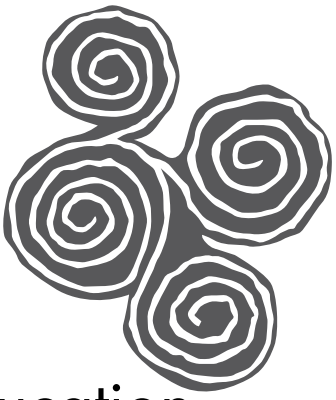

Uganda Workers' Education Association (UWEA)

"We are Dying"

Impacts of Pesticides on Workers on Ugandan Horticultural Farms

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List of Tables

Acronyms

EC:	European Commission
EPA:	Environmental Protection Agency (United States of America)
ETI:	Ethical Trading Initiative
FIAN:	Food First Information and Action Network
FLP:	Flower Label Program
FUE:	Federation of Uganda Employers
ICC:	International Code of Conduct for socially and environmentally responsible flower production
ILO:	International Labour Organisation
IPM:	Integrated Pesticide Management
MDG:	Millennium Development Goals
MoGLSD:	Ministry of Gender, Labour and Social Development
NEMA:	National Environment Management Authority
OHS:	Occupational Health and Safety
PPE:	Personal Protective Equipment
SAPs:	Structural Adjustment Programmes
UFEA:	Uganda Flower Exporter's Association
UHAWU:	Uganda Horticultural and Allied Workers' Union
UWEA:	Uganda Workers' Education Association
WWW:	Women Working Worldwide

Preface

The right to adequate food is a fundamental human right. It means that every man, every woman and every child should have access to enough healthy, nutritious and culturally accepted food at all times. Access to food can be gained either by productive means such as land, water and seeds, which enable people to produce their own food, or by an income which enables people to buy food.

The right to adequate food is often violated or ignored by governments and private companies. In most cases of the globalised flower production, legal minimum wages and salaries are too low to allow workers to feed themselves and their families adequately. Long working hours of even more than 12 hours per day during peak seasons do not leave the workers enough time to produce their own food.

Malnourishment increases the risk of being affected by toxic chemicals. Furthermore, workers are often unprotected against the pesticides which are applied on the plantations. As a consequence, they feel weak, fall ill or develop serious long-term health problems such as the loss of eyesight. Often the employers deny the workers' rights to adequate medical treatment and compensation. The costs of treatment are deducted from workers' salaries, which reduces the amount of money which can be spent on adequate food, which is too little to begin with. In most cases, being sick means being less productive. This puts the employee at risk of being dismissed by the employer. Losing one's job means losing income and thus losing the means to buy adequate food.

The scenario described above is reality for many Ugandan flower workers. The present qualitative study shows the alarming degree to which Ugandan flower workers are affected by pesticides. The reports of the interviewed workers indicate that they are hardly protected against the applied pesticides. As a consequence, they complain about various types of symptoms and diseases, ranging from skin irritation to blindness. When they ask the medical staff on the farms for treatment, they are often only given general pain killers. On January 7th, 2010, a worker of the flower farm Rosebud even died after a pesticide accident and the subsequent lack of adequate medical treatment.

In the course of the present study, the authors were only able to survey short and mid-term impacts of exposure to pesticides. Long-term impacts of pesticide exposure such as cancer or nervous diseases still need to be investigated.

However, the study already indicates that there is an urgent need for the various stakeholders of this sector to respect and protect flower workers' rights to health and adequate food.

Gertrud Falk
FIAN Germany

Executive Summary

Aim of the study:

The main aim of this study was to reach a clear understanding of the impacts of chemicals on workers on horticultural farms in Uganda and on people that live around the farms, including the immediate environment, by

- documenting individual cases of workers that have been affected by chemicals, whether the incident was severe or mild, and documenting unusual physical behaviour and reactions in relation to chemical usage;
- interviewing 10 workers and two managers from each of the selected six farms, and comparing the health of workers on farms with poor Occupational Health and Safety (OHS) Standards as well as those with better standards.

The results of this study will be used to:

- advocate for improvements on OHS standards on horticultural farms.
- leverage flower consumers, flower traders, public procurement officers in Europe and other flower markets to make it their priority to shift consumption patterns towards socially and environmentally fairly produced flowers.
- guide the development of an Occupational Health and Safety policy for adoption by horticultural farms.
- improve working conditions on farms, especially Occupational Health and Safety standards at work.

Methods of data collection:

This was an action research study where the identified interviewees were involved in a participatory process of data collection which enabled them to suggest solutions to the problems that were identified during the study. This was done through

a) interviews with
   - affected workers from high risk work sections,
   - workers from other departments at low risk,
   - farm managers and supervisors,
   - people from the communities around the farms.

b) discussions with
   - key informants like labour inspectors,
   - other officials from line Ministries of Agriculture Animal Industry and Fisheries, Labour, Gender and Social Development including that of Lands and Environment,
   - other Government Agencies like the National Environment Management Authority,
   - medical clinics where workers go for medical checks and treatment.

Sprayers need to be fully protected.

Testimonies were also taken and documented from severely injured workers. This includes the case of the death of a worker on one of the farms.

Observation was another method used in documenting physical reactions and behaviour of workers with high exposure to chemicals.

General awareness meetings were carried out to popularize the research and create a sense of ownership of the research by the workers and the management.

Findings:

The findings of this study were guided by probing into areas of work done by the interviewees, pesticide use on farms, potential symptoms of pesticide use and exposure, work practices, medical history of interviewees and the extent of cigarette and alcohol use by the interviewees to rule out the assumption that cigarettes and alcohol are the cause of any health problems or to establish its high intake among the workers.

Social characteristics of respondents and
their professional life and duties:

The 101 respondents (65 men and 36 women) included workers, farm managers and people living around the farms and there were 14 key informants. Workers with recorded testimonies (15 men, mainly sprayers, and three women harvesters) were also included among the 101 respondents.

The majority of the workers were between 18-25 years of age (49%) and 26-35 years of age (43%). However, all of the respondents fall within the productive and economically active age. 53% of the respondents were single, 42% were married. There are many factors that contribute to the situation of workers being single. Most workers on flower farms find it difficult to maintain a marriage due to many reasons such as too little pay to sustain a family or long working hours which workers engage in to earn a little more money, but which deprive them from fulfilling their marital responsibilities. This can result in men leaving their wives and wives complaining of their husbands smelling of chemicals after spraying, among other things. This situation encourages quarrels and fights and eventually family break-ups are unavoidable. Other economic aspects like the impacts of Structural Adjustment Programmes encourage women to look for jobs to supplement their family incomes.

Workers also have many dependants. The majority of them, 97%, have between one and six dependants. Having many dependants increases the burden on workers to opt to work long hours to earn a little more to help support the extended family. Workers should be educated about family planning and encouraged to use family planning methods to reduce the number of children. However, employers should not take advantage of the family planning scheme to abuse the right of the workers to bear children by subjecting them to pregnancy tests or introducing family planning methods that completely curtail reproduction.

The majority of the respondents have a low level of education, 70% were of primary level. This high level of illiteracy puts workers at high risk of exposure to chemicals because they cannot read and thus do not know the degree of toxicity of the chemicals they use.

Many workers interviewed were sprayers (44), followed by harvesters (13) and fumigators (7).

Many workers had worked on the flower farms for less than five years. This situation depicts the high employee turnover on flower farms as a result of low pay and high exposure to pesticides.

Pesticide use:

36% of the 86 worker respondents apply or mix pesticides, and most of them, 22%, had been engaged in this work for less than one year. 14% have been working with pesticides for over two years, while 8% have been working with them for over six years. Many sprayers confessed that by the time they leave work each day, they are too tired and weak. Some also said that they could not fulfill their conjugal duties properly.

Symptoms related to pesticide use or exposure:

Most of the symptoms presented by the employees fall into the acute category of pesticide effects that can be separated into three categories: mild, moderate, and severe poisoning symptoms. This scenario confirms that all workers who mix and apply pesticides are highly exposed to pesticides. Most of these workers have been burnt on hands, arms, face and legs, some even reported chemical having entered their eyes.

The symptoms headache/dizziness, eye irritation and being extremely tired each occurred "frequently" in about a fifth of the workers, and "sometimes" in another third. Chest discomfort and skin irritation each occurred at least "sometimes" in more than 59% of respondents. More than half of the workers experienced the following symptoms at least once a week during the 12 months prior to the study: excessive sweating, headache, loss of appetite and difficulty falling or staying asleep. Two-thirds suffered from shaking or trembling of the hands at least once a month.

Table1: Classified list of symptoms of mild, moderate and severe chemical poisoning

Mild poisoning symptoms	Moderate poisoning symptoms	Severe poisoning symptoms
Headache	Unusual weakness	Unconsciousness
Dizziness	Depression	Breathing difficulties
General weakness	Nervousness	Asthma
Fatigue	Muscle twitching	Coma
Nausea		Death
Vomiting		
Skin rashes		
Excessive sweating		
Blurred vision		
Chest pain		
Watery eyes		
Runny stuffy itchy nose		

Work practices:
Spraying equipment and methods used by workers to apply pesticides include hand spray guns, backpack sprayers, furrow bands, furrow fumigation, powder dusters and pouring fumigation from a bucket. The use of all these methods and equipment require that workers be highly protected against pesticide exposure.
There is a slight improvement compared to 2004[1] as far as provision of personal protective equipment (PPEs) to workers is concerned; however, half of the workers still reported not using any kind of PPE. Moreover, PPE replacement is still wanting and the quality of the PPEs also needs to be improved.
The workers who are provided with PPE have a habit of wearing it during working hours. This means they even wear them during eating periods, which is wrong. Most workers who have been burnt were burnt by chemicals that had spilled on their work clothes; however, only a third of the workers remove their clothes immediately after such a spill.
The types of pesticides used on the flower farms include insecticides, herbicides, fungicides, and fumigants. Some of the pesticides used are highly toxic.
Work clothes (personal protective equipments and other personal work clothes) are mixed with family wash. This exposes family members to pesticides. The cleaning and washing of equipment is also very poor. The common practice is to rinse the tank and hose down the sprayer and, to some extent, clean the nozzle.
The lock and load system (an enclosed system where chemicals are mixed and distributed into the green houses through pipes) for pesticide mixing and application does not exist on most farms. However, some 37% of the sprayers and fumigators said that they use lock and load system on their farms.
Some workers keep pesticides in their homes. This can result in family members' exposure to the pesticides.
A good number of workers carry or lift heavy loads on the farms for one to two hours a day. This means workers are not confined to their specific jobs but are subjected to other duties as may be assigned by supervisors or managers.
Most workers interviewed, especially sprayers, did spend some time lifting heavy loads. This renders such workers more susceptible to chemical exposure as such double heavy work makes them more tired after work and because the body is more likely to absorb pesticides if one is sweating.

Medical history:
The diseases diagnosed in workers include: depression, asthma, chronic lung disease such as bronchitis, kidney disease and pneumonia.
Workers' relatives (parents, sisters, brothers and children) have been diagnosed with breast cancer, lymphoma, colon/rectal cancer, melanoma (skin cancer), stomach cancer, diabetes and heart attack. The occurrence, however, is minimal.
Very few workers (3%) on flower farms smoke cigarettes. One case of a chain smoker who smokes between 21-40 cigarettes a day (two packs of 20 cigarettes each) was identified.
Very few workers drink alcohol. The habit of alcohol drinking in Uganda is usually common in the evening hours. Most of the workers on flower farms work for long hours and therefore have no time to go drinking.
After working in a field, community members do not leave their field boots outside the house but enter straight into the house with their boots on. Those who mixed and applied pesticides to their crops also did not wash their work clothes separately. Work clothes are mixed with the family wash.
All of the homes of community members are very close to the flower farms (within 199 yards).
Community members also engaged in lifting or carrying heavy loads up to an hour a day during growing season. As compared to farm workers, such work renders a person that mix and apply chemicals more susceptible to chemicals due to heavy work loads, which makes them lose more energy.
Work practices of community members when working with chemicals on their private fields are similar to those of flower farm workers and they, too, are exposed to pesticides. 80% of community respondents applied fertilizers to their crops.

[1] FIAN/UWEA 2004: Basic Study on Workers' Rights and Gender Perspectives in the Cut-flower Industry in Uganda; (German version can be downloaded from www.fian.de)

Conclusions and recommendations:

Conclusions:
All workers on flower farms are exposed to pesticides, in particular sprayers and fumigators. Workers are not enjoying their right to a clean and safe work environment.
Community members around the farms are also exposed to pesticides, either through their family members who work on flower farms or in other commercial agricultural enterprises, or because they live very close to the farms. Some community members also apply fertilizers for their own crops.
Use and care of PPEs are very poor. Workers and communities around the farms need to be provided with and educated on proper use of chemicals and PPEs.

Recommendations:
High exposure of workers to pesticides is a grave concern that all stakeholders in the chain of flower production and supply must urgently work together to address. The International Code of Conduct for socially and environmentally responsible production of flowers (ICC) and certifying organizations that promote socially and environmentally friendly production (like FLP, Fairtrade, ETI) should be introduced in all farms and strictly observed and adhered to.
Regardless of codes of conduct being voluntary, a mechanism could also be put in place for monitoring the implementation of codes of conduct on farms.
Uganda should ratify Convention No. 110 of the International Labour Organization (ILO) on Plantation Workers.
The Government of Uganda must ensure a proper implementation of labour laws in the country.
An education fund must be set aside by every flower farm owner for education of all workers on Occupational Health and Safety (OHS). Flower traders, public organizations and consumers may also contribute to this very important activity.
Consumers, flower traders and public organizations should work with flower producers to improve OHS standards. For example, consumers and flower traders could ensure that they only buy socially and environmentally friendly produced flowers, especially those labeled with codes that observe ILO standards and the ICC.
The European Union should check all incoming flowers for pesticide residue.

CHAPTER I

1.0 Introduction:

In 2004, UWEA, in collaboration with FIAN Germany, carried out a basic study on workers' rights and the gender perspective in the cut-flower industry in Uganda. The study established that although women formed the majority of workers (80%) on flower farms, there were hardly any women found in the senior management positions. Most of the senior management positions were occupied by foreign expatriates who did not understand the local social environment. It was also revealed that workers worked without having any rest days and since all working hours were compulsory, it was difficult to ascertain overtime.

Generally, working conditions were bad at the time of the 2004 study as well as during the subsequent research of 2005-2007 done by UWEA in collaboration with Women Working Worldwide (WWW). UWEA, in collaboration with FIAN Germany and WWW, embarked on campaigns to improve working conditions and the respect for workers' rights on farms.

Salaries are still too low for all workers, except for senior managers, who earn many times more than what the lowest paid worker receives. For example, the lowest paid worker earns between Uganda Shillings 60,000-90,000, which is equivalent to US$ 26-40 per month. Managers earn between Uganda Shillings 500,000-4,000,000, which is equivalent to US$ 224-1,794 per month.

To some extent, through workers education and advocacy, working conditions and rights on flower farms are slowly improving. However, more efforts are needed to ensure proper socially and environmentally friendly production of flowers. The majority of workers still have very poor or no personal protective equipment (PPEs) at all. This situation puts all workers on flower farms at risk of chemical exposure. Indeed, there have been cases of chemical accidents, some of them leading to the death of workers. Because of these incidents, UWEA and FIAN Germany produced a handbook on pesticide handling for managers and workers in 2008.

It has been established in other studies on flower farms in Uganda that the major destination of Ugandan flowers is Europe via auctions in the Netherlands.

It is against the above background that UWEA and FIAN Germany entered into an agreement to effect the study "Impacts of Pesticides on Horticultural Workers and the Environment in Uganda". There is a great need for concerted efforts among all stakeholders to work towards workers' rights and environmentally friendly production of flowers. When this is achieved, workers, producers, and buyers of flowers will all enjoy their involvement in this process which brings comfort and happiness in the form of flowers to many people in ceremonies and relationships. Currently, this rosy picture is tainted with hidden agony and suffering, physical harm and even death among those who toil daily for long hours to help to bring joy and comfort to the hearts of many in homes, offices, hospitals and ceremonies.

1.1 Purpose of the study:

The purpose of the study is to describe work practices regarding pesticide use and associated health problems of Ugandan flower workers. The study seeks to improve Occupational Health and Safety standards on flower farms, as well as the preservation of the surrounding environment, thereby promoting a socially and environmentally fair production of flowers. By first understanding the effects of workers' exposure to chemicals and how the environment around the farms is affected by the chemical and water usage on the farms, the study is expected to facilitate international advocacy so as to improve working conditions on Ugandan flower farms.

This study is part of the wider campaign in Europe on "Fair Flowers – for human rights" which aims to improve working conditions on sub-Saharan flower farms by increasing the demand for fair-labeled flowers in Europe, mainly in Austria, Belgium, the Czech Republic and Germany. The ultimate goal is to contribute to achieving the Millennium Development Goals 1 and 7, which seek to eradicate extreme poverty and hunger, and to ensure environmental sustainability. Through its findings, this study seeks to influence flower consumers, flower traders and public procurement officers in Europe, mainly in Austria, Belgium, the Czech Republic and Germany, and to achieve a shift of consumption patterns towards socially and environmentally fairly produced flowers.

CHAPTER II

Children of a neighbour community fetch water in a greenhouse.

2.0 Study setting:

The study was carried out on purposefully selected farms (two farms with fair OHS standards and three with poor standards) in the districts of Kampala and Wakiso. Five flower farms were visited and a total of 86 respondents (workers and managers, 58 males and 28 females) were interviewed on the farms during working hours, others were interviewed after working hours because their managements were uncooperative. Six farms had been selected for the purposes of this study; however, in the process of implementation only five farms were accessed and even out of these five, two farms refused entry to their premises and we had to mobilize workers after work for interviews outside the farms. In addition, people (15 in number) from the farm surroundings were interviewed. The total number of respondents therefore totaled 101. Further information was gathered from 14 key informants.

2.1 Methodology:

This was an action research where identified interviewees were purposefully selected and involved in a participatory process that enabled them and other stakeholders to suggest solutions for the enhancement of Occupational Health and Safety standards on the flower farms in Uganda. Workers were selected from work sections with high risk of exposure and from other departments expected to be of low risk of exposure for comparison. The respondents from the communities around the farms were specifically selected. Although the questionnaire did not specifically ask whether some farm workers were among the community members, about five families had one of their family members working on a flower farm.

Individual interviews using structured questionnaires were carried out with:

- Workers specifically selected from spraying and fertigation sections.
- Workers selected from other departments like harvesting, maintenance, grading etc.
- Managers and supervisors.
- People from around the community, some of whom were family members of workers of the nearby farms.
- 14 Key informants from the Ministry of Labour, i.e. Labour Ministry officials, UFEA, FUE, NEMA, Lands and Environment Ministry officials, and officials from the Ministry of Agriculture Animal Industry and Fisheries.
- Guiding questions were prepared for the key informants who were expected to give their views on the situation on the ground. Most of the key informants agreed that the flower industry, though over 10 years old now, is still young and should be given a chance to develop steadily.

One key person from the Ministry of Labour observed that Occupational Health and Safety standards on flower farms have been improving because of the education and awareness that the employers and other stakeholders have delivered to the workers. The Ministry has tried its best to carry out inspections and advise the farmers on areas that need improvement, such as building strong green houses, provision of quality PPEs and proper use of pesticides. He also said that the inspectorate department lacks enough funding to carry out its duties more effectively as the area of coverage is wide and includes other sectors as well.

Testimonies from 18 workers expressing how chemicals have affected them through the years of their work on flower farms were documented and are attached to this report, including a report on the death of a worker from one of the farms. The 18 workers were specifically selected from different farms and are included in the study among the 86 workers (58 men, 28 women).
Photographs of the affected workers were taken and are available on CD/flash disc.
General observations were also carried out as the research team visited workers on and outside the farm.
Before the study, dialogue meetings with individual farms were organized, farm managements were briefed on the study, and the structured questionnaire was submitted to them to study the contents and give feedback. Three farm managements responded positively and the other three did not cooperate.

Generally, the study was guided by the need to know:
- how pesticides are used on flower farms,
- what the potential symptoms of pesticide use or exposure are,
- work practices,
- medical history,
- cigarette and alcohol use and
- the need to involve all stakeholders in creating solutions to OHS and environmental problems faced on and around the farms.

2.2 Sample size:

86 workers and farm managers were purposefully selected from different departments on the farms, with spray and fertigation departments being given the priority and including both men and women (58 men and 28 women). This number includes the 18 workers (15 men and three women) who were selected to give testimonies on the severity of chemical injuries as a result of their exposure to chemicals.
Community respondents (seven men and eight women) were randomly selected from the farm surroundings. Five out of the fifteen had one of their family members working on the farm.
In addition to these 101 respondents, purposive sampling was used to get the 14 key informants.

2.3 Obstacles and delimitations to the study:

It was difficult to reach certain farms that had deliberately refused to cooperate with the researchers. The researchers had to mobilize workers from these farms after working hours to conduct interviews and record testimonies from affected workers.
The farmers that cooperated with the researchers welcomed the study and even got involved in answering the questionnaires. Their hope in this study is that if the consumers joined with them in understanding the process of production, perhaps some of the problems would be easily solved.
It was not possible to take blood samples from the workers and have them analyzed for chemical exposure as no laboratory facilities for doing so are available in Uganda.

Table 2: Number of respondents

Flower farm	Male		Female		Total	
	No.	%	No.	%	No.	%
Xclusive CuttingsLtd	10	17.2	6	21.4	16	19.0
Mairye Estates Ltd	10	17.2	5	17.8	15	17.0
Jambo Roses Ltd	10	17.2	6	21.4	16	19.0
Rosebud Ltd	14	24.1	6	21.4	20	23.0
Mellissa Flowers Ltd	14	24.1	5	17.8	19	22.0
Total	**58**	**100.0**	**28**	**100.0**	**86**	**100.0**
Community respondents:	**7**	**46.6**	**8**	**53.3**	**15**	**100.0**

Note: this table includes workers and managers including the 18 workers who were separately interviewed for severe injuries and altogether total up to 86. Community respondents were 15 as indicated in the last row of the table. The overall number of respondents totals up to 101.

Table 3: Key informants

Organization	Male	Female	Total
Uganda Flower Exporters' Association		1	1
Federation of Uganda Employers		1	1
Ministry of agriculture, Animal industry & fisheries	1		1
National Environment Management Authority		1	1
Nature Uganda	1		1
Ministry of Labour, Gender and Social Development	1	1	2
Uganda Horticulture & Allied Workers Union	2	1	3
Ministry of Trade and Industry	1	1	2
Ministry of Lands and Environment	1	1	2
Total	**7**	**7**	**14**

CHAPTER III

Unprotected workers may affect their family members with pesticides.

3.0 Findings of the Study:

This chapter presents the findings of the study on the impacts of pesticides on horticultural workers and their communities. The study focused on five sections, namely:

- social characteristics and type of work done by the interviewees,
- pesticide use or exposure and possibly related symptoms,
- work practices,
- medical history of the respondents,
- and a short survey on family members of workers and other people living in the immediate surroundings of the farms.

3.1 Social characteristics and type of work done by the interviewees:

3.1.1 Age of the interviewees:

The majority of the respondents (49%) were between 18 and 25 years of age, followed by those aged between 26-35 years (43%). Very few respondents (8%) were older than 35. All the respondents fall within the productive and economically active age. It is important that the lives of these workers be highly protected by establishing high standards of Occupational Health and Safety on the farms. Health is wealth.

Table 4: Social characteristics of the interviewees (farm workers)

	Male		Female		Total	
	No.	%	No.	%	No.	%
Age						
Below 18 years	-	-	-	-	-	-
18-25 years	30	51.7	12	42.8	42	48.8
26-35 years	21	36.2	16	57.1	37	43.0
36-50 years	7	12.0	-	-	7	8.1
Total	**58**	**100.0**	**28**	**100.0**	**86**	**100.0**
Marital status						
Single	25	43.1	21	75	46	53.4
Married	32	55.1	4	14.2	36	42.0
Widowed	-	-	2	7.1	2	2.3
Divorced	1	1.7	1	3.6	2	2.3
Separated	-	-	-	-	-	-
Cohabiting	-	-	-	-	-	-
Total	**58**	**100.0**	**28**	**100.0**	**86**	**100.0**
Dependants						
1-3	37	63.7	11	39.2	48	55.8
4-6	19	32.7	16	57.1	35	40.6
7-10	-	-	1	3.6	1	1.2
None	2	3.4	-	-	2	2.3
Total	**58**	**100.0**	**28**	**100.0**	**86**	**100.0**
Level of education						
Primary	41	69.6	20	70.4	61	69.9
Secondary	17	30.4	8	29.6	25	30.1
Tertiary	-	-	-	-	-	-
Total	**58**	**100.0**	**28**	**100.0**	**86**	**100.0**

Note: this table includes only farm workers.

3.1.2 Marital status:
53% of the respondents were single, while 42% were married. 55% of the men were married, compared to only 14% among the women. These figures might reflect the current trend where, because of long working hours, women cannot balance productive work with reproductive work and as a result, most men leave their women in search for those who can give them better attention. One of the women that gave a testimony of her work life on the farm revealed that her husband had left her because she had always been arriving home late and had not been fulfilling her marital duties.
The single status of 75% of working women confirms the fact that trends have changed. Women are now bread winners as well as men for many reasons such as trade liberalization, which was brought in through Structural Adjustment Programmes (SAPs) which saw many men, who had been the main bread winners, lose their jobs. This trend forced many women to look for jobs to supplement their family incomes.

3.1.3 Dependants:
56% of the respondents have between one and three dependants, followed by 41% that have between four and six dependants. This is sometimes brought about by culture and tradition, whereby the family member who is able to earn an income bears the burden of the rest that don't. The dependants range from one's own family to immediate relatives (parents, sisters and brothers) and other close relatives such as cousins, aunts etc. The other factor is that some people have not yet embraced family planning and so end up producing many children that they cannot manage to care for. There is a need to teach all workers in horticultural farms about family planning as a way of solving this problem. However, employers should not take this as an excuse to subject women to pregnancy tests before the hiring process or during employment so as to deny them their rights to work and to produce children.

3.1.4 Level of education:
The majority of workers on flower farms have a low level of education and among those interviewed, 70% were of primary level and only 30% were of secondary level; none of them have attained tertiary level education. There were no differences between men and women in this respect. This also explains the fact that managers and supervisors have no tertiary level education. Most of them are of secondary level and only have on-the-job work experience.
Although most of the workers have been to school, 70% of them are semi-literate as shown in table 3. They only went to primary school and not all of them passed all seven classes. This poses a danger to their safety and health because they are not able to read or write well, hence their ignorance of what may be dangerous. In particular the author would like to point out the sprayers and those in fumigation departments who handle or use chemicals daily at work. Most of the sprayers and those who apply chemical fertilizers do not know how to read chemical labels or instructions, therefore they depend on their supervisors. Sometimes these supervisors also have limited knowledge of the details concerning chemicals and depend on their practical training, which is also limited (they are not trained frequently). This poses a great risk to the lives of these workers. There is a need for quality protective gear for these workers and frequent training on how to use pesticides. Establishment of Occupational Health and Safety policies on farms is a must and such policies must be popularized among workers.

3.1.5 Types of work:
The majority of the selected respondents (51%, all male) are sprayers (see table 5). About 15% are harvesters and these are all women; these too are exposed to chemicals daily. On some farms the majority of the harvesters interviewed revealed that re-entry periods into the greenhouses after spraying are not strictly adhered to. Sometimes they are forced to enter the greenhouses before re-entry periods have expired because of pressure to meet the customers' demands.
"I am a harvester. In February 2009 I was two months pregnant and one day they forced us to enter the green house and harvest flowers when the chemical was still wet. The chemical smelled badly and I started feeling headache and pain. When I complained they did not help me much they just gave me Panadol (a pain killer). After one month I got miscarriage. We work in our own clothes and we are not given protectives," a female worker from one of the uncooperative farms.

Table 5: Type of work

Type of work done	Male		Female		Total	
	No.	%	No.	%	No.	%
Harvesting	-	-	13	46.4	13	15.1
Tending flowers	-	-	1	3.5	1	1.2
Applying natural fertilizer	-	-	-	-	-	-
Applying chemical fertilizer	6	10.3	1	3.5	7	8.1
Supervising/manager	5	8.6	3	10.7	8	9.3
Maintenance	1	1.7	-	-	1	1.2
Spraying flowers/ plants	44	75.8	-	-	44	51.1
Packaging	1	1.7	-	-	1	1.2
Sorting and grading	-	-	6	21.4	6	6.9
Propagation	-		4	14.2	4	4.6
Workers welfare	1	1.7	-	-	1	1.2
Total	**58**	**100.0**	**28**	**100.0**	**86**	**100.0**

Note: only senior managers have offices. Other managers/supervisors work in greenhouses/fields.

3.1.6 Work life information:

Table 6 shows that most of the workers (76%) have worked for less than five years in their current job (the percentage being somewhat higher in women than in men). This could be explained by the fact that women are in more casual job positions than men and therefore tend to shift to different farms in search of better wages. 22% of the workers interviewed have worked between five and 10 years in their current job. This reflects the fact that there is high staff turnover on flower farms, which could be caused by poor working conditions and, in particular, low salaries and lack of protective gear. The floriculture industry in Uganda started 17 years ago in 1993. Some workers who gave testimonies about their experiences at work on flower farms confessed that they wanted to leave work very soon because of the low pay, the heavy workload and exposure to pesticides.

People who previously worked on other farms did not take up similar jobs on the current farms they are working on. The practice here is that a worker coming from another farm does not necessarily take up the same job he/she was doing on the previous farm. The two people who had worked for more than 10 years in their current job were two expatriates, one from the Netherlands and the other from Kenya.

Table 6: Work life information of the respondents

	Male		Female		Total	
	No.	**%**	**No.**	**%**	**No.**	**%**
No. of years spent in farm work						
Less than 5 years	37	63.7	20	71.4	57	66.3
5-10 years	19	32.7	7	25.0	26	30.2
11-20 years	1	1.7	1	3.5	2	2.3
21-30 years	1	1.7	-	-	1	1.1
Over 30 years	-	-	-	-	-	-
Total	**58**	**100.0**	**28**	**100.0**	**86**	**100.0**
No. of years in current job						
Less than 5 years	42	72.4	23	82.1	65	75.5
5-10 years	14	24.1	5	17.8	19	22.0
11-20 years	1	1.7	-	-	1	1.1
Over 20 years	1	1.7	-	-	1	1.1
Total	**58**	**100.0**	**28**	**100.0**	**86**	**100.0**
Ever worked in another farm?						
Yes	9	15.5	3	10.7	12	13.9
No	49	84.4	25	89.2	74	86.0
Total	**58**	**100.0**	**28**	**100.0**	**86**	**100.0**
If yes, for how long?						
Less than 5 years	7	77.8	3	100.0	10	83.3
5-10 years	-	-	-	-	-	-
10-20 years	1	11.1	-	-	1	8.3
Over 20 years	1	11.1	-	-	1	8.3
Total	**9**	**100.0**	**3**	**100.0**	**12**	**100.0**
What job did you do in previous farm?						
Marketing & sales	1	11.1	-	-	1	8.3
Packaging	1	11.1	-	-	1	8.3
Maintenance	-	-	-	-	-	-
Weeding	1	11.1	-	-	1	8.3
Chemical application	1	11.1	-	-	1	8.3
Harvesting	-	-	1	33.3	1	8.3
Supervising	5	55.5	1	33.3	6	50.0
Total	**9**	**100.0**	**3**	**100.0**	**12**	**100.0**

4.0 Pesticide use:

Table 7: Mixing or application of pesticides

	Male		Female		Total	
	No.	%	No.	%	No.	%
Ever personally mixed or applied pesticides to crops for commercial, farm or personal use?						
Yes	44	75.9	7	25.0	51	59.4
No	14	24.1	21	75.0	35	40.7
Total	**58**	**100.0**	**28**	**100.0**	**86**	**100.0**
No. of years you personally mixed pesticides						
1 year or less	30	51.7	5	17.8	35	40.7
2-5 years	9	15.5	2	7.1	11	13.9
6-10 years	5	8.6	-	-	7	8.1
Never	14	24.1	21	75.0	35	40.7
Total	**58**	**100.0**	**28**	**100.0**	**86**	**100.0**
During years of mixing pesticides, how many days per year did you personally mix pesticides?						
Less than 5 days	5	8.6	2	7.1	7	8.1
6-10 days	-	-	-	-	-	-
11-20 days	-	-	-	-	-	-
21-30 days	-	-	-	-	-	-
31-40 days	-	-	-	-	-	-
41-50 days	7	12.1	1	3.5	8	9.3
Over 50 days	32	55.17	4	14.2	36	41.8
Never	14	24.1	21	75.0	35	40.7
Total	**58**	**100.0**	**28**	**100.0**	**86**	**100.0**
What % of the time do you require to mix pesticides?						
Never	14	24.1	21	75.0	35	40.7
Less than 50%	35	60.3	5	17.8	40	46.5
50% or more	9	15.5	2	7.1	11	12.7
Total	**58**	**100.0**	**28**	**100.0**	**86**	**100.0**
What % of the application on the farm do you personally do?						
None	14	24.1	21	75.0	35	40.7
Less than 50%	3	5.1	6	21.4	9	10.4
50% or more	41	70.7	1	3.5	42	48.8
Total	**58**	**100.0**	**28**	**100.0**	**86**	**100.0**

4.1 Mixing or application of pesticides:

Out of the 86 respondents, 59.4% have mixed or applied pesticides either at home or on the flower farm. However, not all workers who apply pesticides on the flower farms mix pesticides. The pesticides are mixed by either the supervisors or those chosen and guided by the supervisors. 41% have never mixed or applied pesticides at all. This number is not exclusive to sprayers and fumigators. The percentage of workers that have mixed or applied pesticides is higher among men (75%) than among women (25%).

41% of the respondents had mixed pesticides for less than one year, while about 14% had mixed pesticides for a period of two to five years, and only 8% have mixed pesticides for six years or more. There are seven women (25% of the female respondents) who mixed pesticides. Men had spent more years in mixing pesticides than women, but this should be seen in the context of the male respondents also having worked more years in the current job than the women (see table 5).

42% of the respondents had mixed pesticides for over 50 days in a year and about 9% had mixed pesticides from 40 to 50 days per year. 8% mixed chemicals for less than 5 days per year.

41% of the respondents said they never took time to mix pesticides. 47% of the respondents said that they take less than 50% of the working time to mix pesticides, while 13% said they take more than 50% of the time to mix pesticides.

49% of the respondents do more than 50% of chemical application on the flower plantation while 10% do less than 50% of the chemical application. Workers thus spend more time applying than mixing pesticides.

During the time of testimonies by workers severely affected by chemicals, most sprayers said that they spray more than two greenhouses a day and by the end of the day they are too tired and weak. Quoting from the testimonies of some sprayers, they said that after each day's work they feel so tired and weak and cannot satisfy the conjugal demands of their partners.

"After a day's work of spraying I feel tired and weak, I lose power and because of that I cannot satisfy my wife these days" said a worker aged 26 from one of the very uncooperative farms.

4.2 Symptoms related to pesticide use or exposure:

Table 8: Symptoms related to pesticide use or exposure

	Sprayers/Fumigators			Harvesters/Propagator			Others			Total
How often have you had the following symptoms that you think may be related to your using of or exposure to pesticides	Never	Sometimes	Frequently	Never	Sometimes	Frequently	Never	Sometimes	Frequently	
Being exhaustively tired	3	5	43	3	1	13	9	2	7	**86**
Headache/Dizziness	15	10	26	5	7	5	12	6	-	**86**
Nausea/Vomiting	20	15	16	10	3	4	15	3	-	**86**
Skin irritation	-	11	40	5	6	6	10	2	6	**86**
Eye irritation	-	20	31	12	5	-	12	6	-	**86**
Chest discomfort	2	40	9	2	12	3	13	4	1	**86**
Felt nervous/depressed	30	16	5	10	5	2	16	2	-	**86**

Table 9: Number of times victims have visited a doctor

As a result of using pesticides how often have you:	Never		Once or more times	
	No.	%	No.	%
Seen a doctor	56	65.1	30	34.8
Been hospitalized	83	96.5	3	3.4

Table 10: Symptoms in the past 12 months

During the past 12 months have you had…	Sprayers/ Fumigators				Harvesters/Propagators				Others				Total	
	Yes		No		Yes		No		Yes		No			
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Stuffy, itchy, runny nose	21	24.4	30	34.8	5	5.8	12	13.9	6	6.9	12	13.9	86	100.0
Watery, itchy eyes	51	59.3	-	0.0	11	12.7	6	6.9	8	9.3	10	11.6	86	100.0
A cold	49	56.9	2	2.3	4	4.6	13	15.1	6	6.9	12	13.9	86	100.0
Sinusitis or sinus problems	36	41.8	15	17.4	5	5.8	12	13.9	6	6.9	12	13.9	86	100.0
Influenza/bad cold	45	52.3	6	6.9	1	1.2	16	18.6	2	2.3	16	18.6	86	100.0
Pneumonia	7	8.1	44	51.1	-	0.0	35	40.6	-	0.0	18	20.9	86	100.0

Table 11: Detailed symptoms of chemical exposure in the past 12 months

	Sprayers/Fumigators			Harvesters/Propagators			Others			Total	
Approximately how often during the last 12 months have you experienced the following?	**Never**	**Once a month**	**At least Once a week**	**Never**	**Once a month**	**At least Once a week**	**Never**	**Once a month**	**At least once a week**	**No.**	**%**
Dizziness	10	15	26	5	7	5	12	6	-	86	100.0
Feeling tense, anxious, or nervous	20	19	12	10	5	2	16	2	-	86	100.0
Nausea/vomiting	12	20	19	10	3	4	15	3	-	86	100.0
Feeling tired, sleepy, no energy most of the day	3	5	43	3	1	13	9	2	7	86	100.0
Sweating a lot more than usual	10	9	32	1	1	15	14	-	4	86	100.0
Difficulty seeing at night	-	20	31	15	1	1	18	-	-	86	100.0
Being absent minded, forgetful or confused	20	19	12	17	-	-	18	-	-	86	100.0
Headache	10	15	26	5	7	5	12	6	-	86	100.0
Loss of appetite	28	15	8	13	3	1	14	2	2	86	100.0
Fast heart rate	49	1	1	16	1	-	18	-	-	86	100.0
Difficulty with balance	49	2	-	17	-	-	18	-	-	86	100.0
Blurred vision or double vision	40	6	5	17	-	-	18	-		86	100.0
Difficulty concentrating	20	19	12	17	-	-	18	-	-	86	100.0
Numbness, pins and needles on your feet or hands	47	3	1	17	-	-	18	-	-	86	100.0
Momentary loss of consciousness	50	1	-	17	-	-	18	-	-	86	100.0
Feeling exceedingly irritable or angry	44	6	1	8	5	4	10	8	-	86	100.0
Shaking or trembling of your hands	20	10	21	9	6	2	15	3	-	86	100.0
Difficulty falling or staying asleep	38	4	9	15	2	-	18	-	-	86	100.0
Difficulty speaking	48	1	2	17	-	-	18	-	-	86	100.0
Weakness in your arms or legs	27	14	10	13	4	-	18	-	-	86	100.0
Changes in your sense of smell or taste	28	15	8	16	1	-	16	2	-	86	100.0
Feeling depressed, indifferent or withdrawn	20	19	12	15	2	-	16	2		86	100.0
Twitches, jerks, or involuntary movements of your arms or legs	51	-	-	17	-	-	18	-	-	86	100.0

4.2.1 Excessive tiredness:
Table 8 shows that of the 86 respondents, 9% sometimes felt exhausted during work while 73% frequently felt exhausted and 17% never felt overly tired.

4.2.2 Headache/dizziness:
36% frequently had headache or dizziness during and after work, and about 27% sometimes had headache or felt dizzy, while 37% of the respondents had not experienced headache or dizziness.

4.2.3 Nausea or vomiting:
52% of the respondents had felt neither nausea nor vomited. 24% had felt nauseated or vomited sometimes, while 23% had frequently felt similar symptoms. Most workers are exposed to pesticides and such symptoms can occur as a result of chemical odors. Pregnant women are the major victims here because of physiological changes in the body during pregnancy. During the study, one of the women testified having experienced miscarriage during her second month of pregnancy. Although this was not one of the questions raised in the study, this may be an indicator that a number of women on flower farms experience miscarriages.

4.2.4 Skin irritation:
22% of the workers had sometimes experienced skin irritation, 17% had not had any skin irritation, while 55% frequently had. As shown in table 7, it is worth noting that the majority of workers in green houses, i.e. sprayers, harvesters and propagators, suffer from skin irritation most likely due to high temperatures and chemical exposure.

4.2.5 Eye irritation:
28% of the workers had never felt any eye irritation. However, 36% had sometimes felt eye irritation and 36% had frequently felt irritation in the eyes.

4.2.6 Chest discomfort:
20% of workers interviewed had never felt any chest discomfort while 67% had sometimes felt discomfort in the chest. 15% had frequently felt some chest discomfort.

4.2.7 Feeling nervous or depressed:
26% of the respondents had sometimes felt nervous or depressed and 65% had never felt any nervousness or depression. 8% frequently felt nervous or depressed.

4.2.8 Number of times victims of chemical exposure visited a doctor:
65% of the workers, though affected, had not had the chance to visit a doctor so as to ascertain the type of ailment they had been having (see table 9). 35% had visited a doctor at least one or more times. 97% had never been hospitalized, while 3% had been hospitalized. The three cases of those hospitalized were mainly chemical accident victims who had had their eyes affected by chemicals and now have blurred vision. One worker is fully blind in one eye.

4.2.9 Summary of the first list of symptoms:
Table 8 reveals that the majority of workers show symptoms that are most likely related to pesticide exposure. Indeed, only 34% of the respondents reported that they had not suffered from any of the symptoms listed in the table, whereas 66% had suffered from at least one of the symptoms during their working life. The symptoms with the highest percentage in the category "frequently" were headache/dizziness, eye irritation and being overly tired. Chest discomfort and skin irritation had occurred at least sometimes in more than 80% of respondents.

4.3 Symptoms of pesticide exposure in the past 12 months:

From table 10 one can see that about 63% of workers had never had a stuffy, itchy or running nose during the 12 months prior to the study, while 37% had had such symptoms.
For watery, itchy eyes, 81% of the workers interviewed had felt the symptoms, while 19% hadn't felt the symptoms during 12 months prior to the study. 59% of the sprayers and fumigators had the highest incidences of the symptoms; this could be attributed to the fact that they are highly exposed to pesticides during most of their work day. 13% of the harvesters and propagators experienced the problem of watery and itchy eyes in the 12 months before the study.
In the 12 months prior to the study, 68% of the workers had had a cold during their employment, while 31% had not. The high prevalence of cold symptoms could be related to an indirect effect of nose and throat irritation, which may be making workers more susceptible to colds.
55% of the workers said they had had sinusitis or sinus problems, while 45% said they had not had sinusitis in the past 12 months.
56% of the workers said they had had influenza/bad cold in the past 12 months, while 44% had not.
8% of the workers interviewed had experienced pneumonia in the past 12 months. Pneumonia had the least occurrence and had been experienced by only sprayers and fumigators. This may be related to the living conditions of the workers, although the study did not focus on the workers' living conditions in detail.
All the symptoms in table 9 had high incidents reported: 81% for watery, itchy eyes, 68% for cold, 63% for stuffy, itchy, runny nose, 56% for influenza/bad cold and 55% for sinusitis. Pneumonia was only reported in 8%.
Table 11, showing various kinds of symptoms of chemical exposure, depicts that most workers show symptoms that are most likely related to exposure to pesticides at work.
Once a month, out of the 86 workers interviewed, 33% had felt dizziness and headache, 30% had felt nausea and vomiting, 23% had had loss of appetite. Exceeding anger and shaking and trembling of hands each had 22%, weakness in arms and legs 21%, change in sense of smell and taste at 21%, excessive sweating 12% and tiredness/sleepiness and loss of energy most of the day 9%.
Once a week, 73% felt tired/sleepy, and a loss of energy, followed by 59% that had experienced excessive sweating, dizziness and headache at 36% respectively. 27% had also felt nausea and vomiting, as well as shaking and trembling of hands. 14% had felt depressed, 13% loss of appetite, 12% weakness in arms and legs, 9% a change in sense of smell and taste, and, lastly, 6% exceeding anger. All these are some of the symptoms that are common on the farms and have a high prevalence.
The table also shows that all symptoms due to chemical exposure on the farms are felt by the interviewed workers, though the percentage of prevalence differs. Symptoms such as difficulty speaking (3%), difficulty with balance (2%), and momentary loss of consciousness (1%) occurred among sprayers and fumigators only and at very minimal prevalence. Other symptoms exclusively experienced by sprayers and fumigators include: difficulty concentrating, blurred vision, and absent mindedness. Loss of energy with 73%, excessive sweating 59%, dizziness and headache with 36% respectively, shaking and trembling of hand and legs 27%, and nausea/vomiting at 27% are some of the symptoms with very high prevalence of once a week. Sprayers and fumigators experienced the highest amount of incidences.

4.3.1 Summary:
With all the symptoms analyzed above, there is a clear indication that the majority of workers are exposed to pesticides. Many of the symptoms listed in tables 8, 10, and 11 above; for example, dizziness, nausea, vomiting, skin irritation, eye irritation/watery eyes, stuffy, itchy, running nose, headache, tiredness (fatigue), excessive sweating and chest pain, all present symptoms of mild poisoning which are classified under acute effects of chemical exposure[2]. Acute effects present themselves as immediate physical responses to chemical exposure. They often disappear soon after the exposure stops. Acute effects not only occur in severe poisoning (please see list of classified symptoms in table on page 12) but also in moderate and mild poisoning; each of these present different symptoms.
Again, moderate poisoning is seen in some of the symptoms listed in table 11, they include weakness in arms or legs, which has a high

[2] UWEA Educational Modules pages 65&66

prevalence on the farms, with 21% of the workers saying they had felt weak in their arms or legs once a month and at least 12% once a week. Shaking or trembling of hands is also a symptom of moderate poisoning and 27% of workers had experienced the symptom at least once a week. Difficulty falling asleep or staying asleep is another symptom of moderate poisoning, which was reported by 17% of the workers. There had also been incidents of severe poisoning (see table 1 on symptoms) where 5% of those who said they had experienced the symptom had it once a year and about 3% had it once a month.
In summary, most workers (83%) have felt some kind of symptom during their time of work. Testimonies given by workers confirm that most workers are not adequately protected. However, looking at the percentage of those that had not felt any symptoms, there appears to be some slight improvement on some farms on Occupational Health and Safety standards. However, more effort is still needed to have all farms raise their Occupational Health and Safety standards.

4.4 Shortness of breath and wheezing chest:

69% of the workers interviewed had never felt shortness of breath when hurrying on level ground or walking up a hill, but 31% had. 23% had had shortness of breath or wheezing in their chest at least one or two times, while 8% had experienced this between three and six times in the past 12 months. 2% of all respondents, that is 7% of those with the symptom, had had the chance to visit a doctor or a hospital emergency room.
From table 12(c) one can see that breathing problems get worse early in January and February, in the middle of the year, from June to September, and then in December. These periods of the year are peak seasons for flowers. January to February is the season of Valentine's, June to September is peak season for cut-flowers, while the peak season for Christmas is later in the year. January and July are the months when breathing problems are at their worst.

Table 12(a): Shortness of breath and wheezing chest

	Fumigators/sprayers				Harvesters/propagators				Others				Total	
	Yes		No		Yes		No		Yes		No			
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Do you have shortness of breath when hurrying on level ground or walking up a hill?	20	23	31	36	5	5.8	12	13.9	2	2.3	16	18.6	86	100

Table 12(b): Frequency of shortness of breath and wheezing chest

	No.	%
How many episodes of wheezing have you had in your chest for the last 12 months?		
None	59	68.6
1-2	20	23.2
3-6	7	8.1
7 or more	-	-
Because of wheezing in your chest, how many times have you gone to a hospital emergency room or to a doctor's office?		
None	25	29.0
1-2	2	2.3
3-6	-	-
7 or more	-	-

Table 12(c). Time of year when breathing problems get worse

	No.	%
During which month of the year are your breathing problems most severe?		
None	59	68.6
January	5	5.8
February	3	3.4
March	-	-
April	-	-
May	-	-
June	5	5.8
July	6	6.9
August	3	3.4
September	2	2.3
October	-	-
November	-	-
December	3	3.4

4.5 Eyesight problems:

According to table 13, 97% of the workers said they had never been declared blind in either eye by a doctor.
Only 3% said they had been declared blind in either eye by a doctor and this happened when they were between 20-39 years old. 7% of all the workers interviewed had had eyesight problems, and of these, only 3% wear contact lenses to correct near-sightedness, one having started wearing them when he was under 20 years old, and the other when he was older than 20. One person wears contact lenses to correct far-sightedness, which he had started after the age of 20. 97% of the workers interviewed did not have eyesight problems. 100% could read large newspaper print.

Table 13(a): Eyesight problems

Has a doctor ever told you that you are legally blind in either eye?							
	Sprayer/Fumigators		**Harvesters/Propagators**		**Others**		**Total**
	No.	**%**	**No.**	**%**	**No.**	**%**	**%**
Yes	3	3.5	-	-	-	-	**3.5**
No	48	55.8	17	19.8	18	20.9	**96.5**
Total	**51**	**59.3**	**17**	**19.8**	**18**	**20.9**	**100.0**
How old were you when a doctor first told you that you were legally blind in either eye?							
< 20	-	-	-	-	-	-	
20-39	3	100.0	-	-	-	-	**3.0**
>= 40	-	-	-	-	-	-	
Total	**3**	**100.0**	**-**	**-**	**-**	**-**	**100.0**
Do you use contact lenses to correct near-sightedness?							
yes	2	2.3	-	-	-	-	**2.3**
No	49	56.9	17	19.8	18	20.9	**97.6**
Total	**51**	**59.3**	**17**	**19.8**	**18**	**20.9**	**100.0**
How old were you when you began wearing contact lenses to correct near-sightedness?							
< 20	1	50,0	**-**	**-**	**-**	**-**	**50.0**
20-39	1	50,0	**-**	**-**	**-**	**-**	**50.0**
>= 40	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Total	**2**	**100.0**	**-**	**-**	**-**	**-**	**100.0**
Do you use contact lenses to correct far-sightedness?							
yes	1	1.2	-	-	-	-	**1.2**
No	50	58.1	17	19.8	18	20.9	**98.8**
Total	**51**	**59.3**	**17**	**19.8**	**18**	**20.9**	**100.0**
How old were you when you began wearing contact lenses for far-sightedness?							
< 20	-	-	-	-	-	-	
20-39	1	100.0	-	-	-	-	**100.0**
>= 40	-	-	-	-	-	-	**-**
Total	**1**	**100.0**	**-**	**-**	**-**	**-**	**100.0**

Table 13(b): Eyesight

	Sprayers/Fumigators				**Harvesters/Propagators**				**Others**				**Total**
	yes		**no**		**yes**		**no**		**yes**		**no**		**%**
Can you recognize a friend from:	**No.**	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**	
Across the street?	50	58.1	1	1.2	17	20.0	-	-	18	21	-	-	**100.0**
Across a room?	50	58.1	1	1.2	17	20.0	-	-	18	21	-	-	**100.0**
At arms length?	50	58.1	1	1.2	17	20.0	-	-	18	21	-	-	**100.0**
Read ordinary news print?	50	58.1	1	1.2	17	20.0	-	-	18	21	-	-	**100.0**
Large print – news headlines?	51	59.0	-	-	17	20.0	-	-	18	21	-	-	**100.0**

4.6 Incidents of unusually high exposure to pesticides:

59% of the workers, as shown in table 14, reported having had an unusually high exposure to pesticides. 94% experienced the risk during the 2000s and only 6% experienced it in the 1990s.
27% had hands exposed to the pesticides, while 26% were affected on the arms or head and face. 12% had their legs affected, while 6% had feet affected, lungs and digestive system had 2% each. At the time of the accident, 80% washed off the chemical within 30 minutes, 10% did so within 30-59 minutes and another 10% did so after more than one hour (but within three hours).
Table 16 shows the names of the pesticides used on flower farms. Workers mentioned the names of the chemicals they use on the farms. However, this was not verified by management. More inquiry on the toxicity of the above pesticides has yet to be ascertained from the Ministry of Agriculture. However, Temic was classified as highly dangerous according to the workers who testified that once the chemical drops on the skin, traces of blood can appear on the skin (there is a need to further investigate this chemical at the government chemist laboratory).

Table 14: Incidents with an unusually high personal exposure

Have you ever had an incident or experience using any type of pesticide that caused you unusually high personal exposure?		
	No.	**%**
Yes	51	59.3
No	35	40.7
Total	**86**	**100.0**
During which decade did the pesticide incident occur?		
	No.	%
2000s	48	94.1
1990s	3	5.8
1980s	-	-
Total	**51**	**100.0**
Which parts of your body were exposed to the pesticide?		
	No.	%
Head/face	13	25.5
Arms	13	25.5
Hands	14	27.4
Chest/back abdomen	-	-
Groin area	-	-
Legs	6	11.8
Feet	3	5.8
Lungs	1	1.9
Digestive tract	1	1.9
Total	**51**	100.0
How soon after this incident were you able to wash with soap & water your affected body parts?		
	No.	%
< 30 minutes	41	80.3
30-59 minutes	5	9.8
1-3 hours	5	9.8
4-6 hours	-	-
7 or more hours	-	-
Total	**51**	**100.0**

5.0 Work practices:

Table 15: Work practices part 1
(Method of application of pesticides)

How do you personally apply pesticides?		
	No.	**%**
I do not apply	35	40.6
Air blast	-	-
Boom on tractor	-	-
Hand spray gun	12	13.9
Backpack sprayer	20	23.2
Mist blower/fogger	-	
In furrow/banded	2	2.3
Pour fumigation from buckets	4	4.6
Distribute tablets/granules	5	5.8
Gas canister	-	
Row fumigation	3	3.5
Powder duster	5	5.8
Seed treatment	-	-
None of these	-	-
Total	**86**	**100.0**

Table 16: Name of the product used at the time of unusually high exposure by farm

Name of product (pesticide)	Xclusive Cuttings	Mairye Estates	Jambo Roses	Rosebud	Mellissa Flowers
Temic (Aldicarb, WHO toxicity class 1a: extremely hazardous, also toxic for fish and birds)				✓	
Doom for insecticide (Dichlorvos, WHO toxicity class 1b, highly hazardous)	✓				
Silwet/Sinnate (Methomyl WHO 1b highly hazardous)		✓			
Agroleaf (Copper oxide, WHO toxicity class II, moderately toxic, insecticide)			✓		
Agro pride (Chloronicotiny, WHO toxicity class II, moderately toxic insecticide I)			✓		
Downy/ Ridomil (Metalaxyl WHO toxicity class III, slightly toxic + Mancozeb, EPA: Probable Human Carcinogen, fungicide)		✓		✓	✓
Apollo (Clofentezine, WHO IV low toxic insecticide)		✓		✓	✓
Mites downy/Nimrod (Bupirimate, WHO toxicity class IV, low toxic fungicide)		✓			
Rufast (Fenarimol, WHO toxicity class IV, low toxic, insecticide)			✓		
Nissorun (Hexythiazox, EPA: Likely to be Carcinogenic to Humans, Acaricide)		✓		✓	✓
Calcium Hypochloride (chloride of lime, bleaching powder, very corrosive and toxic)	✓				
Dynamec (Abamectin with Cyclohexanol, toxic for bees)		✓		✓	✓
Iron (chelated iron, low toxic, fertilizer)		✓			
Calcium nitrate (low toxic, fertilizer)	✓		✓	✓	✓
Tripple Super Phosphate (low toxic, fertilizer)	✓				
Sulphur (fungicide, low toxic)	✓				

5.1 Work practices part I:

41% of the workers said they had not applied pesticides. 14% used a hand spray gun to apply pesticides, 23% used a backpack sprayer, 2% used the furrow banded method, 5% used furrow fumigation or poured fumigation from buckets, and 6% used a powder duster. The most commonly used application methods were the hand spray gun and the backpack sprayer. Powder duster and distribution of granules were each used by 6% of the workers interviewed. The powder duster method is commonly used by women on cut-flower farms. When interviewed, some women revealed that they had been encouraged by their superiors to use hands for pouring the powder to plants because the powder was not dangerous. However, the women said they had developed rashes between their fingers after applying the powder to plants (flowers). The spray gun and backpack methods are also inappropriate methods of chemical application because workers are poorly protected. Imagine wearing a backpack on a cloth overall! In the event that the chemical spills out of the backpack, the worker is in danger of high exposure. Using a hand spray gun also puts workers at high risk of exposure, especially if they do not wear chemical-resistant gloves.

5.2 Work practices part II

Table 17(a): Pesticide application 10 years ago

Were you applying pesticides 10 years ago?	Yes		No	
	No.	%	No.	%
	7	8.1	79	91.8

92% of the workers interviewed said they had not applied pesticides 10 years before. Only 8% said they had done so. This is an indicator that most of the workers interviewed had started applying pesticides a few years prior during their work on flowers farms.

5.2.1 Type of protective clothing workers use when applying pesticides:

From table 17(b) one can see that 44% of the workers had never used protective equipment. The most commonly used protective clothes when applying pesticides on the farms include: 19% chemical-resistant boots, 7% cartridge respirator or a gas mask, 6% for a dust mask, chemical-resistant gloves, full face shield,

and cloth overalls (complete suite) respectively, and lastly, 4% fabric leather gloves and 2% aprons. There is a slight improvement as compared to the UWEA/FIAN report of 2004 in the provision of PPEs to workers, although their timely replacement is questionable as highlighted in subsequent sections.

Table 17(b): Work practices part II (work practices in the past 12 months- now)

What type of protective equipment do you usually use when you handle pesticides?								
	Sprayers/ Fumigators		Harvesters/ Propagators		Others		Total	
	No.	%	No.	%	No.	%	No.	%
Never use protective equipment	16	18.6	12	13.9	10		38	44.1
Cartridge respirator, gas mask	6	6.9	-	-	-	-	6	6.9
Dust mask	4	4.6	-	-	1	1.2	5	5.8
Full face shield	5	5.8	-	-	-		5	5.8
Hat	-		-	-	-		-	
Goggles	1	1.2	-	-	-		1	1.2
Chemically resistant gloves (like neoprene or nit rile gloves)	5	5.8	-	-	-		5	5.8
Fabric leather gloves	2	2.3	-	-	1	1.2	3	3.5
Apron	2		-	-	-		2	2.3
Chemically resistant boots	5	5.8	5	5.8	6	6.9	16	18.6
Cloth overalls (complete suits)	5	5.8	-	-	-	-	5	5.8
Disposable outer protective clothing (like Tyvek)	-		-	-	-	-	-	-
Total	**51**		**17**		**18**		**86**	**100.0**

Table 17(c): Change of clothes

After mixing or applying pesticides do you usually change into clean work clothes		
	No.	%
Right away	7	13.7
At lunch	5	9.8
At the end of that work day	37	72.5
At end of the next work day	1	1.9
Later in the week	1	1.9
Total	**51**	**100.0**
If you spill a small amount of pesticide on your clothes early in the day when would you usually change clothes?		
	No.	%
Right away	20	39.2
At lunch	1	1.9
At the end of that work day	30	58.8
At the end of the next work day	-	-
Later in the week	-	-
Total	**51**	**100.0**
When mixing or applying pesticides what parts of your body usually come in contact with the pesticides?		
	No.	%
No parts of my body	-	-
Hands	23	45.1
Arms	23	45.1
Legs	2	3.9
Face	2	3.9
Body	1	1.9
Total	**51**	**100.0**

5.2.2 Changing into clean clothes after mixing pesticides:
Workers who mix chemicals rarely change into clean work clothes immediately after working with the pesticides. This is evidenced by the fact that 73% of the workers who do the mixing or application of pesticides change into clean clothes only at the end of the work day. As analyzed in the preceding subsection (5.2.1), about 10% of those who apply pesticides wear cloth overalls. Workers are therefore at high risk of exposure to pesticides as they keep cloth overalls on all day. 14% of the workers who mix and apply pesticides said that they change into clean work clothes immediately after mixing or applying pesticides, the majority of whom work on farms with fair Occupational Health and Safety standards.

5.2.3 Time taken to change clothes if a small amount of pesticide spills on clothes:
59% of the workers that mix and apply pesticides said that in the case that a small amount of pesticides has spilled on their clothes early in the day, they would carry on their work until the end of the day without changing clothes. However, some later realize that they have been burned by the pesticide after the pesticide had spilled on the cloth. It is at that particular time that they quickly remove the cloth and seek first aid. First aid is sometimes sought or given when it is too late and damage has already been done. Some farms have good clinics where workers are treated. Others do not have such facilities, but have arrangements with the nearby health centres where workers are treated. However, th bills are later deducted from workers' salaries in installments until the full amount is recovered. This is unacceptable, in section 102 of the Occupational Safety and Health Act 9 of 2006 the law clearly states that any injured worker has to be treated and compensated by the employer.

5.2.4 Parts of the body which come into contact with pesticides during mixing or application:

Two-fifths (45%) of the workers who apply and mix pesticides said that their hands had come into contact with pesticides during the time of mixing or application. Similarly, 45% said that it is their arms that had come into contact with the chemical at the time of applying pesticides. The other parts of the body that had come into contact with the chemical are the legs and face each (4%) and the body in general (2%). As evidenced here, the kind of protective gear given to the workers do not adequately protect workers from high exposure to pesticides. The majority of those who gave testimonies about their exposure to pesticides complained of chemical burns on the arms and legs. One of the workers who had been severely burnt on the face had left the farm a long time before. There have been incidences of inhaling dangerous chemicals while spraying. At the time of the study, one worker was critically ill and the trade union was handling his case. This same worker also gave a testimony, although he was very weak at the time of the interview.

5.2.5 Distance of drinking water well from the farm pesticide mixing area:

About 76% of the workers interviewed said the drinking water well was at least 100 yards (approx. 90 meters) from the pesticide mixing areas, while 14% said it was 51-100 yards away. About 7% of the workers said they didn't have a private drinking water well. All drinking water wells should be far from the farms and if they are nearby, they should be at least 500 meters from the farm and well protected. Workers also have the habit of keeping drinking water inside the greenhouses. This is not recommended as such water can easily be contaminated by pesticides and end up poisoning workers.

Table 18: Distance to drinking water well

How far is your drinking water well from the nearest area where pesticides are mixed?		
	No.	%
No pesticides mixed on farm	-	-
Less than 50 yards	3	3.5
51-100 yards	12	13.9
More than 100 yards	65	75.6
Don't have private well	6	7.0
Total	**86**	**100.0**

5.3 Work practices part III:

Table 19: Work practices on pesticide use

What type of pesticide do you generally mix or apply using protective equipment?		
	No.	**%**
Insecticides	16	31.4
Herbicides	10	19.6
Fungicides	11	21.5
Fumigants	14	27.4
None	1	1.9
Total	**51**	**100.0**
Do you usually wear regular (prescription) eye glasses or sun glasses while mixing or applying pesticides? (does not include goggles)		
	No.	%
Yes	10	19.6
No	41	80.3
Total	**51**	**100.0**
When mixing or applying pesticides, how long do you usually work with the same pair of gloves before exchanging themfor a new set?		
	No.	**%**
Don't wear gloves	43	84
Change each time	-	-
Change at least once a month	-	-
Change every 3 months	-	-
Change every six months	1	2
Change yearly	1	2
Generally don't change gloves until they are worn out	6	12
Total	**51**	**100.0**
In your household, how are clothes washed after they have been worn when mixing or applying pesticides?		
	No.	**%**
Always wear disposable clothing (like TYVEK)	-	-
Mixed with family wash	34	66.6
Soaked separately then mixed with family wash	3	5.8
Washed separately in family basins	10	19.6
Sent out or washed in special basin used only for this purpose	4	7.8
Total	**51**	**100.0**
After mixing or applying pesticides, where do you usually wash up or shower?		
	No.	**%**
Bathroom in home	12	23.5
Outside shower	34	66.6
Other area outside home	5	9.8
Total	**51**	**100.0**
Do you use an enclosed system such as lock and load for mixing and transferring pesticid concentrates?		
	No.	**%**
No	28	54.9
Yes	19	37.2
Don't know	4	7.8
Total	**51**	**100.0**

How is the pesticide applying equipment generally washed at the end of the application?		
	No.	**%**
Don't wash	-	-
Clean nozzle	9	17.6
Rinse tank	29	56.8
Hose down sprayer	10	19.6
Hose down tractor	-	-
Don't know	3	5.8
Total	**51**	**100.0**
Are agricultural or commercial pesticides ever stored (even temporarily) in your home?		
	No.	**%**
Yes, in home	1	1.9
Yes, in basement	1	1.9
Yes, in garage	4	7.8
Yes, in attached house building or shed	1	1.9
No	44	86.2
Total	**51**	**100.0**
Do you usually repair the spraying or mixing equipment that you use?		
	No.	**%**
Yes	28	54.9
No	23	45,0
Total	**51**	**100.0**
During a typical day in the farm, about how many hours per day do you spend lifting or carrying heavy objects (e. g. fertilizer, logs)?		
	No.	%
None	47	54.6
Less than one hour	14	16.2
1-2 hours	22	25.5
3-5 hours	2	2.3
6-10 hours	1	1.2
More than 10 hours	-	-
Total	**86**	**100.0**

5.3.1 Type of pesticides generally mixed or applied using protective equipment:
All types of pesticides listed in the questionnaire are used on the farms and their use or application requires wearing/using protective wear. Insecticides had the highest use at 31%, followed by fumigants at 27%. Fungicides ranked third at 22% and, lastly, herbicides at about 20%.

5.3.2 Wearing of eye/sun glasses while mixing or applying pesticides:
20% of the workers mixing or applying pesticides said they wear eye or sun glasses when doing so, while only one worker (1.2%) uses goggles as recommended. This is an indication that workers rarely wear appropriate protective gear when mixing pesticides. It is recommended that proper protective gear be worn when mixing or applying pesticides. In the absence of proper protective gear, workers are highly vulnerable to high exposure to pesticides.

5.3.3 Period taken to get new set of gloves:
12% of the sprayers and fumigators who wear gloves said they only change gloves when the old set is worn out, and 2% change after every six months or once a year, respectively. Depending on the quality of the gloves worn, gloves used for mixing pesticides should be disposable in order to avoid high risk exposure. 84 % of sprayers and fumigators do not wear gloves.

5.3.4 How clothes worn when mixing or applying pesticides are washed at home:
67% of the workers that mix and apply pesticides said they mixed their work clothes with the family wash, while 20% said such clothes were washed separately in family basins. 6% said such clothes were soaked separately, and then mixed with the family wash. However, 8% said such clothes were sent out or washed in a special basin used only for that purpose. It is important that protective clothes be washed separately and never mixed with other family clothes. The practice as revealed by some workers is that each person takes care of his protective clothing, especially the gum boots and overalls. In fact, such clothes should be washed at work by trained personnel with adequate protective gear and not at home in order to avoid exposing other family members to pesticides.

5.3.5 Where workers wash up or shower after mixing or applying pesticides
67% said they washed up or showered in the outside shower, others said they showered at home in some area outside, and 24% showered in the bathroom at home. This practice is not good at all. Some farms have no bathrooms and workers themselves make makeshift bathrooms where they can shower after work. Washing up in an area without proper drainage means chemicals are washed into the open environment. Though in small quantities, their effect at a later stage may not be negligible. Washing up in the family bathroom also renders the family members to pesticide exposure.

5.3.6 Use of an enclosed system such as lock and load on the farm for transferring pesticide concentrates:
37% of workers that mix and apply pesticides said they do have lock and load system for transferring pesticide concentrates into the greenhouses and 55% said they did not have such systems. 8% expressed their ignorance about such systems existing on the farm.

5.3.7 How the pesticide applying equipment is generally washed after application:
57% of workers that mix and apply chemicals said that the equipment is washed by merely rinsing the tank. 20% said it is done by hosing down the sprayer and 18% said it is by cleaning the nozzle. 6% did not know how the equipment is cleaned.

5.3.8 Storage of agricultural or commercial pesticides (even temporarily) in a home:
86% said they never keep agricultural or commercial pesticides in their homes. About 8% said they keep such pesticides in the garage and 2% each reported keeping such pesticides in their home, basement, or in an attached building or shed.

5.3.9 Number of hours spent carrying/lifting heavy loads:
55% said they had not carried any heavy loads while at work on the farm. 26% said they had spent one to two hours carrying

heavy loads on the farm. 16% said they had spent less than one hour. 2% spent three to five hours carrying heavy loads on the farm and 1% said they had carried heavy loads for six to 10 hours. There is a clear indication here that, apart from doing specific work on the farm, workers are assigned other duties instead of their specific job. This also confirms the generality of wage remuneration to the workers where we discovered that permanent workers occasionally earn the same wage as casual workers. Besides carrying heavy loads before or after mixing or applying pesticides is energy draining and renders such workers more vulnerable. Workers that do spraying testified that they had become very weak after applying pesticides. Subjecting such workers to extra work renders them more susceptible to chemical exposure.

6.0 Medical History:

Table 20(a): Workers' medical history

Has a doctor ever told you that you had:	Yes		No		Yes it started within the past 12 months	
	No.	%	No.	%	No.	%
Asthma	1	1.2	85	98.5	0	0.0
Pneumonia	7	8.1	79	100.	7	8.1
Parkinson's disease	-	-	86	100		
Nervous disorder	-	-	86	100		
Depression	3	3.4	82	95.6	3	3.4
Tuberculosis	-	-	86	100		
Other chronic lung disease (chronic bronchitis, emphysema)	1	1.2	85	98.5	0	0.0
Melanoma of the skin	-	-	86	100		
Other skin cancer	-	-	86	100		
Leukemia (blood cancer)	-	-	86	100		
Hodgkin's disease (lymph cancer)	-	-	86	100		
Other cancer	-	-	86	100		
Heart disease	-	-	86	100		
Diabetes (not counting during pregnancy only)	-	-	86	100		
Parkinson's disease	-	-	86	100		
Kidney disease (not counting kidney stones)	1	1.2	82	98.5	0	0.0
Nervous disorder	-	-	86	100		

Table 20(b): Workers' medical history

Have your parents, brothers, sisters or children related to you by blood ever had:				
	Yes		No	
	No.	%	No.	%
Lung cancer	3	3.4	83	96.5
Lymphoma (Hodgkin's disease or non-Hodgkin's lymphoma)	2	2.3	84	97.6
Colon or colorectal cancer (bowel or rectal cancer)	3	3.4	83	96.5
Breast cancer	2	2.3	84	97.6
Melanoma of the skin	3	3.4	83	96.5
Other skin cancer	2	2.3	84	97.6
Stomach cancer	3	3.4	83	96.5
Leukemia (blood cancer)	-	-	-	
Brain cancer	-	-	-	
Prostate cancer	1	1.2	85	98.8
Other cancer	-	-	-	
Kidney failure (uremia, bight's disease or dialysis	-	-	-	
Diabetes (sugar)	2	2.3	84	97.6
Heart attack before age of 50	4	4.6	82	95.3

6.1 Medical history of the workers and their relatives:

The majority of workers had never been told by a doctor that they had diseases listed in table 19, except for 3% of the workers who said they had been told by a doctor that they had depression, with the disease having started in the 12 months prior in all three cases. 1% said they had been declared asthmatic but the disease had not started within the 12 months before this study. Another 1% also agreed that they had been told by a doctor that hey had chronic lung disease which also did not start within the past 12 months. 8% had pneumonia which was diagnosed within the past 12 months. Another 1% was diagnosed as having kidney disease. The indicators of asthma and pneumonia show that some workers working in cold rooms, especially sorting, grading and packaging of flowers may be victims of such symptoms which occur as a result of being exposed to very cold temperatures.

3% of workers each had parents or close relatives that had been diagnosed with lung cancer, colon/colorectal cancer, melanoma or stomach cancer. There were 2% of workers whose relatives had been diagnosed lymphoma, breast cancer, and other types of skin cancer. 2% had diabetic relatives and 5% had relatives who had suffered a heart attack before the age of 50.

6.2 Tobacco and alcohol consumption:

97% of the workers said they had never smoked 100 cigarettes in their lifetime. 3% said they smoked cigarettes at the time of the study, where about 2% of them reported having smoked 10 or less cigarettes a day. One worker said he smoked 21-40 cigarettes per day. A case of chronic lung disease identified above could be attributed to this kind of chain smoking.

About 63% of workers interviewed denied drinking any alcohol in the 12 months before this study. Of those who admitted drinking alcohol, 7% had done so less than once a month. 14% drank between one and three times a month or once a week, while only 2% drank alcohol more than once a week. Most of those who drank alcohol (19%) in the past 12 months before this study had one or two drinks a day when they drank. Only 6% of all workers had more than two drinks a day when they drank. One person, however, admitted having nine or more drinks daily. The habit of alcohol drinking in Uganda is usually common in the evening hours. Most of the workers on flower farms work for long hours and therefore have no time to go drinking.

The number of workers who smoke or drink alcohol is not very high. However, those who smoke or drink must be advised not to do so during working hours, as such habits can increase their vulnerability to pesticide exposure.

Table 21: Tobacco and alcohol consumption

During your lifetime, have you smoked at least 100 cigarettes?		
	No.	**%**
Yes	3	3.4
No	83	96.5
Do you smoke cigarettes now?		
Yes	3	3.4
No	83	96.5
On the average, how much do you smoke each day? (1 pack = 20 cigarettes)		
Don't smoke	83	96.5
10 cigarettes or less	2	2.3
11-20 cigarettes	-	-
21-40 cigarettes	1	1.2
More than 40 cigarettes	-	-
During the past 12 months, how often did you usually drink any kind of alcoholic beverage?		
	No.	**%**
Never	54	62.7
Less than once a month	6	6.9
1-3 times a month	12	13.9
1 time a week	12	13.9
2-4 times a week	1	1.2
Almost every day	-	-
Every day	1	1.2
During the past 12 months, about how many drinks would you have on a day when you drank?		
Didn't drink last year	54	62.7
1-2 drinks	13	19.1
3-4 drinks	1	1.5
5-8 drinks	3	4.4
9 or more drinks	1	1.5

7.0 The communities around the farms:

15 members of the communities around the farms were interviewed. On average, the research team managed to interview three community members from around five farms.

Table 22: Activities of community members around the farms (total = 15)

Do you do the following activities at least once a month?	During rainy season				During dry season			
	No		Yes		No		Yes	
	No.	%	No.	%	No.	%	No.	%
Milk cows	14	93.3	1	6.7	14	93.3	1	6.7
Drive trucks	15	100	-	-	14	93.3	1	6.7
Drive diesel tractors	15	100	-	-	15	100	-	-
Drive petrol tractors	15	100	-	-	15	100	-	-
Weld	15	100	-	-	15	100	-	-
Repair engines	15	100	-	-	14	93.3	1	6.7
Grind metal	15	100	-	-	15	100	-	-
Grind animal feed	15	100	-	-	15	100	-	-
Use petrol for cleaning hands or equipment	15	100	-	-	15	100	-	-
Use other solvents (paint, stripper, turpentine, benzene)	13	86.7	2	13.3	13	86.7	2	13.3
Paint	13	86.7	2	13.3	13	86.7	2	13.3

Did you do the following activities in the past 12 months?	No		Yes	
	No.	%	No.	%
Till the soil (plow, dig, cultivate)	2	13.3	13	86.7
Plant	3	20.0	12	80.0
Apply fertilizer	2	13.3	13	86.7
Apply chemical	2	13.3	13	86.7
Drive combines or other crop harvesters	15	100.0	-	-
Hand pick crops	2	13.3	13	86.7

During the last growing season, how many days per year did you work in the fields?		
	No.	%
None	5	33.3
Less than 10 days	2	13.3
10-30 days	2	13.3
31-100 days	5	33.3
More than 100 days	1	6.7

Were you living on a farm 10 years ago?	No		Yes	
	No.	%	No.	%
	13	86.7	2	13.3

7.1 Activities done by community members:

7.1.1 During rainy season:
93% of the community respondents had neither milked cows nor had they done pain work, 87% each neither used solvents (like paint stripper, turpentine or paint) nor performed activities that may subject them to coming into contact with blood. This includes castration, dehorning, birthing and slaughtering animals and paint work. Milking cows and driving trucks at least once a month had 7% each (one person each) doing such activities. However, 13% used solvents such as paint stripper, turpentine and paint for their work. A further 13% each engaged in activities that involved coming into contact with animal blood and did paint work at least once a month.

In the past 12 months, about 87% of the community members interviewed said they had plowed, dug or cultivated during rainy season and another 87% each had planted crops, applied fertilizer, and handpicked crops. 13% had not planted crops, cultivated, tilled plow soil, applied fertilizer, or chemical, respectively. Another 13% also had not hand picked crops in the past 12 months. 100% had never driven combines.
In the last growing season, 33% had not spent any days in the fields. 13% had spent less than 10 days,10-30 days were spent in the field by another 13%, and only 7% had spent more than 100 days in the fields per year.

7.1.2 During dry season:
93% had not milked cows nor driven trucks, while 7% had (one person each). 93% had not repaired engines during dry season, but 7% had. 87% had neither used solvents such as paint stripper, turpentine or paint for their work, nor had they done paint work and had not engaged in activities that involve coming into contact with animal blood, such as castration, dehorning, birthing and slaughtering animals. However, 7% did each of those activities.

7.1.3 Living on a farm 10 years ago:
87% said they hadn't lived on a farm (flower farm) 10 years ago while about 14% had.

7.2 Work practices of community members:

7.2.1 Habit of removing field boots before entering the house:
80% of community members working in the fields do not remove their boots before entering the house, 20% do.

7.2.2 How clothes worn during mixing or application of pesticides are washed:
87% said they mixed work clothes with the family wash, while 7% (one person) said they wore disposable clothes. Another 7% (one person) said he sent such clothes out or had them machine-washed specifically for that purpose. Thus, some workers (see table 18) were somewhat more likely to separately wash clothes that have been worn during the mixing or application of pesticides.
About 7% had spent less than five days per year washing clothes worn during chemical mixing or application. 73% had washed such clothes between five and 10 days per year, and 7% (1 person respectively) washed such clothes 11-15 days, 16-20 days or even more than 20 days per year. This means that clothes worn while mixing or applying pesticides are washed at least once a month. This in itself is poor maintenance of hygiene as pesticide residue is likely to accumulate in the PPEs and, as a result, those who wear them daily are highly exposed to pesticides.

7.2.3 Availability of door mat:
About 87% said they had no door mat at their door while 13% said they did.

7.2.4 Distance of community homes from the nearest field or flower farm where pesticides are applied:
67% said flower farms were only about 199 yards away from their homes and 33% said the farms were less than 100 yards away. None of the community respondents lived more than 200 yards away from a field or farm where pesticides are applied.

7.2.5 Hours spent lifting/carrying heavy loads on a typical day during the growing season:
87% said they had spent less than an hour carrying or lifting heavy loads and 13% spent between one and two hours, doing a similar job. This is somewhat less than reported by the workers (compare table 18).

7.3 Summary:

The activities and work habits of community members around flower farms are not much different from that of the workers on flower farms. Care is not taken on how protective clothes of family members working on the flower farms are washed or kept. Some of the activities the communities engage in also involve handling and using dangerous chemicals, some of which, such as paint, have cancerous effects on those who use them without proper protective clothes. There is a great need to educate all the communities around the farms on proper pesticide use and environmental protection.

Table 23: Work practices of community members around the farms (total = 15)

Do family members who have been working in the fields usually take their work boots off before entering the house?	**Now (past 12 month)**	
	No.	**%**
No	12	80.0
Yes	3	20.0
In your household, how are clothes usually washed that have been worn when mixing or applying pesticides?	**No.**	**%**
Always wear disposable clothing (like tyvek)	1	6.7
Mixed with family wash	13	86.7
Soaked separately then mixed with family wash	-	-
Washed separately in family basin	-	-
Sent out or washed in machine only for this purpose	1	6.7
How many days per year do you personally wash clothes that have been worn during pesticide mixing or application?	**No.**	**%**
Less than 5 days	1	6.7
5 - 10 days	11	73.3
11 - 15 days	1	6.7
16 - 20 days	1	6.7
More than 20 days	1	6.7
Is there a wipe mat by the door that is used by family members working in the fields?	**No.**	**%**
No	13	86.7
Yes	2	13.3
How far is your home from the nearest field or flower farm where pesticides are applied?	**No.**	**%**
Less than 100 yards	5	33.3
100 - 199 yards	10	66.7
200 - 299 yards	-	-
300 yards or more	-	-
During a typical day in a growing season, about how many hours per day do you spend lifting or carrying heavy objects?	**No.**	**%**
None	-	-
Less than 1 hour	13	86.7
1 - 2 hours	2	13.3
3 or more hours	-	-

CHAPTER IV

8.0 Conclusions and recommendations:

8.1 Conclusions:

This research study has revealed a number of issues that occur on the flower farms and in the surrounding communities as a result of pesticide use and work practices. These issues include:

1. All workers regardless of the sections they work in (as shown in tables 7-10) are exposed to pesticides since flower production is chemically intensive. All sprayers and fumigators are highly exposed to pesticides. A large number of workers show symptoms that are highly likely to be due to pesticide exposure: headache/ dizziness, eye irritation and being overly tired each occurred "frequently" in about one-fifth of the workers, and "sometimes" in another third. Chest discomfort and skin irritation each occurred at least "sometimes" in more than 80% of respondents. More than half the workers experienced the following symptoms at least once a week during the last 12 months: excessive sweating, headache, loss of appetite and difficulty falling or staying asleep. Two-thirds suffered from a shaking or trembling of hands, which is a sign of moderate pesticide poisoning, at least once a month.
2. Workers are not enjoying their right to a clean and safe work environment.
3. The community members interviewed may also be affected by pesticides as none of them lives more than 200 yards away from a farm. They may also be affected by family members working on the flower farms.
4. The educational level of the majority of the workers on the flower farms is of primary level and most of them are between 18- 35 years of age, falling in the productive and economically active age.
5. The majority of workers have many dependants, 51% had between one and three dependants, while 48% had between four and six dependants. The high prevalence of moderate symptoms of pesticide poisoning holds the risks of severe sicknesses, which again might lead to incapacity to earn an income in future. This threatens not only the workers themselves, but also their dependants because Uganda lacks a social security system which would care for them.
6. Only 24% of workers that apply or mix pesticides change work clothes immediately after mixing or applying pesticides or at lunchtime. About 4% only change work clothes at the end of the next work day or later in the week.
7. Provision of PPEs to workers has slightly improved compared to the situation in 2004[3] when there was almost none. But even now, 44% of the workers never use protective equipment. In 79% of those mixing or applying pesticides, parts of the body, mostly hands, arms and head/face, come in contact with the chemicals. Moreover, the PPEs being provided are of poor quality (see, for example table 18, 20% of sprayers and fumigators use sunglasses instead of goggles) and are not replaced in a timely manner: the majority of sprayers and fumigators (84%) do not wear gloves. However, 12 % of those that use gloves said the gloves were not changed until they were worn out.
8. Only 24% of workers that apply or mix pesticides change work clothes immediately after mixing or applying pesticides, or at lunchtime. About 4% only change clothes at the end of the next work day or later in the week.
9. Washing habits of farm workers and community members are the same. They mix work clothes with family wash. Only 20 % of the workers have their work clothes washed elsewhere or in a separate basin.
10. Apart from their specific duties, workers also engage in carrying or lifting heavy loads.
11. Tobacco and alcohol consumption are low among the workers. Only 3% are current smokers. About 14 % drank at least once a month during the previous 12 months, and only 19% had more than one drink a day. Hence, it is not likely that the described symptoms of workers are caused by those drugs.

8.2 Recommendations:

High exposure to pesticides is a grave concern that all stakeholders in the chain of flower production and supply must urgently work together to address. The International Code of Conduct for socially and environmentally responsible flower production (ICC) and other flower certification bodies (like FLP, Fairtrade, ETI) must be introduced on all farms and strictly observed and adhered to.

The Government of Uganda should

- ratify ILO standards for work and environment, which should be strictly observed by all stakeholders. The government should ratify ILO Convention No. 110 on Plantation Workers and ILO Convention No.183 on maternity protection.
- assure that all national and international labour laws are properly implemented.
- build a laboratory in Uganda specifically for investigating OHS diseases and ascertaining the type of chemicals and the level of poisoning in the blood of workers. Government, through the MoLGSD, should effect this as soon as possible before we lose our future generation through high pesticide use and exposure. The flower industry at international level and local producer level must consider contributing to this very important cause.
- observe the Occupational Health and Safety Act No.9 of 2006, laws of Uganda, should be observed and enforced in workplaces. The Ministry of Labour, especially the department of the

[3] FIAN/UWEA research on workers' rights and gender perspective in the cut-flower industry in Uganda, 2004

inspectorate of labour, should be well facilitated by the government in order to do their work effectively.
- create awareness on the health risks of pesticides for the communities living around farms. This is very important because they, too, come into contact with chemicals from time to time and therefore must know how to use pesticides as well as take good care of the PPEs they use. Furthermore, environmental protection and conservation should be a priority for all stakeholders.

Flower Growers should
- provide all workers on flower farms with quality and appropriate PPEs, and the replacement of PPEs must not wait until they are worn out.
- wash all work clothes on the farm site. The washing of work clothes and PPEs must not be mixed with family wash and all workers should store PPEs in a safe place on the farm. PPES must be washed by specified personnel who must also be well protected. The farm owners should develop a policy on safe and proper care of PPEs. Care of PPEs should be included in the OHS policy that is developed and must be strictly observed.
- establish OHSE committees on farms. The operationalization must be enhanced in order to ensure safe, healthy and clean work environments.
- set up an education fund which cares for the education of all workers on Occupational Health and Safety. Consumers may also contribute to this very important activity.
- not use highly toxic chemicals or pesticides. Especially WHO class I and cancerous pesticides must not be allowed on the farms. Farmers should look for substitutes or use IPM methods for flower production and protection.
- include PPEs in their calculation right from the beginning of their business.
- build standard showers and bathrooms on farms that do not have so as to maintain hygiene, good health of workers and minimize chemical exposure to family members of farm workers.
- observe that no workers should have any kind of PPE on at meal times. All PPEs must be removed before meals.
- conduct medical examinations of workers, especially sprayers, before joining the farm. The should also conduct regular examinations at least once every three months to check the cholinesterase levels and also other chemical effects in order to guide proper medical treatment and maintenance of good health and safety standards at work. Employers should not take advantage of such a policy to discriminate against workers seeking employment or those already in employment.
- accord special protection to pregnant women, for example pregnant women working in highly hazardous areas should be transferred to less hazardous areas and be given rest whenever necessary. Such action is in conformity with the ILO convention No. 183 of 2000, which clearly states that pregnant and nursing women shall not be obliged to perform work that is assessed as detrimental to the mother or child.
- endeavour to create Occupational Health and Safety awareness and family health education (Family Planning) among the workers.
- educate workers about family planning and encouraged the use of family planning methods to reduce the number of children. However, employers should not take advantage of the family planning scheme to abuse the right of the workers to bear children by subjecting them to pregnancy tests or introducing family planning methods that completely curtail reproduction.

The European Union should
- check all incoming flowers for pesticide residue. This would be an incentive for producers to reduce the amount of highly toxic pesticides which are currently applied in flower production.

Flower traders, public organizations in the importing countries and consumers should
- work with flower producers to improve on OHS standards. For example, consumers could ensure that they buy only socially and environmentally friendly produced flowers, especially those labeled with codes that observe ILO standards and the ICC.
- increase the purchasing price of ethically produced flowers. This would bring a smile to the workers in terms of earning a better wage.

Since all workers on the farms are of productive and economically active age, greater care regarding their safety and health must be observed. We need a healthy nation (a healthy nation is a wealthy nation) and a healthy future generation. Quoting from the testimonies of some sprayers, they said that after each day's work they feel so tired and weak and cannot satisfy the conjugal needs of their partners.

"After a day's work of spraying I feel tired and weak, I lose power and because of that I cannot satisfy my wife these days" said a worker aged 26 from one of the very uncooperative farms.

Regardless of codes being voluntary, a mechanism could also be put into place for monitoring the implementation of codes of conduct on farms. This should be done by multi-stakeholder organizations and civil society organizations should take the lead.

Appendix I

Workers' Testimonies on Their Experiences of Pesticide Exposure at Work

The following testimonies have been given by workers who work on the uncooperative farms.

1. A male worker, 27 years old

I have worked in this farm for six years now. I started working in maintenance department but since I joined and became active in the union, management has kept transferring me from department to department with the aim of frustrating my work in the union. I now work in the green house as a harvester. No re-entry signs are put at the gate of the green house so that we can enter the green houses at the right time. Re-entry signs are put there only when visitors come. For two years now I sometimes feel headache and when I bend my face feels heavy. When I am at home I feel ok. Last month (July 2010) I had those symptoms twice and this month (August 2010) three times. Whenever I go for treatment, medical personnel treat malaria but after treatment when I go back to work I start feeling the same symptoms again. I think this is not malaria but I have no way of going to check my blood I have no money for lab check up. I have approached management but they do not want to listen. They have done nothing about it.

We need you UWEA, and Government Inspectors to come abruptly and see what is on the farm.

To the consumers and the international community at large please;

- Pressurize auditors to visit farms abruptly and also talk to workers separately.
- We are suffering and are like slaves working for nothing. Pressurize farm owners to increase our salaries.
- Pressurize employers to provide all of us (workers) with quality PPEs and such PPEs should be replaced on time.

2. A male worker, 42 years old, married with six children

I have worked with XXX for 10 years now.

I have worked in different departments and now I work in the field maintenance department. From the time I started working in the field, I feel backache, joint pain, headache and at night I feel like someone who has carried heavy loads – fatigued. I also sweat a lot at night my bed sheets smell chemical.

I appeal to the international community to;

- Make it a priority to set standards for flower production without which an employer should be penalized. You people work out ways of doing this!
- Workers also need to be sensitized at the commencement of employment and during the employment so that together we can sight hazards at work and find ways of eliminating them.
- Another problem is working long hours although we are paid something little for the extra time there is no transport to take us back home and this is particularly risky for the women workers who can be raped.
- A day care centre for children of nursing mothers should be built we have seen this in other farms our farm should emulate that good example to enable working women work at peace.

3. A male worker, 28 years old, married with one child

I have worked in XXX for four years now. I started working as a sprayer and after two years I was taken for medical check up and chemical was found in my blood. I was then given leave and after my leave when I reported back to work I was told to work in the green house as a harvester. My transfer to the green house would not be bad but my salary was reduced from Uganda Shillings 90,000 to Uganda Shillings 70,000 only per month. The work of a harvester is also much. You bend for long hours and it requires much concentration to harvest the right size and quality.

Even after my transfer to the green house as a harvester, I still don't feel well. I sweat a lot during work and even at night I sweat and don't sleep because I feel heat all over my body. For this reason I want to be transferred to grading where temperatures are cool, perhaps my problem of sweating and feeling hot could be solved.

To the union;

- Milk bonus should be given to all workers we are all exposed to pesticides.
- We need medical treatment and our money for medical treatment should not be deducted from our wages.

To the International community:

- Please pay a little more for the beautiful flowers we produce and pressurize the employers to increase our wages.
- We need education on the chemicals we handle.

4. A male worker, 22 years old, married with one child

I have worked with XXX for eight months now as a sprayer. One day last week I started feeling feverish and then vomited a lot. When I reported to the farm clinic I was given treatment with three bottle drips but no improvement. I was sent home and currently I am badly off, I have no help and no money to go to the hospital for further treatment. I was also checked and chemical was found in my body.

I appeal to the union to come to my rescue and get help for me from the employer. I was not sick when I started working eight months ago, the employer should treat and compensate me.

To the International community:

We are dying, please come to our rescue. Pressurize for better working conditions. We do not use adequate PPEs we are therefore exposed to pesticides daily.

5. A female worker, 21 years old, widowed with two children

I have worked in XXX now for three years as a harvester of red roses. In February 2009 I was two months pregnant and one day they forced us to enter the green house and harvest flowers when the chemical was still wet. The chemical smelled badly and I started feeling headache and abdominal pain. When I complained they did not help me much they just gave me Panadol (pain killer). After one month I got miscarriage. When I reported the miscarriage to the management I was given only five days to rest.

In the green house chemical smells a lot. This very week on 18/8/2010 I felt headache, became dizzy and fell down. When I went to the clinic they gave me only Panadol (pain killer) and sent me home. The chemical makes us feel headache and we have no PPEs, we work in our own clothes and we work for long hours from 7:00 a.m. to 2:00 p.m. when we break off for lunch and after one hour we go back to the green house.

I appeal to the International Community to:

- Ensure that there is Occupational Health and Safety Policy on the farm which should be popularized among workers so that we can be guided to protect ourselves and the employer to supply us with quality PPEs.
- We don't even know the names of the chemicals used to spray flowers. Many women get miscarriages because of exposure to pesticides while harvesting flowers.

6. A male worker, 24 years old, married with one child

I have worked with XXX for two years now as a sprayer. We sprayers were one time taken for medical check up and the medical results showed that I had chemical in the body. I was forced to go on leave. The medical check up money was deducted from my wages.

I get only Uganda Shillings 90,000 per month. This money isn't enough for me and my family.

My wife complains that I smell chemical yet for me I don't smell chemical on my body. I sweat a lot at night and when I am in bright light my eyes pain a lot.

I call upon the international community and all flower consumers to:

- Please pay a little more for the beautiful flowers we toil to produce and pressurize our employers to increase our salaries.
- Generally working conditions should be improved on the farm

7. A female worker, 26 years old, a widow with five children

I have worked in XXX for less than six years now as a harvester.

My husband Mr. XXX was a sprayer in this very farm but died of chemical accident early this year. We have not been compensated since my husband died. However the union is following up the case of compensation. The management had wanted to stop me from working but the union fought hard for me to remain working.

I always feel dizzy at work and sometimes get a burning sensation on my skin. There are no re-entry signs at the green houses gates, so we sometimes enter to harvest flowers when the chemical has not yet dried.

The salary I get is too little for me to look after myself, he five children and the baby.

I appeal to the international community to:

- Force our employer to respect workers rights and to ensure that my family is compensated since my husband died of chemical accident.
- Salaries should be increased. We work for peanuts.

8. A male worker, 25 years old, single with six dependants

I have worked with XXX for one year now as a sprayer.

When spraying I sweat a lot. We are provided with cloth overalls which are not chemical-resistant at all and no masks to protect the face. One time chemical entered my eye and I was given eye ointment but these days I don't see well at night where there is not enough light. Everyday I feel fatigued and a lot of pain in my body.

I appeal to the international community:

- We need our salaries to be increased so that we can at least afford the basics of life. With the salary of Uganda Shillings 90,000 we eat one meal a day, we can't clothe our children well, proper medical treatment is just a dream we, resort to use local herbs for treatment.
- The employer should bear the cost of medical treatment.

9. A female worker, 34 years old, separated from her husband

My husband left me with two young children. I have worked in XXX as harvester for eight years now.

These days I feel chest pain because of carrying flower boxes. I also feel week in my legs everyday. Sometimes we enter to harvest flowers before re-entry periods and because of smelling the chemicals many of us develop stomach pain, headache and feel nauseated.

I appeal to the international community to:

- Pressurize our employer to increase our salaries
- To cover burial expenses of employees who die and even for our loved ones.

10. A male worker, 24 years old, married with five children

I have worked with XXX for three years as a sprayer. When spraying I sweat a lot and feel headache. One day last year in August, 2009 I got burnt on the arm by chemical. It took me two hours to wash off the chemical. When I went to the farm clinic I was not given first Aid instead I was sent back home for two weeks. We are given poor quality PPEs and they are replaced only when they are

completely worn out. My worst experience is that after work I lose power and cannot even satisfy my wife these days.
I want to be paid terminal benefits and I leave this job.

11. A male worker, 26 years old, married with two children
I work with XXX as a sprayer for 10 months now.
I sometimes feel like there is fire in my body. I have felt this burning sensation allover the body for six months now and this happens daily. Whenever I am spraying I sweat a lot, and feel very tired. The overalls they give us are of very poor quality and they spend even one year without replacing them even when they are worn out we are expected to use them like that. We are not given good meals. When we get sick we are sent to Kisubi Hospital and after treatment the medical bill is deducted from the salary. After a day's work of spraying I feel very tired and weak, I lose power and because of that I cannot satisfy my wife these days.
I appeal to the international Community to:
- See that our salaries are increased
- Ensure that we are fed well while at work. We also need milk bonus for sprayers like it is in other farms
- Ensure that we are supplied with proper PPEs

12. A male worker, 25 years old, single with three dependants
I have worked with XXX for six months. The overalls we use are not chemical proof, chemicals just enters through. Whenever I spray a certain chemical, I don't know its name, my skin peels off. I lose energy after spraying and feel very weak.
I appeal to the international Community to:
- Ensure these people you buy flowers from, fed us well while at work.
- Ensure we are given free medical treatment.
- Ensure that proper PPEs are supplied to all workers

13. A male worker, 28 years old, married with one child
I have worked with XXX as a sprayer for five years now. In January this year 2010, I got burnt on the left hand side of my body. When I reported the case I was given a certain Vaseline that treats burns and removes marks and I got well. That cream is commonly used these days on any one who gets burnt by chemical. After spraying I lose a lot of energy and when I sleep I feel I don't want to get up the next day. The PPEs they give us are never given are never replaced until they are worn out. Even if they are worn out they must finish six months before replacement. I want to leave this work I fear I might lose my man-hood if I continue working in this farm any longer.
My appeal to the International community is that:
- Quality PPES must be provided to workers and replaced on time.

14. A male worker, 19 years old, married with one child
I work as a sprayer in XXX I have spent one year working in this farm. First of all the overalls we use while applying chemical are of poor quality, the gloves we use are torn so the chemical enters arms and other parts of the body. These days, while spraying my chest pains a lot, rash develops on skin and at times I feel irritation on the skin. Sometimes I get dizzy after spraying. One day late last year a chemical entered my eyes while I was spraying and now whenever I am in bright light my eyes become watery and I feel ceaseless pain. I never had all these problems before I joined this work.
I appeal to the international community to:
- Ensure that we are provided with quality PPEs and should be replaced on time it is life we are talking about here.
- Ensure our salaries are increased.

15. A male worker, 20 years old, single
I have worked with XXX as a sprayer for one year now.
While working my eyes pain and I can't see properly especially on a bright white surface. In May this year I was burnt by a chemical on my thighs. I realized that I was burnt after spraying for two hours in one green house. When I went to the farm clinic I was just given Panadol (pain killer) to ease the pain and a cream to apply on the burnt part.
I appeal to the International Community to:
Ensure our salaries are increased.
Ensure quality PPEs are provided to workers and replaced on time.

16. A male worker, 21 years old, single
In June this year while I was spraying I got burnt by chemical on my thighs. I quickly removed the overalls when I felt a deep burning sensation. I reported to the clinic and I was treated with capsules and a cream to apply on the affected area. While spraying I feel chest pain, headache excessive sweat and weakness every day.

17. A male worker, 29 years old, married with two children
I work with XXX. I've worked for eight years in construction department. My work is to lift heavy loads like cement, timber chemicals and many other construction items. I work without PPEs. I feel chest pain, backache, loss of energy and at times jerking of legs.
My appeal to the international community is that:
- PPEs be provided to us also since we also carry chemicals
- Our salaries be increased.
- Proper meals should be provided in order for us to recover the lost energy.

18. A male worker, 26 years old
I have worked in this farm for three years now as a sprayer. The conditions in which we work are very poor. The PPEs we get are not replaced until after 1½ years, so we end up wearing ragged PPEs for many months. We earn Uganda Shillings 2,000 per day. This wage cannot even sustain one person for a decent living in a month and yet we produce high quality products.
I call upon the buyers of our products to look into our plight. We want our salaries to be increased. We urge the buyers to add on a little more money on our products so that we too can live decent lives.

SECTION ONE

Type of work done by interviewees:

1. How many years have you worked on a farm?	
o	Less than 5 years
o	5-10 years
o	11-20 years
o	over 20 years

2. What kind of work do you do on the farm?			
o	Harvesting flowers	o	Packaging
o	Tending flowers	o	Sorting and grading
o	Weeding	o	Clearing
o	Planting	o	Propagation
o	Applying chemical fertilizer	o	Scouting
o	Applying natural fertilizer	o	Steaming
o	Supervising	o	Construction
o	Sales and marketing	o	Maintenance
o	Spraying flowers / plants		

3. How many years have you worked in your current job?	
o	Less than 5 years
o	5-10 years
o	11-20 years
o	over 20 years

4. Have you ever worked in another farm before joining this one? Yes /No
If yes, for how long? _____

What job did you do in the previous farm you worked in?_____

5. Social characteristics of the interviewees:			
Age		Dependents	
o	Below 18 years	o	1-3
o	18-25 years	o	4-6
o	26-35 years	o	7-10
o	36-50 years		
Marital status		Level of education	
o	Single	o	Primary
o	Married	o	Secondary
o	Widowed	o	Tertiary
o	Divorced		
o	Seperated		
o	Cohabiting		

Structured Questionaire on Impacts of Pesticides on Horticultural Workers and the Environment

SECTION TWO

Pesticide use:

6. During your lifetime, have you ever personally mixed or applied any pesticides to crops, livestock, structural insecticides and herbicides, pesticides for farm use, commercial application and personal use in your home or garden?			
o	Yes	o	No

6a. How many years did you personally mix or apply pesticides?		6b. During those years, how many days per year did you personally mix or apply pesticide?	
o	1 year or less	o	Less than 5 days
o	2-5 years	o	6-10 days
o	6-10 years	o	11-20 days
		o	21-30 days
		o	31-40 days
		o	41-50 days
		o	Over 50 days
6c. When pesticides require mixing, what percent of the time do you personally do the mixing?		6d. What percent of the application do you personally do?	
o	Never	o	None
o	Less than 50% of the time	o	Less than 50% of the time
o	50% or more of the time	o	50% or more of the time

Symptoms related to pesticide use or exposure:

7. How often, if ever, have you had the following symptoms that you think may be related to your using or exposure to pesticides?			
	Never	Sometimes	Frequently/ Almost always
a. Been exhaustively tired?			
b. Had headache/dizziness			
c. Had nausea or vomiting			
d. Had skin irritation			
e. Had eye irritation			
f. Had chest discomfort			
g. Felt nervous or depressed			

8. As a result of using pesticide how often have you:				
	Never	Once	Twice	3 or more times
a. Seen a doctor				
b. Been hospitalized				

9. During the past 12 months have you had…?	A		B How many episodes have you had in the last 12 months					C Were the symptoms worse after smelling chemical odors?		D Were the symptoms worse after harvesting flowers?	
	No	Yes	1	2	3-6	7-12	Over 12 months	No	Yes	No	Yes
a. Stuffy, itchy, or runny nose											
b. Watery, itchy eyes											
c. A cold											
d. Sinusitis or sinus problems											
e. Flu											
f. Pneumonia											

10. Approximately how often during the last 12 months have you experienced the following?	Never	Once a year	Once a month	Once a week	More than once a week
a. Dizziness					
b. Feeling tense, anxious, or nervous					
c. Nausea/vomiting					
d. Feeling tired, sleepy, or low energy most of the day.					
e. Sweating a lot more than usual					
f. Difficulty seeing at night					
g. Being absentminded, forgetful or confused					
h. Headache					
i. Loss of appetite					
j. Fast heart rate					
k. Difficulty with balance					
l. Blurred vision or double vision					
m. Difficulty concentrating					
n. Numbness or pins and needles in your hands or feet					
o. Momentary loss of consciousness'					
p. Feeling exceedingly irritable or angry					
q. Shaking or trembling of your hands					
r. Difficulty falling asleep or staying asleep					
s. Difficulty speaking					
t. Weakness in your arms or legs					
u. Changes in your sense of smell or taste					
v. Feeling depressed indifferent or withdrawn					
w. Twitches, jerks, or involuntary movements of your arms or legs.					

11. Do any of these symptoms seem to get worse after smelling chemical odors like those from paint, perfume, exhaust or new cars?

□ No □ Yes

12. Do you have shortness of breath when hurrying on level ground or walking up a slight hill?

□ No □ Yes

13. How many episodes of wheezing or whistling in your chest have you had in the past 12 months?			
o	No wheezing or whistling	o	7-12 episodes
o	1 -2 episodes	o	More than 12 episodes
o	3 - 6 episodes		

14. During the past 12 months how many times have you gone to the hospital emergency room or doctor's office for an episode of wheezing or whistling?			
o	None	o	7-12 visits
o	1-2 visits	o	more than 12 visits
o	3-6 visits		

15. During which months of the year are your breathing problems most severe? (*Please mark all that applies.)*			
o	No breathing problems	o	Jun
o	All months	o	Jul
o	Jan	o	Aug
o	Feb	o	Sep
o	Mar	o	Oct
o	Apr	o	Nov
o	May	o	Dec

16. Has a Doctor ever told you that you are legally blind in either eye?
□ No (Go to question 18) □ Yes

17. How old were you when a doctor first told you that you were legally blind in either eye?			
o	Younger than 20 years old	o	Over 40 years old
o	20 to 39 years old		

18. Do you use glasses or contact lenses to correct near sightedness (to help you see far away)?
□ No (Go to question 20) □ Yes

19. How old were you when you began wearing glasses or contact lenses for near sightedness?			
o	Younger than 20 years old	o	Over 40 years old
o	20-39 years old		

20. Do you use glasses or contact lenses to correct far sightedness (to help you see near)?
□ No (Go to question 22) □ Yes

21. How old were you when you began wearing glasses or contact lenses for far sightedness?			
o	Younger than 20 years old	o	Over 40 years old
o	20-39 years old		

22. Please answer the following questions whether or not you wear glasses or contact lenses.

Without wearing glasses or contact lenses, can you see well enough to….	No	Yes
a. Recognize a friend from across the street?		
b. Recognize a friend from across a room		
c. Recognize a friend who is at arms length away?		
d. Read ordinary news paper print		
e. Read large print such as News paper headlines?		

23. Have you ever had an incident or experience while using any type of PESTICIDE which caused you unusually high personal exposure?

□ No (Go to question 28) □ Yes

24. What was the name of the of the product you were using during your highest exposure incident or experience?

Do not write outside this box

25. During which decade did this pesticide incident occur?					
o	2000s	o	1990s	o	1980s

26. Which part(s) of your body were exposed to the pesticide? (mark all that apply)			
o	Head and /or face	o	Arms
o	Hands	o	Chest/back/abdomen
o	Groin area	o	Legs
o	Feet	o	Lungs respiratory tract (from breathing fumes)
o	Digestive tract (from ingesting/swallowing)		

27. How soon after this pesticide incident were you able to wash (with soap and water) your exposed body part(s)?			
o	Less than 30 minutes	o	4-6 hours
o	30-59 minutes	o	7-9 hours
o	1-3hours	o	More than 9 hours after the incident

SECTION THREE

Work Practices, Part One:

28. How do you personally apply pesticides? (*mark all that apply*)					
	Do not personally apply pesticides		Mist blower/fogger		Gas canister
	Air blast		In furrow or banded		Row fumigation
	Boom on tractor, truck or trailer		Seed treatment		Powder duster
	Hand spray gun		Distribute tablets/granules		None of these
	Backpack sprayer		Pour fumigation from bucket		

Work practices, part two:

29. Were you applying pesticides 10 years ago?
□ No □ Yes

QUESTION	**A. NOW (past 12 months)**	**B. 10 YEARS AGO**
30. What types of protective equipment do you usually use when you personally handle pesticides(*mark all that apply)*	□ never use protective equipment □ cartridge respirator, gas mask □ dust mask □ full face shield □ hat □ goggles □ chemically resistant gloves(like neoprene or nit rile gloves) □ fabric/leather gloves □ apron □ chemically resistant boots □ cloth overalls(complete suit) □ disposable outer clothing(like Tyvek)	□ never use protective equipment □ cartridge respirator, gas mask □ dust mask □ full face shield □ hat □ goggles □ chemically resistant gloves(like neoprene or nitrite gloves) □ fabric/leather gloves □ apron □ chemically resistant boots □ cloth overalls(complete suit) □ disposable outer clothing(like Tyvek)
31. After mixing or applying pesticides, when do you usually change into clean work clothes	□ right away □ At lunch □ At the end of that work day □ At the end of the next work day □ Later in the week □ Always disposable outer clothing	□ right away □ At lunch □ At the end of that work day □ At the end of the next work day □ Later in the week □Always disposable outer clothing
32. If you spill a small amount of pesticide on your clothes early in the day, when would you usually change clothes?	□ right away □ At lunch □ At the end of that work day □ At the end of the next work day □ Later in the week □ Always disposable outer clothing	□ right away □ At lunch □ At the end of that work day □ At the end of the next work day □ Later in the week □ Always disposable outer clothing
33. When mixing or applying pesticides, what parts of your body usually come in contact with the pesticide? (*mark all that apply*)	□ No parts of my body □ Hands □ Arms □ Legs □ Face □ Body	□ No parts of my body □ Hands □ Arms □ Legs □ Face □ Body
34. How far is your drinking water well from the nearest area where pesticides are mixed	□ No pesticides mixed on farm □ less than 50 yards □ 51-100 yards □ More than 100 yards □ Don't have private well	□ No pesticides mixed on farm □ less than 50 yards □ 51-100 yards □ More than 100 yards □ Don't have private well

Work practices part two continued (long version)

QUESTION	A NOW (past 12 months)	B. 10 YEARS AGO
35. What type of pesticides do you generally mix or apply using protective equipment?(*mark all that apply)*	□ Insecticide □ Herbicides □ Fungicides □ Fumigants □ None	□ Insecticide □ Herbicides □ Fungicides □ Fumigants □ None
36. Do you usually wear regular (prescription) eye glasses or sun glasses while mixing or applying pesticides?(does not include goggles)	□ No □ Yes	□ No □ Yes
37. When mixing or applying pesticides, how long do you usually work with the same pair of gloves before exchanging them for a new set ?	□ Don't wear gloves □ Change each time □ Change at least once a month □ Change every 3 months □ Change every 6 months □ Change yearly □ Generally don't change gloves until they are worn out	□ Don't wear gloves □ Change each time □ Change at least once a month □ Change every 3 months □ Change every 6 months □ Change yearly □ Generally don't change gloves until they are worn out
38. In your household, how are clothes usually washed after they have been worn when mixing or applying pesticides?	□ Always wear disposable clothing (like Tyvek) □ Mixed with family wash □ Soaked separately the mixed with family wash □ Washed separately in family basins. □ Sent out or washed in special basin used only for this purpose.	□ Always wear disposable clothing (like Tyvek) □ Mixed with family wash □ Soaked separately the mixed with family wash □ Washed separately in family basins. □ Sent out or washed in special basin used only for this purpose.
39. After mixing or applying pesticides, where do you usually wash up or shower?	□ Bathroom in home □ Outside shower □ Other area outside home	□ Bathroom in home □ Outside shower □ Other area outside home
40. Do you use an enclosed system such as lock and load, for mixing and transferring pesticide concentrates?	□ No □ Yes □ Don't Know	□ No □ Yes □ Don't Know
41. How is the pesticide applying equipment generally washed at the end of the application?	□ Don't wash □ Clean nozzle □ Rinse tank □ Horse down sprayer □ Horse down Tractor □ Don't know	□ Don't wash □ Clean nozzle □ Rinse tank □ Horse down sprayer □ Horse down Tractor □ Don't know
42. Are Agricultural or commercial pesticides ever stored (even temporarily) in your home? (mark all that apply)	□ Yes, in home □ Yes, in basement □ Yes, in garage □ Yes, in attached house building or shed □ No	□ Yes, in home □ Yes, in basement □ Yes, in garage □ Yes, in attached house building or shed □ No
43. Do you usually repair the spraying or mixing equipment that you use?	□ No □ Yes	□ No □ Yes
44. During a typical day in the farm, about how many hours per day do you spend lifting or carrying heavy objects(e.g. fertilizer, logs,)	□ None □ Less than one hour □ 1-2 hours □ 3-5 hours □ 6-10 hours □ More than 10 hours	□ None □ Less than one hour □ 1-2 hours □ 3-5 hours □ 6-10 hours □ More than 10 hours

SECTION FOUR

Medical History:

45. Has a doctor ever told you that you had any of the following diseases? (*Mark No or Yes for each item*)

Disease	No	Yes	IF YES, mark here if the condition started within the past 12 months
a. Asthma			
b. Pneumonia			
c. Kidney disease (not counting kidney stones0			
d. Parkinson's disease			
e. Nervous disorder			
f. Depression			

46. Has a Doctor ever told you that you had any of the following diseases? (*Mark No or Yes for each item*)

Disease	No	Yes
a. Asthma		
b. Tuberculosis		
c. Other chronic lung disease (chronic bronchitis, emphysema)		
d. Pneumonia		
e. Melanoma of skin		
f. Other skin cancer		
g. Leukemia (blood cancer)		
h. Hodgkin's disease (lymph cancer)		
i. Non-Hodgkin's lymphoma (lymph cancer)		
j. Other cancer		
k. Heart disease		
l. Diabetes (not counting during pregnancy only)		
m. Parkinson's disease		
n. Kidney disease (not counting kidney stones)		
o. Nervous disorder		
p. Depression		

47. Have your parents, brothers, sisters or children related to you by blood ever had the following? (Mark No or Yes for each item)

Disease	No	Yes
a. Lung cancer		
b. Breast cancer		
c. Lymphoma (Hodgkin's disease or non-Hodgkin's lymphoma)		

48. Have your parents, brothers, sisters or children related to you by blood ever had any of the following? (*Mark No or Yes for each item*)

Disease	No	Yes
a. Lung cancer		
b. Colon or colorectal cancer (bowel or rectal cancer)		
c. Breast cancer		
d. Melanoma of the skin		
e. Other skin cancer		
f. Stomach cancer		
g. Leukemia (blood cancer)		
h. Brain cancer		
i. Prostate cancer		
j. Lymphoma (Hodgkin's disease or non-Hodgkin lymphoma)		
k. Other cancer		
l. Kidney failure (uremia, Bright's disease or dialysis)		
m. Diabetes (sugar)		
n. Heart attack before age 50		

49. During your lifetime, have you smoked at least 100 cigarettes?
□ No (Go to question 45) □ Yes

50. Do you smoke cigarettes now?
□ No □ Yes

51. On the average, how much do you or did you smoke each day? (*1 pack = 20 cigarettes)*			
o	10 cigarettes or less	o	21-40 cigarettes
o	11-20 cigarettes	o	More than 40 cigarettes

52. What is the total number of years you smoked cigarettes? (*Remember to leave out years you did not smoke)*

53. During the past 12 months, how often did you usually drink any kind of alcoholic beverage?			
o	Never	o	2-4 times a week
o	Less than one time a month	o	Almost every day
o	1-3 times a month	o	Every day
o	1 time a week		

54. During the past 12 mouths, about how many drinks would you have on a day when you drank?			
o	Didn't drink last year	o	5-8 drinks
o	1 or 2 drinks	o	9 or more drinks
o	3 or 4 drinks		

SECTION FIVE

Questions for family members of farm workers:

55. Do you do the following activities at least once a month?	During rainy season		During dry season	
	No	Yes	No	Yes
a. milk cows				
b. drive trucks				
c. drive diesel tractors				
d. drive petrol tractors				
e. weld				
f. repair engines				
g. grind metal				
h. grind animal feed				
i. use petrol for cleaning hands or equipment				
j. use other solvents (paint, stripper, turpentine, benzene)				
k. paint				
l. perform procedures where you may come in contact with animal blood (castration, dehorning, birthing, slaugtering etc.)				

56. Did you do the following activities in the past twelve months?	Yes	No
a. Till the soil (plow, disk, cultivate)		
b. Plant		
c. Apply fertilizer		
d. Apply chemical		
e. Drive combines or other crop harvesters		
f. Hand pick crops		

57. During the last growing season, how many days per year did you work in the fields?			
o	None	o	31-100 days
o	Less than 10 days	o	More than 100 days
o	10-30 days		

58. Were you living on a farm 10 years ago?

□ No (Complete Column A Only)

□ Yes (be sure to answer for both current practices (Column A) and for 10 years ago (Column B)

QUESTION	A. NOW (past 12 months)	B. 10 YEARS AGO
59. Do family members who have been working in the fields usually take their work boots off before entering the house	□ No □ Yes	□ No □ Yes
60. In your household, how are clothes usually washed that have been worn when mixing or applying pesticides?	□ Always wear disposable clothing (like Tyvek) □ Mixed with family wash □ Soaked separately then mixed with family wash □ Washed separately in family basin □ Sent out or used in machine only fro this purpose	□ Always wear disposable clothing (like Tyvek) □ Mixed with family wash □ Soaked separately then mixed with family wash □ Washed separately in family basin □ Sent out or used in machine only for this purpose
61. How many days per year do you personally wash clothes that have been worn during pesticide mixing or application	□ Less than 5 days □ 5-10 days □ 11-15 days □ 16-20 days □ More than 20 days	□ Less than 5 days □ 5-10 days □ 11- 15 days □ 16 -20 days □ More than 20 days
62. about how often is your living room vacuumed?	□ everyday □ several times a week □ once a week □ Less than once a week	□ everyday □ several times a week □ once a week □ Less than once a week
63. Is there a wipe mat by the door that is used by family members working in the fields?	□ No □ Yes	□ No □ Yes
64. How far is your home from the nearest field or flower farm where pesticides are applied?	□ Less than 100 yards □ 100-199 yards □ 200-299 yards □ 300 yards or more □ Don't know	□ Less than 100 yards □ 100- 199 yards □ 200-299 yards □ 300 yards or more □ Don't know
65. During a typical day in the growing season, about how many hours per day do you spend lifting or carrying heavy objects	□ None □ Less than I hour □ 1-2 hours □ 3-5 hours □ 6-10 hours □ more than 10 hours	□ None □ Less than I hour □ 1-2 hours □ 3-5 hours □ 6-10 hours □ more than 10 hours

Fair Flowers – for Human Rights

The study at hand is part of the international campaign "Fair Flowers – for Human Rights", which is coordinated by FIAN Germany. The campaign is formed by eight non-governmental organisations in four European and two African countries. They strive to increase the share of flower plantations which follow the International Code of Conduct on Socially and Environmentally Responsible Flower Production (ICC) by 15 percent until end of 2011. To reach this goal, the partner organisations carry out awareness raising on human rights violations in the flower sector in Austria, Belgium, Germany, and the Czech Republic. Consumers, flower traders, church parishes and local authorities are advised on how they can support the implementation of internationally recognised labour standards and environmental protection in the flower sector. Alternatives are available on the market: the labels Flower Label Program (FLP) and Fairtrade certify flower farms on the base of the ICC and thus guarantee that workers are not exploited and the environment is protected. The web address of the campaign is:

www.flowers-for-human-rights.org

As part of the campaign, FIAN raises awareness on the relationship between consumer and violations of the right to food of agricultural workers. During seminars, trade fairs and public events, FIAN informs consumers, flower traders and local authorities on how they can contribute to the implementation of the right to food. FIAN provides various materials in this regard which can be used by multipliers. You can order from FIAN Germany:

Movie: Floral greetings from the equator
The movie gives an insight into workers rights violations and environmental pollution by the flower industry in Ecuador and Kenya. Furthermore, the certifying organisation Flower Label Program (FLP) and its work to guarantee workers' rights and environmental protection are presented.
DVD, 25 min.

Leaflet: Fair Flowers – for human rights
A short introduction into workers rights violations and environmental pollution by the flower industry and opportunities for consumers to support the Fair Flowers campaign.

Leaflet: Sell fair flowers
Learn about the win-win situation of marketing Fair Flowers
For download only: http://www.flowers-for-human-rights.org

Study: Withered Future
Study on the decline of the Zimbabwean flower sector and its impact on workers' working and living conditions.
For download only: http://www.flowers-for-human-rights.org

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