

Where Are Your Flowers From?

A view at the effects of the Cut Flower Industry in Colombia and Ecuador and an effort to create awareness of the negative impacts to its consumers.

Tag Words: Flower Industry; pesticides; health; environment.

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Summary

Flowers are widely distributed throughout the world and are one of the most unsustainable exporting product. Understanding the way the cut-flower industry works and what can be done to prevent from consuming a harmful product can help consumers make purchases more intellectually. Discussed are the background of the cut-flower industry in South America, the negative impact on health and environment, the regulations and policies surrounding the flower industry, information on pesticides used, and the forms of violations committed to worker's rights by the industry. An optional solution will also be discussed, involving the use of web search engines to promote the consumption of sustainable flowers.

Video Link:

Introduction (EB)

Flowers are one of nature's most beautiful creations, they are used as tokens to represent peace, love, appreciation and friendship. In New Jersey, flowers can be found throughout the year at supermarkets, airport kiosks, florist shops and even local pharmacies, they are so common that they are seen as a simple yet charming commodity. They are small and simple but they embody many sentiments that may not always be expressed with just words, they are a symbol of unity and affection. Today, flowers are seen as a product that can be used to bring joy to all kinds of occasions, whether it's Mother's day, Valentine's day, a birthday, or a graduation ceremony, they are used for one main purpose, to demonstrate the appreciation that one individual holds for another. However, even though they symbolize beauty and delicacy, the majority of the flowers in the United States hide a dark truth behind their petals. The journey taken starting from the flower farms in South American countries like Colombia and Ecuador to the United States, is filled with bumps that leave behind environmental, health, and worker exploitation impacts.

Cut Flowers in South America (CM)

The economy and science have taken something as beautiful as flowers and turned it into a business. Currently, many countries in South America and Central America export large amounts of flowers based on exterior demands. Among these countries are Colombia, Ecuador, Chile, and Mexico. These flowers are chemically modified to fit the demands of transportation across the globe and for consumption during annual global events. The use of many chemicals in this industry has brought attention to the possible side effects involved in the growth of these flowers.

Research and investigations have identified that the use of heavy chemicals has had an effect on not only the land in which these flowers are grown, but also in the surrounding environment and the people who work and reside near these industrial farm lands.

The Cut Flower Industry (CM)

The Flower Industry is currently one of South America's growing industries. A flower, naturally grown in fields, has become one of the most reproduced living things for global consumption. Whether used in funerals, holidays, or simply as a visual decoration in a regular home, the demand for flowers is on a constant increase. Such opportunity has guided South American countries, such as Colombia, to invest in the industry, thus becoming the second largest source of flower exports with a \$600 million annual export revenue (1).

Today, cut flowers are Colombia's leading nontraditional export and the fourth largest earning export after coffee, petroleum, and bananas (2). However, Colombia is not the only South American country involved in this industry. Neighboring countries, such as Ecuador and Chile, have joined the investment on this growing nontraditional export. Flowers, being part of the global market, are also grown in countries like Kenya, creating more competition to meet the demands of cheaper flowers (3).

Health Impact of the Cut Flower Industry (CM)

The flower industry at first glance appears to be one of the greatest investments. How harmful can a flower be? Even if it's hard to believe, the flower industry has resulted in several negative health impacts. Though the appearance of a flower may not seem harmful, the way in which it is cultivated does not necessarily support the visual. Flowers are grown to meet demands, just like any other product that is imported and exported globally. In order to meet such demands, pesticides are used to provide the quality and expectations of this product. In Chile, 1997, 108-110 cases of acute poisoning were reported by female workers of the flower industry (4). Exposure to pesticides used in production can have negative side effects on the women and men who make up the workforce of the flower industry, with no surprise poisoning being one of them.

Working conditions as well as demands from the employers are detrimental to the women and men who serve the industry. In Bogota, Colombia, 1997, an ill female worker of the flower industry, Carmen Orjuela, alleged to being verbally threatened to lose her job unless she complied with her employer's demand to enter a greenhouse only half-hour after the greenhouse had been fumigated. Her allegations did not only accuse her employer of negligence but also the disregard of Florverde's recommendation to wait a 24 hour period before re-entering a greenhouse sprayed with toxic pesticides. Her employer, Flores de la Sabana, denied the accusations but a toxicology study from Colombia's National University confirmed that Orjuela's illness was directly related to the exposure to potentially toxic chemical substances (5).

The use of toxic chemicals in the production of flowers has had a great impact on the health of the workforce. The lack of proper regulations and immoderate use of this chemicals have

resulted a call for attention. In 1981, a survey of almost 9,000 flower workers by scientists from Colombia, France and Britain found that the flower-cut industry employers had exposed the workers to as many as 127 different chemicals, mostly fungicides and pesticides (3). Even though awareness of the quantity of toxic chemicals being used has surfaced, they are still used and continue to harm the health of the workers. Nearly two-thirds of the Colombian workers suffer from headaches, nausea, rashes, asthma, and other symptoms of pesticide-related illnesses (6).

These situations are constantly documented throughout the growth of the industry, yet they continue to be disregarded. On November 25 of 2003, around 200 employees of Flores Aposentos were taken to the hospital after fainting and developing sores inside their mouths. After authorities determined that the mass- poisoning was most likely caused by the unknown number of pesticide-handling violations by the employer, the company was fined with 5,770 US dollars (5). This was a small price to pay since the industry continues to exercise the same working conditions. The companies continue to use toxic chemicals and violate the safety regulations. Instead of reconsidering their actions and seeking new methods, they continue to work with the same toxics and slowly spreading the negative effects onto the families of the unfortunate workers.

It is concerning as health issues begin to arise in the families of the industries workers. In Colombia, mothering female flower cut industry workers experience high risks of infantile haemangioma, abortions, and premature childbirth as a result of exposure (4). The exposure to toxic chemicals not only affects the female workers of these cut-flower companies, but also the children they give birth to. In a flower-growing region of Ecuador, Harvard School of Public Health examined 72 children ages seven to eight of mothers who were exposed to pesticides during pregnancy and found the children had developmental delays of up to four years based on aptitude tests (5). The chemicals that affected the mothers of these children are now affecting these children in their capacities and thus affecting not only their health but their future as well.

Regulations for plant and plant products entering the United States, according to the United States Department of Agriculture (EB)

Plants and plant products entering the United States must adhere to the regulations covered under the Plant Protection Act. The Plant Protection and Quarantine program was established in order to protect agriculture and the environment from pests that could potentially cause a threat by damaging crops and spreading diseases. Plant Inspection Stations are used to inspect imported plants and seeds to make sure that they do not carry pests or diseases that can harm agriculture and natural resources. The following table, one of four, was obtained from the manual of import of plants by the United States Department of Agriculture, the table demonstrates the pest risk level of Cut Flowers from different countries.

Cut flowers are:	Country of origin:	Pest risk level:
Alstroemeria (Peruvian lily)	Africa	High
	Asia	High
	Australia	High

	Ecuador	Low
	Europe	High
Amaryllis (belladonna)	Netherlands	Low
	South Africa	Low
Anemone (windflower)	Israel	Low
	Netherlands	High
Anthurium (tailflower)	Colombia	Low
	Costa Rica	Low
	Jamaica	Low
	Netherlands	Low
Antirrhinum (snapdragon)	Argentina	High
	Colombia	Low
Aster (aster)	Colombia	High
	Costa Rica	Low
	Dominican Republic	Low
Berzelia	Netherlands	High
	South Africa	High
Brodiaea (Spring starflower)	Netherlands	Low
Brunia	Netherlands	High
	South Africa	High
Chamaelaucium (waxflower)	Israel	High
Chrysanthemum (mum)	Africa	High
	Argentina	High
	Colombia	High
	Chile	High
	Dominican Republic	Low
	Ecuador	High
	Europe	High
Crocsmia (autumn gold, garden montbretia)		
	All countries	High
Cymbidium	Netherlands	Low
Cytisus (scotch broom)	Italy	High

It's very important for the United States Department of Agriculture to inspect cut flowers for insects and other pests, since they pose a significant threat by damaging crops and increasing the chances of spreading diseases. As mentioned above, numerous fungicides and pesticides are used for pest control and although they are effective in eliminating pests, this comes at a high cost. Colombia's National Institute of Health suggested in a study in 1990, that pregnant Colombian flower workers exposed to pesticides might have higher rates of miscarriages, premature births and babies with congenital defects (3). In addition, although flowers are inspected to make sure they do not carry pests, cut flowers are not inspected for chemical residues because they are not an edible crop (7). Therefore, whatever chemicals used during the cultivation of such flowers

may still reside within the flowers by the time they make it to consumers all over the United States.

Environmental Impact (EB)

In addition to the health impacts experienced by the workers employed by the flower industry, there are also environmental impacts resulting from the required practices in the cultivation of cut flowers. One important requirement is water, and as reported by a study of the Kenyan flower industry by the University of Twente in the Netherlands, just one rose needs up to three gallons of water (3). Impacts caused by the overuse of fresh water can be seen in cases like the ones occurring in Bogotá, Colombia where more than 5,000 wells have been drilled on the savanna in order to provide fresh water for Colombia's flower industry, a study later revealed that streams and wetlands were disappearing (3).

Other impacts may be caused by the increasing concentrations of persistent fertilizers used in the cultivation of flowers, such as organochlorines. Organochlorine pesticides are known for their persistency and slow breakdown in the environment, and the United States has banned many including DDT, aldrin and dieldrin, however these are still used in many other parts of the world. For instance, Sandra Gomez-Arroyo, a biologist at the Center for Atmospheric Sciences at the National Autonomous University of Mexico, found that flower greenhouses in Morelos State, Mexico, applied 36 different chemicals, including the persistent organochlorines DDT, aldrin, and dieldrin (7).

Other environmental impacts are caused by the means of transportation necessary for the flowers to reach their ending market. In their book, *The Game of the Rose: The Third World in the Global Flower Trade*, Niala Maharaj and Gaston Dorren explain that "Flying 44 tons [of flowers] from southern Africa to western Europe consumes 60 tons of jet fuel. Adding the energy consumption of trucking the flowers from the farm to the airport and from the airport to the customer, it is safe to say that a vase holding a bunch of ten imported flowers... contains well over half a liter of oil." (8). The transportation of cut flowers to New Jersey, more than 2,400 miles away from Bogotá, Colombia, would also require extensive amounts of fuel to ship the flowers from their farms in South America to supermarkets and shops on this side of the United States.

Pesticides Used in the Cut Flower Industry and Related Risks (CM)

A variety of pesticides are used in great quantity in the cut-flower industry without giving much thought to the negative aspects of these chemicals. In 1995, the report, "Bittersweet Harvest for Global Supermarkets" stated that the World Resources Institute found that Ecuadorian producers of roses and carnations use an average of six fungicides, four insecticides, and several herbicides. The situation in Colombia is not better, with workers of the flower industry's companies near Bogota being exposed to 127 types of pesticides (6). The problem with the quantity used mainly relies on what chemicals are being used.

The situation was once similar in the United State when California flower growers used to apply around 800,000 pounds of pesticides annually (6). As mentioned before, the identity of these

chemicals are also the issue. Even though methyl bromide was banned in Netherlands due to concerns of air and groundwater pollution and its ability to deplete the ozone layer, half of the quantity of pesticides used is composed of methyl bromide and the other half of mainly metam sodium and chloropicrin (6).

Some of the common pesticides used throughout Central and South American countries are listed below with health risks related to exposure (4):

1. Paraquat- Fatal poisoning; chemical burns in skin and eyes.
2. Mancozeb- Cancer.
3. Methyl bromide - Acute poisoning; air and groundwater pollution; depletion of ozone layer.
4. Carbofuran-Acute Poisoning.
5. Terbufos- Fatal poisoning.
6. Methamidophos- Acute poisoning; delayed peripheral neurotoxicity.
7. Methyl parathion - Acute poisoning.
8. Aluminum Phosphide -Acute poisoning.
9. Copper arsenate- Cancer.
10. Aldicarb- Acute poisoning; groundwater pollution; immunotoxicity.

Policies/Regulations (EB)

Flower farms have guidelines and regulations to follow in order to prevent workers and the environment from becoming negatively affected, however many of these policies are not followed the way they should be and thus put at risk the safety of the workers and harm the state of the environment. The World Health Organization noted back in a 2005 report that chemicals used by Florverde farms (Columbia), the ones that are supposedly "regulated," are among the most highly toxic chemicals that can possibly be used in insecticides. Flower companies like Florverde, have become aware of their human and environmental impact and have come up with proposals to minimize their effects. Florverde has stated that its members have reduced pesticide use by 38 per cent since 1998, to an average of 97 kilograms of active ingredient to every hectare a year (9).

Violated Rights (EB)

As mentioned before, Flower farms are required to abide by regulations and guidelines in order to ensure the safety of their workers and to try to keep environmental impacts at a minimum. However, many of these regulations are not followed correctly by employers and therefore can result in the harm of both their workforce and the surrounding environment. Workers can be treated unfairly by risking their health and safety while also being overworked, and along with many other violations committed against them. Examples of the rights abused by such flower farms, from the report Growing Pains: The Human Cost of Cut Flowers in British Supermarkets, include (10) :

a) Labor Rights › Right to just conditions of work › Right to safe and healthy working conditions

- “Women workers comprise the majority of employees in the flower industry in developing countries such as Colombia and Kenya. They are exposed to a toxic cocktail of chemicals used to destroy pests and fungus, and to keep flowers fresh for the supermarket shelves.” (p.2)

- The World Health Organisation recommends at least 24 hours between the time flowers are sprayed and the time workers re-enter the area, but such guidelines are often disregarded. Many workers report being forced to enter greenhouses right after fumigation.” (p.6)

- “In both Colombia and Kenya, workers report that if accidents occur or workers get sick, they are often fired without compensation.” (p.6)

b) Labor Rights › Right to just conditions of work › Right to rest, leisure and reasonable limitation of working hours and periodic holidays with pay

- “In Colombia 65% of flower workers are women, and in Kenya the figure reaches 75%. They work long hours, often with mandatory overtime, for very little pay and no job security.” (p.8)

C) Labor Rights › Right to just conditions of work › Right to fair wages and a decent living

- “Workers in Kenya and Colombia both reported working overtime for no extra pay.” (p.8)

Creating Awareness Among Cut Flower Consumers (CM)

It is clear that most consumers have no knowledge of where their flowers are brought from, how they are cultivated, and how they are transported. Asking for a consumer to sit down and read about the issue revolving around flowers and the impacts the cut flower industry produces, is something difficult to achieve. The cut-flower industry is one that works towards greater exports, meeting the demands of these consumers. Even though we cannot achieve to fully inform the consumer of the product they purchase, perhaps we can lead them in another direction, where they can be informed about safer and more environmentally-friendly options.

Unlike imported flowers grown in third world countries, flowers grown within the United States must follow regulations that are harshly and more strictly enforced. These regulations allow local

flowers to be cultivated in a safer and more environmental friendly manner. Within locally grown flowers, there is minimal abuse of labor rights and minimal environmental hazards, because of the sustainable methods practiced in flower cultivation. Fewer pesticides are used and the workforce required to cultivate locally is not as high in demand as that of third world countries. Not to mention that worker's rights are much stricter in the United States and less likely to be corrupted.

As mentioned before, we cannot expect the consumer to investigate thoroughly about their product but we can lead them towards a wiser consumption option. Holidays are a source of demand for flower production and consumption. A flower's beauty and fragrance makes it a great gift for any special person. It is no surprise that many consumers leave their gift shopping for last minute and resort to their adviser, the popular search engine 'Google.' Since we can't particularly deliver a full understanding of why some flowers are better than others, we have arrived to a solution that involves the advertisement of local grown flowers within the United States.

Using Google and Q&A websites as our weapons, we have derived a question and provided an answer. Even though we cannot deliver all the information to the consumer within a short answer, we can at least provide them with the link to a more sustainable consumption option and spark an interest on the issue itself. By providing them with the option to buy locally, we increase awareness of local flower farms all over the United States, hoping that in the future they'll rely on these local sustainable farms to fulfill their needs. We provided a website by the Association of Specialty Cut Flowers, this organization allows consumers to locate local flower farms in their area by simply typing in a zip code, these local farms practice sustainable cultivation methods and many are organically certified. These farms also provide delivery services and transport their flowers within a short time period. The important key factor here is that the website works all around the United States; therefore whether you are in New Jersey or somewhere as far as Ohio, consumers have the option to become more informed about the local flower farms in their area.

Action: Utilizing the Web as a Mediate for Information (EB)

We posted a simple question, 'Where can I buy flowers?' we also added a detail asking if it was better to shop from local farms or big-box stores, we provided a short answer on Q&A websites; yahoo answers, blurtit, and quora. The question and answer were posted as followed:

Question:

Where can I buy flowers?

Details: would it be better to buy from local flower farms or big chain stores?

Answer:

Flowers are a great gift for any occasion; we use them to express our gratitude and affection. However, not many of us are aware of the long

journey most of the flowers in the United States take before they reach our hands. Most of the flowers in the United States are imported from flower farms in South American countries like Colombia and Ecuador. The cultivation practices used in these farms have not only had an impact on the surrounding environment but also on the health of the workers who grow the flowers. For example, highly toxic chemicals are used in insecticides and in many flower farms, labor rights are constantly violated by forcing workers to be exposed to unsafe fumes and pesticides. Next time when you or someone you know wants to buy flowers try to buy them locally. Flowers grown within the United States must adhere to regulations and policies that are more strictly enforced than in the South American countries that export the flowers we see in places like supermarkets. There are many local flower farms all over the United States that will deliver beautiful sustainably grown flowers right at your doorstep. The Association of Specialty Cut Flower Growers is a great organization that connects floral buyers with the farmers who are producing the highest quality, locally-grown flowers. Their website, http://ascfg.org/2011/buyers_guide/choose_supplier.php, allows you to select the state you are in and gives you a list of local flower farms that will supply you with enchanting flowers grown in your very own state.

Sources:

1) Growing Pains: The Human Cost of Cut Flowers in British Supermarkets -

<http://www.waronwant.org/attachments/Growing%20Pains.pdf>

2) The development of the Colombian cut flower industry, Volume 1 -

http://econ.worldbank.org/external/default/main?pagePK=64165259&theSitePK=477916&piPK=64165421&menuPK=64166093&entityID=00009265_3961001053001

3) Would a Rose Not Smell As Sweet? - Environmental Health Perspectives -

<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1240850/pdf/ehp0110-a00240.pdf>

This question can be found in the following links:

<https://answers.yahoo.com/question/index?qid=20140409095101AARy0rA>

<http://entertainment.blurtit.com/3991128/where-can-i-buy-flowers-from-would-it-be-better-to-buy-from-local-flower-farms-or-big>

<http://www.quora.com/Where-can-I-buy-flowers>

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- (3) The Secrets Behind Your Flowers - <http://www.smithsonianmag.com/people-places/the-secrets-behind-your-flowers-53128/#ixzz2tjvX08>
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- (7) Would a Rose Not Smell As Sweet? - Environmental Health Perspectives - <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1240850/pdf/ehp0110-a00240.pdf>
- (8) The Game of the Rose: The Third World in the Global Flower Trade - http://books.google.com/books/about/The_Game_of_the_Rose.html?id=2SPbAAAAMAAJ
- (9) There's blood on those Valentine's Day roses – <http://www.peoplesworld.org/there-s-blood-on-those-valentine-s-day-roses/>
- (10) Growing Pains: The Human Cost of Cut Flowers in British Supermarkets - <http://www.waronwant.org/attachments/Growing%20Pains.pdf>

Letters to the Editor

The letter to the editor below was sent to NJspotlight.com, at tjohnson@njspotlight.com, energy and environment editor.

Dear Editor,

Please consider publishing this short letter below in NJspotlight.com. Not many shoppers are aware of the issues associated with the flower industry, these issues include violation of a worker's rights, environmental impacts, health impacts and more. If you have any questions, please contact me by email at <redacted> or by phone at <redacted>.

In today's society, it said that the modern consumer is a well informed shopper, although this is the case on many occasions, there are also times when consumers like us do not have a clue about where our products come from. Flowers are part of our daily lives, we see them in the supermarket, we see them in offices, hospitals, we give them to special people as a token of our appreciation, and on good days we are even on the receiving end. However, not many of us know where our flowers actually come from or what kind of journey they take before making it to our hands. Most of the flowers in the United States are imported from flower farms in South American countries like Colombia and Ecuador.

The cultivation practices used in these farms have not only had an impact on their surrounding environment but also on the health of the workers who grow these flowers. For instance, The World Health Organization reported in 2005 that chemicals used by Florverde farms (Colombia) are among the most highly toxic chemicals that can possibly be used in insecticides. In addition, a worker's rights to a healthy and safe environment in the workplace are violated in situations where they are required to enter greenhouses that have been recently fumigated, as was the case for Carmen Orjuela, who was threatened with losing her job when she refused to enter a recently fumigated greenhouse. There's a 24 hour recommended time period before entering but she was told she had to enter after just 30 minutes. These are just a few of the many issues associated with the cut-flower industry, as true modern consumers we should become more aware of the ugly truth hiding behind the beauty of soft petals.

Sincerely,

Elizabeth Balladares and Dr. Julie Fagan Ph. D. Rutgers University 2014

The letter to the editor below was sent to webcontact@northjersey.com.

Dear Editor,

Please consider publishing this short letter below in *The Record* and *Community News*. Flowers are present in our daily lives, yet many lack information on where and how their flowers are grown. A consumer should understand the product they purchase. If you have any questions, please contact me by email at <redacted> or by phone at <redacted>.

The Truth That Lurks on Flower Petals

Flowers are a great part of our daily lives. Whether gifting them or simply admiring their beauty as decoration, flowers make a great impact in our daily lives. However, there is a darker side to the

beauty and it's one not known to many. As beautiful as a flower may be, it is not worth the risks with which it comes. The cut-flower industry is one of great production along with bending of regulations. This industry has prospered at the cost of several third world countries, not only exploiting these countries' environments but also their people. Yet, the issue doesn't end there. These flowers are exported world wide, many finding their way to our closest supermarkets, where they are bought without the knowledge of how they came to bloom or what lurks on those pedals.

The cost of transportation and growth of these flowers have a higher toll on the environment than its numerical value. Pesticide use is one of the many factors exploited in this industry and it is no secret that these same pesticides pose a danger to humans. Dangers that are not easily washed off before hitting the shelves of local supermarkets. The World Health Organization noted back in a 2005 report that chemicals used by Florverde farms (Colombia), the ones that are supposedly "regulated," are among the most highly toxic chemicals that can possibly be used in insecticides.

These dangers and damages can be avoided if the consumer were to redirect their attention towards the true value of a flower. The simple beauty of a flower can be attained within range of time and distance. Awareness of local flower growers and seasons for growth of species can help to reduce the effects of the cut flower industry by shifting from imported purchases to more local purchases.

Sincerely,

Cristina Mera
SEBS Rutgers University Student