconvenience. According to the Comtrade ITC 0603 cut flower statistics, Uganda exported hardly any value in that category between 2009 and 2020, whereas in the 0602 category 'living plants' Uganda's exports reached USD 48 mln in 2009, USD 47 mln in 2010, and on average USD 53 mln in 2011-2020. In these years sub-category 060210, 'Plants, live, unrooted cuttings or slips', most closely approaching the value of cuttings exports, took about half of the 0602 outcomes and reached USD 22 mln in 2009, USD 24 mln in 2010, and averaged USD 29 mln in 2011-2020. We have included these figures in Tables A1 and A2. For 2021, the international statistics seem to retrace their steps and prioritize the 0603 category. After the Comtrade statistics earlier presented USD 34 million for Ugandan exports in 2021 in this category, the cell in question has actually (October 30, 2022) been left blank. The ITC Trade Map mentions USD 48 mln as preliminary outcome for 2021 ***in the 0603 category***, slightly below Uganda's average registered over 2011-2020 ***in the 0602 category.***

The 'data switch' between the 0602 and 0603 categories took place in 2000-2006. Whereas Ugandan exports in 2000 according to the Comtrade statistics were respectively USD 0.02 mln for 0602 and USD 10 mln for 0603, they developed –via USD 8 mln for 0602 and USD 11 mln for 0603 in 2002, and USD 28 mln for 0602 and USD 3 mln for 0603 in 2004-- to USD 32 mln for 0602 and USD 0.1 mln for 0603 in 2006. In these years Ugandan exports for the 0602 and 0603 categories ***jointly*** increased from USD 10 mln to USD 32 mln (and to USD 48 mln in 2009).

Government policies and infrastructure

In Uganda most flower farms are located in the central region near Lutembe Bay in the Lake Victoria basin, in the districts Mpigi, Mukono and Wakiso. The availability here of fresh and good quality water throughout the year is an important asset. These locations also have the advantage of being near Entebbe International Airport with its export facilities. Ugandan farmers in large majority grow flowers in custom-built greenhouses.

Concerning the role of government, the overall positive report as of 2014 already cited reads: "There is a clear lack of government support for flower producers in Uganda, which see themselves as in a more disadvantaged position than their counterparts in Kenya and Ethiopia" (Evers et al. 2014: 21). The Uganda Flowers Exporters Association (UFEA), representing the interests of both flowers and cuttings exporters, has taken over roles played in other counties by government. International donors used to support UFEA, primarily to bolster process upgrading. In the course of the 2010s this support largely disappeared or was commercialized (Evers et al. 2014: 16; CBI 2017a, b).

Transport facilities are limited in Uganda. Railways only have narrow (one-metre) gauge; the Uganda Standard Gauge Railway, to connect Uganda, Kenya, the DR Congo, Rwanda and South Sudan, is still in the planning stage (wikipedia). The national road network is under a considerable rehabilitation program. The current government has declared (improving the) road and rail infrastructure a key priority (website UgandaInvest). Yet, transporting the current limited amounts of cut flowers mainly to Entebbe Airport is feasible.

Widespread corruption may well form a hurdle for deploying commercial activities. Over 2021, Uganda ranked 144th on the Corruption Perceptions Index (CPI, website), occupying since 2012 an equally low position in that Index. In spite of a set of five Acts, there is a high risk of corruption in Uganda's judicial sector, in part due to political interference. Such risks are regarded as very high in the country's public sector where corruption is assessed to be endemic (website Uganda Corruption Report).

Besides transport and corruption, in 2019 an informed business website (Asokoinsight) noticed three factors frustrating the expansion of Ugandan floriculture; these seem also relevant for the cuttings business. As a first factor the lack of local breeders and propagators was mentioned. This lack forces Uganda to import inputs such as seeds and rose plants, mainly from Kenya. Second, for exports to the European Union Uganda's exporters should adhere to EU's MRL requirements and other EU regulations on pesticide use. However, with little domestic expertise at hand exporters had and have to rely on (expensive) foreign experts to comply with these regulations. Third, the volatility of Uganda's exchange rate puts local firms at a disadvantage in international trade. As a fourth factor the climatic element should be added: the severe dry spells that have hampered the country's agricultural production already and are expected to continue to do so. Severe droughts occurred in Uganda in 2016 and 2017 (Adiiki 2017) and again in 2021 and 2022. Droughts can be alternated by heavy rainfall that triggers landslides. Lately that happened in early September 2022 (Reuters 2022).

Employment, number of farms, ownership

For Uganda it is not that easy to trace (the development of) the number of farms and the size of floriculture employment. We already cited Kirigia et al., stating that Uganda's floriculture sector started in 1992 with three flower farms, growing to over 20 farms in 2007. Indeed, the country's export figures indicate a strong increase in output in the course of the 2000s. Obviously this increase took place through the expansion of existing farms. Various sources

maintain that between 2001 and 2012 the number of farms stabilized at 20, though with production shifting to cuttings. By then production covered an area of about 200 hectares, or 10 hectares averaged per farm (though, as we indicated in Chapter 1, if extrapolated to the current day this average may well be overestimated in view of the size of wasteland). In this period of time direct employment rose from 4,000 workers in 2001 to 6,000-7,000 in 2012, with 75 per cent being women (Evers et al. 2014: 27). Based on information from the Uganda Export Promotion Board (UEPB) and the UFEA, Kirigia et al. (2016: 9-10) reported that the sector for 2013/14 employed around 8,500 people "and supported an estimated 51,000 individuals." In 2018 UFEA's executive director informed the press that her industry employed "over 9,000 people", mostly rural workers: "up to 70 per cent of them are women, with an estimated 60,000 individuals benefitting directly or indirectly from it". She claimed that "at least 15 flower firms export to the European Union" (Bwambale 2019).

In a press message on the effects of COVID-19 the General Secretary of the Uganda Horticultural Industrial Service Providers Allied Workers Union (UHISPAWU) stated that by the end of March 2020 the flower farms counted about 8,000 employees. By then, some 3,500 employees could continue working whereas over 4,000 had to stay home as a result of lockdowns and social distancing - a majority of them on unpaid leave without any financial or food support. Immediately after the COVID-19 outbreak the management of a number of farms had announced mass lay-offs. Rapid interventions of UHISPAWU in collaboration with the UFEA ("we have built such a good working relationship") succeeded to ward these off, at least until April. Through farm visits a number of measures were discussed and agreed with management: reduction of a percentage of staff salaries depending on the salary structures; a range of health and safety precautions such as the provision of masks to all employees; having lunch in shifts, and making water and soap available in as many corners of the farms as possible (Nassali 2020).

Detailed information on 11 Ugandan flower companies assembled on behalf of WageIndicator's DecentWorkCheck (see next section) between November 2019 and January 2021 resulted in their total employed being 7,594, of which 5,129 women (68%) and 6,632 (87%) permanent workers. This may cover close to all flower companies active in this period of time and their related employment. Two firms stood out, Wagagai and Rosebud, with respectively 2,210 and 1,087 employed of which 68 and 66 per cent women. The size of the other nine companies varied between 175 and 850 workers. At the time, nine of these 11 farms were in majority foreign-owned (based on data on the Flower Farm Pages of the Uganda Mywage (WageIndicator) website). In September 2022 the membership list of UFEA contained 12 company names (website UFEA, though its 'about UFEA' webpage stated that "membership consists of 14 farms"). All in all, currently 8,000 directly employed seems a realistic figure for Uganda's floriculture sector.

Working conditions and environment

The Profile on Ethiopia already explained that the WageIndicator Foundation has developed the DecentWorkCheck (DWC); also, that funded by FNV Mondiaal WageIndicator has rolled out the project 'How Decent is my Flower Farm' in Ethiopia and Uganda. In Uganda this project has been carried out jointly with the Federation of Uganda Employers (FUE) and the UHISPAWU. Ahmad (2021b) detailed the country's relevant labour regulations, as the basis for the DecentWorkCheck. Since July 2018 workers of flower farms have completed the Ugandan DecentWorkCheck survey. Based on the responses of 1,024 workers (61% females), received latest August 8, 2022, the outcomes on eight selected topics were:

- the employer provides on-site medical facilities: 'yes' 71% (males 73%, females 69%);

- the employer provides control of ventilation and temperature: 'yes' 94% (males 94%, females 95%);
- the employer provides free protective equipment (PPE) without any cost to the employees: 'yes' 90% (males 90%, females 90%);
- the employer follows a policy to train workers on health and safety issues: 'yes' 99% (males 99%, females 98%);
- in the company cases of sexual harassment at work have been reported in the last year: 'yes' 20% (males 18%, females 22%);
- the employer employs children under the age of 16 years: 'yes' 1% (males 1%, females 1%);
- the employer allows workers to join trade unions or associations: 'yes' 85% (males 85%, females 86%);
- the employer acknowledges the right to strike, within the limitations stated in the labour law: 'yes' 2% (males 2%, females 1%).

The outcomes on health and safety topics (the first three dots) seem encouraging, definitely compared with the results of the older research of Evers et al. (2014: 29). For example, the lack of protective clothing by then existing for women seems to have become less of a problem. By contrast, the DecentWorkCheck outcomes concerning sexual harassment are worrisome, and those concerning the right to strike are even outright staggering. Although the right to strike is laid down in Ugandan law, the respondents' confidence is close to zero in that the employer will comply and acknowledge that right in practice. We will return to the DecentWorkCheck outcomes on sexual harassment in the last section of this Profile.

Similar to Kenya, in Uganda issues regarding working conditions and the environmental impact of floriculture mix up. Land rights, water use and micro-climate change are at stake here. Concerns of NGO's concentrate on Lutembe Bay in the Lake Victoria basin. Lutembe Bay is, like Kenya's Lake Naivasha, a Ramsar Site. In the 2010s the productivity of fishing in this bay has been reduced dramatically: fishers are often unable to catch the types of fish upon which they base their livelihood. A number of flower companies operate in the area, the largest of which (Rosebud) has been criticised in local media for causing pollution and extending its operations too close to the lake (Mlynska et al. 2015: 20). A remarkable fact may well be that in 2021 the company in question got a Fairtrade certification (website Uganda Watchdog).

Living wages

By August-September 2019, the calculation of a living wage of (families of) workers who lived in rural areas near to floriculture farms in Uganda ended up at gross UGX 652,311 (USD 177) per month. This estimate included a net living wage take-home-pay of UGX 555,786 (USD 151) plus the income taxes and statutory payroll deductions that would need to be paid on the living wage. Living expenses were also calculated for a reference family of five with 1.78 full-time equivalent (FTE) workers per couple. The estimated net living wage came out much higher than all possible benchmarks, including the statutory minimum wage and the wage agreed in the Recognition Agreement (see next section), as well as the prevailing wages of horticulture workers. A pay scale structure provided by a flower farm showed an average wage of UGX 324,951. However, the wage distribution in question was highly unequal and the majority of workers earned less than UGX 200,000 per month (Khan and Buyinza 2020: 6, 49).

A 2022 update of the 2019 study, taking into account inflation and changes in payroll deductions between September 2019 and the beginning of 2022, concluded to living wages in rural Uganda of gross UGX 770,998 (USD 215) per month and net UGX 619,433 (USD 172) per month (Andersen et al. 2022a). WageIndicator observations make it plausible that in

early 2022 the gross wages of the majority of workers in Uganda's floriculture farms varied between UGX 130,000 and UGX 200,000 per month, ending up to an average of about UGX 160,000 per month. Based on the above information, we can conclude that **in 2022 the gap between the average wage and living wages in Uganda's cut flower industry was 301 per cent.**

The lower boundary just mentioned equals the current statutory minimum wage level of UGX 130,000 per month. Based on the available information, we can conclude that **in 2022 the gap between the statutory minimum wage and living wages in Uganda's cut flower industry was 493 per cent.**

The official minimum wage has not been of much help to close the gap between earned wage and decent life most floriculture workers are confronted with. The story of Uganda's statutory minimum wage is one of long-time governmental neglect. Per 1 January 1984 the statutory minimum wage was set at UGX 6,000 per month; before this date no such minimum existed. In spite of pressure from the trade union movement and from trade associations, it lasted 33 years before the statutory minimum wage was lifted: per 1 July 2017 it was set at UGX 130,000 per month (in mid-2022 USD 34.15) (WageIndicator minimum wage database). According to the Uganda Bureau of Statistics, the inflation rate in the years 1984-2017 has on average been 8 per cent per year. For those Ugandan people in these 33 years living at (or under) the minimum wage level, this has implied a massive loss of purchasing power. Also, after 2017 no further minimum wage revision has taken place. With a cumulative official inflation of 24 per cent between mid-2017 and mid-2022, this meant another loss of purchasing power for many. The current minimum wage rates may therefore be regarded as outdated.

Against this background it can be questioned whether the improvements in wages and benefits that Evers et al. (2014: 27-28) found for permanent (!) floriculture workers, markedly between 2007 and 2012, got a foothold. It is clear that their conclusion as regards the costs of living has become even more urgent: "Despite these improvements, real wages have not risen sufficiently to keep up with the costs of living. Most workers (cuttings and flowers) report their incomes are insufficient to meet their basic needs and those of their dependants" (Evers et al. 2014: 28).

Labour relations and trade unions

In the 2000s workers in Uganda's newly developing floriculture had no direct link with collective bargaining as guided by the National Tripartite Charter on Labour Relations with, on the workers' side, the National Organization of Trade Unions (NOTU) – the ITUC affiliate in Uganda. This changed in 2010. Then, a two-yearly sector CBA (collective bargaining agreement), the Recognition Agreement, covering both flowers and cuttings firms, was agreed between UFEA and UHAWU (Uganda Horticultural and Allied Workers Union), by then the union representing floriculture workers. The CBA consisted of two separate agreements or phases. Phase I covered conditions of service, negotiated every two years. Phase II covered salaries and wages, to be negotiated annually. Initially, only workers on permanent one-year contracts were entitled to full benefits, consisting of paid annual leave of 21 days; maternity leave of 60 days; paternity leave of four days; and sick leave approved by the farm clinic. In 2012 Phase III was agreed, lifting wages for the lowest wage category after workers having completed his/her six-month probation period. From the beginning the CBA included provisions that a. the employer and the union shall put in place a sector sexual harassment policy and b. institute any other measures aimed at eliminating and preventing sexual harassment occurrence at the workplace. Women committees should be installed to monitor complaint processes (UWEA 2011: 46; Mlynska et al. 2015: 20; Africapay.org/Uganda (Wage-

Indicator) Collective Agreements Database).

In April 2013, 12 horticultural companies, all members of the UFEA, and UHISPAWU as successor of the UHAWU union signed a new CBA as, among other goals, to increase wages. The representative of the UFEA stated: "This is a major achievement on our part and we are optimistic that workers in the flower industry are going to start earning between UGX 100,000 (per month) and UGX 200,000 from the current level of UGX 60,000 - UGX 108,000". In fact, in 2015 UHISPAWU succeeded to negotiate an increase of the minimum wage stipulated in the CBA from USD 22 to USD 27 (UGX 61,000 to UGX 75,000) per month[15]. However, the next CBA, that of 2017, did not contain a wage paragraph any longer and was signed by representatives of only five companies (Africapay.org/Uganda (WageIndicator) Collective Agreements Database). It looks like collective bargaining in the sector has become hollowed out. Indeed, the living wage outcomes of 2019 and 2022 mentioned earlier suggest that the subsequent CBAs have only had small upward effects on wages. The CBA effects on working conditions at flower farms may have been more positive, at least initially (cf. Evers et al. 2014: 29)(See overall for the practice of labour law in Uganda ITUC 2021, 2022, and LRI Uganda).

Position of women

The focus is here on sexual harassment. In a study of the Uganda Workers' Education Association (UWEA), based on field research in 2008-2010, 49 per cent of 401 Ugandan respondents (67% females) stated that sexual harassment practices persisted on the flower farms at stake. Asked about how often such practices occurred on 'their' farm, 61 per cent answered that sexual harassment existed, and estimated it was reported once in about two months. Especially male managers and supervisors were said to show this behaviour against female junior workers on promises that they would maintain their victims in employment. The study saw the provisions on sexual harassment policy in the sector CBA of 2010, cited above, as a road to improve the situation (UWEA 2011: 46, 53).

The percentages indicating sexual harassment practices the UWEA found were quite high, also seen in international perspective. This still seems the case. The recent percentages from WageIndicator's DecentWorkCheck for Uganda's floriculture reporting sexual harassment at work *in the last year*, respectively 18 and 22 per cent, doubled those for Ethiopia. Since 2012, thanks to the Employment (Sexual Harassment) Regulations sexual harassment constitutes a crime in Uganda. Nevertheless, the numbers just cited leave much room for improvement. The available reports (besides UWEA 2011 and Evers et al. 2014: Cramer 2014: 88-90; Mlynska et al. 2015 (full report); Kirigia et al. 2016: 55-56) share views on the main background factors in play in Uganda:

- the subservient positions of women in society and in particular of women workers at the floriculture farms;
- dominant ideas in society about these positions;
- women's repeatedly isolated workplaces at floriculture farms;
- the strict hierarchy at farms, and
- the very few women in senior management positions at farms.

Profile: Colombia

History, local conditions and exports

In the late 1960s, as an extension of the geographic shifts within the US described in Chapter 2, American cut flower production moved to Colombia. US investors and traders were attracted by "the right combination of factors", as summed up in a 1991 World Bank

15 In a Hivos message Janepher Nassali, General Secretary UHISPAWU, was cited saying "that a visit to the flower auction in the Netherlands gave her the ammunition to negotiate higher wages at the farms in Uganda. She saw with her own eyes how much the growers in Europe were getting for their flowers, so she knew they could pay their employees more" (translated from Dutch).

report with last mentioned the decisive factors: "Colombia (….) had near perfect environmental conditions (….). The climate in the plateau region surrounding Bogotá (Savana de Bogotá) has year-round moderate and unvarying temperatures, and high light intensity. (….) The country is abundantly endowed with naturally fertile land. More importantly, Colombia also had an abundance of low-skilled, largely female labour" (Mendez 1991: 6-7). The report neglected that --promoted by the same World Bank-- already in the 1960s small-scale family businesses had started flower production in Colombia (Madrid and Lovell 2007: 217). It pointed out that in 1969 four American cut flower entrepreneurs started their Floramerica plantation near Bogotá, to become one of the world's largest exporters (and taken over by the large US-based Dole Food Company). Floramerica founders and staff members spread know-how to new growers and servicing firms.

After distribution facilities (refrigerated storage, customs inspections, marketing --Mendez 1991: 8-10) were enhanced, Colombia looked ready to get a leading position in the global and US cut flower markets. From the very start of this cut flower expansion it was difficult to see whether that could offer a perspective for the large amounts of poor peasants that since the 1960s were violently forced off their land. Their situation provided a favourable breeding ground for the guerrilla warfare of insurgent groups such the FARC (Brittain 2010: 19). In the course of events the FARC has been linked with drug trafficking.[16]

In December 1991 the US Bush sr administration signed the Andean Trade Preference Agreement (ATPA), with the purpose "to reduce drug-crop cultivation and trafficking in the Andean Countries: Colombia, Ecuador, Bolivia, and Peru (….) and to help these countries develop and strengthen legitimate industries", or, more explicitly, "(….) to help defeat the scourge of drug trafficking by providing sustainable economic alternatives to drug-crop production" (USTR 2013: 1). Through the ATPA these four countries gained duty-free access to the US market: a stimulus for Colombian cut flower exports to the US. When the agreement expired in December 2001, it was expanded and called the Andean Trade Promotion and Drug Eradication Act (ATPDEA). Due to the fact that Colombia and Peru implemented separate Free Trade Agreements with the US whereas Bolivia and Ecuador had become ineligible, the ATPDEA expired on July 31, 2013. For Colombia, ATPA/ATPDEA meant continuing the effort to eradicate the farming of coca, the material used to produce cocaine. In 2000, the US Clinton administration had agreed to boost President Pastrana's Plan Colombia, turning ATPA into a military strategy as to combat Colombian drug cartels and FARC-related insurgent groups (wikipedia Plan Colombia).

After the turn of the century Colombia's economy stabilized for a while. Averaged over 2001-2010, Colombia seized 15.1 per cent of the global cut flower market in terms of export value. In spite of growing pressure on export prices (see Table A13), over 2011-2020 the country maintained its second place in the world ranking. Its 10-years' average increased even further, to 16.5 per cent. Though in 2021 Colombian flower exports increased 22.4 per cent the world trade grew stronger, resulting in a decrease of the country's share to 15.8 per cent (Tables A2A and A2B). The 2021 value of over USD 1.7 billion represented 4 per cent of Colombia's goods exports of that year (UN Comtrade Database).

Throughout the years the US market has been a major outlet for Colombian cut flowers. Whereas in the 1980s and 1990s these exports were more dispersed across countries, the new century saw a renewed concentration on the North American market. In 2001 53 per

16 It was not until September 2016 before the Colombian government and the FARC signed a peace treaty; though that was rejected by the parliamentary opposition, in August 2017 the FARC turned over the last of its accessible weapons to representatives of the United Nations (website Encyclopaedia Brittanica / FARC / History & Peace Deal). Yet, 'total peace' is still far-off in rural areas and rural residents are paying the price for the emphasis on military approaches (International Crisis Group 2022).

cent of Colombia's exports were directed to the US. In 2010 that had increased to 64 per cent, a share that over the next decade and in 2021 increased to 75 per cent. Other cut flower markets of interest for Colombia have been the Netherlands (2.8% averaged over 2011-2020, in 2021 5.8%); Canada (over 2011-2020 3.5% and in 2021 4.6%); Australia (3.6% averaged over 2011-2020, in 2021 4.2%); the UK (4.4% averaged over 2011-2020, in 2021 4.3%), and Japan (4.9% averaged over 2011-2020, in 2021 decreasing to 3.0%: Table A11). With 52 per cent in 2021 'other fresh cut flowers and buds' (060319) was the largest exported sub-category, followed by roses (060311, 21%) and carnations (060312, 15%); chrysanthemums (060314, 9.5%) ranked fourth (Table A3).[17]

Government policies and infrastructure

With the ATPA the effects of export promotion policies of the Colombian government and the US preferential trade treatment combined. Winners on the Colombian side were a limited number of larger flower producers. They expanded their production in La Sabana de Bogotá (the area surrounding the capital), and integrated forward as to include import/distributor operations in the US (Patel-Campillo 2010a). North American small and medium-sized farmers, in particular from their US home base California, felt disadvantaged and reacted in anger (see under 'Working Conditions and Environment', below).

The deal in 2000 with the US Clinton administration implied intensifying the 'war on drugs', and that meant continuation of the controversial aerial eradication (fumigation) program. That had started in 1994, spraying coca fields with the chemical herbicide glyphosate. The program was suspended in 2015 under heavy criticism: first for its assumed negative impact on human health; second for its environmental effects: deforestation, pollution of soil and waterways, and extinction of Colombian bird and plant species -- wikipedia Plan Colombia), third for its limited effects on coca cultivation while creating devastating effects on the livelihoods of small-scale farmers not involved in that cultivation (Paige 2014)[18]. Earlier, in 2011, in an effort to reach out to the critics of the military approach, the American and Colombian presidents signed the Labour Action Plan Obama-Santos (LAP), with the stated aim to protect labour rights and to prevent violence against unionists. However, widespread criticism remained. Finally, health concerns raised by the World Health Organization (WHO) were decisive in putting an end to the program (Nayar 2020). In January 2022, plans of the (descending) Duque presidency to restart aerial fumigation were blocked by the country's Constitutional Court (Grattan 2022).

The lifting of import duties combined with the eradication program did not improve the situation for small Colombian farmers. Concerning cut flower cultivation it has been documented that the trade agreements, combined with neo-liberal reforms in the country's labour legislation and adaptation processes after the lifting of US duties, stimulated the concentration in large flower farms and speeded up the demise of small, family-based growers. These effects already came to the surface by the end of the 1990s (Madrid and Lovell 2007: 217; Korovkin and Sanmiguel-Valderrama 2007: 121). We found no evidence that this concentration trend has halted, let alone reversed.

Concerning the transport infrastructure it is relevant to note that since 2015 export routines are changing. Although Bogotá airport continues to provide regular flights to Miami, the main hub for flower imports in the US, Colombian exporters have discovered the advan-

17 Concerning the cut flower ***imports of the United States***, in 2021 USD 1,299 million or 60 per cent were obtained from Colombia (Tables A7A and A7B). With 43 per cent of US imports in 2021, roses (060311) were the largest category sourced from Colombia, followed by chrysanthemums (060314, 21%) and 'other fresh cut flowers and buds' (060319, 29%).

18 We found no convincing evidence that fumigation actions have hit Colombian cut flower growers more than quite accidently.

tages of sea transport to Florida and California. In comparison, air transport has become costlier and, in some cases, less reliable (Wright 2019; Van Horen 2021). Colombia takes advantage from its geographical position with shores both on the Pacific Ocean and the Caribbean Sea, Buenaventura being the main port on the Pacific coast with Cartagena and Barranquilla as the largest ports on the Caribbean coast.

Corruption is rather widespread in Colombia. It is a pervasive problem at all levels of government, as well as in the military and police forces. Over 2021, the country ranked 87th on the Corruption Perceptions Index (CPI, website), some improvement compared to its 2011-2019 rankings in the same Index. Drug trafficking and the 'war on drugs' have both contributed to political corruption; under somewhat better conditions, the current Petro administration is taking steps to reduce corruption at all levels (wikipedia Corruption in Colombia).

Employment, number of farms, ownership

Recently the employers' export association Asocolflores (Asociación Colombiana de Exportadores de Flores, or Colombian Association of Flower Exporters) stated that in Colombia 7,300 hectares are destined to cut flower cultivation under export standards: 73 per cent located in La Sabana de Bogotá, 24 per cent in the Rio Negro region of the department of Antioquia, near Medellin, and the remaining 3 per cent in Eje Cafetero, in the mid-eastern part of the country. Growers in La Sabana are specialized in producing roses, carnations (both mainly for export to the US) and alstroemerias, and those in Antioquia in chrysanthemums (mainly for Japan) and hydrangeas. About 95 per cent of Colombia's flower output is exported, and some 85 per cent is grown in greenhouses (websites Asocolflores and Highcontrol Group).

In 2006 300 companies/owners could be identified in the country, owning some 600 cut flower farms; 20 per cent of the latter were owned by foreign investors (Korovkin and Sanmiguel-Valderrama 2007: 121, based on Asocolflores information). In 2020 Asocolflores estimated the number of companies active in Colombia's cut flower production once again at 300. Other sources lifted the bar and stated that in 2020 approximately 400 Colombian companies produced cut flowers for export (cf. website WFP Solidarity Collective, 2020). Based on recent lists of growers in Colombia (such as posted on the website flowercompanies.com-CO) the number of companies in 2022 can be set at about 320 and the number of farms at 600. For the statistical overviews in this report we have chosen the amount of companies (320) as point of departure.

Since the early 1990s the growth of employment in Colombia's floriculture has been moderate compared with the ongoing output growth. Most likely concentration in less companies played a major role here. That gave room for employers to implement re-engineering programmes, in particular through the introduction of individual productivity systems. These systems pushed towards work intensification. A significant development in this regard has been that in the 1970s one Colombian greenhouse worker was in charge, on average, of eight plant beds; in the 1980s this increased to 24 beds while in the 1990s his/her workload reached 42 beds (Korovkin and Sanmiguel-Valderrama 2007: 122).

Mendez (1991: 1) mentioned for Colombia for 1989 70,000 directly employed (with 70% females) and 50,000 indirectly, bringing employment related to the country's cut flower production at 120,000. For 2004 Asocolflores published 94,300 directly employed and 80,100 indirectly employed, thus totalling 174,400 (Wijnands 2005: 61). For 2009 Asocolflores published slightly higher amounts: 99,000 directly employed and 84,000 indirect jobs, or 183,000 in total (SOMO/ENS 2018: 7). In 2018, a semi-official export promotion website boosted that "Colombian floriculture generates more than 120,000 direct jobs", adding that some 600,000 Colombians worked indirectly for the country's cut flower industry

(website This is Colombia). Asocolflores has been more modest, in 2022 claiming "almost 100,000 direct jobs and more than 80,000 indirect" (website flowercompanies.com-CO). In an overall well-informed article, Squires (2020) for mid-2020 –without specified reference--mentioned 111,000 directly and 94,000 indirectly employed, totalling 205,000 employed related to the Colombian cut flower production. **Currently 100,000 directly employed seems a realistic figure for Colombia's floriculture sector.** This would imply an average size of the country's flower growers of 313 employed and 22.81 hectares cultivated.

Working conditions and environment

Colombian cut flower growers struggle with shortages of water, labour and land and the impact of climate change. In view of these challenges larger employers are reported to try upgrading and diversification, avoiding to cater (mainly) for the mass markets in the US and the UK: "Quality, rather than bulk, has always been our goal" (Pizano 2019). They aim to connect with Fairtrade International, Rainforest Alliance and/or Florverde Sustainable Flowers (FSF), the flower certification schemes in use in Colombia and Ecuador. For example, by August 8, 2022, Florverde's list of certified growers contained 28 companies with 104 farms (website Florverde; as far as we could check all located in Colombia – implying that about one-sixth of the country's flower exports are FSF certified). Additionally, a number of Colombian flower growers (in 2019 "over 32" -- Gulick 2019) has been certified by VeriFlora, a scheme created by consumers, retailers and flower growers in the US. Finally, in the last five years Asocolflores advertises to work on sustainable production initiatives (website Asocolflores / sustainability). A caveat should be that over 2011-2021 these efforts taken together did not result in a higher unit value of Colombia's cut flower exports (see Table A13).

It remains to be seen whether the certification schemes used in Colombia, for a part combined with upgrading and diversification efforts, have led to substantial improvements in working conditions and in less negative environmental impact. At least US cut flower farmers, with the ATPA agreement initially "largely traded away" as they stated, are not convinced. These farmers and supportive action committees have repeatedly argued that imported flowers "are not required to meet the same labour and environmental standards as those grown in the USA".[19] They accused in particular Colombian cut flower exporters of such competition distortion. Their main arguments concerned sub-standard working conditions and wages, for instance: "During peak seasons (.....) employees often work 12-22 hour shifts, earning little pay and suffering major health impacts from repetitive activities and dangerous pesticides. Workloads and production goals increase each year" (website WFP Solidarity Collective 2020). As for working conditions and working hours these observations are –at least to quite some extent-- in line with the evidence on work intensification in neighbouring Colombia's cut flower sector. Combining employment and trade data may be telling. According to the numbers provided by Asocolflores, between 2004 and 2022 employment in the country's cut flower production has increased only marginally, from about 174,000 to between 180,000 and 190,000 jobs in total, or by 3 to 9 per cent. In the same period of time, the weight of Colombian cut flower exports has increased by no less than 48 per cent, from 194,000 tons in 2004 to 295,000 tons in 2021 (UN Comtrade Database). The difference between the two sets of outcomes suggests that the trend towards work intensification has continued.

Growing pressure to work overtime is well-known as an expression of intensification, in classical efforts of management to prolong the length of the working day. Such pressure

19 In response, since 2013 US farmer organisations advertise Certified American Grown labels (website). They have also created wholesale cooperatives. Also in 2013, the Obama administration launched the 'Know Your Farmer, Know Your Flowers' program aiming at stimulating domestic US flower production (Wong 2016).

showed up as dominant in a survey SOMO/ENS undertook in 2015, covering 171 cut flower workers from 81 firms: "(....) as logistical demands have become more acute, workers face more pressure when it comes to 'saying yes' to requests to work extra hours" (SOMO/ENS 2018: 15). It may be that these and equivalent practices have remained in particular dominant at farms of uncertified employers; however, we found little or no evidence in the literature that the standards as regards overtime in ***certified*** farms made their workers better off. Concerning the environmental impact of cut flower production, similar conclusions may be drawn.

Living wages

Per January 1, 2022 Colombia's statutory minimum wage, including a transport allowance (COP 117,172.00, for employees earning less than twice the minimum wage) amounted to COP (Columbian Peso) 1,117,172.00 per month. This amount equals USD 248.52 against the Peso-USD exchange rate of January 2022. In the two preceding years, the statutory minimum wage (per January 1, 2020 totalling COP 980,600.00 including a transport allowance of COP 102,850.00) was lifted twice, by 3.5 per cent per January 1, 2021 and by 10.1 per cent per January 1, 2022 (WageIndicator / Minimum Wage Colombia).

WageIndicator's Columbian Salary Check shows that the wages of the most common occupations at cut flower farms ('flower grower' and 'flower binder') in 2022 ranged between COP 1,120,000 and COP 2,510,000, thus from close to (even slightly below) the statutory minimum wage level until 140 per cent above that level. This fits in with press messages indicating that the majority of Columbian floriculture workers earns from slightly below to slightly above the minimum wage. The WageIndicator outcome is also roughly in line with results of the SOMO/ENS survey. In this survey half of all respondents / cut flower workers said to receive a monthly income equivalent to the minimum wage, 45 per cent to receive the equivalent of one-and-a-half times the minimum wage while only 4 per cent of the respondents said to earn up to twice that wage (SOMO/ENS 2018: 14).

Living wage calculations underline that their wages for majorities of Colombian cut flower workers are hardly or not sufficient to make ends meet. For 2020 WageIndicator calculated living wages for a standard family with 1.8 earners in Colombia between gross COP 1,399,200 and COP 1,793,200: 43 to 83 per cent above the applicable minimum wage level. For a single adult, these amounts were between COP 1,123,200 and COP 1,449,900, or 15 to 48 per cent above the 2020 minimum wage level (website WageIndicator / Archive. Living Wage Series Colombia). Based on the findings for a standard family, **in 2020 the gap between the statutory minimum wage and living wages in Colombia's cut flower industry varied between 43 and 83 per cent.**

A caveat is that a considerable part of Colombia's labour force is employed in the informal sector, outside the reach of the statutory minimum wage. The most recent estimate of that informal share, for 2020, ends up at 48.5 per cent. Remarkable was that in Colombia in 2020 hardly any impact of the COVID-9 pandemic on the level of informality was found (Vásquez and Agudelo 2021: 18; yet, this research may have been undertaken too early in the course of the pandemic to draw 'hard' conclusions).

Labour relations and trade unions

Of course, independent trade unions and the legal room they have to deploy (activities supporting) collective bargaining are essential for wage formation. In the late 1980s and 1990s various Colombian flower plantations witnessed the emergence of trade unions. Initially, the companies in question managed to dismantle them by using lockouts, declaring them bankrupt, dismissing unionised workers, hiring scabs and organising company-control-

led unions. Nevertheless, the independent union movement that survived became connected with national and international NGOs. In the early 1990s they joined EU environmental and human rights groups in a loosely structured coalition which, with the support of EU's cut flower importers' associations, tried to address the lack of environmental and labour standards in the flower-exporting countries. These efforts resulted in the first International Code of Conduct for the cut flower industry. In response, in 2002 Asocolflores launched Florverde as an own standard (Korovkin and Sanmiguel-Valderrama 2007: 122-124), in 2011 renamed as Florverde Sustainable Flowers, FSF (website Florverde).

In the 2010s news clippings gave way to less optimism on the state of collective bargaining as the 'core business' of the trade unions. The WFP Solidarity Collective website cited earlier argued in 2020 that "(Colombian) workers have consistently been denied their right to unionize or collectively bargain". It stated that the Labour Action Plan (LAP) Obama-Santos "has been characterized by Colombian unionists as almost entirely ineffective". A recent US news message on Colombia´s cut flower industry noted that "Workloads and production goals increase each year, and workers have consistently been denied their right to unionize or collectively bargain" (Cho 2021).

Various sources have confirmed the tenor of these citations. The 2022 edition of ITUC's Global Rights Index ranks Colombia among 'the 10 worst countries for working people' with the indication 'no guarantee of rights'. With 13 assassinations in 2021-2022, Colombia remained the deadliest country for workers and union members; in 2020-2021 these assassinations even amounted to 22. Trade unions were hindered in their activities as employers regularly violated the right of workers to form unions and got rid of workers' representatives through targeted dismissals and non-renewal of contracts (ITUC 2021, 2022; see also LRI Colombia). It is safe to conclude that free collective bargaining is almost non-existent in Colombia's cut flower sector.

The few independent trade unions have trouble staying alive. Instead of collective agreements (CBAs) based on free bargaining, collective pacts (***pactos colectivos***) are widespread in Colombia. Such pacts, offering benefits to non-unionised workers, are negotiated with employers and signed by non-union ('yellow') worker representatives. The ILO has pointed to the need that these pacts should not be used to undermine the position of trade unions or the possibility of negotiating CLAs with them (ITUC Survey / Colombia). Unfortunately, just this has occurred widely: such pacts have proven to be effective as to weaken independent union presence (SOMO/ENS 2018: 10-11). Under these conditions the National Organization of Colombian Floriculture Workers (ONOF), an independent union, regrettably agrees to have made little headway in improving working conditions. Concerning the effects of the COVID-19 pandemic, ONOF stated that, "although in the decree issued by the National Government floriculture does not belong to a production sector deemed to be 'of basic necessity', it has continued to work normally". ONOF emphasized the sector's contribution, acting this way, to the recovery of the Colombian economy (Squires 2020).

Position of women

Over the years, women have made up 65 to 70 per cent of the Colombian flower plantations' workforce. Increasingly, young women from the large cities Bogotá and Medellín have found employment here. However, the largest groups of workers are still either peasant women migrants from the countryside or peasant women who grew up around, and live close to, flower plantations. Migrants mainly came from countryside areas; in these areas the stagnation of family-based traditional agriculture and/or violent conflicts had eroded women's -- and often also men's-- capacities to earn a livelihood (cf. Sanmiguel-Valderrama 2007: 75). Clearly, these women migrants were and

are the most vulnerable category of cut flower workers. Though as far as we know detailed and recent research on the situation of Colombian female flower workers, as has been carried out in Ecuador, is lacking, parallels with the results of that last research may be assumed. This may in particular be the case for the issues 'time poverty' and 'economic insecurity' (see the Profile of Ecuador).

Sexual harassment may often not be far off. The lack of labour protection effectuated by the authorities and by collective agreements often brings women and girls even in physically endangering situations. The recent human rights reporting of the US Department of State (2021a: 27) underlines that throughout Colombian society, "Violence against women, as well as impunity for perpetrators, continued to be a problem. Members of armed groups continued to rape and abuse women and children sexually. (....) NGOs reported sexual harassment remained a pervasive and underreported problem in workplaces and in public".

Profile: Ecuador

History, local conditions and exports

The first cut roses farm in Ecuador was registered in 1982. In the 1970s, when neighbouring Colombia started to export cut flowers, Ecuador's military rule focused economic policies on the booming oil industry. In the 1980s, after the transition to political democracy and under neo-liberal economic reforms, Ecuador's lower levels of social and political violence compared to Colombia became advantageous. While this may be sound cynical, other factors favourable in the competition on flower exports with the northern neighbour were the (by then) 20-25 per cent lower statutory minimum wage rates; low compliance with (new) labour laws, and weak rural trade unionism (Korovkin and Sanmiguel-Valderrama 2007: 125-6). With the end of the oil boom in 2014 and a drastic fall in global oil prices, the country had to re-invent itself.

Ecuador's cut flower industry got a boost in the early 1990s. By then Expoflores, the National Association of Flower Producers and Exporters of Ecuador, obtained financing from the country's National Financial Corporation and could provide cheap state-guaranteed credit. Moreover, as described in the Profile of Colombia, in December 1991 the Andean Trade Preference Act (ATPA) was signed with the United States, allowing duty-free imports in the US for products from Ecuador (and Colombia, Peru and Bolivia), including cut flowers. In December 2001, the Act was expanded as the Andean Trade Promotion and Drug Eradication Act (ATPDEA). In 2004, negotiations between the USA and Ecuador about prolongation of ATPDEA were suspended indefinitely (USTR 2013: 26). Ecuador is currently the only Latin American country along the Pacific without a free trade agreement with the US. Yet, from the early 2000s on its leaders were more interested in trade agreements with the EU and other trade blocs. Finally, on January 1, 2017, Ecuador joined the comprehensive trade agreement the EU had in 2013 agreed with Colombia and Peru. It may be added that Ecuador is not a significant coca-producing country, but that it is exploited significantly as a transit zone (USTR 2013: 27).

In the second half of the 1990s Ecuador's flower exports stagnated. Problems with product quality, working conditions and the environment came to the surface. Moreover, at the turn of the century the country's economy went through difficult times. Many small farmers went bankrupt when faced with excessive inflation; an unfavourable exchange rate of Ecuador's sucre to the US dollar; the phasing out of state credits, and rapid increases of statutory minimum wages rates to levels comparable to Colombia's. In 2000, the country's administration adopted the US dollar as legal tender. With some time-lag this 'dollarization' helped stabilize the economy and bringing down inflation -- although initially also medium-sized flower plantations went bankrupt. For the surviving (large, well-managed) grow-

ers/exporters of cut flowers the increased investment in roads –already improving with the oil boom— proved a blessing. This was also the case for the contribution, albeit modest, the government delivered to a knowledge infrastructure for agriculture (Korovkin and Sanmiguel-Valderrama 2007: 125-127; Lyall 2014: 19; Adeola et al. 2018: 338).

Over 2001-2010, Ecuador reached an average 6.7 per cent share in the global cut flower market in terms of export value. Over 2011-2020, that increased to 9.4 per cent, whereas in 2021 the country's share fell back to 8.5 per cent. The 2021 value of Ecuadorian cut flower exports accounted for 8 per cent of the country's goods exports. Nearly all Ecuadorian flower production is exported. In recent years it found its way to the United States (over 2011-2020 accounting for an average 41.9% of Ecuador's flower export value, in 2021 rising to 54.8%), the Netherlands (over 2011-2020 8.9%, in 2021 rising to 22.7%), the Russian Federation (over 2011-2020 on average 18.8%, in 2021 decreasing to 7.7%), and to a lesser extent to Spain, Canada and Belarus (Table A11).

Roses were and are by far Ecuador's largest cut flower export category, accounting in 2021 for 69 per cent of its total flower export value (Table A3). For roses too, the United States are the main country of destination, though not that dominant as for Colombian roses. In 2021 rose exports to the US accounted for 52.3 per cent of Ecuador's export value of roses, followed again by the Netherlands (22.4%), and next by the Russian Federation, Belarus, Italy, and Canada (Table A12). Garcia (2018: 3) claimed that 95 per cent of the value of Ecuadorian roses imported in the Netherlands was re-exported from the Netherlands to other countries. Other flower categories grown in Ecuador such as gypsophila, limonium, and liatris are also for a very large part exported.

Government policies and infrastructure

The oil boom of the 1970s and 1980s seems to have made Ecuadorian administrations rather 'lazy' in the decades that followed. Likewise, in the last decade the country's central administrations have taken a passive stand as regards the cut flower sector. Active policies to spread innovative practices were absent. It seems that the activities Expoflores and the Centro de Estudios y Asesoría en Salud (CEAS, see 'Working conditions and Environment') have deployed act as a scapegoat here. However, in the years to come coordinated efforts will be important to have Ecuador's exports of cut flowers fulfil the legal requirements of importing countries and the European Union. Already now, as noted for Uganda, the sale of cut flowers in the EU should adhere to EU's strict MRL (Maximum Residu Levels) requirements and other EU regulations on pesticide usage. Next has come the need for exporters to obtain environmental certifications and labels to calculate the environmental footprint of flower production. A team of Latin American researchers recently stressed that immediate progress is required as to quantify GHG (GreenHouse Gas) emissions and more in general in measuring the (reduction of the) effects of climate change. The team noted that Ecuador currently lacks a system of up-to-date calculations on these issues, resulting in risks for particularly the export of roses (Quinaluisa Morán et al. 2021: 117).

Risks in this field of import requirements, valid for all cut-flower exporting countries (and not only Ecuador), may be taken even more seriously in view of the plans of the European Commission (EC) to develop and promote the Product Environmental Footprint (PEF) method in order to support product comparisons. Recently, the EC also announced that the European Green Deal will use PEF metrics. Against this backdrop the Floriculture Sustainability Initiative (FSI) website sent out a warning to the business community: "Product environmental footprinting will soon become

very important, so this is the time to start using this method and get ahead of the curve".

Concerning Ecuador's transport infrastructure, since 2017 the Moreno government has been pushing that ahead with ambitious spending, using international sponsors, for instance to make roads primarily used for the oil industry feasible for purposes like floriculture exports. In 2016 efforts to improve the coastal infrastructure were seriously hampered by the earthquake that took place near the town of Portoviejo -- 30 km from the Pacific Coast-- that killed 673 and left more than 30,000 homeless. This earthquake coincided with a strong 2014-2016 El Niño and an outbreak of the Zika disease in Ecuador. Researchers saw this as an example of how climate changes can amplify the worst effects of natural disasters and disease outbreaks in socially vulnerable regions (website AGU).

Employment, number of farms, ownership

In 2019, the harvested surface of cut flowers in Ecuador was reported to cover around 4,500 hectares, of which 2,800 hectares (62%) for roses. In Ecuador over 200 varieties of roses are being grown for export (Silva 2019).

In 2016, according to Expoflores, direct employment in Ecuador's floriculture amounted to 36,400, with just over half (51%) of employed being women. At the time, indirect employment – while the author in question obviously used a quite restricted definition of 'indirect'-- was suggested to add some 22,000 jobs (Garcia 2018: 16), bringing total employment at about 58,400. Yet, a well-informed industry source mentioned also for 2016 that "Ecuador's flower sector directly employs about 58,000 people with a similar number of indirect jobs" (Flowerweb 2016). Lately a team of researchers ended up with a somewhat lower estimate of direct employment, that is, 46,000 jobs, by calculating with 11 direct jobs per harvested hectare and a cultivated area of 4,200 hectares (Quinaluisa Morán et al. 2021). Because Expoflores continues to depart from a cultivated area of 4,500 hectares, thus from a somewhat larger area, 50,000 directly employed seems a defendable amount. **Currently 50,000 directly employed seems a realistic figure for Ecuador's floriculture sector.** This estimate would imply an average size of the country's flower growers of 68 employed and 6.09 hectares cultivated – by far the smallest averages among the five developing countries.

In 2018 about nine out of ten Ecuadorian rose farms were located in the provinces of Pichincha (77%) and Cotopaxi (12%), at an altitude between 2,800 to 3,000 meters. In Pichincha farms are concentrated in the cantons Cayambe and Pedro Moncayo. The climatic and soil conditions in these cantons are regarded optimal for growing high-quality roses. The strategy of Expoflores was to push farmers to use these conditions and concentrate on the environmentally and socially sound production of top-quality flowers. The association pointed to the importance of eliminating the reliance of flower growers on brokers—who cater to anonymous, mass flower markets—and instead building an image of the beautiful 'Ecuadorian rose', with thick, long stems, large buttons, bright colors, and great durability. Indeed, currently roses from Ecuador are widely regarded to be premium quality, even compared to roses from Colombia (Conefrey 2015; Garcia 2018: 3, 26; Quinaluisa Morán et al. 2021: 112). However, Table A13 shows that this quality is neither expressed in Ecuador's average export values nor in the development of these values. Most likely the country's current official minimum wage rates, high in particular compared to Colombia's statutory minimum wage, and the 'dollarization' are acting as hampering factors here (see under 'Minimum and living wages').

Roses are grown in Ecuador mainly in company-owned greenhouses. Each worker is assi-

gned an area; he or she is held responsible for that area during the entire production cycle, from planting to harvesting (Korovkin 2005: 48). In 2021, 739 ***flower-producing farms*** were counted, of which 218 members of Expoflores (Quinaluisa Morán et al. 2021: 113). These 739 farms used in total 4,500 hectares, thus averaging 6.1 hectares per farm (and 0.09 hectare, or 9 are, per worker).

Three years earlier 517 ***exporters of roses*** were registered, in total cultivating approximately 2,800 hectares: on average 5.4 hectares per farm. Their size distribution is rather uneven**:** 18 exporters reported annual sales of over USD 5 million and 154 between USD 1 and 5 million. Because the required investment in rose cultivation is relatively high, very small (micro) enterprises are virtually absent in this cultivation (Garcia 2018: 11). The about 1,700 hectares on which flowers other than roses are grown, are currently exploited by some 220 farms, or on average 7.7 hectares per farm (website Expoflores). As regards the data in our statistical overviews we have used for Ecuador 'companies' and 'farms' as synonyms; we thus depart from 739 entities as most recent indication.

Working conditions and environment

A major Ecuadorian/US exporter recognized about the period of decreasing growth in the late 1990s: "With the explosion of demand came new problems, though. Concerns over working conditions and environmental impact cast a shadow over Ecuador's rose production" (website Flowerlink). In 1999, helped by Expoflores' programme the International Code of Conduct for the production of cut flowers came to Ecuador. This code of conduct formed the basis for the Flower Label Program (FLP), a non-state initiative sponsored jointly by Expoflores and a German importers' association. The website continues: "Among other things, this meant that certified farms would be prohibited from employing workers under the age of 15 and no worker would labour under dangerous conditions. This also implied the banning of dangerous, life-threatening pesticides dubbed the 'Dirty Dozen'. Ecuador would take its efforts a step further in 2001. Then, CEAS begun inspecting Ecuadorian flower producers to ensure compliance with FLP standards." We note that these programmes did not intervene positively in the sector´s labour relations. They abstained from efforts to lift employers' widespread resistance to independent unions (Korovkin and Sanmiguel-Valderrama 2007: 127-128).

The main voluntary certification schemes used in Ecuador's flower industry are those of Fairtrade International, FLP and FlorEcuador, the latter two schemes connected with Expoflores. FLP provides leadership and practitioner training schemes. Producers continuously receive advice and training to improve production and quality, which helps to generate innovative practices. It has been widely recognized that such advice and training jointly with the use of state-of-the-art greenhouses and irrigation systems have placed Ecuador in the ranks of innovative countries in flower production -(Quinaluisa Morán et al. 2021: 116).

However, the dominance of the voluntary schemes has a shade. We already pointed to the lack of active policies of Ecuador's government to spread innovative practices. This also relates to the lack, at least until recently, of active policies to reduce the industry's environmental impact (UN SDG Platform / Ecuador). Without solid governmental support of innovation and natural protection, the share of certified farms will most likely remain limited. Following various indications, we estimate that share currently at 25 per cent. With insufficient incentives for certification a majority of the country's flower farmers will be locked in market segments dominated by low export prices. This majority can boost competitiveness mainly by exerting wage pressure -- with all possible disadvantages for their workers, through practices such as maintaining long working days without workers being paid overtime. In those

cases, lifting individual productivity norms is part of the deal. In the early 1990s a worker in an Ecuadorian roses greenhouse was in charge of roughly 20 plant beds; in the early 2000s, he or she had to take care of 40 or 50. In the 2000s two categories of workers were found to be disproportionately affected by the managerial focus on long working hours: women and teenagers between 15 and 18 years of age. According to the researchers in question such pressure on youngsters contributed to a pattern of educational under-achievement in Ecuador's rural areas (Korovkin and Sanmiguel-Valderrama 2007: 128-129). Most likely nearly two decades later the mechanisms they traced are still working. It should be clear these exploitative practices cannot go on indefinitely.

Living wages

No less than 2,179 statutory minimum wage rates are valid in Ecuador. Concerning minimum wage rates, the sector agriculture and plantations has been divided in ten branches. In August 2022 seven rates were valid for the branch 'production of natural flowers and ornamental and medicinal plants'. Within a small bandwidth these rates varied between USD 426.49 per month for a group of 18 different 'agro worker' occupations and USD 437.52 per month for an irrigation supervisor. These wage rates were last updated in January 2020 (website WageIndicator / Minimum Wages Ecuador). Besides the statutory minimum wage rates, two other official wage rates are in existence in Ecuador:

the unified basic salary (SBU, Salario ***Básico Unifico***), set by the government as a payment basis for contracted workers. With USD 425 per mointh per January 1, 2022, the SBU is currently USD 1.49 -12.52 per month lower than the minimum wage rates;

the living wage (***Salario Digno***) as decreed by the government. For 2021, Ministerial Agreement MDT-2022-041 determined its value at USD 445.41, that is, USD 8 to 19 higher than the minimum wage rates in 2021 valid for the cut flower industry.

The reader should be aware that recently all three Ecuadoran (sets of) official minimum/living wage rates expressed in US dollars have risen to levels some 70 per cent above Colombia's statutory minimum wage. When taking differences in purchasing power into account and calculating PPPs (Purchasing Power Parities) related to the US dollar, this gap still remains about 55 per cent. We may assume that in both countries labour costs make up about half of total production costs. With such differences in statutory minimum wage levels, it is not easy to understand how Ecuador can maintain a competitive edge vis-à-vis Colombia's cut flower exports, even if Ecuador's premium quality is brought into play. It also seems that in Ecuador the relatively high official minimum wage rates are growingly becoming meaningless and are losing their function as a shield for the low-paid. Such 'maxi minimum wages' tend to overshoot their target (cf. Van Klaveren and Tijdens 2012: 157-163).

For the time being indications for the level of living wages in Ecuador are only available for banana workers in the main banana cultivation areas of Ecuador's Coastal Region. A 2022 update of a living wage study carried out in these rural areas in 2016 concluded to living expenses for a reference size family of USD 702, as well as to a living wage for an individual worker of gross USD 475 per month and net USD 436 per month (Andersen et al. 2022b). It may make sense to use these outcomes for a comparison, although living conditions in the Coastal Region and in Pichincha / Cotopaxi, the two centres for respectively banana and cut flower cultivation, differ in various respects. With this reservation, we state that **in 2022 the gap between the statutory minimum wages and living wages in Ecuador's agriculture varied between 60 and 65 per cent.**

In order to compare the 2022 living wages in Ecuador's agriculture with average wages, we

have to depend on the average wage of skilled agricultural, forestry and fishery for 2021 as found in Ecuador's Labour Force Survey (Encuesta Nacional de Empleo, Desempleo y SubEmpleo, derived from ILOSTAT) over that year, and worth USD 276.09. If equalling the 2022 living wage outcomes cited above for 2021, then **in 2021 the gap between the average wages and living wages in Ecuador's agriculture was 154 per cent.**

Labour relations and trade unions

Ecuador's labour law prohibits anti-union discrimination but does not provide adequate means of protection against it. Workers' right to form and join organisations of their own choosing is hampered by a single union system imposed by the country's Constitution (ITUC 2021, 2022; see also LRI Ecuador). These limitations, as well as outright government repression, have frustrated the development of trade unionism in Ecuador. Also, the labour movement has traditionally been weakened by internal rivalry. Only in the main cities Quito and Guayaquil the movement has succeeded to deploy workers' power more permanently. By necessity, in rural areas the labour movement organized mainly through artisan guilds, cooperatives, and neighbourhood associations (wikipedia Trade unions in Ecuador). In the cut flower industry too, trade unions have remained a weak presence. In the 1960s and 1970s they appeared in the Andes highlands, but here indigenous and peasant community organisations continued to dominate rural politics. Their political claims focused on access to land and on cultural rights more than on labour issues (Korovkin 2006).

One of the surviving trade unions has been the National Federation of Free Agro-industrial, Peasant, and Indigenous Workers of Ecuador (FENACLE, website). Since the 1980s FENACLE has represented workers at the only two flower plantations with unionized workers. FENACLE has been an outspoken criticaster of management practices in the flower industry. A 2012 FENACLE report implicated the flower industry as a whole for the repression of organizing efforts and for a variety of negative social and environmental impacts. The union argued that freedom of association has been systematically limited in the industry with employers using black-listing practices and, in some cases, violence (Lyall 2014: 5, 21). Today this analysis still seems up-to-date.

Position of women

Based on a field study conducted in 2001 and 2002 in Ecuador's Pedro Moncayo canton, Korovkin has argued that though the cut flower industry creates rural employment, it does not allow workers to raise above the poverty level. Also, it would provide rural families only with a minimum of security. Problems are described to have been aggravated by the expansion of organized crime throughout Ecuador. Obviously, it is a matter of how to assess contradictory developments: "The growth of the cut flower industry turned the tide of rural-urban migration, offering rural youth minimum-wage employment close to their communities. It gave rise to a new agricultural proletariat formed by young women and men with levels of education higher than their parents (.....) So far, cut flower employment has appeared more as a dead end than as a highway to rural prosperity" (Korovkin 2005: 61).

An issue is whether voluntary certification programs can help bolster decent work for female workers anyway, in Ecuador's floriculture and elsewhere. A recent analysis of the implications of the certification of Fairtrade International – the scheme addressing the largest number of gender domains—covering 11 farms in Ecuador shows the complexity of the issue. Certification increased women's access to equal wages, stable jobs and employment benefits. However, it became clear that improving their livelihoods also requires the reduction of social constraints: constraints that fuel women's 'time poverty' and economic insecurity. The analysis showed how female flower workers' capabi-

lities were constrained by their social subordination and care obligations. Their ability to participate in trade unions also proved to be constrained by marital and household obligations. Under such conditions the promotion of gendered rights and women's empowerment turns out to be "a very complex process." Clearly, for these female workers individual capacity building is a necessary precondition for collective capacity building (Raynolds 2021: 658, 672-3).

The wider context does matter. The recent human rights reporting of the US Department of State shows a worrisome picture of Ecuador's practice as regards the realisation of women's rights, in particular concerning sexual harassment. It reads, "Despite the legal prohibition of sexual harassment and government implementation of the law, women's rights organizations described a tendency not to report alleged harassment, and harassment remained common in public spaces." The report concludes: "(Ecuador's) constitution affords women the same legal status and rights as men. Nevertheless, discrimination against women was prevalent, particularly with respect to economic opportunities for older women and for those in the lower economic strata" (US Dept of State 2021b: 24, 26).

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STATISTICAL APPENDIX

TABLE A1

Exports of Cut flowers (0603), 2000, 2010 and 2019-2021, top-20 exporting countries (rank 2021) and Uganda, in USD mln. and world share

		2000		2010		2019		2020		2021	
	Country	USD mln	% world	USD mln	% world	USD mln	% world	USD mln	% world	USD mln	% world
1	Netherlands	2,084	55.7	3,692	49.4	4,343	48.0	4,274	49.4	5,766	52.7
2	*Colombia*	*583*	*15.6*	*1,240*	*16.6*	*1,475*	*16.3*	*1,411*	*16.3*	*1,727*	*15.8*
3	*Ecuador*	*156*	*4.2*	*608*	*8.1*	*880*	*9.7*	*827*	*9.6*	*927*	*8.5*
4	*Kenya*	*91*	*2.4*	*396*	*5.2*	*584*	*6.5*	*572*	*6.6*	*726*	*6.6*
5	*Ethiopia*	*1*	*0*	*7*	*0.1*	*200*	*2.2*	*190*	*2.2*	*255*	*2.3*
6	Belgium	52	1.4	244	3.3	151	1.7	81	0.9	149	1.4
7	China	5	0.1	57	0.7	120	1.3	126	1.5	145	1.3
8	Italy	89	2.4	89	1.2	103	1.1	98	1.1	141	1.3
9	Israel	78	2.1	157	2.1	44	0.5	68	0.8	101	0.9
10	Malaysia	13	0.3	97	1.3	113	1.2	87	1.0	90	0.8
	(Total top-10)	***3,152***	***84.2***	***6,587***	***88.2***	***8,013***	***88.6***	***7,734***	***89.3***	***10,027***	***91.7***
11	Canada	19	0.5	36	0.5	64	0.7	58	0.7	82	0.7
12	South Africa	17	0.5	32	0.4	56	0.6	46	0.5	70	0.6
13	Spain	89	2.4	34	0.4	58	0.6	67	0.8	70	0.6
14	Germany	17	0.5	48	0.6	67	0.7	53	0.6	66	0.6
15	Turkey	7	0.1	22	0.3	36	0.4	37	0.4	59	0.5
16	Vietnam	1	0	17	0.2	50	0.6	49	0.6	59	0.5
17	Thailand	34	0.9	81	1.1	76	0.8	47	0.5	58	0.5
18	*Uganda*	*10*	*0.3*	*52**	*0.7**	*50**	*0.7**	*50**	*0.6**	*48*	*0.5*
19	Mexico	32	0.9	25	0.3	39	0.4	36	0.4	44	0.4
20	Taiwan	1	0	29	0.4	46	0.5	39	0.5	42	0.4
	(Total r.11-20)	***227***	***6.1***	***497***	***5.1***	***522***	***5.8***	***482***	***5.6***	***598***	***5.5***
	(Total r. > 20)	***365***	***9.7***	***505***	***6.7***	***493***	***5.4***	***445***	***5.1***	***308***	***2.8***
	World total	**3,744**	**100.0**	**7,468**	**100.0**	**9,048**	**100.0**	**8,661**	**100.0**	**10,933**	**100.0**

Source: UN Comtrade Database; ITC Trade Map

* Including 0602 exports

Source: UN Comtrade Database; ITC Trade Map
* Including 0602 exports

TABLE A2A

Exports of Cut flowers (0603), 2000, 2010 and 2015-2021, top-5 exporting countries (rank 2021) and Uganda, in USD mln. and world share

		2000	2010	2015	2016	2017	2018	2019	2020	2021
Netherlands	USD mln	2,084	3,692	3,854	4,041	4,096	4,339	4,343	4,274	5,766
	% world	*55.7*	*49.4*	*49.0*	*49.9*	*49.1*	*48.8*	*48.6*	*49.7*	*52.7*
Colombia	USD mln	583	1,240	1,295	1,312	1,400	1,458	1,475	1,411	1,727
	% world	*15.6*	*16.6*	*16.5*	*16.3*	*16.7*	*16.4*	*16.5*	*16.4*	*15.8*
Ecuador	USD mln	156	608	820	802	820	843	827	827	927
	% world	*4.2*	*8.1*	*10.4*	*9.9*	*9.8*	*9.5*	*9.6*	*9.6*	*8.5*
Kenya	USD mln	91	396	479	510	541	575	584	572	726
	% world	*2.4*	*5.2*	*6.1*	*6.3*	*6.5*	*6.5*	*6.5*	*6.6*	*6.6*
Ethiopia	USD mln	1	7	174	191	197	199	200	190	255
	% world	*0*	*0.1*	*2.2*	*2.4*	*2.4*	*2.2*	*2.2*	*2.2*	*2.3*
Uganda	USD mln	10	52*	51*	52*	58*	58*	50*	50*	48
	% world	*0.3*	*0.7**	*0.6**	*0.6**	*0.7**	*0.7**	*0.6**	*0.6**	*0.5*
Total 6 c.	**USD mln**	**2,925**	**5,995**	**6,502**	**6,908**	**7,112**	**7,472**	**7,479**	**7,324**	**9,449**
	% world	***78.1***	***80.3***	***82.6***	***85.2***	***85.2***	***84.1***	***83.7***	***85.1***	***86.4***
World total		**3,744**	**7,468**	**7,870**	**8,105**	**8,349**	**8,889**	**9,048**	**8,661**	**10,933**

Source: UN Comtrade Database; ITC Trade Map

* Including 0602 exports

TABLE A2B

Development of exports of Cut flowers (0603), 2000-2010*), 2010-2020*), 2017-18, 2018-19, 2019-20, 2020-21, top-5 exporting countries (rank 2021) and Uganda, increase in percentages per year

	2000-2010	2010-2020	2017-18	2018-19	2019-20	2020-21
Netherlands	5.3	1.3	5.9	-0.1	-1.6	34.9
Colombia	7.1	1.2	4.1	1.2	-4.3	22.4
Ecuador	13.2	2.8	2.8	-1.9	-6.0	12.1
Kenya	14.3	2.6	6.3	1.6	-2.0	26.9
Ethiopia	19.4	35.0	1.0	-4.7	-5.0	34.2
Uganda	15.1	0.6	0	-16.0	-1.1	-4.0
Total 6 c.	***6.7***	***1.9***	***5.1***	***0.0***	***-1.7***	***28.6***
World total	**6.5**	**1.3**	**6.6**	**0.6**	**-4.3**	**26.2**

Calculations based on UN Comtrade Database; ITC Trade Map

* data for 2001 and 2011 were incomplete; 11-year averages calculated as CAGR (Compound Annual Growth Rate)

** including 0602 exports

TABLE A3A

Exports of Cut flowers (0603-6 digits), 2021, top-5 exporting countries, in USD mln. and percentages

	Netherlands		Colombia		Ecuador		Kenya		Ethiopia	
Category	USD mln	%	USD mln	%	USD mln	USD mln	USD mln	%	USD mln	%
060311	1,549	*26.9*	367	*21.2*	649	*70.0*	551	*75.9*	222	*87.4*
060312	167	*2.9*	256	*14.8*	20	*2.1*	6	*0.9*	0	*0*
060313	81	*1.4*	0	*0*	0	*0*	0	*0*	0	*0*
060314	555	*9.6*	164	*9.5*	11	*1.2*	4	*0.6*	1	*0.4*
060315	196	*3.4*	15	*0.9*	1	*0.1*	0	*0*	0	*0*
060319	2,783	*48.3*	903	*52.3*	216	*23.3*	162	*22.3*	32	*12.2*
060390	437	*7.6*	23	*1.3*	30	*3.3*	3	*0.4*	0	*0*
Total	**5,766**	***100.0***	**1,727**	***100.0***	**927**	***100.0***	**726**	***100.0***	**255**	***100.0***

Source: UN Comtrade Database

060311: fresh cut roses and buds
060312: fresh cut carnations and buds
060313: fresh cut orchids
060314: fresh cut chrysanthemums and buds
060315: fresh cut lilies
060319: other fresh cut flowers and buds
060390: other flower products

TABLE A3B

Exports of Cut flowers (0603-6 digits), 2021, top-10 exporting countries per sub-category, in percentages

	060311		060312		060313		060314	
	country	%	country	%	country	%	country	%
1	*Netherlands*	*44.2*	*Colombia*	*44.1*	*Netherlands*	*42.4*	*Netherlands*	*62.6*
2	*Ecuador*	*18.5*	*Netherlands*	*28.8*	Thailand	*27.3*	*Colombia*	*18.5*
3	*Kenya*	*15.7*	Turkey	*9.1*	Taiwan	*18.6*	Malaysia	*8.9*
4	*Colombia*	*10.5*	China	*5.0*	New Zealand	*4.2*	China	*4.3*
5	*Ethiopia*	*6.3*	*Ecuador*	*3.4*	Singapore	*3.2*	*Ecuador*	*1.2*
6	Germany	*0.6*	Spain	*2.8*	Malaysia	*1.6*	Lithuania	*1.1*
7	Guatemala	*0.5*	Italy	*2.1*	China	*0.4*	South Africa	*0.9*
8	China	*0.4*	Morocco	*1.2*	Lithuania	*0.3*	Poland	*0.7*
9	Spain	*0.3*	*Kenya*	*1.0*	Spain	*0.2*	Italy	*0.6*
10	Rwanda	*0.2*	Germany	*0.3*	Belgium	*0.1*	Latvia	*0.5*
>10	other c.	*2.8*	other c.	*2.2*	other c.	*1.7*	other c.	*0.7*
USD mln		***100.0***		***100.0***		***100.0***		***100.0***
		3,504		**580**		**191**		**886**

	060315		060319		060390	
	country	%	country	%	country	%
1	*Netherlands*	*77.3*	*Netherlands*	*60.0*	*Netherlands*	*49.5*
2	Costa Rica	*8.4*	*Colombia*	*19.5*	Israel	*11.5*
3	*Colombia*	*5.8*	*Ecuador*	*4.7*	Spain	*4.1*
4	China	*2.3*	*Kenya*	*3.5*	*Ecuador*	*3.4*
5	Rep. Korea	*1.5*	Italy	*2.2*	China	*3.0*
6	Mexico	*0.9*	Canada	*1.7*	*Colombia*	*2.9*
7	Guatemala	*0.7*	South Africa	*1.1*	Italy	*2.4*
8	Canada	*0.5*	Germany	*0.8*	Nigeria	*2.0*
9	Spain	*0.4*	China	*0.7*	Costa Rica	*1.6*
10	*Ecuador*	*0.4*	*Ethiopia*	*0.7*	India	*1.5*
>10	other c.	*1.8*	other c.	*5.1*	other c.	*18.0*
USD mln		***100.0***		***100.0***		***100.0***
		253		**4,637**		**882**

060311: fresh cut roses and buds

060312: fresh cut carnations and buds

060313: fresh cut orchids

060314: fresh cut chrysanthemums and buds

060315: fresh cut lilies

060319: other fresh cut flowers and buds

060390: other flower products

TABLE A4

Exports from the Netherlands of Cut flowers (0603), top-10 countries of destination, 2000, 2010 and 2019-2021 (rank 2021), in USD mln. and world share

	Country	2000		2010		2019		2020		2021	
		USD mln	%	USD mln	%	USD mln	%	USD mln	%	USD mln	%
1	Germany	672	*32.2*	1,031	*27.9*	1,255	*28.9*	1,298	*30.4*	1,733	*30.0*
2	UK	363	*17.5*	607	*16.4*	588	*13.5*	586	*13.7*	834	*14.5*
3	France	314	*15.1*	498	*13.5*	527	*12.1*	472	*11.0*	610	*10.6*
4	Russian Fed.	39	*1.9*	218	*5.9*	249	*5.7*	260	*6.1*	288	*5.0*
5	Poland	21	*1.0*	93	*2.5*	171	*3.9*	153	*3.6*	213	*3.7*
6	Italy	90	*4.3*	187	*5.1*	138	*3.2*	123	*2.9*	200	*3.5*
7	Belgium	66	*3.2*	120	*3.2*	135	*3.1*	146	*3.4*	195	*3.4*
8	Switzerland	52	*2.5*	130	*3.5*	119	*2.7*	118	*2.8*	167	*2.9*
9	Denmark	38	*1.8*	82	*2.2*	104	*2.4*	127	*3.0*	153	*2.7*
10	Sweden	38	*1.8*	79	*2.1*	112	*2.6*	120	*2.8*	139	*2.4*
	(Total top-10)	**1,693**	***81.2***	**3,045**	***82.3***	**3,398**	***78.1***	**3,402**	***79.7***	**4,532**	***78.6***
	(Total all oth.)	**391**	***18.8***	**647**	***17.7***	**945**	***21.9***	**872**	***20.3***	**1,234**	***21.4***
	Total	**2,084**	***100.0***	**3,692**	***100.0***	**4,343**	***100.0***	**4,274**	***100.0***	**5,766**	***100.0***

Source: UN Comtrade Database

TABLE A5

Exports from the Netherlands of Cut flowers (0603-6 digits), 2021, top-4 countries of destination, in USD mln. and percentages

	Total		Germany		UK		France		Russian Fed.		Share top-4 c's
Catego-ry	USD mln	%	USD mln	%	USD mln	%	USD mln	%	USD mln	%	
060311	1,547	*26.8*	526	*30.4*	105	*28.0*	239	*39.2*	32	*11.1*	*58%*
060312	168	*2.9*	35	*2.0*	32	*6.7*	18	*3.0*	4	*1.4*	*53%*
060313	81	*1.4*	19	*1.1*	2	*0.3*	10	*1.6*	6	*2.1*	*46%*
060314	555	*9.6*	80	*4.6*	118	*17.1*	27	*4.4*	122	*42.4*	*63%*
060315	196	*3.4*	17	*1.0*	99	*10.7*	20	*3.3*	10	*3.5*	*74%*
060319	2,783	*48.3*	886	*51.1*	290	*33.3*	239	*39.2*	111	*38.5*	*56%*
060390	436	*7.6*	169	*9.8*	5	*4.0*	56	*9.3*	2	*0.8*	*53%*
Total	**5,766**	***100.0***	**1,733**	***100.0***	**651**	***100.0***	**610**	***100.0***	**288**	***100.0***	***57%***

Source: UN Comtrade Database

060311: fresh cut roses and buds

060312: fresh cut carnations and buds

060313: fresh cut orchids

060314: fresh cut chrysanthemums and buds

060315: fresh cut lilies

060319: other fresh cut flowers and buds

060390: other flower products

TABLE A6

Imports of Cut flowers (0603), 2000, 2010 and 2019-2021, top-10 importing countries (rank 2021), in USD mln. and world share

	Country	2000		2010		2019		2020		2021	
		USD mln	% world	USD mln	% world	USD mln	% world	USD mln	% world	USD mln	% world
1	USA	610	16.3	1,044	14.0	1,605	18.5	1,535	18.7	2,164	20.9
2	Germany	720	19.2	1,149	15.4	1,195	14.0	1,205	14.5	1,488	14.4
3	Netherlands	425	11.4	634	8.5	989	11.4	1,038	12.6	1,279	12.4
4	UK	542	14.5	1,102	14.8	845	9.7	827	10.1	956	9.2
5	Russian Fed.	24	0.6	561	7.5	323	3.7	271	3.3	493	4.8
6	France	382	10.2	514	6.9	383	4.4	341	4.1	467	4.5
7	Japan	166	4.4	373	5.0	360	4.2	325	4.0	344	3.3
8	Switzerland	130	3.5	176	2.3	170	2.2	163	2.3	223	2.2
9	Italy	154	4.1	236	3.2	149	1.7	176	2.1	216	2.1
10	Poland	17	0.5	91	1.2	183	2.1	152	1.9	187	1.8
	(Total top-10)	**3,170**	**84.7**	**5,880**	**78.9**	**6,202**	**70.7**	**6,033**	**73.4**	**7,817**	**75.5**
	(Total all oth.)	**574**	**15.3**	**1,574**	**21.1**	**2,425**	**29.3**	**2,184**	**26.6**	**2,537**	**24.5**
	World total	**3,744**	**100.0**	**7,454**	**100.0**	**8,627**	**100.0**	**8,217**	**100.0**	**10,354**	**100.0**

Source: UN Comtrade Database

TABLE A7A

Imports of Cut flowers (0603) from five developing and four developed countries into main importing countries, 2021, in USD mln.

	Netherl.	Germany	UK	USA	Other c.	TOTAL
Kenya	392	61	174	2	97	726
Ethiopia	109	5	10	5	126	255
Uganda	34	0	0	0	14	48
Colombia	100	3	74	1,299	251	1,727
Ecuador	211	7	6	508	195	927
(subtotal)	(846)	(76)	(264)	(1,814)	(683)	(3,683)
Netherlands	-	1,371	650	99	3,332	5,452
Germany	57	-	0	0	51	108
UK	1	0	-	1	22	24
USA	0	0	0	-	25	25
Other countries	375	54	42	250	341	1,062
Total	**1,279**	**1,501**	**956**	**2,164**	**4,454**	**10,354**

Source: ITC Trade Map

TABLE A7B Imports of Cut flowers (0603) from five developing and four developed countries into main importing countries, 2021, in percentages of imports

	Netherl.	Germany	UK	USA	Other c.	WORLD
Kenya	30.6	4.1	18.2	0.1	2.2	7.0
Ethiopia	8.5	0.3	1.0	0.2	2.8	2.5
Uganda	2.7	0	0	0	0.3	0.5
Colombia	7.8	0.2	7.7	60.0	5.6	16.7
Ecuador	16.4	0.5	0.6	23.5	4.4	9.0
(subtotal 5 c.)	66.0	5.1	27.5	83.8	15.3	35.7
Netherlands	-	91.3	68.0	4.6	74.8	52.7
Germany	4.5	-	0	0	1.1	1.0
UK	0.1	0	-	0	0.5	0.2
USA	0	0	0	-	0.6	0.2
Other countries	29.4	3.6	4.5	11.6	7.7	10.2
Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

Source: ITC Trade Map

TABLE A8 Imports into the Netherlands of Cut flowers (0603), top-20 countries, 2000, 2010 and 2019-2021 (rank 2021), in USD mln. and world share

	Country	2000		2010		2019		2020		2021	
		USD mln	%	USD mln	%	USD mln	%	USD mln	%	USD mln	%
1	*Kenya*	*93*	*21.9*	*296*	*46.6*	*355*	*35.9*	*331*	*31.9*	*392*	*30.7*
2	*Ecuador*	*34*	*8.0*	*73*	*11.5*	*103*	*10.4*	*112*	*10.8*	*211*	*16.5*
3	*Ethiopia*	*0*	*0*	*36*	*5.6*	*92*	*9.3*	*116*	*11.2*	*109*	*8.5*
4	Belgium	8	1.9	54	8.5	65	6.6	108	10.4	100	7.8
5	*Colombia*	*15*	*3.5*	*27*	*4.3*	*56*	*5.6*	*56*	*5.4*	*100*	*7.8*
6	Italy	5	1.2	16	2.5	58	5.8	63	6.0	83	6.5
7	Germany	9	2.1	11	1.8	60	6.0	49	4.7	57	4.4
8	Turkey	1	0.1	1	0.1	26	2.6	31	3.0	41	3.2
9	*Uganda*	*9*	*2.1*	*27*	*4.3*	*23*	*2.3*	*26*	*2.5*	*34*	*2.6*
10	Spain	36	8.5	9	1.4	53	5.3	50	4.9	33	2.5
	(Total top-10)	**210**	**49.4**	**550**	**86.7**	**891**	**90.1**	**942**	**90.7**	**1,160**	**90.7**
11	South Africa	4	0.9	6	1.0	13	1.3	13	1.2	19	1.5
12	Portugal	1	0.1	4	0.6	12	1.2	14	1.4	18	1.4
13	France	5	1.2	6	0.7	20	2.0	20	1.9	17	1.3
14	Zambia	2	0.6	11	1.7	6	0.6	7	0.7	8	0.6
15	Rwanda	0	0	0	0	4	0.4	5	0.5	7	0.6
16	Zimbabwe	56	13.2	18	2.9	5	0.5	5	0.5	6	0.5
17	Israel	78	18.4	9	1.4	4	0.4	3	0.3	5	0.4
18	Tanzania	6	1.5	10	1.5	11	1.1	4	0.4	5	0.4
19	Denmark	2	0.5	1	0.1	1	0.1	1	0.1	2	0.2
20	Poland	1	0.1	1	0.1	2	0.2	1	0.1	2	0.2
	(Total r.11-20)	**155**	**36.5**	**66**	**10.4**	**78**	**7.9**	**73**	**7.0**	**89**	**7.0**
	(Total r. > 20)	**60**	**14.1**	**18**	**2.8**	**20**	**2.0**	**23**	**2.3**	**30**	**2.3**
	TOTAL	**425**	**100.0**	**634**	**100.0**	**989**	**100.0**	**1,038**	**100.0**	**1,279**	**100.0**

Source: UN Comtrade Database; ITC Trade Map

TABLE A9

Imports of Cut flowers (0603-6 digits), 2021, top-4 importing countries, in USD mln., percentages and world share

	USA		Germany		Netherlands		UK		Share top-4 countries
Category	USD mln	%	USD mln	%	USD mln	%	USD mln	%	
060311	923	*42.7*	393	*26.4*	694	*52.5*	266	*27.8*	*76%*
060312	149	*6.9*	39	*2.6*	127	*9.6*	64	*6.7*	*63%*
060313	19	*0.9*	13	*0.9*	6	*0.5*	3	*0.3*	*29%*
060314	265	*12.2*	71	*4.8*	9	*0.7*	164	*17.2*	*62%*
060315	91	*4.2*	14	*0.9*	0	*0*	102	*10.7*	*93%*
060319	683	*31.6*	932	*62.6*	309	*23.4*	318	*33.3*	*73%*
060390	33	*1.5*	26	*1.7*	177	*13.4*	39	*4.0*	*54%*
Total	**2,164**	***100.0***	**1,488**	***100.0***	**1,321**	***100.0***	**956**	***100.0***	***54%***

Source: UN Comtrade Database; ITC Trade Map

TABLE A10

Trade balance (exports minus imports) in cut flowers (0603-6 digits), 2021, top-10 importing countries, in USD mln.

	US	Germany	Netherlands	UK	Russ. Fed.	France	Japan	Switzerl.	Italy	Poland
060311	-915	-372	851	-257	-253	-163	-15	-75	-84	-70
060312	-148	-38	40	-64	-37	-14	-98	-5	7	-32
060313	-19	-13	76	-3	-5	-9	-57	-2	-14	-1
060314	-264	-68	547	-164	-94	19	-123	-6	2	-7
060315	-90	-13	195	-102	-7	-12	-2	-4	-1	0
060319	-672	-895	2,460	-292	-17	-133	-23	-127	10	-38
060390	-31	-24	318	-37	-1	-57	-12	-4	5	-8
Total	**-2,139**	**-1,422**	**4,487**	**-919**	**-413**	**-467**	**-330**	**-223**	**-75**	**-155**
Exports	25	66	5,766	30	1	31	12	0	141	31

Source: UN Comtrade Database; ITC Trade Map

TABLE A11

Division of exports of cut flowers (0603) from five developing countries to main importing countries, 2021, in USD mln. and percentages

		Netherl.	Germany	UK	USA	Other c.	TOTAL
Kenya	mln USD	392	61	174	2	97	726
	%	54.0%	8.4%	24.0%	0.3%	13.3*)	100.0%
Ethiopia	mln USD	109	5	10	5	126	255
	%	42.7%	2.0%	3.9%	2.0%	49.4%**)	100.0%
Uganda	mln USD	34	2	0	6	6	48
	%	70.8%	4.2%	0	12.5%	12.5%***)	100.0%
Colombia	mln USD	100	3	74	1,299	251	1,727
	%	5.8%	0.2%	4.3%	75.2%	14.5%****)	100.0%
Ecuador	mln USD	211	7	6	508	195	927
	%	22.7%	0.8%	0.6%	54.8%	21.0%*****)	100.0%
Total 5 c.	**mln USD**	**846**	**78**	**264**	**1,820**	**675**	**3,683**
	%	**23.0%**	**2.1%**	**7.2%**	**49.4%**	**18.3%**	**100.0%**

Source: UN Comtrade Database

*) of which: Russian Federation 4.5%, Saudi Arabia 3.5%, UAE 1.8%, Norway 1.7%

**) of which: Saudi Arabia 10.5%, Norway 4.7%, Japan 2.0%, UAE 1.6%

***) of which: Canada 4.5%, Kenya 3.2%, South Africa 2.2%, Italy 2.1%

****) of which: Canada 4.6%, Australia 4.2%, Japan 3.0%, Spain 1.8%

*****) of which: Russian Federation 7.7%, Spain 4.5%, Canada 3.8%, Belarus 2.5%

TABLE A12

Division of exports of Fresh cut roses and buds (060311) from five developing countries to main importing countries, 2021, in USD mln. and percentages

		Netherl.	Germany	UK	USA	Other c.	TOTAL
Kenya	mln USD	312	57	130	1	51	551
	%	56.6%	10.3%	23.6%	0.2%	9.3%	100.0%
Ethiopia	mln USD	87	5	10	2	118	222
	%	39.2%	2.3%	4.5%	0.9%	53.1%	100.0%
Uganda	mln USD	34	0	0	0	0	34
	%	100.0%	0%	0%	0%	0%	100.0%
Colombia	mln USD	20	0	13	533	73	639
	%	3.1%	0%	2.1%	83.4%	11.4%	100.0%
Ecuador	mln USD	153	5	3	357	164	682
	%	22.4%	0.7%	0.5%	52.3%	24.1%	100.0%
Total 5 c.	**mln USD**	**606**	**67**	**156**	**893**	**406**	**2,128**
	%	**28.5%**	**3.1%**	**7.3%**	**42.0%**	**19.1%**	**100.0%**

Source: UN Comtrade Database

TABLE A13

Average unit values of cut flower exports (0603) in USD / ton, top-20 exporting countries, 2011, 2020 and 2021, and development in percentages 2011-20 and 2020-2021

	Country	USD/ton	USD/ton	% +/-	USD/ton	% +/- u.v.
		2011	2020	2011-20	2021	2020-21
1	Netherlands	6,843	7,753	+13.3	8,249*)	+6.4
2	*Colombia*	6,074	5,696	-6.2	5,839	+2.5
3	*Ecuador*	5,760	5,409	-6.1	5,526	+2.2
4	*Kenya*	3,837	4,052	+5.6	4,114*)	+1.5
5	*Ethiopia*	3,983	4,240	+6.5	4,495	+6.0
7	China	2,614	3,359	+28.5	4,369	+30.1
8	Italy	7,359**)	9,505	+29.2**)	11,166*)	+17.6
9	Israel	5,945	12,774	+114.9	7,385	-42.2
10	Malaysia	1,360	3,172	+133.2	3,667	+15.6
12	South Africa	3,970	5,689	+43.3	8,135	+43.0
13	Spain	2,155	2,097	-2.7	2,092	-0.2
14	Germany	7,195	6,012	-16.4	8,345	+38.8
15	Turkey	2,594	2,923	+12.7	3,231	+10.5
16	Vietnam	4,551	6,436	+41.4	x	x
17	Thailand	2,902	2,028	-30.1	3,087	+76.0
18	*Uganda*	4,444	5,954	+34.0	x	x
19	Mexico	1,079	1,394	+29.2	x	x
20	Taiwan	7,616	12,629	+65.8	13,462	+6.6

Sources: UN Comtrade Database; ITC Trade Map

x no data available

*) preliminary

**) 2012, 2012-2020

Note: not included Belgium (world rank 6) and Canada (world rank 11): reported average export prices per unit, not per kilogram/ton

TABLE A14

Shares of retail channels selling cut flowers (0603); Netherlands, France, Germany and UK, 2015 and 2021

	Netherlands		France		Germany		UK	
Channel	2015	2021	2015	2021	2015	2021	2015	2021
Florist	49	49	65	66	59	49	26	20
Kiosk, street	18	13	7	3	6	5	7	4
Supermarket	20	22	12	16	15	24	49	50
Garden centre	8	9	7	8	10	17	6	7
Online	4	7	6	7	6	5	10	19
Other	1	0	3	0	4	0	2	0
Total	100	100	100	100	100	100	100	100
Import (mln USD)	975	1,279	375	467	1,163	1,488	1,017	956

Sources: Van Horen 2021 (based on Rabobank World Floriculture Map, published in cooperation with Royal FloraHolland) (in % derived from bar graphs in sources); UN Comtrade Database