



**ST. MARY'S UNIVERSITY COLLEGE
SCHOOL OF GRADUATE STUDIES**

**OCCUPATIONAL SAFETY AND HEALTH PRACTICES IN THE
ETHIOPIAN FLORICULTURE SUB-SECTOR
(THE CASE OF SEVEN FLOWER FARMS)**

**BY
BEZAWIT ABEBE**

**MAY, 2013
ADDIS ABABA, ETHIOPIA**

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**A THESIS SUBMITTED TO ST. MARY'S UNIVERSITY COLLEGE,
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DECLARATION

I, the undersigned, declare that this thesis is my original work, prepared under the guidance of Dr. Worku Mekonnen. All sources of materials used for the thesis have been duly acknowledged. I further confirm that the thesis has not been submitted either in part or in full to any other higher learning institution for the purpose of earning any degree.

Name

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May, 2013

ENDORSEMENT

This thesis has been submitted to St. Mary's University College, School of Graduate Studies for examination with my approval as a university advisor.

Advisor

St. Mary's University College, Addis Ababa

Signature

May, 2013

DEDICATION

To my late father Abebe Difabachew

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Abstract

The overall objective of this study is to examine the Occupational Safety and Health (OSH) practices in the seven flower farms. It also attempts to examine the provision of Personal Protective Equipment (PPE) to worker, employees' awareness on the use of hazardous chemical, safe work practices and procedures, and the role of farms in addressing OSH problems. The study revealed a number of OSH related issues in seven flower farms. It also discusses certain social and environmental concerns in the farms. Accordingly, the farms offered employment opportunities for over 2129 citizens. Majority of the workers, however, are employed as daily labourers or as fixed-term of employment. Consequently, employees do not receive letter of employment from their employers and cannot be sure of their employments throughout their service. Employers could lay off workers without any notification or compensation violating workers' rights. The findings of the study also indicate that many of the workers never receive any induction at the initial stages of their employment and any other training related to occupational safety and health at work. Besides, the farms lack well-developed OSH policies that ensure the wellbeing of employees. It can, therefore, be concluded that the farms have far to go to improve the employment and working conditions of employees, the provision of PPE, inductions and trainings, and the development and implementation of workable OSH policy. The paper proposes, among other things, that the farms should ensure adequate provision of PPE; should provide occupational health and safety trainings to workers on regular basis; and should also strive to develop and implement OSH policies to safeguard the safety and health of workers.

List of Acronyms

CoP	Code of Practice
FGD	Focus Group Discussion
EARI	Ethiopian Agriculture Research Institute
EHDA	Ethiopian Horticulture Development Agency
EHPEA	Ethiopian Horticulture Producer Exporters Association
ETB	Ethiopian Birr
ILO	International Labor Organization
OSH	Occupational Safety and Health
PPE	Personal Protection Equipment
SPSS	Statistical Package for the Social Sciences
USD	United States Dollar

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CHAPTER ONE: INTRODUCTION

1.1. Background of the Study

According to Ethiopian Horticulture Producer Exporters Association (2007), Ethiopia's tremendous efforts to boost the horticulture sector has created a break through in to the world flower market competition. The Association believes that the country could become one of Africa's leading flower exporters within the next five years.

Currently, the Ethiopian government has encouraging foreign investors which cross the border by facilitating loans with low interest rate; five-years tax holiday, two years grace period and duty-free machinery import scheme. Consequently, considerable number of foreign investors emerged in the floriculture sub-sector. According to the Ethiopian Horticulture Sector Statistical Yearly Bulletin issued in October 2012, the country managed to increase its earnings to 212.56 million USD in 2011/2012 from 184.00 million USD in the 2010/2011 from the floriculture export.

In many countries, however, such increased revenue from floriculture investment is obtained at a very high price. The flower industry, all over the globe, uses a wide range of pesticides. There are also reports that the pesticides have caused both human health and environmental problems in countries where flower farming started more than a decade ago. In this regard, the newly emerging flower industry in Ethiopia has low record of standards of occupational safety and health including the wide use of unregistered and harmful pesticide. The floriculture industry uses a range of imported pesticides in large quantities. These pesticides are being used without proper regulation by the Ministry of Agriculture and Rural Development. According to a report by the Ethiopian Agriculture Research Institute (EARI) 96 types of insecticides and nematicides were imported into the country for use on flower farms in 2006. The report further indicated that out of these 18 were not on the MPS-Code 2006 list (the list of pesticides registered in Ethiopia) and so were not registered. Similarly, out of the 105 fungicides imported 19 were not on the MPS-Code 2006 list. A coordinated system for importing pesticides does not exist in Ethiopia and it is believed that a number of pesticides might have been imported which were not identified in the EARI report (Flower Booklet-Pesticide Action Network UK, 2008).

Furthermore, Shivoga (2004), in his article entitled 'Environmental Challenges and State of Knowledge on Floriculture in Kenya' discusses a range of issues including Health hazards such as unknown effects of pesticides and other agrochemicals; the sector only hires limited age group (mainly young people); and more than 75% of workers are women with unsecured jobs. He also raises some economic concerns and doubts whether the industry is really reduce poverty. Accordingly, about 500,000 people – 50,000 flower farm workers and their relatives are dependent on the floriculture sector for their livelihoods. The volume of cut flower export increases dramatically that is 29,373 tones of cut flowers worth Ksh. 3.6 billion in 1995 to 60,982 tones, which worth Ksh. 16.5 billion in 2003. He further discusses the environmental challenges brought as a result of the flower industry. Shivoga further explains Lake Naivasha is shrinking and its southern shores are blighted with algal bloom and excessive abstraction of water for irrigation, industrial and domestic use. The worst case with regards to the challenges of the sector relates to change in fish species from predominantly Tilapia to Common Carp.

In most of the cases the farm owners give more priority to the flowers being produced than to the safety and health of their employees. As a result, some employees of flower farms are obliged to abandon their job, while many remain suffering from the chemical exposure on regular basis with no proper precautions. Similarly, thousands of the farm employees perform the spraying of hazardous chemicals daily without proper equipment to protect themselves from the possible chemical exposure. Many of these employees often have experiencing different health problems such as recurrent puking and collapse due to regular exposure to the chemicals.

Hence, this study attempts to examine the occupational safety and health practices in the Ethiopian floriculture subsector with special reference to seven flower farms. The research mainly focuses on issues related to the working conditions of workers, the provision of personal protection equipment, the practice of safety measures, and the provision of safety and health trainings to employees. The study also tries to identify the occupational safety and health related problems the farm workers encounter and whether the floriculture industry in Ethiopia is operating in accordance with international standards of occupational safety and health.

1.2. Statement of the Problem

According to Dessler (2004), safety and accident prevention concern managers for several reasons, mainly the staggering number of work-related accidents. A study quoted in his book that, the “Journal of the American Medical Association, revealed workers actually suffer an estimated 13.2 non fatal injuries, and 362,200 illnesses annually, equivalent to a total cost of \$171 billion each year.”

Furthermore, Tigist (2007) claims that there are problems related to employment conditions, fundamental rights at work, safety and health condition of workers, and social protection. She concluded ‘the increase in production and profit should not be at the cost of the workers. Therefore, workers’ human right and working conditions need to be given due attention.

Since its inception, the Ethiopian floriculture sub-sector has been playing a pivotal role towards the alleviation of the prevalent unemployment problems and increasing earnings of foreign currency to the scanty national reserves. There are concerns, however, of problems related to occupational safety and health. The occupational safety and health problems range from exposure to pesticide to the unsafe working conditions. The problem also emanates from lack of provision of protective equipment for workers who have direct or indirect exposure to chemicals. Besides, farm workers are not aware of the risks and cannot recognize clinical symptoms of exposure to pesticides. The absence of flower farm workers unions and government agencies responsible for drafting policies and protect the rights of the employees of flower farms has worsen the situation.

Hence, this research attempts to examine the occupational safety and health practices in seven flower farms. The study also tires to assess the working conditions, the practice of safety measures, provision and use of personal protection equipment, and the provision of trainings related to the occupational safety and health to the workers.

1.3. Research Questions

This study attempts to answer the following research questions:

- To what extent is the level of awareness of the employees towards the use of hazardous chemicals?
- Do the flower farms maintain safe work practices and procedures for their employees?
- What are the roles to be played by the flower farms to minimize the possibilities of fatal and non-fatal illnesses resulting from exposure to chemicals at work (potential hazards)?

1.4. Objectives of the Study

The general objective of this study is to examine the practice of occupational safety and health in the seven flower farms.

The specific objectives of the study are:

- to examine the level of awareness of the employees towards the use of hazardous chemicals,
- to examine whether the flower farms maintain safe work practices and procedures, and
- to assess the roles to be played by the flower farms to minimize the possibilities of fatal and non-fatal illnesses resulting from exposure to chemicals at work (potential hazards).

1.5. Significance of the Study

As a research to be conducted on the emerging Ethiopian floriculture industry, a scarcely studied sector, this research is believed to have an immense contribution to the study of the sector and for better understanding of the conditions of flower farm workers in Ethiopia. As a study examining the practice of occupational safety and health in seven flower farms operating in Ethiopia, this study is believed to contribute in identifying the major occupational safety and health related problems many farm employees face and it also tries to provide some insights to the concerned bodies whether the floriculture industry in Ethiopia is operating in accordance with international standards.

It is believed that the findings of the study will provide important information to the concerned governmental and non-governmental organizations including farm owners regarding the occupational safety and health of employees in seven flower farms. The findings of this research will also be communicated to all involved parties in this research. As a result, the research will have paramount importance in raising awareness among farm workers with the prevalent safety and health related hazards workers encounter in the Ethiopian flower industry.

1.6. Delimitation of the Study

This study is an attempt to assess the occupational safety and health practices in seven rose growing farms, namely Flowerama Plc, Saron Rose Agrofarm Plc, Selam Flowers Plc, JoyTech Flower Farm, Minaye Flowers Plc, Rainbow Colours Plc, and ZK Flowers Plc. Furthermore, the study has covered such issues as the working conditions of workers, the practice of the safety measures, the provision and use of personal protection equipment, and the provision of occupational safety and health trainings.

1.7. Organization of the Study

The research report has five chapters. The first chapter contains background of the study, statement of the problem, basic research questions, objectives of the study, definition of terms, significance of the study, and delimitation of the study. Then, the second chapter has dealt with review of related literature. The third chapter presents methods of the study. This chapter is devoted to describe the type and design of the research, participant of the study, sources of data, data collection tools, procedures of data collection, methods of data analysis and fieldwork. Then, the fourth chapter has presented results and discussion. Under this chapter the researcher summarized and interpreted the finding of the study. Finally, the last chapter has drawn conclusion based on the finding and forwarded recommendation.

CHAPTER TWO: REVIEW OF RELATED LITERATURE

Previous studies related to the occupational safety and health of worker in the floriculture industry in Ethiopia is very rare. Particularly, studies related to pesticide use and pesticide-related health effects on farm workers in the sector are scanty. Besides such inadequacy of studies on floriculture workers, there is no working system or policy to report pesticide poisoning to the authority in the Ethiopian government.

2.1. Definition of Notions in Occupational Safety and Health

Safety programs are oriented toward the reduction of accidents. Heneman et al (2006:688), defines an accident as the “unintentional occurrence of physical damage to an object (such as machinery) or an injury to an individual. Accidents are caused by unsafe employee behaviors and/or unsafe working conditions. However, health programs are more concerned with employee illness than with injury.” They also explained, ‘occupational health is a technical medical area so that only an overview of environmental health hazards, employee stress, and the physical handicapped employee’. Generally speaking, it is concerned with well-being of all employees and persons in a plant/factory/work place and accordingly deals with conditions and factors that have bearing on health and safety. Some other notions include:

Hazard: to expose to ‘danger, risk, chase to accident.’

Safety and Health Hazards: safety is concerned with acute hazards, where as health is concerned with chronic hazards. An acute effect is a sudden reaction to severe condition. A chronic effect is long term deterioration to a prolonged exposure to a milder adverse condition.

Precaution: care or measure taken beforehand against possible danger.

2.2. Categories of Occupational Safety and Health

2.2.1. Chemical Hazards

According to Jain et al (2009:198-203), “industrial processes involve use of chemical and hazardous materials for which safety considerations and controls are highly warranted. The raw material used in industry could be hazardous due to toxicity inherent in materials. The products, intermediate and finished, by products (including industrial wastes), can cause serious problems of chemical safety. The storage handling, manufacturing and use of chemical call for strict surveillance on the part of managers, supervisors and employees.”

Chemical hazards can be probably grouped as:

1. Solids, comprising of combustible/ flammable solids, toxic and corrosive solids (including radioactive substances), solids causing spontaneous ignition or violent reactions (in water or air), explosive solids or detonators.
2. Liquids comprising of combustible/flammable liquids, toxic and corrosive causing explosions.
3. Gases comprising combustible/flammable gases, toxic and corrosive gases, explosive or a mixture of gases.

Chemical exposures are significant safety concern. Chemicals are reactive, combination of chemicals create new material with new properties. These chemicals may be highly flammable, toxic in some degree, damage substances by corrosions. The chemicals are willing servant not controlled, they can become terrible tyrant. In process plants most immediate hazardous chemical exposures is apt to exist. To a significant extent chemical safety leadership starts.

2.2.2. Harmful Effects of Chemicals

1. Chemical can cause asphyxia or suffocation.
2. Causes irritation to respiratory tract or other vital organs like liver, kidney, etc.
3. Some chemicals cause semi consciousness or unconsciousness.

2.3. Key Principles in Occupational Safety and Health

Alli (2008: 17-19) states that certain principles strengthen the field of occupational safety and health. These principles and the provisions of international labour standards are all designed to achieve a vital objective: that work should take place in a safe and healthy environment.

He further explains occupational safety and health is an extensive multidisciplinary field, invariably touching on issues related to scientific areas such as medicine – including physiology and toxicology – ergonomics, physics and chemistry, as well as technology, economics, law and other areas specific to various industries and activities. Despite this variety of concerns and interests, certain basic principles can be identified, including the following:

- *Occupational safety and health policies must be established. Such policies must be implemented at both the national (governmental) and enterprise levels. They must be effectively communicated to all parties concerned;*
- *A national programme on occupational safety and health must be formulated: once formulated, it must be implemented, monitored, evaluated and periodically reviewed;*
- *Occupational safety and health programmes and policies must aim at both prevention and protection: efforts must be focused above all on primary prevention at the workplace level. Workplaces and working environments should be planned and designed to be safe and healthy; and*
- *Education and training are vital components of safe, healthy working environments: workers and employers must be made aware of the importance of establishing safe working procedures and of how to do so. Trainers must be trained in areas of special relevance to particular industries, so that they can address the specific occupational safety and health concerns.*

Clearly, some overlap exists among these general principles. For example, the gathering and dissemination of information on various facts of occupational safety and health underlies all the activities described. Information is needed for the prevention as well as the treatment of occupational injuries and diseases. It is also needed for the creation of effective policies and to ensure that they are enforced. Education and training demand information. While these key

principles structure occupational safety and health programmes and policies, the above list is by no means exhaustive. More specialized areas have corresponding principles of their own. Moreover, ethical considerations regarding such matters as individuals' rights to privacy must be taken into consideration when devising policies.

2.4. EHPEA Code of Practice for Sustainable Flower Production

In 2007 the Ethiopian Horticulture Producer Exporters Association (EHPEA) took responsibility for the development and management of the Code of Practice for the export flower and cuttings sectors. The Codes are all voluntary industry standards but in recognition of the fact that compliance is good for the farm, the farm employees, the environment and the reputation of Ethiopia in the international market to make compliance with the Bronze level of the code a mandatory requirements for Export (EHPEA 2011).

2.4.1. The objective of Code of Practice

The objective of the Code of Practice (CoP) is to *provide a mechanism that enables the Ethiopian floriculture sector to achieve the highest performance standards by continuous improvement and sustainable development and thereby improving the farm overall performance and competitive position in the market. In addition, the code aims to enhance the implementation of safe working practices to maintain the wellbeing of the work force.*

2.4.2. Content of the Code of Practice

The general principle of the CoP defines, at Bronze level, *the minimum acceptable standards for operation of an export flower or ornamentals farm in Ethiopia. This level requires that Ethiopian farmers have a basic management system in place to ensure planning, monitoring and evaluations of key sustainability issues.* Farms must also implement safe working practices, protect the environment and comply with the law of the land. The code also provides higher standards at Silver and Gold levels. However, standards for some markets and individual buyers and standards adopted by some farmers may exceed those described in the minimum standard.

The silver level sets internationally recognized standards for good agricultural practices, protection of the environment and responsible employment practices and includes requirements of equivalent content and standard to the international market labels that are widely used in the sector.

The Gold Level sets higher standards and challenges the farm to aim beyond the sector benchmarks. Farms at gold level will need to become involved in corporate social responsibility, environment conservation, product quality management and sector development through involvement in industry development activities and management capacity building.

2.5. Article and Previous Studies

Shivoga (2004), in his article entitled 'Environmental Challenges and State of Knowledge on Floriculture in Kenya' discusses a range of issues including Health hazards such as unknown effects of pesticides and other agrochemicals; the sector only hires limited age group (mainly young people); and more than 75 % of workers are women with unsecured jobs. He also raises some economic concerns and doubts whether the industry is really reduce poverty. Accordingly, about 500,000 people - 50,000 flower farm workers and their relatives are dependent on the floriculture sector for their livelihoods. The volume of cut flower export increases dramatically that is 29,373 tones of cut flowers worth Ksh. 3.6 billion in 1995 to 60,982 tones, which worth Ksh. 16.5 billion in 2003. He further discusses the environmental challenges brought as a result of the flower industry. Shivoga further explains Lake Naivasha is shrinking and its southern shores are blighted with algal bloom and excessive abstraction of water for irrigation, industrial and domestic use. The worst case with regards to the challenges of the sector relates to change in fish species from predominantly Tilapia to Common Carp.

Mulugeta (2009), states that despite the growth of the floriculture industry in Ethiopia, environmental concerns are growing, because floriculture requires intensive use of chemical fertilizers and pesticides and needs huge amounts of water than conventional farming in addition to thoroughly monitored waste management system. He claims that disposal of waste including

chemicals is indeed threat to the environment unless proactive prevention measures are put in place. In spite of some gaps in the regulatory framework and although there are problems of effective regulation of the floriculture sector, Ethiopia has developed policies and legislation to protect and preserve the environment. The government is thus expected to empower its regulatory offices and give due attention to the adverse environmental impact which is already observable rather than offering priority to short-term income generation at the expense of the environment.

Tigist (2007), an MA thesis entitled ‘An Assessment of working Conditions of Flower Farm Workers: A Case Study of Four Flower Farms in Oromiya Region’, mainly focuses on women flower farm workers who constitute the majority of the workforce in each of the four flower farms studied. With regards to the working environment of workers, she claims that the workers in the four subject flower farms are in a poor and insecure working, job and wage conditions. Many workers are employed on casual and temporary basis and have not signed contracts with their respective employers. On the other hand, the working hours seems fair (i.e. 8 hours per day) but in reality, most of the workers are required to work more than 8 hours if they have production targets to meet especially during the harvest season. She further states that the floriculture industry has created employment opportunity for many Ethiopians. However, there are problems related to employment conditions, fundamental rights at work, safety and health condition of workers, and social protection. Tigist concluded ‘the increase in production and profit should not be at the cost of the workers. Therefore, workers’ human right and working conditions need to be given due attention.’

Furthermore, Sipalla (2012) states the women who labour in the flower industry that earn Kenya its second foreign exchange after tourism. The Kenya Human Rights Commission (KHRC) remarks that “A female employee proceeding on maternity leave shall apply for the same and will be entitled to payment upon return to work with the dues being paid to the employee after working for one month.” The study identified 69% of the women employed in the Kenyan flower industry earn less than their counter part men. More than half of these female flower farm workers are single mothers and they do not have a spouse’s income to augment their earnings. It is rather unfortunate that many workers are not aware of their rights and thus are subjected to

wrongful workplace practices. In the event that they are aware, they have few or no options and thus choose the lesser evil, the job with stringent conditions as is the case of the women.

An article on Occupational exposure to pesticides in flower farms in northern Tanzania by Ngowi (2003) indicates that the pesticide hazards at flower farms in Tanzania have been a concern of occupational health and safety. According to this study majority of the employees at the farms are casual, mostly women (i.e. 82%) between the age of group 18–35 years and males occupy the small number of skilled-labour and managerial positions. The country does not have strict rules governing the occupational health or medical monitoring of farm workers. The farm workers at flower farms are not aware of the actual health risks due to pesticides in their surroundings. Besides, the provisions of health and safety facilities have been inadequate. The findings of the study also indicated that women workers are at higher risk of exposure to pesticides resulting poisoning due to the use of pesticides, the unhygienic work environment and working conditions. On the other hand, the heavy use of pesticides remains the main hazard to farm employees and the use of pesticides at the farms is not controlled sufficiently.

More specifically, ‘about 96 active ingredients of pesticides in more than 124 formulations were found at the farms. Of these, 39% were insecticides, 36% fungicides, 16% acaricides, 7% nematicides and 6% herbicides’. Formulations with arsenic pentoxide as a mixture with copper sulphate were also found in stock. About 23% of the pesticides found at the farms were not registered for general use in Tanzania, and 20% were under experimental use category. As a result, the study stated that there is high risk of pesticide poisoning of flower farms workers in northern Tanzania were at high risk of pesticide poisoning. It further remarked that ‘there is an urgent need for thorough medical examination for workers at the farms and for regular health surveillance by specialists not associated with the flower farm management’. It also recommended that pesticide use at the flower farms should be reduced and controlled. The investigator also observed that the work environment and conditions could be improved to minimize exposures.

Niftrik et al (2003) discuss the results of research on occupational health and safety in the informal sector in South Africa. The research addresses 39 different occupations and a total of 289 questionnaires were adequately filled by field workers and then analysed. Accordingly, male workers had a 4.5 times higher risk of serious occupational injury than did women. Besides, chemical hazards found to be most common in the work environment of hairdressers, with the chemicals mostly stored in the open and applied without the use of gloves. The study identified that the most prevalent occupational hazards in the urban informal economy are of an organizational, hygienic or ergonomic nature. It was also indicated that many hazards could be avoided by behavioural change.

Another article on pesticide exposure, risk factors and health problems among cut flower farmers: a cross sectional study by Del Prado-Lu (2007) *aims to determine the associations between hematologic indices such as red blood cell cholinesterase (RBC) and mean corpuscular volume (MCV), with illnesses related to pesticide exposure among cut flower farmers in La Trinidad, Benguet.* The researcher selected *one hundred two (102) cut flower workers and carried out a comprehensive physical, health and laboratory examinations. The workers were also asked to fill questionnaire on work practices and illness.* Accordingly, the majority of the respondents i.e. 52% were males belonging to 20 – 35 age group. The study identified that majority of exposed farmers were symptomatic, with most common complaints being headache (48%), easy fatigability (46.1%) and cough (40.2%). The findings of this research proved the hematoxic effects of pesticide exposure. The research further recommends for improvements of safety practices among cut flower farmers and to look into specific hematopoietic effects of pesticide use since these have implications for cancer development and possible prevention.

The Ugandan National Association of Professional Environmentalists (NAPE) report on *The Impact of the Flower Industry on the Environment and Peoples Livelihood in Ugand* (2012) aims to assess and document the status and impact of flower farms on the environment thereby identifying how the farms handle and dispose chemicals and chemical wastes. It also attempts to find out how the flower farms in Uganda address worker's rights and health. The report claims that poor implementation of laws and the inadequate guidance has led to increased risk of pollution and to the numerous negative social and health risks to the workers and communities in the surrounding areas to flower firms. The study finds out that some of the current practices in

the growing flower business are harmful to the workers and to the environment. It further identifies institutions that are responsible for regulating the industry is inadequately facilitated and funded to enable them effectively do their work. The flower farms are defiant regarding the implementation of laws on workers' rights, the environment and labour laws among others. The study also finds out that many flower farms were not providing adequate protective equipment to their workers thereby exposing them to chemicals risks. It was also found out that workers who developed complications due to chemicals exposure were laid-off with limited or no medical support. It was also noted that there was no compensation for health damage. Finally, the study concludes that the flower industry is a chemical intensive and there were no initiatives in place to look for alternatives as is recommended under the Strategic Approach to International Chemicals Management (SAICM). An integrated pest management approach in the flower industry would offer such opportunity to minimize the excessive use of chemicals by adopting an integrated pest management approach. The flower industry needs to critically look into aspects of sustainable use of the environment, workers health and socio-economic challenges.

Promoting Workers' Right in the African Horticulture Labour Condition in The Ethiopian Horticulture Industry (Tewodros 2010) is an action research report that attempts to improve the lives of horticulture workers in general and women workers in particular who form the majority of the workforce. It also aims to document a labour pertinent fact file and to examine the nature of employment and labour conditions in the flower industry in Ethiopia. The research finds out that majority of workers in farms were employed in fixed terms and as daily labourers. It also remarks that in most farms the recommended working hours of 8 hours a day is adhered according to the management. According to the findings, majority of workers earn a monthly salary of between 300 – 450 ETB. The study indicates that the majority of the workers in flower farms are employed as daily labourers or as fixed-term employees. It further emphasizes that this excessive degree of casualization means that workers are not assured of their employment throughout the year and employment insecurity is much higher for female workers. With regards to health and safety, it states that health and safety issues seem to be generally taken seriously in most of the visited farms. For instance, sprayers were provided with at least two PPE, the most common ones being respirators and gloves. As a way of conclusion, the paper remarks

conditions of life of the horticulture workers of Ethiopia are awfully poor conditions with high levels of casualisation and low wage.

Finally, Degytnu (2012) in her an unpublished MSC thesis on Socio-economic and Environmental Impact of Floriculture Industry in Ethiopia, assess the impact of cut flower on the environment, economy and occupational health and safety of employees. Based on the analysis of the secondary data in the floriculture development in Ethiopia, the paper identifies social issues including job opportunity creation, workers health and occupational safety, problem women encounter and sexual harassment, workers' rights, surrounding community health, compensation for previous land holders and socio cultural change. It also finds out certain environmental issues such as water resource utilization, water and soil pollution, air pollution and land cover change. The research indicates that the only issue which was unanimously viewed positively by different authors is the overwhelming job creation of the floriculture industry. However, the rest social and environmental issues are the negative implication of the sector. Based on information gathered from different sources in floriculture development, major seven social and five environmental issues are identified. Among the identified social issues are as followed: job opportunity creation, workers health and occupational safety, problem women encounter and sexual harassment, workers rights, surrounding community health, compensation for previous land holders and socio cultural change. The identified environmental issues are water resource utilization, water and soil pollution, air pollution and land cover change. The only issue which was unanimously agreed and perceived positively by different authors was the wide job creation of the floriculture industry. However, the rest social and environmental issues are the negative implication of the sector. On the other hand the study also analyzed the economic implications of floriculture in terms of export performance by volume and value, share from the total export earning, and destinations. In order to minimize the negative social and environmental impacts, the study recommends to promote and create awareness for floriculture farms, promote integrated pest management and use of environmental friendly agrochemicals by giving incentives to floriculture producers, set national minimum labour wage for floriculture industries, practice clear and workable laws and regulations for pesticide application and control, and revise the existing pesticide use and control proclamations according to the current local and international situations.

CHAPTER THREE: RESEARCH DESIGN AND METHODOLOGY

It is believed that the research methodology is the philosophy or general principle which guides the entire research. In this section of the study, the researcher tries to provide a brief description of the methodology employed to carry out the research.

3.1. Research Design

This study is a descriptive analysis of the occupational safety and health practices in the case of seven flower farms in Ethiopia. In order to accomplish this study, the qualitative and quantitative research methods used with special emphasis on the practice of occupational safety and health in seven flower farms geographically located in two areas: lowland (e.g. Debrezeith, Koka and Zeway) and highland (e.g. Holeta, Sululta and Addis Alem) areas. As a result, the researcher employed the following research instrument in order to collect the required data. These data collection tools include: questionnaire, interviews, Focus Group Discussion (FGD) and observations. The quantitative research is believed to offer results from the respondents through questionnaire. Besides, using the qualitative research the researcher attempted to explore the attitudes and the awareness of the farm managers towards the practice of occupational safety and health, and also to explore and examine the working conditions through interviews, FGD, and observation checklists.

3.2. Sample and Sampling Techniques

According to the Ethiopian Horticulture Producer Development Agency, currently, there are 83 flower farms are operating in Ethiopia. Out of the 83 flower farms 64 are rose flower farms, 13 are summer flower farms and 6 are cutting flower farms. However, the researcher determined the sample size only from the 64 rose flower farms. As a result, to make the finding of the study as realistic as possible, 7 flower farms selected based on cluster sampling technique found to be appropriate to carry out the research. This is because the sample shall be representative if it is at least more than 10% of the population. In addition to this, rose flower growers geographically located in two areas: low land and highland areas. The production of rose flowers in these two areas differs in terms of the varieties of roses produced and the type of pesticide and chemicals used. Accordingly, there are three farms from the highland (i.e. Flowerama Plc, Saron Rose

Agrofarm Plc, and Selam Flowers Plc) and four farms from the low land area (i.e. Joytech Plc, Rainbow Colours Plc, Minaye Flowers Plc and ZK Flowers Plc) were selected based on purposive sampling. Then, the researcher divided the respondents in to four categories namely Greenhouse Supervisors and workers, Scouts, Spray (Irrigation) team leaders and workers and Packing workers.

3.3. Instruments of Data Collection

This research is both qualitative and quantitative research. Hence, in order to carry out this research, the researcher employed the following research instruments: questionnaires (both in Amharic and English), interviews, focus group discussions and observations. The researcher has carried out pilot test before the actual data gathering using the questionnaires. The questionnaires contain different parts and types of questions. The first section was intended to obtain general information, the second part intended to obtain specific information and the last part of the questionnaire intended to obtain additional information from the respondents. The questionnaires were composed of combination of open-ended and closed-ended questions; and they were administered for a total of 110 farm workers in the seven flower farms. The focus group discussions and semi-structured interviews were used to gather information regarding the working conditions, provision and use of Personal Protective Equipment (PPE), salaries and other benefits, training, provision of health, availability of facilities and the occupational safety and health practices of the flower farm workers. In addition to questionnaires, focus group discussion and interview checklists, observation checklists were used in order to examine the working conditions and occupational safety and health practices while workers are on duty.

3.4. Procedures of Data Collection

The data obtained through questionnaires, interviews, focus group discussions and observations were the major sources of information. Then, the questionnaire dispatched to farm workers (Amharic Version) and farm managers. With regard to the semi-structured interview, the researcher prepared interview checklists for the seven farm managers. Then, the researcher conducted the interview with the farm managers on issues of occupational safety and health practices in their respective farms and also held focus group discussions with groups of workers at least in three farms. Similarly, the researcher prepared observation checklist in order to examine the working conditions and occupational safety and health practices while workers are on duty.

3.5. Methods of Data Analysis

The data was analyzed using SPSS descriptive statistics. The results were displayed in absolute figures, percentages, mean, standard deviations, using charts, graphs and tables. Furthermore, explanation for key qualitative information which was obtained during focus group discussions, observations and informal interview were used. Finally, the analyzed data helped to create certain logical link between the research problem, theoretical backgrounds and the results.

3.6. Fieldwork and Study Setting

The relevant procedures of writing an MBA thesis were considered in writing this paper. The entire process to accomplish this research took six months from August 2012 through February 2013. The field work took 30 days. The researcher selected seven flower farms out of the sixty-four rose growing flower farms in the country. Accordingly, the researcher chose three from the highland areas (Flowerama Plc, Saron Rose Agrofarm Plc, and Selam Flowers Plc) and four from lowland areas (Joytech Plc, Rainbow Colours Plc, Minaye Flowers Plc and ZK Flowers Plc). Thus, the researcher considered these farms as sample for the sixty-four rose grower in the country.

CHAPTER FOUR: RESULTS AND DISCUSSION

This chapter presents the results and discussion of data collected from the different sources including 110 farm workers, 7 farm managers, and a development & technology transfer officer at the Ethiopian Horticulture and Development Agency. Besides, documents were analyzed to substantiate the data obtained through the other methods. The analysis was based on the information drawn from the sample population and documents. The study covers seven rose growing farms; namely ZK Flowers Plc, Flowerama Plc, Selam Flowers Plc, Saron Roses Agrofarm Plc, Minaye Flowers Plc, Joytech Plc, and Rainbow Colors Plc.

The chapter deals with different issues related to the characteristics of respondents (including sex, age, marital status, level of education, job category, working experience), and the safety and health of farm workers relating to provision of PPE, wages, working conditions, working hours, provision of training and personal development, and provision of health and other benefits.

4.1. Results on Characteristics of Respondents

According to statistics obtained from the seven farms, the total number of female farm workers is over two fold the number of male workers i.e. there are 1482 and 647 female and male workers respectively. This indicates that the woman constitute the reasonable portion of the work force in the flower sector in Ethiopia, and this can be attributed to the fact that women are less demanding to men and majority of the women are uneducated. The work also demands young unskilled work force, thus the majority the employees are primary school dropouts, if not uneducated. Contrary to the picture at large, the distribution of the respondents by sex shows (table 1 below) that majority of the respondents i.e. 58.2 % (64) of the total respondent farm workers are male, while 41.8 % (46) are female. This is because the questionnaire dispatched based on the degree of farm worker's exposure to chemicals: Spray & Irrigation, Scout, Greenhouse Supervisor & Harvest, and Packing which the work mostly prefers and accepts male workers.

	Frequency	Percentage
Male	64	58.2
Female	46	41.8
Total	110	100

(Source: Questionnaires)

On the other hand, majority of the farm workers i.e. 84.5 % (93) of the respondents are found to be below the age of 30. On the contrary, only less than 4% (3) of the respondents are above the age of 40. The flourishing flower business in Ethiopia requires young labor as the industry demands active and energetic workers.

	Frequency	Percentage
< 20	26	23.6
21 - 25	46	41.8
26 -30	21	19.1
31 - 40	13	11.8
41 – 50	3	2.7
>50	1	0.9
Total	110	100

(Source: Questionnaires)

When we look at the marital status of the respondents, 52.7% (58) of the respondents are married, 41.8% (46) are single, 3.6% (4) are divorced and 0.9% (1) is widowed. Most of the female respondents are young and are not married. Thus, they do not have children and are willing to work long hours for an overtime payment as low as 2 birr per hour. The respondents were asked for how many hours they stay at work, all of them, except spray team, responded that they work for eight hours per day. However, the spray team, in the majority of the seven farms, work for less than 8 hours per day as the work demands more rest. Young men who work as spray man earn more than the other job categories i.e. a monthly salary ranging from 600 to 800 ETB.

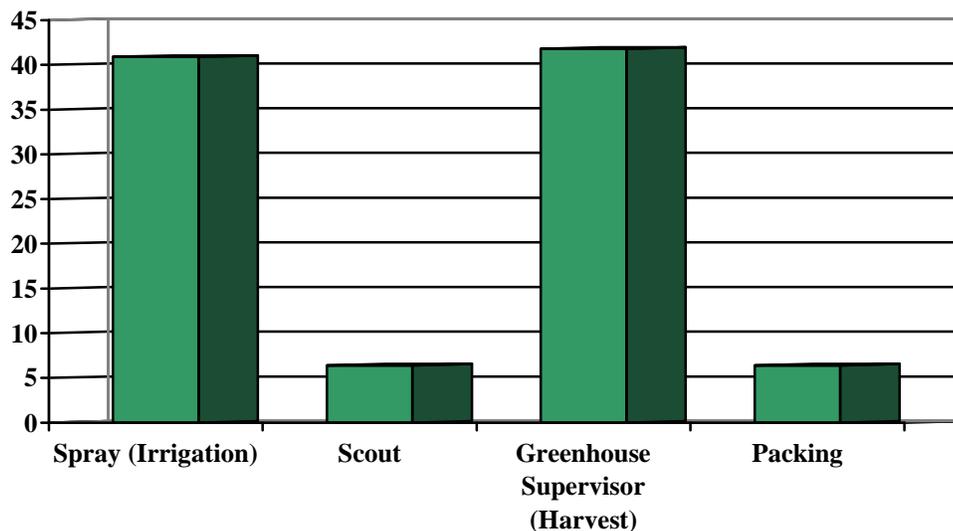
As can be seen in table 3 below, the level of education of the respondents, 0.9% (1) of the respondent farm workers is a degree holder, 9.1% (10) have diploma, 34.5% (38) are in between 8th to 12th grade, 23.6% (26) are between 1st to 7th grade, and 21.8% (24) of the farm workers have not completed grade 1.

	Frequency	Percentage
Degree & above	1	0.9
Diploma	10	9.1
8 – 12	38	34.5
1 – 7	26	23.6
Below 1	24	21.8
Missing	11	10.0
Total	110	100

(Source: Questionnaires)

The type of work the workers engaged in has been categorized into four based on the degree of farm workers' exposure to chemicals: Spray & Irrigation, Scout, Greenhouse Supervisor & Harvest, and Packing. Accordingly, the distribution of the farm workers on the basis of these job categories is as follows: 40.9% (45) of the respondents were spray man & irrigation, 6.4% (7) of the respondents were scouts, 41.8% (46) of the respondents were greenhouse supervisors & harvest, and 6.4% (7) of the respondent work in the pack house. Thus, irrigation and spray team are the first and the most exposed to chemicals, the scout team is second, then follow greenhouse supervisors & harvest team, and finally worker in the packing house. The study focuses mainly on those workers who have most exposed to the chemicals.

Chart 1: Job Category of Respondents in Percentage



(Source: Questionnaires)

The rate of employee turnover at flower firms is believed to be very high. This is mainly due to low wages, lack of job security, lack of benefits, and poor occupational safety and health practices. As can be seen from table 4 below, 30% (33) of the respondents are new recruit, 40% (44) of the respondents have worked 1 to 5 years, and a little over 23% (26) of the respondents have worked for over 5 years.

	Frequency	Percentage
Below 1 Year	33	30
1 – 3 years	22	20
3 – 5 years	22	20
Above 5 years	26	23.6
Missing	7	6.4
Total	110	100

(Source: Questionnaires)

4.2. Results on Occupational Safety and Health Practices

This section deals with the results related to the occupational safety and health practices at the flower farms with special emphasis on issues such as terms of employment, wages and benefits, practices of safety measures, provision of trainings, provision and use of Personal Protection Equipment (PPE), provision of health and other benefits, availability of facilities including toilet, shower, clean drinking water, medical care (first-aid) and cafeteria.

4.2.1. Employment Conditions

Regarding the terms of employment of the respondents, the majority 51% (57) of the respondents are temporary employees, 32% (36) of the respondents are employed as daily laborers, and the remaining 17%(19) are permanent employees. Asked whether which terms of employment they prefer, during focus group discussions with respondents in three of the seven farms, replied that they preferred temporary or daily laborer terms of employment (to permanent terms of employment) in order to avoid deduction of income taxes from their meager salaries. Others explained the temporary or daily laborer terms of employment gave them freedom as they were fulltime famers. Thus, they could simply terminate the contract without any commitment during farming and harvest seasons. However, this favored the employer in that they might not be obliged to pay extra in form benefits. Besides, the farms could layoff as many workers as possible without any notification or compensation violating employees' rights. Almost all of the respondents were found to be prone for such kinds of violations as they did not receive letter of employment from their employers.

4.2.2. Provision and Use of Personal Protection Equipment (PPE)

The farm workers are highly recommended to use Personal Protection Equipment (PPE) on duty. PPE includes such equipment as overall, respiratory (masks), goggle, face shield, gum boots, gloves, and PVC suit (water proof suit).

4.2.2.1. Provision of Gloves

The provision of one of the most important PPE, gloves, was very poor in most of the farms. It protects workers from thorn bites and chemicals. However, the researcher observed many of the farm workers working either with very old gloves or bare hands. The workers informed the researcher during focus group discussion with three farms that their gloves were worn out because they used them for over one year or even two years. However, asked in the questionnaire if the farms provide them with gloves, 23.6% (26) the respondents replied they strongly disagree, 10% (11) replied disagree, 4.5% (5) replied undecided, 42.7% (47) replied agree, 8.2% (9) replied strongly agree, and 10.9% (12) did not reply. The table below also clearly shows the provision of gloves to farm workers was on average 3.02 and it deviates from the mean by 1.43 (see table 5).

	Scale	Frequency	Percent	Mean	Standard Deviation
The farm provides protective gloves.	Strongly Disagree	26	23.6	3.02	1.43
	Disagree	11	10		
	Undecided	5	4.5		
	Agree	47	42.7		
	Strongly Agree	9	8.2		

(Source: Questionnaire)

4.2.2.2. Provision of Masks

Proper use of Personal Protection Equipment (PPE) on duty minimizes a lot of risk. Masks are one of the PPE used mainly by spray men in flower farms. In this regards, the respondents were asked if the farms provided them with masks. Accordingly, in the questionnaire over 37% (41) of the respondents replied strongly disagree, 2.7% (3) disagree, 3.6% (4) undecided, 13.6% (15) replied agree, 18.2% (20) strongly agree and 24.9% (27) did not reply. The table below also clearly shows the provision of masks to farm workers was on average 2.64 and it deviates from the mean by 1.75 (see table 6).

The spray teams, however, in the flower farms complained that the mask they used were old and malfunctioning. The researcher herself saw malfunctioned masks being used by spray men on duty in two of the flower farms. A spray team supervisor remarked there was a huge negligence and lack of awareness among his spray team. He said most of the spray men did not use their masks on duty. In another occasion, the researcher heard a spray man saying “it (the chemical) is not harmful and it is just like water”. Such lack of enthusiasm to use PPE among the spray men found to be wide spread and it emanated mainly from lack of awareness among the workers. This implies that flower companies were supposed to raise the awareness of their employees through education and trainings on occupational safety and health.

Table 6: Provision of Masks					
	Scale	Frequency	Percent	Mean	Standard Deviation
The farm provides protective masks for chemical sprayers.	Strongly Disagree	41	37	2.64	1.75
	Disagree	3	2.7		
	Undecided	4	3.6		
	Agree	15	13.6		
	Strongly Agree	20	18.2		

(Source: Questionnaire)

4.2.2.3. Provision of Hat and Overall

Another important indication that most of the sample flower farms did not give due attention to their workers' safety and health is the very poor provision of hat and overall. During field trips to the seven farms, in six of the farms the researcher saw spray team members in worn out overall and none of the farms provided hat (head cover). All of the farms never provided worker with overall and gum boots, except for spray men. Many workers complained that they work with their own clothes (refer appendix 8: Photo 1). However, the respondents were asked if the farms provided them with hat and overall, more than half of the respondents i.e. 46.4% (51) answered strongly disagree, 5.5% (6) answered disagree, 6.4% (7) answered not sure, 14.5% (16) answered agree, 10.9% (12) answered strongly agree and 16.3% (18) did not respond (see table 7).

	Scale	Frequency	Percent	Mean	Standard Deviation
The farm provides hat and overall.	Strongly Disagree	51	46.4	2.26	1.57
	Disagree	6	5.5		
	Undecided	7	6.4		
	Agree	16	14.5		
	Strongly Agree	12	10.9		

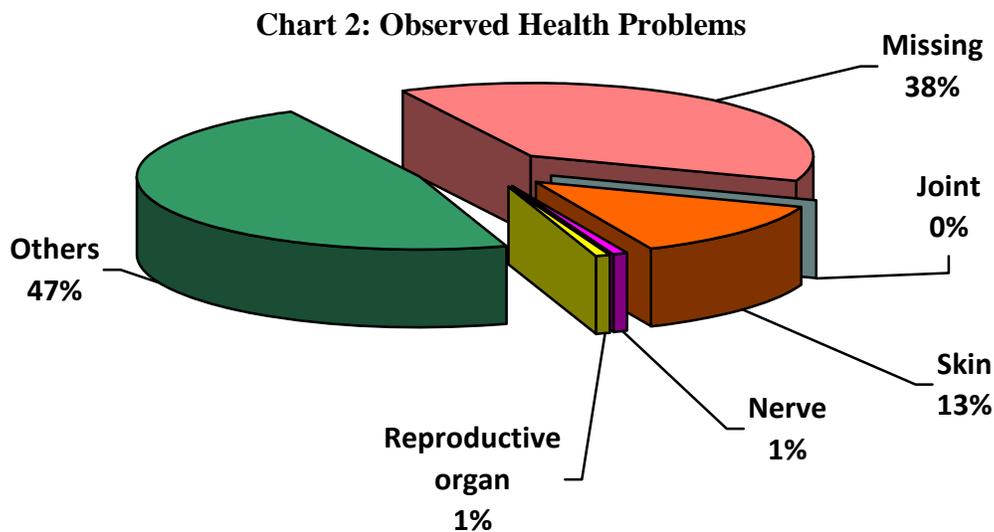
(Source: Questionnaire)

4.2.3. Health Hazards

During focus group discussion, the farm workers were also asked whether they were regularly informed by their supervisors about the possible health risks associated with working with chemicals (fungicides and pesticides) and the importance of taking necessary precautionary measures. The overwhelming majority of the respondents said that they did not have been regularly informed about these issues. The information obtained through interviews with spray team and greenhouse supervisors substantiated the fact that workers had very limited knowledge about the proper use of PPE and the risk involved working with chemicals. They also informed the researcher farm managers ordered the harvester (without any of the PPE) to go inside the

greenhouse while chemical were being sprayed or immediately after chemical spraying finished. The researcher witnessed harvesting of rose in two of the flower farms soon after spraying was completed. These were done to avoid work interruption and save time. In normal circumstances greenhouses should be left empty for some hours and there is entry time for the workers when there is spray taking place until the concentration ease. In some of the sample farms spraying were taking place early in the morning for two reasons. The first was due to the volatility of chemicals and second to avoid risk of exposure to chemical by other greenhouse workers.

In the absence of regular enforcement of proper safety measures, spraying fungicides and pesticides during working hours could cause various fatal and non-fatal illnesses to the workers. To this end, respondents were asked if they have experienced any health problems as a result of exposure to the chemicals. About 47% answered they observed different forms of symptoms of minor illnesses (such as headache, respiratory, puking), 13% of the respondents answered they experienced skin related health problems, 1% replied nerve observed any symptoms, 1% answered reproductive organ related health problems, and the remaining 38% of the respondents did not answer or did not observe any health related problems. Regardless of such life threatening risks farm workers face, the flower companies provided them with very little or no health insurances.



(Source: Questionnaires)

According to the officer at the EHPDA, flower farms should ensure that every spray man took cholinesterase test every three months and general medical check-up every six months. He remarked that they had never done these. It also found out that the spray team members in few of the farms underwent cholinesterase test every three months and some very irregularly. None of the spray men told the researcher that they had general medical check-up. The farms were found to be reluctant to make use of these medical results. For instance, if the cholinesterase exceeded certain levels, the spray men should be relieved from his spraying duty and advised to take more rest. Such practices were very poor among the seven flower farms.

Generally, the provision of health service in all the farms found to be very poor. The respondents were asked whether the farms provided them with health services, 41.8% (46) replied strongly dissatisfied, 17.3% (19) replied dissatisfied, 10.9% (12) replied not sure, 12.7% (14) replied satisfied, and 13.6 % (15) replied strongly satisfied. The table below also clearly shows the provision of health services to farm workers was on average 2.37 and it deviates from the mean by 1.49 (see table 8).

Table 8: Provision of Health Service					
	Scale	Frequency	Percent	Mean	Standard Deviation
To what extent are you satisfied with the health services provided by the farm?	Strongly Dissatisfied	46	41.8	2.37	1.49
	Dissatisfied	19	17.3		
	Neutral	12	10.9		
	Satisfied	14	12.7		
	Strongly Satisfied	15	13.6		

(Source: Questionnaire)

4.2.4. Salaries and Other Benefits

Accordingly, the respondents were asked if the farms have certain type of benefit schemes (such as bonus, soaps, soft, etc.). Therefore, based on the questionnaire over 46.4% (51) of the respondents replied strongly disagree, 10.9% (12) disagree, 15.5% (17) undecided, 15.5% (17) replied agree, 11.8% (13) strongly agree. Based on the analysis of the data, the mean is 2.35 and the standard deviation is 1.48 (see table 9).

	Scale	Frequency	Percent	Mean	Standard Deviation
To what extent are you satisfied with the farm safety benefits apart from your compensation?	Strongly Disagree	51	46.4	2.35	1.48
	Disagree	12	10.9		
	Undecided	17	15.5		
	Agree	17	15.5		
	Strongly Agree	13	11.8		

(Source: Questionnaire)

4.2.5. Education and Training

Education and training are vital components of safe and healthy working environments. However, during the field visit to the seven farms, the researcher observed that most of workers lack awareness regarding issues of occupational safety and health. For instance, most of the spray team members in the flower farms were found to be surprisingly reluctant to use their PPE at work. However, a few were very much concerned about the long term impact of exposure to such hazardous chemicals and hence used their personal skills to prepare their own PPE whereby the farms were unable to provide. In one of the farms, for instance, the researcher met a member of a spray team on duty using his own plastic made water proof suit to minimize the risk of chemical exposure. In another farm, the researcher photographed members of the harvest team hairdressing one another inside a suffocating greenhouse during their lunch break (refer appendix 9: Photo 2).

In the questionnaire distributed for farm managers, five of the farm managers mentioned that the farms gave different trainings on issues related to safety and health, use of chemicals, environmental risk assessment and personal protection equipment in collaboration with Ministry of Labor and Social Affairs (MOLSA) and Ethiopian Horticulture Producer Exporter Association (EHPEA). However, most of the farm workers dismissed this claim saying that either they took a training two or three years ago or they never heard of any training since their employment in the farms. This indicates that trainings are not given on regular basis and it was learnt that the farms arrange trainings when either government regulatory body or certain concerned people visit farms.

The farm manager of Saron Roses Agrofarm Plc explained why they found it difficult to give trainings to their employees saying “the majority of the employees are farmers from neighboring areas and they are seasonal. They want to work only for some months and they quit working here when farming or harvest seasons approaches. Thus, the turnover is very high.”

Accordingly, the awareness of farm workers with regards to chemical in all the farms found to be very poor. The respondents were asked whether the farms provides training related to their work, 44.5% (49) replied strongly disagree, 5.5% (6) replied disagree, 3.6% (4) replied not sure, 14.5% (16) replied agree, and 25.5 % (28) replied strongly agree. Based on the analysis of the data, the mean is 2.69 and the standard deviation is 1.77 (see table 10).

Table 10: Education and Training					
	Scale	Frequency	Percent	Mean	Standard Deviation
The farm provides training related to your work.	Strongly Disagree	49	44.5	2.69	1.77
	Disagree	6	5.5		
	Undecided	4	3.6		
	Agree	16	14.5		
	Strongly Agree	28	25.5		

(Source: Questionnaire)

To assess the level of awareness among the respondents regarding the chemicals, the respondents were asked in the questionnaire whether their job has something to do with chemicals, a significant portion of the respondents i.e. 79.1% (87) said ‘yes’, only 13.6% (15) replied ‘no’, and 5.5% (6) answered do not know (see table 11). This indicated significant portion of the respondents knew that their job exposed them to chemical.

Table 11: Level of Awareness with regards to chemicals			
Does your work has something to do with chemicals?		Frequency	Percentage
	Yes	87	79.1
	No	15	13.6
	I don't know	6	5.5
	Total	110	100

(Source: Questionnaire)

The farm managers were asked to list the type of chemicals used in their farms (see table 12 below). According to the farm manager at Saron Rose Agrofarm Plc, they used chemicals such as Aminogold and Silwet for SPIDER MITES; Methomex, Selectron, and Prove for THRIPS; Impulse, Meltatox, Rubingan, and sulfur for POWDERY MITES; Previcure N, Fostonic, and Goldstar for DOWNY MILDEW. The following list of chemicals found to be used by the farms:

Table 12: Name of Pesticides and Fungicide				
Meltatox	Vivando	Riolomil	Calcium nitrate	Copper sulfate
Neatness	Confidor	Thioketjet	Magnesium nitrate	Magnesium sulfate
Nomolt	Proclaim	Plantoc	MKP	Borav
Tracer	Mancozeb	Postonic	Potassium sulfate	Sodium molbedole
Actara	Silwet	Mites	Magnesium sulfate	Copper sulfate
Impulse	Bavistin	Aminogold	Potassium sulfate	Zinc sulfate
Redomin	Vivando	Iron	Phosphoric acid	Magnesium sulfate

(Source: Questionnaires)

4.2.6. Availability of Facilities

The researcher observed the inaccessible of bath and rest rooms in most of the farms. Most of the respondents, especially the spray team, go home without washing off the pungent stench of extremely dangerous chemicals. Besides, none of the farms provide their farm workers with soap and other necessary hygienic materials. Some farm workers informed the researcher that due to the absence of toilets in the premises of the farms, they were forced to defecate in open fields. The researcher was also informed by some farm workers that they drunk water from the taps, which were constantly showered with different hazardous chemicals, in the green houses. All farm workers have no official coffee or tea break in the morning and afternoon working hours.

The researcher found out four of the seven farms had cafeteria services for the staff where workers could get cafeteria service for affordable price. The researcher used the services of one of these cafeterias. However, the researcher did not see available water to wash hands before entering the cafes, except at one farm.

4.2.7. Organizational Safety and Health Policy

Flower farm workers encountered different instances of accidents while on duty. Some of these accidents include accidentally spilling chemicals onto bodies or eyes, thorn bites and accidentally cutting fingers or hands with scissors. The consequent might be fatal. Some worker told the researcher such instances of accidents where the workers still suffer from the trauma. In the questionnaire, the respondents were asked whether they had instances of such accidents, over 25.5% (28) of the respondents replied 'yes', while the majority i.e. over 74.5% (82) of the respondents replied 'no' (see table 13).

Have you been given any medical attention that they had instances of accidents?	Table 13: Instances of Accidents		
		Frequency	Percentage
	Yes	28	25.5
	No	82	74.5
	Total	110	100

(Source: Questionnaire)

All the farm managers claimed that they had people in charge of occupational safety and health. During discussions with the farm managers, it also was found that five of the farms have health and safety committees which were chaired by a safety and health officer. They also informed the researcher that they had policies pertaining to occupational health and safety. However, asked to what extent the policies were effective, 3 replied to great extent, 3 to some extent and 1 to less extent. The farm manager who replied to less extent ran the best flower farm in every standard compared to the six farms. The managers were also asked to rate to what extent their employees were aware of the occupational safety and health, 5 of the farm managers replied to great extent, 1 to some extent and 1 to less extent. All the farm managers, except one, remarked that they give trainings on safety and health for their employees.

4.3. Discussion

The production of flowers has now become a major part of the Ethiopian economy, but the growing demand for Ethiopian flowers in the European, Far East, Scandinavian and Middle East markets has brought with it increased critique to the social and environmental impacts of the industry. Among the industry's social impacts are health hazards threatening the lives of poor people at the cost of whom the country earns millions of dollars. One of such risky job categories in the flower industry is the task of spraying chemicals onto roses. Despite such life threatening risks, many young men and women who live in the vicinity of flower farms dare to do this job.

The findings of this study revealed some promising facts and many unsatisfactory practices of occupational safety and health among the seven flower farms. The promising findings of this study are the fact that the sector has a huge potential for generating significant amount of USD into the economy and employment opportunities. In this regard, the seven flower farms alone created employment opportunities for over 2129 farm workers; and the overwhelming majority of these employees were found to be young people below the age of 30. This indicates that the sector is exploiting the untapped productive young workforce for unreasonably low wages. Besides, over 40% of the respondents are unmarried and are willing to work for longer hours. Due to the fact that the sector generally offers meager wages for farm workers, the overwhelming majority of the employees are uneducated or unskilled who do not have formal education or below 7th grade.

Based on the level of exposure to chemicals, the researcher categorized the types of work farm workers engaged into Spray & Irrigation, Scout, Greenhouse Supervisor & Harvest, and Packing. In other words, farm workers who work as rose spray are the most exposed to chemicals, while the ones who work in the pack house are relatively exposed the least. Accordingly, most flower farms offer a relatively higher payments to those who work as rose spray. However, the salary such employees receive in exchange of the risky job never justify the long term health problem they would face. Occupational safety and health officers strongly recommend that workers in rose spraying should not work for years continually.

Despite a relative high rate of employee's turnover in some flower farms, the data analysis revealed that a significant number of employees have been working in the farms for over five years. A farm manager also informed the researcher that most of the farm workers in his farm are farmers from neighboring villages. These farmers never work on permanent basis at the farm. As a result, the rate of employee turnover at flower firms is believed be very high. This implies that the sector offers very little to its employees in terms of salary, health and other benefits, and occupational safety and health practice. However, for many who have no any other option, working in the flower farms is a viable option.

Moreover, many of the findings were unsatisfactory with respect to the practices of occupational safety and health in the seven flower farms. For instance, Alli (2008: 17-19) remarked certain principles and the provisions of international labor standards are all designed to achieve a vital objective that work should take place in a safe and healthy environment. In this regard, the finding with regards to the wages and employment benefits of the workers found to be below standards. Such problems coupled with other pushing factors have raised the rate of employee turnover at flower firms. For instance, a quarter of the respondents were new recruit and nearly half of the respondents worked for less than five years (see table 4).

The findings on the working conditions were also worth considering that many of the farm workers worked in the flower farms as temporary employees or daily laborers. The workers were hired without any signed letter of employment. As a result, the farms could lay-off workers with no binding contractual agreements and without giving them any benefits. On the contrary, majority of the farm workers prefer to work as temporary or daily laborer in order to avoid deduction of tax from their skimpy wages. Consequently, the workers have been deprived of their basic rights. For instance, they cannot form unions to claim for their rights in an organized fashion. They cannot also hold discussions on such issues as pay raise, provision of health and other services, provision of PPE, and workloads.

As mentioned in the review of related literature, work related accidents are caused by unsafe employee behaviors and/or unsafe working conditions. The farm managers indicated that they used a range of chemicals including Aminogold and Silwet for SPIDER MITES; Methomex, Selectron, and Prove for THRIPS; Impulse, Meltatox, Rubingan, and sulfur for POWDERY MITES; Previcure N, Fostonic, and Goldstar for DOWNY MILDEW. As precaution, thus, workers in the flower industry believed to be highly recommended to use Personal Protection Equipment (PPE) properly. However, the provision of such equipment as gloves, overall, mask, and gum boots in the flower farms were insignificant. Hence, the workers had to use them until the equipment worn-out.

One of the most commonly used PPE in the flower farms is glove. The analysis of the data obtained through questionnaire revealed that majority of the workers believed the farms provide them with gloves. On the contrary, the researcher observed many of the farm workers working either with very old gloves or bare hands. During focus group discussion, the workers also informed the researcher that their gloves were worn out because they used them for over one year or even two years. Among other things, the rose spray workers should use masks while on duty. According to analysis of the data obtained through the questionnaire, majority of the respondents strongly disagreed with regards to the provision of masks. Similarly, the researcher also observed majority of the spray team in the flower farms use dysfunctional masks that do not have filter (an important component of the mask) the toxic chemicals. The spray team members also constantly complained about their worn-out masks, however, the farms remain silent instead

of complying with their requests. This has caused the workers to be reluctant to use masks. The researcher have also quoted a spray man as saying “it (the chemical) is not harmful and it is just like water”.

As a safety precaution, flower farms workers are also strongly recommended to put on overall, gum boots and hat. The provision of such equipment in the seven flower farms found to be very poor. In this regard, the majority of the respondents strongly dissatisfied with the provision of these equipment. During field trips to the seven farms, in six of the farms the researcher observed spray team members using worn out overall and none of the farms provided hat (head cover). All of the farms never provided worker with overall and gum boots, except for spray men. Many workers complained that they work with their own clothes.

Due to lack of proper provision of PPE in the farms, many workers have been experiencing such simple injuries as thorn bites to severe health problems including skin diseases, sever head ache, puking, loss of appetite, nerve problems, gradual vision impairment and problems with the reproductive organs. In principle, the flower farms supposed to work aggressively on the provisions of PPE and proper use of the equipment to insure the wellbeing of their employees. In addition to the provision of PPE, the farms need to provide its employee with proper health services. For instance, flower farms should make sure that every spray man took cholinesterase test every three months and general medical check-up every six months. But this has been a major problem among all the farms that they do not support and facilitate workers to take such check-ups. If the cholinesterase exceeded certain levels, the spray men should be relieved from his spraying duty and advised to take more rest. Such practices were very poor among the seven flower farms.

Furthermore, spray team supervisor in one of the farms told the researcher that the farm he was working order him to led a team of ten spray men to Addis Ababa for medical examination paying them one day per diem 30 ETB for each. “Imagine we had to pay transport and for the rest with this birr,” he said “only six of the team members managed to go and three of members failed the test. But they are still working as spray men. The check up by itself has no value and why only blood test what about general medical examination”. To reduce the concentration of

the chemicals, initially spray men were served with milk in some flower farms and other farms provide them with money in exchange.

According to the findings of this study, the majority of the workers are strongly dissatisfied with the salary and other benefits schemes of the farms. For instance, the salary of a harvester range from 250 ETB to 400 ETB per month, a spray man from 600 to 800 per month, spray team supervisor over 1000 ETB per month. In all of the seven farms, members of spray team were earning additional 70 ETB to 100 ETB to buy milk to counter the inhaled chemicals. However, the development and technology transfer officer at the agency strongly condemned that farms should not give the money in exchange for the milk. The task of rose spray is done only by male. The female farm workers are strictly forbidden to work rose spraying for health and safety concerns. According to the spray men in the seven farms, initially the farms used to serve them milk, however when the price soars, the farms decided to pay the money in exchange of the milk. All of the spray team in the farms complained that the amount is too small that it cannot buy a glass of milk throughout the month. Due to inaccessibility of transportation to the farms, almost all flower farms provide transportation to their employees.

Not only the workers, but also all the farms were negligent on issues of occupational safety and health. The findings of the study also indicated many of the workers did not get any induction at the initial stages of their employment and any other training related to occupational safety and health at work. In order to avoid any form of occupational safety and health hazards, flower farms should have an education and training package. This could include the nature of their work, the type of chemicals used in the farms, proper utilization of PPE and occupational safety and health. It was also noted that the farms could change the working behaviors of their employees through intensive trainings on safety and health thereby raising their awareness, and bring about personal development of their workers. This in turn could benefit the flower companies by soaring productivity of their employees and thereby reducing farm's health expenses. It would also benefit the employees that they get personal developments which foster them for better salaries. The principle of occupational safety and health has remarked that workers and employers must be made aware of the importance of establishing safe working procedures and of how to do so.

In addition to scarce provisions of such PPE for workers, the reluctance among the workers to use PPE properly was also found to be another problem of awareness. Surprisingly, however, large number of workers thought that working in the farms without proper use of PPE had no immediate health hazards, illustrating that workers underestimated the safety and health hazards associated.

Another interesting aspect of the finding was that nearly all of the farms did not have bath rooms near the greenhouses where workers supposed to stay day in and day out. Most of the respondents, especially the spray team, go home without washing off the pungent stench of extremely dangerous chemicals. Quandt et al. (2006) remarks as quoted in Arcury et al (2009) farm worker families also experience para-occupational exposure due to pesticides brought home from work on the skin, clothes, and boots of workers and to pesticides that drift into their homes from application in nearby agricultural fields.

On the other hand, all of the farms do not give soap and other necessary hygienic materials to their workers. According to some of the workers in the farms, they defecate in open fields due to the absence of toilets in the premises of the farms. It was also noted that farm workers that they drunk water from the taps, which were constantly showered with different hazardous chemicals, in the green houses. Three of the farms did not have cafeterias where workers could have services with affordable prices.

With regards to occupational safety and health policies, it was indicated that occupational safety and health policies needed to be established, implemented at both the national (governmental) and organizational levels. All the farms claimed that they had occupational safety and health officers and policies pertaining to occupational health and safety. However, many of the respondents 45% (49) (see table 10) replied that they had never received any form of training related to occupational safety and health.

The workers in the flower farms were required to know about occupational safety and health issues and the safety procedures and precautions in the flower industry. As a result, it would have been possible to save the country from the social and environmental catastrophe created by the industry in the years to come. However, in most of the sample farms, workers did not seem to be aware of the importance of occupational safety and health matters (e.g. how to minimize accidents at the farm level) and trainings on occupational safety and health issues were not given to workers. Besides, all of the flower farms did not seem to have functional safety and health committees that would ensure the safety and health of workers in collaboration with the management.

Chapter Five: Conclusion and Recommendation

This study has dealt with examination of Occupational Safety and Health Practices in the Ethiopian Floriculture. It mainly examined the occupational safety and health practices in sample seven rose growing farms. In order to achieve the objectives, the study employed different methods of data gathering including questionnaires, interview, and focus group discussions. It also used secondary sources of relevant data. The data obtained through questionnaires were organized and analyzed using SPSS while the qualitative data has been analyzed and interpreted by focusing on thematic issues. The following concluding remarks were drawn based on the findings of this study.

5.1. Conclusion

The results in this study indicated that the sector offered job opportunities for young people and the majority of the respondents were below the age of 30, who either completed primarily school or dropped out of secondary school. It was found out that many of them worked in the flower farms with a temporary or laborer terms of employment. As a result, the workers enjoy no job security (which could end up with arbitrary dismissal or suspension from work) and right for occupational safety and health. Even workers would have no option to negotiate on the overtime payments except receiving overtime payments as low as 2 Birr per hour. Besides working in the most risky jobs in unpleasant working conditions, they earn unreasonably low wages as low as 250 ETB per month. In most cases, the employers recruit workers not on the basis of an employment contract which is legally binding. Absence of legally binding contractual agreements give rooms for employers to exploit their recruits thereby incapacitating worker to defend their rights through workers union and committee.

In this regard, the farms were found to be performing below standards, set by EHPEA Code of Practice for Sustainable Flower Production (2011), concerning the occupation safety and health of their employees. For instance, the provision of the necessary Personal Protection Equipment (PPE) in all of the surveyed flower farms found to be below the expected standards. The consequence of such reluctance to maintain basic safety and health standards on the side of the flower farms put the lives of many poor flower at risk.

According to the minimum requirements set by EHPEA, all farms engaged in flower growing should make sure that farm workers involved in handling pesticides must have appropriate Personnel Protection Equipment (PPE). It further emphasizes that for spraying in greenhouses, workers should be equipped with boots, overall long wrap round apron (spray suit), respirator (mask), gloves and goggles (face shield). All of the seven farms ranked bronze level, meeting the minimum requirements, by the EHPEA CoP. Despite this fact, this study did not find the farms adequately qualifying the minimum standards regarding the provision of PPE. For instance, the researcher did not see properly functioning respirator (masks) during field visits.

Consequently, health related problems are prevalent among many workers in the flower farms and workers are prone to various health hazards. The workers commonly witnessed symptoms of such diseases as sever head ache, puking, loss of appetite, skin disease, nerve problems, gradual vision impairment and problems related to the reproductive organs. The farms have made little efforts to alleviate such problems and this has exacerbated the problem. Moreover, the EHPEA CoP stresses a quarterly blood test for cholinesterase activity must be carried out and if the cholinesterase tests of workers indicates greater than 30% depression of activity, the staff member must be transferred to work not involving pesticide use. However, most of the farms do not facilitate the medical check-up on regular basis and they do not transfer workers to works not involving chemical exposure where the test results exceed the limit.

Basically, all new farm employees should be given basic induction and orientation on relevant topics, including relevant safe working practices, relevant farm procedures, farm facilities and tasks to be performed, OSH procedures, and health and hygiene. In addition to this, the CoP standard requires employers to provide specific formal training for farm safety officers, farm safety committee members, environment officers, pesticide store keeper, spray team members, and spray team supervisor. However, examination of the farms' education and training practices revealed that the farms have done very little in this regard.

Despite provision of free transportation and very limited health services, the provision of other things such as toilet facilities, clean drinking water, shower rooms, and first aid facilities were found to be negligible in most of the farms. In this regard, the CoP requires the farms to provide employees with appropriate toilet, shower and hand washing facilities. In addition, flower farms

are also required to facilitate coffee/tea break during the working day. Even though all the seven farms were ranked Bronze level, the provisions of such facilities in the farms found to be insufficient.

To ensure the occupational safety and health of employees, employer should develop, document and implement OSH policies based on CoP standards. The standard also demands that OSH policy and procedure should also be placed for identification and handling of OSH risks. Despite the fact that four of the flower developed OSH policy for their respective farms, none of them have been able to put in practice the policies. Due to lack of proper implementation of such documents, the flower farms seem to focus on increasing their production and profit at the expense of the lives of poor young Ethiopians. Besides, all of the farms do not have functional committees that meet regularly to mitigate OSH risks. Regarding re-entry time after spraying, only one farm posted notice that prohibits entering greenhouses that are being sprayed or immediately after spraying carried out.

Above all, the fact that many workers did not receive the appropriate training related to their jobs together with lack of management's support for personal and human development were found to be major constraints for workers to effectively perform their job. On the other hand, the inefficient provision or absence of PPE, constant exposure of employees to hazardous chemicals and absence of safety measures would eventually bring unbearable health problems to workers and irretrievable environmental catastrophe to the country. This indicated that the managements of the farms were unwilling to regularly monitor worker's safety and health, nor they were concerned to improve their occupation safety and health through education and trainings. Many of the workers in the flower farms experienced different forms of health problems due to very poor occupational safety and health records. As a result, many workers did not follow safety instructions all the time and the necessary precautionary measures required to take on duty. The workers did not regularly use PPE and in most cases the provision of these PPE found to be extremely poor.

5.2. Recommendation

To improve the occupational safety and health of the workers at the seven flower farms and national level, the following recommendations were forwarded:

- The farms should establish functional occupational health and safety committee;
- The farms should ensure adequate provision of PPE for farm workers regularly;
- The farms should provide milk instead of money to the spray team;
- The concerned government body should initiate forum where stakeholders regularly discuss on issues of occupational safety and health at national and organizational level whereby it alleviate the social and environmental challenges emanating from the sector;
- Flower farms and concerned government bodies need to ensure the protection of workers' rights;
- Flower farms and concerned government bodies should work towards establishing conducive working conditions and working environment for workers;
- The farms should provide occupational health and safety trainings to workers on regular basis;
- The government and farms need to organize awareness-raising programs for workers about their basic rights in the workplace and about principles of human rights; and
- The farms should also strive to develop and implement their respective OSH policies that could ensure the safety and health of workers.

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Appendix

Appendix 1: Questionnaires for Farm Managers

St. Mary's University College

School of Graduate Studies

MBA Program

Questionnaire to be filled by Farm Managers

This questionnaire is designed to gather relevant information for a research entitle 'Examining Occupational Safety and Health in Ethiopian Floriculture Sub-sector' as partial fulfillment for the requirements of an MBA degree. I kindly requests you to fill-in this questionnaire and provide the information that may be further required. I would also like to note that the information you provided will be confidential and used only for the purpose specified.

I would like to thank you for your cooperation in Advance.

Direction: Read the following questions carefully and put a tick mark (✓) in the box that best fits your response and provide short answers to the other questions.

Part I: General Information

1.1 Farm Name _____

1.2 Region or Zone _____

1.3 Total Number of Farm Workers _____

1.3.1. Female _____

1.3.2. Male _____

1.4 Total Area Covered by Green Houses _____

1.4.1. How many workers are working in the Green House _____

1.4.2. Type of chemicals or pesticides used in the Green House

1.5 Total Area Covered by Open fields _____

1.5.1. How many workers are working in open fields _____

1.5.2. Type of chemicals or pesticides used in the open fields

1.6 Type of flowers produced in your farm (List their name)

Part II: Specific Information

2.1 Is there a policy in place pertaining to occupational health and safety in your farm?

- a. Yes
- b. No
- c. I Don't Know

2.2 If your answer for number 2.1 is "yes", to what extent is the policy effective?

- a. Very great extent
- b. Great extent
- c. Some extent
- d. Less extent
- e. Very less extent

2.3 Do you understand the legislation that governs health and safety?

- a. Yes
- b. No
- c. I Don't Know

2.4 Are there people who have been placed in charge of occupational health and safety of your employees?

- a. Yes
- b. No
- c. I Don't Know

2.5. To what extent are employees aware of the occupational health and safety requirements?

- a. Very great extent
- b. Great extent
- c. Some extent
- d. Less extent
- e. Very less extent

2.6. Are employees actively involved in matters concerning occupational health and safety?

- a. Yes
- b. No
- c. I Don't Know

2.7. Are employees well informed about the standards of occupational health and safety practices?

- a. Yes
- b. No
- c. I Don't Know

2.8. To what extent is the health and safety concept promoted?

- a. Very great extent
- b. Great extent
- c. Some extent
- d. Less extent
- e. Very less extent

2.9. Do you provide health and safety training for all staff, including temporary staff?

- a. Yes
- b. No
- c. I Don't Know

2.10. If yes, please specify the type(s) of trainings you provide for your employees.

Part III. General Information

3.1 What health and safety challenges /risks/ does your farm face?

3.2 If you have any further comments to make or wish to provide additional information, please give the details below:

Annex 2- Questionnaire for Farm Workers (English Version)

St. Mary's University College

School of Graduate Studies

MBA Program

Questionnaire to be completed by Farm workers

This questionnaire is designed to gather relevant information for a research entitled 'Examining Occupational Safety and Health in Ethiopian Floriculture Sub-sector' as partial fulfillment for the requirements of an MBA degree. I kindly requests you to fill-in this questionnaire and provide the information that may be further required. I would also like to note that the information you provided will be confidential and used only for the purpose specified.

I would like to thank you for your cooperation in advance.

Direction: Read the following questions carefully and put a tick mark (✓) in the box that best fits your response and provide short answers to the other questions.

Part I: General Information

1.1. Sex

Male

Female

1.2. Age

a. < 20

b. 21-25

c. 26-30

d. 31-40

e. 41- 50

f. > 50

1.3 Marital status

A) Single

C) Divorced

B) Married

D) Widowed

1.4 Residence (City/Region/Zone) _____

1.5 Educational Status

A) Degree and Above

B) Diploma

C) 8 – 12

D) 1 -7

E) < 1

1.6 Type of Work

1.7 Years of Service

1.8 If you are working as a permanent employee, how much do you earn as a monthly salary?

1.9 If you are working as a daily laborer, how much do you get per day?

Part II: Specific Information

2.1 How many hours do you stay at work every day?

- a. 8 hr
- b. ½ day
- c. >8 hr

2.2 If you are working over eight hours, do you receive extra payments for the extra hours?

- a. Yes
- b. No
- c. I Don't Know

2.3 Does your work has something to do with chemicals?

- a. Yes
- b. No
- c. I Don't Know

2.4 If yes, specify the types of chemicals you are working with?

2.5 The farm provides protective gloves.

- a. Strongly disagree
- b. Disagree
- c. Undecided
- d. Agree
- e. Strongly agree

2.6 The farm provides protective masks for chemical sprayers.

- a. Strongly agree
- b. Agree
- c. Undecided
- d. Disagree
- e. Strongly disagree

2.7 The farm provides hats.

- a. Strongly disagree
- b. Disagree
- c. Undecided
- d. Agree
- e. Strongly agree

2.8 The farm provides training related to your work.

- a. Strongly disagree
- b. Disagree
- c. Undecided
- d. Agree
- e. Strongly agree

2.9 To what extent are you satisfied with the health services provided by the farm?

- a. Very dissatisfied
- b. Dissatisfied
- c. Neutral
- d. Satisfied
- e. Very satisfied

2.10 To what extent are you satisfied with the farm health and safety benefits apart from your compensation?

- a. Very satisfied
- b. Satisfied
- c. Neutral
- d. Dissatisfied
- e. Very dissatisfied

2.11 Have you been given any medical attention for the conditions?

- a. Yes
- b. No

2.12 Are you facing any health related problems now?

- a. Yes
- b. No

2.13 If yes, what kind of diseases are you suffering?

- a. Joints pain
- b. Skin diseases
- c. Nerve diseases
- d. Reproduction diseases
- e. If other (specify) _____

Part III. General Information

3.1. If you have any further comments to make or wish to provide additional information,
Please give the details below:

Appendix 3: Questionnaire for Farm Workers (Amharic Version)

ቅድስት ማርያም ዩኒቨርሲቲ ኮሌጅ

የድህረ ምረቃ ጥናት ት/ቤት

ኤምቢኤ መርሃ ግብር

በአበባ ርሻ ሰራተኞች የሚሞላ መጠይቅ

ይህ መጠይቅ በኢትዮጵያ በሚገኙ የአበባ ርሻ የሰራተኞች የስራ ደህንነት ና ጤንነትን ለመገምገም ለሁለተኛ ዲግሪ ማሟያ ጥናት አስፈላጊ መረጃ ለመሰብሰብ የተዘጋጀ ነው። ስለዚህ መጠይቁን ንዲሞሱ በትኩረትና የጠየኩ የሚሰጡት ማንኛውም መረጃ በሚስጢር የሚያዝ ና ለተጠቀሰው አገልግሎት ብቻ የሚውል መሆኑን ማረጋገጥ ወዳለሁ።

መጠይቁን ለመሙላት ላደረጉት ትብብር ከልብ አመሠግናለሁ።

መመሪያ:- የሚከተሉትን ጥያቄዎች በጥሞና ካነበቡ በኋላ የህን ምልክት (✓) ለርሶ በሚስማማዎ መልስ ትይዩ በሚገኘው ሳጥን ውስጥ በማስቀመጥ ንዲሁም አጠር ያለ ማብራሪያ ለሚፈልጉት ጥያቄዎች አጠር ያለ ሐሳቦን በጽሑፍ ይግለጹ።

ክፍል አንድ:- አጠቃላይ መረጃዎች

1.1.ፆ

ወንድ

ሴት

1.2. ድሜ

ሀ. < 20

ለ. 21-25

ሐ. 26-30

መ. 31-40

ሠ. 41- 50

ረ. > 50

1.3. የጋብቻ ሁኔ

ሀ. ያገባ

ለ. ያላገባ

ሐ. ፈት

መ. መበልት

1.4. የመኖሪያ አድራሻ (ከተማ/ዞን)

1.5. የትምህርት ደረጃ

ሀ. የመጀመሪያ ዲግሪ ና ከዚያ በላይ

ለ. ዲፕሎማ

ሐ. 8ኛ - 12ኛ ክፍል

መ. 1ኛ - 7ኛ ክፍል

ሠ. < 1ኛ ክፍል

1.6. የስራ አይነት

1.7. የአገልግሎት ዘመን

1.8. ቋሚ ሠራተኛ ከሆኑ ወርሃዊ ደመወዘ ምን ያህል ንደሆነ ቢገልጹ

1.9. ጊዜያዊ ሠራተኛ ከሆኑ በቀን ወይም በወር ምን ያህል ንደሚያገኙ ቢገልጹ

ክፍል ሁለት

2.1. ምን ያህል ሰዓት በስራ ላይ ይቆያሉ?

ሀ. 8 ሰዓት

ለ. ግማሽ ቀን

ሐ. >8 ሰዓት

መ. የተለየ ከሆነ ይግለጹ _____

2.2. ከ 8 ሰዓት በላይ ስራ ላይ የሚቆዩ ከሆነ የትርፍ ሰዓት ክፍያ ያገኛሉ?

ሀ. አገኛለሁ

ለ. አላገኛም

ሐ. አላውቅም

2.3. የሚሰሩት ስራ መርዝነት ካላቸው ንጥረ ነገሮች /ኬሚካሎች/ ጋር ተያያዥነት አለው?

ሀ. አለው

ለ. የለውም

ሐ. አላውቅም

2.4. መልሶ “አለው” ከሆነ ከምን ዓይነት አደገኛ ንጥረ ነገሮች/ኬሚካሎች/ ንደሆኑ ቢጠቅሱ

2.5. ነዚህ አደገኛ ንጥረ ነገሮች አደጋ ንዳያደርሱ ለመከላከያ የ ጅ ጓዋንት ከድርጅቱ

ይቀርብሎ ል?

ሀ. በጭራሽ አይቀርብም

ለ. አይቀርብም

ሐ. ለመወሰን ቸገራለሁ

መ. ይቀርብልኛል

ሠ. በበቂ ይቀርብልኛል

2.6. ከሚካል /አደገኛ ንጥረ ነገሮችን/ በምረጫው ወቅት ድርጅቱ ከአንገት በላይ መሸፈኛ

ጭንብል ያቀርባል

- ሀ. በጭራሽ አልስማማም
- ለ. አልስማማም
- ሐ. ለመወሰን ቸገራለሁ
- መ. ስማማለሁ
- ሠ. በጣም ስማማለሁ

2.7. ድርጅቱ የመከላከያ ኮፍያ ና ቱ በበቂ ሁኔ ያቀርባል

- ሀ. በጭራሽ አልስማማም
- ለ. አልስማማም
- ሐ. ለመወሰን ቸገራለሁ
- መ. ስማማለሁ
- ሠ. በጣም ስማማለሁ

2.8. ከስራዬ ጋር ተያያዥነት ያላቸውን ስልጠና ድርጅቱ ይሰጠኛል

- ሀ. በጭራሽ አልስማማም
- ለ. አልስማማም
- ሐ. ለመወሰን ቸገራለሁ
- መ. ስማማለሁ
- ሠ. በጣም ስማማለሁ

2.9. ከድርጅቱ በሚያገኙት የጤና አገልግሎት ምን ያህል ደስተኛ ነዋት?

- ሀ. በጣም ደስተኛ አይደለሁም
- ለ. ደስተኛ አይደለሁም
- ሐ. ለመወሰን ቸገራለሁ
- መ. ደስተኛ ነኝ
- ሠ. በጣም ደስተኛ ነኝ

2.10. ከድርጅቱ በሚያገኙት የጤና ና ደህንነት ጥቅማጥቅም ንዲሁም ካላ ምን ያህል ደስተኛ ነዎት?

ሀ. በጣም ደስተኛ አይደለሁም

ለ. ደስተኛ አይደለሁም

ሐ. ለመወሰን ቸገራለሁ

መ. ደስተኛ ነኝ

ሠ. በጣም ደስተኛ ነኝ

2.11. ከአደገኛ ንጥረ ነገሮች /ኬሚካሎች/ ጋር በተያያዘ አደጋ ደርሶብት የሕክምና ድጋፍ ተደርጎሎብት ያውቃል?

ሀ. አዎ

ለ. አይ

2.12. በተራ ቁጥር 2.11 መልስዎ “አዎ” ከሆነ ያስከተሉበዎት ሕመም ምን ምን አይነት ነበር? ከአንድ በላይ ምልክት ማድረግ ይችላሉ

ሀ. የመገጣጠሚያ ህመም

ለ. የቆዳ ህመም

ሐ. የነርቭ ህመም

መ. የመራቢያ ብልቶች ህመም

ሠ. ሌላ ካለ ቢገልፁ _____

ክፍል ሦስት

3.1. መግለፅ የሚፈልጉት ተጨማሪ አስተያየት ወይም ተጨማሪ መረጃ ካልዎት በፅሁፍ ይግለፁ።

Appendix 4: Interview Guide Questions for Flower Farm Manager

- 1) Name
- 2) Level of education
- 3) How long have you been working in the farm?
- 4) What are your responsibilities as a farm manager?
- 5) How do you describe the working conditions of farm workers in your farm?
- 6) Can you describe the occupational safety and health practice in the farm?
- 7) Do you believe the work environment is safe for the workers' health?
- 8) What kinds of work related accidents do farm workers usually experience?
- 9) Do your employees know the side effects of the chemicals you use?
- 10) What have you done to improve the working conditions (safety and health) of your farm workers?
- 11) Are precautionary measures of proper application of instructions put in practice all the time?
- 12) Are there proper mechanisms of chemical waste disposal system?
- 13) How close is the management with the farm workers?

Appendix 5: Interview Guide Questions for Flower Farm workers

- 1) Name
- 2) Level of education
- 3) How long have you been working in the farm?
- 4) What are your responsibilities in the farm?
- 5) Did you work in another farm(s)?
- 6) How do you describe the working conditions in this farm?
- 7) Can you describe the occupational safety and health practice in the farm?
- 8) Do you believe the work environment is safe for your health?
- 9) Have you experienced problems related to your health and safety while working in this farm?
- 10) Did the farm give you any education/trainings at the initial of your employment or afterwards?
- 11) Do you know the side effects of exposure to chemicals?
- 12) How often you get cholinesterase or general health check-ups regularly?

Appendix 6: Interview Guide Questions for Development and Technology Officer at EHDA

- 1) Name
- 2) Level of education
- 3) What is your responsibility in the Ethiopian Horticulture Development Agency?
- 4) How do you describe the relations between the flower farms and EHDA?
- 5) Can you describe the occupational safety and health practice in flower farm in Ethiopia?
- 6) Do you think the work environment is safe for worker's health?
- 7) What do you do to ensure the occupational safety and health of worker in the flower industry be up to international standards?

Appendix 7: Observation Checklist

- 1) Name of flower farm
- 2) Date and Time
- 3) Location of the flower farm
- 4) Overall setting of the flower farm
- 5) Use of personal protective equipment by farm workers
- 6) The practice of safety measures in the farms
- 7) Working conditions
- 8) Availability of cafeteria, bathe room (rest room), clean water, and others

Appendix 8: Photo 1- A Farm Worker Harvesting rose flower



Appendix 9: Photo 2- Workers Braiding-hair in a Suffocating Greenhouse during their Lunch Break

