

# WORLD·WATCH

Volume 20, Number 1

Vision for a Sustainable World

January/February 2007

LIFE-CYCLE STUDIES

---

Cut Flowers

Excerpted from the January/February 2007 issue of *World Watch* magazine

© 2006 Worldwatch Institute

*All the URLs and e-mail addresses within the pages of this PDF are live and clickable when viewed on a computer appropriately configured.*

To subscribe to *World Watch*, click [here](#),  
or go to [www.worldwatch.org/taxonomy/term/41](http://www.worldwatch.org/taxonomy/term/41)

 WORLDWATCH  
INSTITUTE  
[www.worldwatch.org](http://www.worldwatch.org)

## Cut Flowers

### Overview

In most cultures, receiving a red rose would be an occasion to smile. Symbolic of love and passion, the rose is a flower of choice—compared, say, to the poppy, which is the staple funeral flower of England and the gift of which may signify that you are dead. Cut flowers are widely used in birthdays, weddings, and funerals, and given the frequency of these occasions it's not surprising that behind the fragrant, gloriously colored petals and pruned stems is a

vibrant agricultural industry reaping US\$30 billion in global profits every year.

The Netherlands, the traditional powerhouse of cut flower production, still controls 60 percent of the world's cut flower trade. But the modern cut

flower market has expanded to include India, Kenya, Ecuador, Thailand, and Colombia, as well as Yunnan province in China, which grows half of the cut flowers sold in Asia. Yunnan alone exported 77 million stems in 2005.

© BIOS Astruc Lionel/Peter Arnold, Inc.



Harvesting roses, flower farm in Ecuador

© BIOS Bily Guillaume/Peter Arnold, Inc.



Harvesting tulips, flower farm in the Netherlands

Ron Giling/Peter Arnold, Inc.



Pesticide spraying, flower farm in Kenya

### Closing the Loop

Chemical residues from cut flowers may literally be at consumers' fingertips, as they are never fully removed. But workers may be at higher risk: growers rarely supply proper protective garb to reduce topical exposure to the various chemicals used during production. Toxin exposure often correlates with disease in the workers who harvest the crops and prepare the flowers for retail sale; after prolonged exposure to the pesticides, herbicides, and floral preservatives, workers often show symptoms of nausea, dizziness, delirium, headaches, and rashes. Over time, workers may develop chronic reproductive problems, dermatological conditions, and/or cancer.

The floriculture industry is exploring alternative production methods, including ecologically sensitive bio-controls, disease suppressive compost, and crop steaming (which impedes enzymatic processes in pests). Biofumigation and hydroponics (the replacement of soil with nutrient-rich liquid solutions) are progressive alternatives, though with high capital and operational costs. More commonly, growers are pursuing organic means of cultivation and the use of more benign insecticides, such as neem, pyrethrins, ryania, and sabadilla. Yet widespread change in the cut flower market may ultimately depend on consumer responsibility in buying organic.

### Cultivation

Floral cultivation requires fertile soil with a neutral pH (acidity). The nutrient-rich environment is often maintained with the aid of mulching and/or organic and synthetic fertilizers. Productivity also relies upon irrigation systems, often low-cost overhead sprinklers that may lack adequate filtration to manage runoff into surrounding surface and groundwater supplies, which can result in soil contamination. Management of weed, insect, and disease infestations often entails use of chemical herbicides and pesticides to reduce crop loss and improve the flowers' appearance, including high-toxicity chemicals such as strychnine, nicotine, methyl bromide, and rotenone, an insecticide harmful to fish. In areas along the Smith River in Northern California where cut flower cultivation is prevalent, pesticides like metam sodium and dichloropropene are sprayed using 395 kilograms per hectare—the highest rate of pesticide use in the United States.

Mature flowers are harvested and the stems cut manually under water to prevent air and bacteria from causing wilting or premature decomposition. Preservatives are also applied before harvest to increase the shelf life of the flowers. Most harvested flower crops require treatments before shipment to enhance the lifetime of the blooms, including some potentially toxic slow-release solutions containing chlorine, ammonia, and aluminum sulfate.