2012

ANNUAL REPORT

MONSANTO
HAWAII

2012 MONSANTO ANNUAL REPORT

PREPARED FOR THE COUNTY OF MAUI

Introduction:
Memorandum of Understanding

In 2013, the County of Maui and Monsanto entered into a Memorandum of Understanding ("MOU") in order to further a relationship and dialogue between Monsanto and the Mayor's Office, and advance public knowledge regarding Monsanto's agricultural practices and stewardship in the County. This MOU is a part of Monsanto's efforts and commitment to working with the County of Maui to ensure transparency, responsible engagement, respectful dialogue and rational decision-making that takes into consideration the needs of our community.

Elements of the MOU include:

- **Information Sharing**: to improve public understanding of agricultural practices, and to ensure that the County of Maui is appropriately familiar with key aspects of agricultural practices.
- **Quarterly Meetings:** to achieve the objectives set forth in this MOU, Monsanto and the County of Maui will meet at least quarterly.
- **Education:** Monsanto will provide, as reasonably requested, educational opportunities to County of Maui officials related to the operation of Monsanto's agricultural facilities within the County of Maui.
  Examples may include:
  - Farm tours, presentations, seminars and/or panel discussions
  - Information sharing
- **Annual Report:** Monsanto will deliver, annually, to the Office of the Mayor, County of Maui, an Annual Report that includes the voluntary reporting measures and summary of other activities as set forth in the MOU. Annual reports will be issued within 60 days of the close of the calendar year.

Agriculture as a whole is constantly evolving and is influenced by broad societal trends. Monsanto recognizes that Maui County, as many other places, is becoming more urbanized and less rural, and there is greater interest in our operations and farming practices.

We acknowledge this change and view it as an opportunity to share information with an evolving community about agriculture in general. In the spirit of transparency, this report contains a variety of information about our company and our practices in Maui County, as well as other useful sources of information. We have voluntarily extended our reporting to include 2012 information.

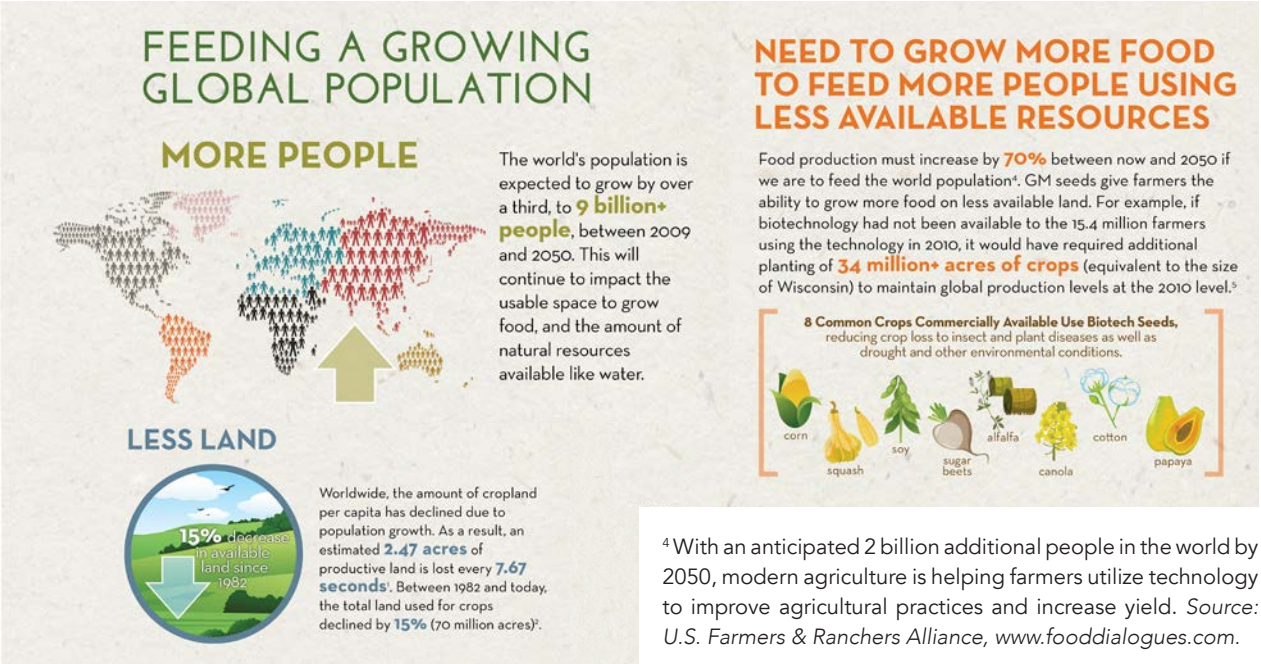
For more information about our activities in Hawaii, please visit www.monsantohawaii.com.

MONSANTO COMPANY

Monsanto is a sustainable agriculture company that delivers agricultural products that support farmers all around the world. Our company has 404 locations in 66 countries and employs more than 22,000 people globally. We are focused on empowering farmers–large and small, conventional, biotech or organic–to produce more from their land while conserving more of our world's natural resources such as water and energy. This is done via leading seed brands that are sold to all types of farmers in crops such as corn, cotton, oilseeds, fruits and vegetables. Globally, we account for only 5% of the world's seed supply through these brands, but our commitment to conserving resources is a driving principle under which we operate every day.

Monsanto also produces leading in-the-seed trait technologies aimed at protecting farmers' yield, supporting their on-farm efficiency and reducing their on-farm costs. We strive to make products available to farmers throughout the world by broadly licensing seed and trait technologies to other companies. In addition to the seeds and traits businesses, Monsanto also manufactures Roundup® herbicides and other herbicides used by farmers, consumers and lawn-and-garden professionals.

Monsanto could not exist without our customers–farmers–who are the lifeblood of our company. More importantly, farmers are the support system of the world's economy, working day-in and day-out to feed, clothe and provide energy for our world.



[4] With an anticipated 2 billion additional people in the world by 2050, modern agriculture is helping farmers utilize technology to improve agricultural practices and increase yield. *Source: U.S. Farmers & Ranchers Alliance, www.fooddialogues.com.*

THE MONSANTO PLEDGE

The Monsanto Pledge is our commitment to how we do business. It is a declaration that compels us to listen more, to consider our actions and their impact broadly, and to lead responsibly. It helps us to convert our values into actions, and to make clear who we are and what we champion.

INTEGRITY

Integrity is the foundation for all that we do. Integrity includes honesty, decency, consistency and courage. Building on those values, we are committed to:

DIALOGUE

We will listen carefully to diverse points of view and engage in thoughtful dialogue. We will broaden our understanding of issues in order to better address the needs and concerns of society and each other.

TRANSPARENCY

We will ensure that information is available, accessible, and understandable.

SHARING

We will share knowledge and technology to advance scientific understanding, to improve agriculture and the environment, to improve crops, and to help farmers in developing countries.

BENEFITS

We will use sound and innovative science and thoughtful and effective stewardship to deliver high-quality products that are beneficial to our customers and to the environment.

RESPECT

We will respect the religious, cultural, and ethical concerns of people throughout the world. The safety of our employees, the communities where we operate, our customers, consumers, and the environment will be our highest priority.

ACT AS OWNERS TO ACHIEVE RESULTS

We will create clarity of direction, roles, and accountability; build strong relationships with our customers and external partners; make wise decisions; steward our company resources; and take responsibility for achieving agreed-upon results.

CREATE A GREAT PLACE TO WORK

We will ensure diversity of people and thought; foster innovation, creativity and learning; practice inclusive teamwork; and reward and recognize our people.

For more information about The Monsanto Pledge, please visit www.monsanto.com.

HAWAII'S SEED CROP INDUSTRY

Monsanto is a part of Hawaii's seed crop industry that generates an economic value of over $550 million to the State of Hawaii in direct and indirect economic contributions, and approximately $30 million in tax revenues for Hawaii each year. Collectively, seed companies like Monsanto employ approximately 1,400 residents in Hawaii. About 1,000 additional local jobs are created and supported by interactions between Hawaii's seed companies and other businesses. Collectively, they represent about 22% of all jobs generated by Hawaii's agricultural sector.* Of the 1.1 million acres of farmland in the State, the seed companies operate on 25,000 acres.

**Source:*
Hawaii's Seed Crop Industry: Current and Potential Economic and Fiscal Contributions, by Thomas Loudat, PhD, and Prahlad Kasturi, PhD, 2013.

MONSANTO IN HAWAII & MAUI COUNTY

In the late 1960s companies like Trojan Seed and Hawaiian Research established operations on Maui and Molokai. Over time, through a series of business changes and acquisitions, these companies evolved into today's Monsanto Hawaii. The fundamental role of Monsanto's seed growing operations in Maui County has not changed since then. Today, as in years past, our farms function as nurseries, where we breed and grow new varieties of corn and soybeans that will eventually be used by farmers throughout the world.

As our operations have grown over the years, Monsanto has helped return fallow farm lands to productive agricultural use, and preserve open space. In Maui County, Monsanto's footprint encompasses less than .05% of all agricultural land available.

Our greatest asset is our employees, and we are proud of our hard-working employee ohana. In Maui County, Monsanto provides for approximately 500 residents and their families. Many of the jobs we offer are well-paying, technical positions that provide opportunities for local college graduates to enhance their skills and pursue successful careers while remaining in Hawaii. To encourage future leaders in our State's agriculture and technology sectors, Monsanto supports scholarships, internships and other educational opportunities for young people in Hawaii interested in pursuing a career in agriculture.

Whereas some sectors of Hawaii agriculture have declined over time due to competition from other countries where labor, water and other costs are much cheaper, Monsanto's agricultural jobs are not as easily exportable. There are few places in the world as ideal as the Hawaiian Islands for the seed industry in spite of Hawaii's distance from the U.S. Mainland and the high cost of land, transportation and other resources. The State's year-round growing environment, minimal temperature fluctuations, skilled agricultural workforce and a rigorous U.S. regulatory and legal environment are attractive to the seed crop industry, and contribute to the success of Monsanto's global operations. As a result, the seed crop industry is likely to remain a source of good, lasting jobs for the foreseeable future.

Hawaii's temperate weather allows Monanto the opportunity to grow nurseries 3 to 4 times per year from seeds that are first cultivated on the mainland. This allows us the opportunity to get new products developed and to the consumer faster. Since only one breeding cycle per year can be grown in North America, the Hawaii climate is ideal to help feed the growing world's population.

MONSANTO IN THE COMMUNITY

Monsanto Hawaii is a good neighbor and strongly supports the communities in which our employees live and work. Below are some of Monsanto's community activities in Hawaii.

SUPPORT FOR EDUCATION

During the last several years, more than $1.2 million dollars have been donated to local schools in the form of scholarships and grants supporting STEM education. Monsanto's educational support efforts in Hawaii include:

- Each year, more than $10,000 in scholarships are provided to Hawaii high school students seeking college degrees in agriculture or the life sciences.
- Paid internships for college students pursuing future careers in agriculture.
- Annually, Monsanto provides $25,000 in en educational grants to schools in Hawaii to support and enhance science education. Teachers and schools have used these grants for a wide array of educational efforts including environmental studies, forensic sciences, science and robotics education, lab materials, textbooks, teaching aides, agricultural science classes and more.
- A $500,000 gift to the University of Hawaii at Manoa's College of Tropical Agriculture and Human Resources (CTAHR) to establish a fellows program to support the educational and professional development of their students.

SUPPORT FOR FARMERS

- Monsanto is an active participant and supporter of the Agriculture Security Watch, a program spearheaded by local police departments, the Attorney General, County Prosecutor and members of Hawaii's agricultural community in response to growing theft, vandalism and agro-terrorism at local farms. The goal of the program is to foster a more cohesive network among law enforcement partners, farmers, ranchers and agriculture organizations of all sizes to prevent further loss of property and damage to their farmlands and operations.
- Monsanto and its employees are actively involved in numerous events and organizations that support agriculture in Hawaii, including the Maui County Farm Bureau, Molokai Farm Bureau, Hawaii Farm Bureau Federation, Hawaii AgriTourism Association, Maui County Agricultural Festival, Ag in the Classroom, the 4-H Livestock Program and Future Farmers of America.
- Monsanto Hawaii set aside approximately 10% of its farmland in support of small farms and food sustainability. An example is the Hawaii Agricultural Foundation Ag Park at Kunia. This endeavor is the first private-public partnership of its kind where local farmers grow a variety of crops such as chili peppers, peanuts, ulu and taro. In Maui County, Monsanto has set aside approximately 125 acres of land which is currently being used by other farmers for local agriculture production.

SUPPORT FOR COMMUNITY

- Each year, Monsanto contributes to various community and charitable organizations. In 2012, over $103,000 was donated to a number of entities for critical services for health and human needs, disaster relief, youth programs, educational support and environmental causes. Our employees have helped clear invasive species from fragile watershed areas, collected donations for local food banks, donated school supplies to students in need, collected toys for at-risk children, helped build homes for those in need, volunteered to feed the hungry, built school gardens and more.
- Through Monsanto's Community Donations Programs employees are able to assist organizations they personally support. The program is managed by a Community Outreach Committee comprised of employees who collectively determine the program's mission and criteria, and select recipients from applicants nominated by our employees. Donations vary and can be in the form of cash, employee matching gifts, challenge donations, in-kind goods or services, loaned talent, employee engagement, volunteerism or donated company property. The program encourages dialogue and engagement between employees and the community and collectively resulted in a significant amount of employee contributions and grants to dozens of nonprofits and schools.
- Through a separate program called the Monsantogether Volunteer Program, employees are encouraged to support the community organizations of their choice by volunteering their time and earning monies for these organizations. In 2012, employees in Maui and Molokai logged in more than 1,140 volunteer hours. Since 2010, Monsanto employees have logged more than 6,500 hours in volunteer time.
- Monsanto has established Community Advisory Panels (CAP) on each of the islands where it maintains operations. Comprised of various community leaders and residents, the CAPs allow us to gain community feedback and input about our activities in Hawaii, and to discuss our business operations, biotechnology, and community outreach efforts. The CAPs meet quarterly to discuss various topics ranging from agriculture and biotechnology to community programs and outreach activities.
- On Molokai, the Sweet Corn Fundraiser Program allows local schools and nonprofits to raise funds for their organizations through sweet corn donated by Monsanto. While sweet corn is not part of Monsanto's usual commercial crop, the company recognizes the nature of rural communities and plants sweet corn specifically to assist large community fundraising needs.

SUPPORT FOR COMMUNITY (continued...)

Our sweet corn is harvested and delivered the same day to the beneficiary organization in convenient 1 dozen bags, ready for sale. Monsanto recoups no costs, allowing 100% of the proceeds to go directly to the organization. The program contributes fresh-from-the-field corn to the local food supply while supporting the community. To date, Sweet Corn Fundraisers has helped various Molokai schools and organizations raise more than $50,000 for their programs.

- In 2007, Monsanto purchased ag land in Kunia, Oahu, for farming. The purchased land parcel included remnants of the Honouliuli Internment Camp, a historically significant site where members of Hawaii's Japanese American community were detained by the Federal Government in the days following Japan's surprise attack on Pearl Harbor on December 7, 1941. Monsanto approached the National Park Service and other community organizations like the Japanese Cultural Center of Hawaii and UH-West Oahu, in the hopes of restoring and preserving the historic site, possibly as a new national park. Efforts are currently underway for Monsanto to donate about 160 acres of land to the National Park Service.

ENVIRONMENTAL STEWARDSHIP

In Hawaii, Monsanto is a farmer too. Just like any farmer or rancher, the natural resources used to operate our businesses are of utmost importance to a sustainable operation. We care deeply about protecting our island's natural resources and strive daily to preserve the land for future generations. A few of our environmental stewardship projects include:

- Monsanto's local recycling efforts included the collection of 280,000 pounds of used drip irrigation tubing for recycling. We recycle all waste cartons, batteries, and oils on an ongoing basis.
- At our Piilani Farm on Maui, all landscaping irrigation, toilet water, and agricultural irrigation systems use non-potable recycled water (R-1) purchased from the Kihei Wastewater Reclamation Facility. In 2010, Monsanto signed a Memorandum of Understanding with Maui County – pledging to use more R-1 if it were to become available.
- Ongoing energy conservation efforts include automated irrigation and drip tube systems. In coordination with Hawaii Clean Energy, interior and exterior lighting continues to be retrofitted with motion-activated timers and/or LED bulbs. A photovoltaic system for our facilities is currently under review by Maui Electric Co., with construction planned for 2015.
- Through Monsanto's continued support of Maui's Soil & Water Conservation Districts, we supported the establishment of the Southwest Maui Watershed Project. The goals prescribed by this two year effort echo our own commitments as resource stewards. Improving the quality of our water is a responsibility of everyone in the community, and we are happy to do our part.
- In addition to grants to various conservation programs in Hawaii, a team of Monsanto Hawaii employees performed a series of studies in collaboration with the company's Molokai and Kunia farms to better understand the movement of irrigation water in the soil and its uptake by the crop. By making key changes to our irrigation practices, we achieved a savings of approximately 50 million gallons per year, an overall reduction in water usage of about 25%.

SAFETY AND HEALTH

Monsanto's highest priority is the safety of our employees, the communities where we operate, our customers, consumers and the environment.

Monsanto's farms at Kaunakakai on Molokai and at Kihei on Maui are two of only four facilities in the State of Hawaii that are certified in the Voluntary Protection Program (VPP), the highest safety classification administered under the U.S. Occupational Safety and Health Administration (OSHA). Achieving the VPP is usually a multi-year effort, involving an extensive series of safety audits, inspections, employee training programs, meticulous record-keeping, trends analysis, improvements to the workplace and visits by OSHA inspectors. Approval into VPP is OSHA's official recognition of the outstanding efforts of employers and employees who have achieved exemplary occupational safety and health. In the U.S., only 0.02% of all companies are VPP certified.

On Maui and Molokai, Monsanto maintains staff members who work full time on Environmental, Safety, and Health (ESH) compliance. Routine inspections, training, and meetings take place on a monthly basis to maintain 100% compliance with Federal and State OSHA and EPA regulations. All employees are mandated to attend monthly safety meetings and on-the-job training to maintain a safe working environment, recognize and correct hazards, and follow all ESH policies and procedures. This represents a time commitment of approximately 4 hours per month per employee, or more than 19,000 hours of ESH-related activities annually.

In 2012, Monsanto gave special recognition to 83 hourly Maui and Molokai employees who achieved a perfect attendance record – no sick days, leaves for disability, unexcused absences or unpaid leave. We are proud of our employees' commitment to good health and safety, which enabled them to earn this recognition.

STATE AND FEDERAL OVERSIGHT

BIOTECH CROPS

The US regulatory framework for GM (genetically modified) crops was laid out in the 1986 'Coordinated Framework for Regulation of Biotechnology' (US OSTP, 1986). Existing laws for the regulation of plant pests, pesticides and foods were amended, resulting in a vertical, product-based regulatory framework for GM crops and derived foods. Three principal regulatory agencies conduct science-based assessments of risks to human health and the environment: the United States Department of Agriculture (USDA), the Environmental Protection Agency (EPA), and the Food and Drug Administration (FDA).

The USDA regulates the import, interstate movement, field trial release, and commercial release of GM crops under the Federal Plant Pest Act and the Plant Quarantine Act, which are administered by the Animal and Plant Health Inspection Service (APHIS). Prior to approval for unrestricted release, as in commercialization, the USDA/APHIS must determine that the GM crop is not a plant pest. The EPA has regulatory oversight for all GM crops that produce a plant pesticide. Plant-incorporated pesticides are regulated according to the same procedures as other pesticides.

The FDA has authority over human food and animal feed safety and the wholesomeness of all plant products, including those produced via genetic modification, under the Federal Food Drug and Cosmetic Act. The FDA has concluded that food and feed derived from GM crops pose no unique safety concerns and, therefore, that the food and feed products derived from these plants should be regulated no differently than comparable products derived from traditional plant breeding or any other genetic modification approach (US FDA, 1992). Labeling is only mandated for foods that present a health risk to subgroups of the population, such as allergenic foods; the FDA does not mandate process based labeling informing consumers.[1]

In summary, the USDA's approval process and the EPA's regulatory oversight ensure that there are no unreasonable risks of harm to human health or the environment including the following:

- Studies assessing the risks to human health (including but not limited to toxicity and allergenicity)
- Studies assessing risks to nontarget organisms and the environment
- The potential for gene flow
- The need for insect resistance management plans

[1] A. König et al. Assessment of the safety of foods derived from genetically modified (GM) crops Food Chem. Toxicol., 42 (2004), pp. 1047–1088

BIOTECH CROPS (continued...)

Globally, since 1996, 59 different countries including Japan, Canada, Mexico, Australia, South Korea, New Zealand, the European Union, Philippines, Taiwan, and South Africa, have granted a total of 2,497 approvals of which 1,129 are for food use, 813 are for feed use, and 555 are for commercial planting.[2]

After 30 years of research and assessments, the safety of GM crops is strongly supported by the weight of scientific evidence, as well as the conclusions of the global scientific community. In fact, GM crops have been reviewed and tested more than any other crops in the history of agriculture and have been shown to be as safe as conventional crops.

PESTICIDES

A pesticide is a product that is used to control pests such as insects, weeds, fungus, rodents, or microbes. These products may be naturally occurring or synthetic (man-made) substances, and are used by many individuals, farms, businesses, government agencies and other organizations. Pesticides are used in gardens and yards, on golf courses, in buildings, along public roadways and in parks, in sensitive environmental areas to keep out invasive species, and in many common household products such as toilet bowl cleaners, cockroach sprays, insect repellents, products that kill mold and mildew, flea and tick sprays, and pet collars. Pesticides are also used by many municipalities to keep their drinking water safe from harmful bacteria.

In agriculture, pesticides are used by farmers in most production settings including on farms using biotechnology, conventional or organic practices. Pesticides are regulated primarily by the U.S. Environmental Protection Agency (EPA). The EPA, in combination with the Hawaii Department of Agriculture and the Hawaii Department of Health, conduct regular audits of our facilities and processes to ensure that we are compliant with applicable regulations that are in place to protect human health and the environment.

The Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) regulates pesticide registration by the EPA and requires the EPA to evaluate a multitude of possible risks to human health and the environment. All pesticides are required to pass stringent risk assessments before they can be approved for use. This evaluation typically involves conducting and reviewing more than 120 studies. FIFRA also requires the EPA to re-review (reregister) a pesticide every 15 years which allows product to be reevaluated to assure that they meet current EPA requirements, and review any incident reports or other research relevant to

[2] James, C. 2012. Global Status of Commercialized Biotech/GM Crops. ISAAA Brief No. 44.

PESTICIDES (continued...)

the safety of the pesticide. FIFRA requires registrants to report "adverse effect reports" that they become aware of at any time. In addition, EPA can act to remove, restrict or stop use of a pesticide if it determines it does not meet EPA's FIFRA safety standards; FIFRA provides tools for EPA to act in emergency situations.

For pesticide products used on crops that are used as food, there are additional evaluations that are even more rigorous, as defined by the Federal Food, Drug, and Cosmetic Act. Through all of this, the EPA uses an extensive, science-based process to ensure that products used properly will be safe for people, other organisms and for the environment. The EPA also considers potential impacts on key groups of people, such as children, in its risk assessments.

If a pesticide successfully meets the EPA's standards for safety, the pesticide is registered for use in a prescribed manner that is spelled out in a pesticide product label. Each pesticide has its own specific label that prescribes how to safely use and handle the product. There's a saying: The label is the law. Strict adherence to the instructions on the pesticide label is mandatory. Violators are subject to significant penalties including fines and even imprisonment. The labels, which are based on the EPA's extensive risk assessments, enable pesticide users to use the products in a manner that is safe for both human and environmental health.

Similar to the label that accompanies a bottle of bleach used by many homeowners, each pesticide product that farmers and ranchers use also has a label that details a very specific set of rules in using the product as set forth by EPA.

For example, a pesticide label will contain instructions on:

- when that pesticide can or cannot be sprayed depending on specific weather conditions such as wind and rain
- whether or not that product can be used near water
- on which crops the product can be applied, and at what stage of the crop's growth

Pesticides used in the State of Hawaii must also be registered by the State. The State of Hawaii provides a database of all pesticide products licensed in the State of Hawaii.

Product labels are also available at this site:
http://npirspublic.ceris.purdue.edu/state/state_menu.aspx?state=HI

AGRICULTURAL STEWARDSHIP PRACTICES

As farmers, we value soil and water resources and recognize that our practices must be sustainable for our continued success. We partner with the USDA Natural Resources Conservation Service to develop and implement conservation plans for our farm to protect soil and water resources. In addition, we use equipment and management practices to reach our goals for air quality under the guidance of the Hawaii Department of Health, Clean Air Branch.

Examples of Monsanto's stewardship practices include:

1. Conservation Cover – establishing perennial vegetative cover on land temporarily removed from agricultural production
2. Contour Farming – performing tillage and planting operations on the contour to increase water infiltration and reduce concentrated water flow
3. Cover Crop – growing close-growing grasses, legumes, or small grain for seasonal protection, soil improvement and nutrient management
4. Grassed Waterway – shaping a natural or constructed channel and establishing adapted vegetation for the stable conveyance of runoff water
5. Irrigation System, Microirrigation – installing an irrigation system to efficiently apply irrigation water without waste or erosion
6. Irrigation Water Conveyance – installing underground pipeline and appurtenances to reduce erosion and seepage
7. Irrigation Water Management – controlling the rate, amount and timing or irrigation water to minimize soil erosion and control water loss from runoff and deep percolation
8. Contour Buffer Strips – establishing narrow strips of permanent, herbaceous vegetative cover around the hill slope, and alternated down the slope with wider cropped strips that are farmed on the contour
9. Field Border – growing a strip of permanent vegetation established at the edge or around the perimeter of a field
10. Residue Management, Seasonal – managing the amount, orientation and distribution of organic residue to maximize soil protection until immediately prior to planting the following crop
11. Terrace – installing terraces at design heights, grades and intervals
12. Restoration and Management of Rare or Declining Habitats – restoring and managing rare and declining habitats and their associated wildlife species to conserve biodiversity
13. Windbreak/Shelterbelt Renovation – replacing, releasing and/or removing selected trees and shrubs or rows within an existing windbreak or shelterbelt, adding rows to the windbreak or shelterbelt or removing selected tree and shrub branches
14. Windbreak/Shelterbelt Establishment – the windbreak/shelterbelt practice involves planting single or multiple rows of trees or shrubs in linear configurations

INTEGRATED PEST MANAGEMENT

Farming in Hawaii faces myriad challenges. One of the biggest is controlling pests including weeds, diseases and insects. Monsanto uses Integrated Pest Management (IPM) practices – a system of robust evaluations, careful decision-making and methodical controls to determine the best way to limit pest damage safely and economically.

An IPM system starts with proper pest identification, and considers a pest's biology and other environmental factors. Determinations are then made on how much pest and pest damage can be tolerated, and what control measures can be used. An IPM system considers multiple approaches to protect a crop. Agricultural practices create an unfavorable environment for the pest. Physical controls such as barriers or traps can eliminate the pest directly. Biological controls can leverage a pest's natural enemies. Chemical control uses modern pesticides in a deliberate and targeted manner. All of these approaches are used for long-term, effective control of pests.

The technology used to apply pesticides is much more advanced than the average homeowner is likely to use. Today's farmers and ranchers have access to a variety of progressive equipment that can apply products safely and without harm to the operator, the environment and other organisms, while at the same time successfully controlling the target pest. Examples include spray nozzles that minimize drift, and sprayers with advanced injection systems that apply products at micro levels. Equipment operators receive advanced training on how to use the equipment properly and adhere to the pesticide's label requirements.

Monsanto Hawaii diligently complies with federal and state laws that govern responsible pesticide use. Our pesticide use is not dictated by whether the crop is biotech or non-biotech. In fact, many of the biotech crops by design require less pesticide use.

Our nursery plots are small and managed by a dedicated staff of Monsanto employees. Each crop is provided great attention and care. By providing a high level of crop-supervision, this enables us to successfully grow crops while using minimum levels of inputs (water, fertilizer, pesticides).

In Hawaii, our pesticide applications are made with computer-controlled spray equipment and all of our operators and supervisors are Hawaii State Certified Private Pesticide Applicators. All of our employees who work with pesticides receive training every year regarding proper pesticide applications. The Hawaii Department of Agriculture, which regulates the manufacture, sale and use of pesticides in Hawaii, is able to review our pesticide application records and inventories at any time.

We monitor the weather and wind regularly, and use modern application tools that control the size of the pesticide droplet, and apply it very close to the plant we're trying to protect. Utilizing these procedures ensures that we minimize spray drift, makes sure that the pesticide product reaches the targeted crops, and provides for the safety of people and the environment. It is also our policy to apply pesticides only when necessary to protect the crop through the implementation of the IPM practices, as previously indicated.

RESTRICTED USE PESTICIDES

Restricted Use Pesticides (RUP) are products that require specific handling and application procedures because they are considered to have the potential for greater risk to human health or the environment. This category of products may only be sold and applied by individuals who have the proper training and are certified by the State to handle and apply them correctly.

Hawaii Revised Statutes (Chapter 149A, HRS) includes Administrative Rules and Laws governing the sale and use of pesticides within the State of Hawaii. Under these laws, the Hawaii Department of Agriculture, Plant Industry Division, Pesticide Branch is responsible for the proper pesticide training and enforcement.

All applicators of RUPs, whether they are farmers or other pesticide users, must pass a comprehensive series of written exams in order to become certified. The Education/Certification Division of the Hawaii Department of Agriculture Pesticide Branch provides training and certification testing for applicators. There are multiple exams and certifications, each one is specific to the type and category of the restricted use pesticide and its applications. Preparation for the exam and certification requires many days of study and a wide range of coursework. Once the exam is passed and certification is gained, ongoing continuing education is required, and re-certification is required every five years. At Monsanto, all of our employees who use or apply pesticides received training annually.

The Hawaii Department of Agriculture Pesticide Branch also enforces the pesticide laws. Monsanto applicators receive numerous visits from Enforcement Inspectors throughout the year for spot checks and audits.

In addition, the state's Pesticides Branch conducts annual inspections of our farms that include the submission and inspection of detailed records, practices, worker protection standards and field sanitation (toilets, decontamination stations, hand washing).

Below is a table summarizing Monsanto's use of Restricted Use Pesticides in the 2012 calendar year. To help provide some context to these figures, this table offers information on a per-acre basis as well as a per-square foot basis (43,560 square feet equates to one acre). To imagine how large an acre is, think about the size of an American football field minus the end zones, or about the size of six tennis courts, or three Olympic-sized swimming pools.

2012 RESTRICTED USE PESTICIDES USAGE

MAUI COUNTY (MAUI AND MOLOKAI OPERATIONS)

LIQUID

COMMERCIAL NAME	ACTIVE INGREDIENT	TREATED ACRES	PRODUCT USED PER ACRE (AVG)	PRODUCT USED PER SQUARE FOOT (AVG)	AMOUNT OF PRODUCT USED
AAtrex 4L/ Atrazine 4L	Atrazine	380.5	28.96 oz	0.000665 oz	86.1 gal
Asana XL	Esenvalerate	1151.9	8.61 oz	0.000198 oz	77.5 gal
Baythroid XL	B-cyfluthrin	1206.8	2.96 oz	0.000068 oz	27.9 gal
Coragen	Chlorantraniliprole	483.6	4.84 oz	0.000111 oz	18.3 gal
Dual II Magnum	S-metolachlor	615.2	24.53 oz	0.000563 oz	117.9 gal
Gramoxone Inteon	Paraquat Dichloride	2.4	32.00 oz	0.000735 oz	0.6 gal
Intrro/Micro-Tech	Alachlor	453.6	40.92 oz	0.000939 oz	145 gal
Lannate LV	Methomyl	473.8	23.34 oz	0.000536 oz	86.4 gal
Lorsban 4E	Chloropyrifos	2.5	30.72 oz	0.000705 oz	0.6 gal
Lorsban Advanced	Chloropyrifos	1157.2	31.96 oz	0.000734 oz	288.9 gal
Mustang Max	S-Cyano (3-phenoxyphnyl)methyl (+) cis/trans 3-(2,2-dichloroethenyl)-2,2 dimethylcyclopropane carboxylate	49.0	3.92 oz	0.000090 oz	1.5 gal
Penncap-M	O-Dimethyl O-p-nitrophenyl phosphorothioate	3.0	34.13 oz	0.000784 oz	0.8 gal
Permethrin	Permethrin	960.2	7.77 oz	0.000178 oz	58.3 gal
Princep 4L	Simazine	379.9	54.85 oz	0.001259 oz	162.8 gal
Voliam Xpress	Lambda-cyhalothrin, Chlorantraniliprole	120.0	8.43 oz	0.000193 oz	7.9 gal
Warrior with Zeon Technology	Lambda-cyhalothrin	182.7	3.64 oz	0.000084 oz	5.2 gal

2012 RESTRICTED USE PESTICIDES USAGE (continued...)

MAUI COUNTY (MAUI AND MOLOKAI OPERATIONS)

GRAUNLAR

COMMERCIAL NAME	ACTIVE INGREDIENT	TREATED ACRES	ACTIVE INGREDIENT USED PER ACRE (AVG)	ACTIVE INGREDIENT USED PER SQUARE FOOT (AVG)	AMOUNT OF ACTIVE INGREDIENT USED
Force 3G	Tefluthrin	329.7	0.15 lbs	0.000003 lbs.	49.45 lbs.

ACTIVE INGREDIENTS IN RESTRICTED USE PESTICIDES - COMMON HOUSEHOLD USAGE

Many of the active ingredients listed in RUPs are also used in common household products. Here are some examples of their other uses. To use any product safely you must read the label and follow the instructions, just like farmers and ranchers do.

ACTIVE INGREDIENT	TARGET PEST FOR FARMERS & RANCHERS	COMMON HOUSEHOLD USE W/ SAM ACTIVE INGREDIENTS	HOUSEHOLD BRAND NAMES
Atrazine	Grasses	Lawn and Garden Weed Control	Miracle Gro Weed and Feed
Esfenvalerate	Corn Earworm Aphid Leafhopper	Inside the Home	Black Flag Home Invading Spider and scorpion killer
B-Cyfluthrin	Armyworm Aphid Leafhopper Stink bugs	Lawn and Garden Weed Control	Bayer Advanced Carpet Ant and Termite Plus
Chlorantraniliprole	Corn Earworm Thrips Armyworm	Lawn and Garden Insect Control	Scotts Grub-Ex
S-metolachlor	Grasses	Turf, Nursery and Landscape	Pennant Magnum
Chloropyrifos	Beet Armyworm Thrips Leafhoppers	Inside the Home	Hot Shot Maxattrax Roach bait
Zeta-cypermethrin (2s)	Thrips	Lawn and Garden	Talstar XTRA Granular (fire ants, fleas, ticks)
Permethrin	Thrips Leafhoppers	Inside the Home Livestock Pet Care	Ortho Ant, Flea and Tick Spray
Simazine	Grasses	Pet Care	Algae Destroyer for Freshwater Aquariums
Lambda-cyhalothrin, Chlorantraniliprole	Corn Earworm Armyworm Cabbage Looper Leafhoppers	Lawn and Garden Insect Control	Spectracide Triazicide Soil and Turf Insect Granules
Lambda-cyhalothrin	Corn Earworm Armyworm Aphid Squash Vine Borer	Lawn and Garden Insect Control	Shultz Supreme Green Summer Fertilizer with Insect Control Spectracide Wasp and Hornet Killer
Tefluthrin	Cutworm Lesser Corn Borer	Inside the Home	(Pyrethrin) Raid Ant and Roach Killer

For more information about the safe use of products in your home, please go to the EPA educational web site: http://www.epa.gov/kidshometour/

PESTICIDES REFERENCES & RESOURCES

- **U.S. ENVIRONMENTAL PROTECTION AGENCY (EPA):**
  http://www.epa.gov/pesticides/about/aboutus.htm
- **NATIONAL PESTICIDE INFORMATION RETRIEVAL SYSTEM:**
  http://state.ceris.purdue.edu/
- **CENTERS FOR DISEASE CONTROL AND PREVENTION:**
  http://www.cdc.gov/niosh/topics/pesticides/
- **UNITED STATES DEPARTMENT OF AGRICULTURE, PESTICIDE DATA PROGRAM:**
  http://www.ams.usda.gov/AMSv1.0/ams.fetchTemplateData.do?template=TemplateC&navID=PesticideDataProgram&rightNav1=PesticideDataProgram&topNav=&leftNav=ScienceandLaboratories&page=PesticideDataProgram&resultType=&acct=pestcddataprg
- **CROPLIFE INTERNATIONAL:**
  http://www.croplife.org
- **WORLD HEALTH ORGANIZATION, INTERNATIONAL PROGRAM ON CHEMICAL SAFETY:**
  http://www.who.int/ipcs/assessment/public_health/pesticides/en/index.html
- **UNITED NATIONS ENVIRONMENT PROGRAM, PESTICIDES:**
  http://www.unep.org/hazardoussubstances/UNEPsWork/Pesticides/tabid/298/Default.aspx
- **NATIONAL PESTICIDE INFORMATION CENTER:**
  (a cooperative organization formed by the EPA and Oregon State University):
  http://npic.orst.edu/health/humhealth.html
- **ROTTERDAM CONVENTION:**
  http://www.pic.int/Implementation/Pesticides/tabid/1359/language/en-US/Default.aspx
- **NATIONAL INSTITUTE OF ENVIRONMENTAL HEALTH SCIENCES:**
  http://www.niehs.nih.gov/health/topics/agents/pesticides/
- **LICENSED PESTICIDE LISTING:**
  https://data.hawaii.gov/Health/Licensed-Pesticide-Listing/rzjk-9g6v
- **ELECTRONIC CODE OF FEDERAL REGULATIONS:**
  http://www.ecfr.gov/cgi-bin/text-idx?sid=014c60635c167593daf0d7f57e8989c1&c=ecfr&tpl=/ecfrbrowse/Title40/40cfrv25_02.tpl
- **COLLEGE OF TROPICAL AGRICULTURE AND HUMAN RESOURCES, UNIVERSITY OF HAWAII AT MANOA:**
  http://pesticides.hawaii.edu/

BIOTECHNOLOGY REFERENCES & RESOURCES

- **GMO ANSWERS:**
  www.gmoanswers.com
- **U.S. ENVIRONMENTAL PROTECTION AGENCY (EPA):**
  www.epa.gov/pesticides/biopesticides/reg_of_biotech/eparegofbiotech.htm
- **U.S. FOOD AND DRUG ADMINISTRATION (FDA):**
  www.fda.gov/Food/FoodScienceResearch/Biotechnology/ucm346030.htm
- **UNITED STATES DEPARTMENT OF AGRICULTURE (USDA):**
  www.usda.gov/wps/portal/usda/usdahome?navid=BIOTECH
- **FREQUENTLY ASKED QUESTIONS ABOUT AGRICULTURAL BIOTECHNOLOGY:**
  www.usda.gov/wps/portal/usda/usdahome?contentid=BiotechnologyFAQs.xml&navid=AGRICULTURE
- **HAWAII CROP IMPROVEMENT ASSOCIATION (HCIA):**
  www.hciaonline.com
- **AGBIOFORUM:**
  www.agbioform.org
- **THE AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE:**
  www.aaas.org/news/aaas-board-directors-legally-mandating-gm-food-labels-could-%E2%80%9Cmislead-and-falsely-alarm
- **THE AMERICAN COUNCIL ON SCIENCE AND HEALTH (ACSH):**
  www.acsh.org/2000/09/biotechnology-and-food-second-edition/
- **AMERICAN MEDICAL ASSOCIATION:**
  www.isaaa.org/kc/Publications/htm/articles/Position/ama.htm
- **INTERNATIONAL FOOD INFORMATION COUNCIL:**
  www.foodinsight.org/Resources/Detail.aspx?topic=Fact_Sheet_Benefits_of_Food_Biotechnology
- **WORLD HEALTH ORGANIZATION:**
  www.who.int/foodsafety/publications/biotech/20questions/en/

MONSANTO
REFERENCES & RESOURCES

- **MONSANTO HAWAII:**
  www.monsantohawaii.com
- **MONSANTO COMPANY:**
  www.monsanto.com
- **MONSANTO BLOG:**
  www.monsantoblog.com