



Vol. 10 No. 1  
June - November 2009

# AGROLINKS



## FEEDING ASIA IN A RECESSION

The drive towards sustainable agriculture

### WHEN FARMING COMES FIRST

Empowering growers, enhancing food security

### THE QUEST FOR ARABLE LAND

Safeguarding the earth's resources





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# AGROLINKS

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# GROWING SUSTAINABLY

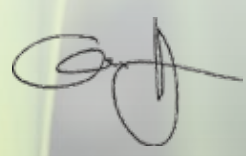
The financial crisis that shook the world from the second half of 2008 has sparked concerns about food security for all, particularly in developing nations. While food prices have fallen from record levels of 2008, they are still high compared with previous years. The economic slowdown has created massive unemployment, reduced credit lines and crimped incomes for many.

In developing Asia, millions of families, particularly those in rural areas, spend more than half of their household income on food. There is thus, an urgent need to expand agriculture and food production in the region and to increase investment in agriculture, agribusiness and rural development. There is no room for complacency.

The plant science industry believes that farmers, being stewards of the land, should be empowered with the tools and technologies to grow sustainably. A new initiative, Farming First, puts farmers at the heart of policy making. With knowledge and technology, farmers could have improved access to markets, learn how to safeguard natural resources such as water, soil and land as well as protect their harvests.

Food security also means ensuring people get access to food. In this issue of AgroLinks, we also highlight the challenges faced by grain exporters and importers amid regulatory hurdles surrounding the approval of low level presence of Genetically Modified Organisms (GMOs) in grain shipments. Asia is particularly vulnerable, being a key importer of commodities such as corn and soybeans for its livestock and food industries.

The plant science industry is committed to sustainable agriculture. In Asia, the economic crisis has sparked a greater urgency for us to expand our outreach to farmers and governments in the region in order to enhance food security.



**Caren Wiegemann**  
Chair, Communications Project Team  
CropLife Asia





# FEEDING ASIA IN A RECESSION



The global financial crisis has triggered a collapse in demand, shrunk incomes and crimped microcredit for farmers in many countries. Yet, contrary to popular belief, food security concerns across the region are diverse.

*By Cheek Soh Hui*

**I**n a peaceful hamlet in Thailand's Trat Province on the country's eastern coast, Passada Khiawkhajee mills rice with a machine he shares with 17 other families. Provided free by the central government since 2008, the machine is a boon for farmers as milled rice fetches a higher price in the local markets. While the financial crisis has heightened food security concerns and pushed economies in Thailand and other Asian nations into a tailspin, farmers such as 42-year-old Khiawkhajee, who made 500,000 baht (\$14,460) last year, are confident of brighter prospects in 2009.

The World Bank has projected GDP growth in developing nations to slow to 2.1 percent in 2009 from 5.8 percent a year ago, sparked by a collapse of financial markets in 2008. A simultaneous economic contraction in developed countries has also caused a global demand slump.

Yet, where food security is concerned, the situation in Asia is diverse. While the rural poor are often perceived to be the most vulnerable in terms of food security, some experts say the severity of the global recession has created new groups of poor people in Asia, such as unemployed

city dwellers who were previously food secure. In addition, the United Nations Economic and Social Commission for Asia and the Pacific (ESCAP) said in its May report, *Sustainable Agriculture and Food Security in Asia and the Pacific*, the region "suffers from high levels of food insecurity", with South and Southwest Asia being the most affected.

There is "severe localized food insecurity" in countries such as Bangladesh, Myanmar, Nepal and Sri Lanka, according to the Food and Agriculture Organization (FAO) of the United Nations. In Myanmar, food shortages abound, a year after Cyclone Nargis killed about 85,000 people and destroyed vast tracts of fertile farmland in the Irrawaddy Delta. In Bangladesh, where scores of farmers are already struggling to obtain microcredit, high food prices and the global recession have fueled greater food insecurity.

But where farmers in Thailand's Nong Khan Song village in Trat are concerned, it's business as usual, with prospects of higher incomes this year. The reasons: better yields, lower energy and fertilizer costs, stable demand and fatter margins from selling milled rice. Thailand is the world's largest rice exporter.

"I'm expecting a 20 percent jump in income this year," said Khiawkhajee, who grows rice and tropical fruits as well as rears fish in his 14.5-hectare farm. The father of three, 8, 12 and 14, who also received training on Good Agricultural Practices last year (see sidebar), said life is comfortable and there is enough money for food and creature comforts such as a color TV and refrigerator.

"Farmers like us face no problem getting credit," he said. "So far, we have felt no impact from the recession," he added.

Khamron Muannara, 38, who owns an 8.5-hectare rice farm in the same village, is expecting income to rise by a third from 2008, to 400,000 baht this year. The bachelor has invested in a rice milling machine and is enjoying higher margins from selling milled rice.

Rice is an essential staple for about half the world's population. While global rice prices have slipped 50 percent from record levels of above \$1,000 per ton in 2008, they are still high compared with previous years. Because of the financial crisis, there are concerns that access to food is reduced as disposable incomes fall.

The FAO has projected global rough rice, or paddy, production at 692 million tons this year, up 0.7 percent from

2008. Yet, production isn't keeping up with global demand, said Duncan Macintosh, Development Director of Program Planning and Communications at the International Rice Research Institute (IRRI).

"In the next ten years, rough rice production must grow by 8 to 10 million tons annually in order to meet demand," he said. "If we don't get the yield graph up, we will see renewed pressure on stocks and prices."

Southeast Asia is not equipped to feed itself with existing agricultural technologies, he said. In 2007, rice yields in Asia ranged from 6.4 tons per hectare in China to 2.7 tons in Thailand, according to the FAO. To enhance food security in Asia, farmers should focus on integrated use of higher-yielding and stress-resistant varieties as well as better crop management practices.

Other factors contributing to food insecurity in Asia include climate change; the lack of adequate post-harvest



Photo: Courtesy of IFAD

## CROPLIFE ASIA'S ROLE IN FOOD SECURITY

**Empowering farmers.** Training growers on the responsible use of crop protection products improves crop yields while safeguarding biodiversity and other natural resources such as soil and water. Skilled farmers earn higher incomes and enjoy better living standards.

**Promoting sustainable agriculture.** Meeting the needs of a growing world for food, feed and fiber through innovative agricultural solutions. With some \$4 billion invested by the top 10 plant science companies in R&D annually, the industry is one of the most research-intensive in existence.

**Ensuring safe food.** Stewardship activities and science-based regulatory frameworks help farmers produce quality and safe food.

**Improving trade flows.** A sound regulatory framework also promotes laws that enable the agri-food chain to operate within existing legislations and without trade disruption.

**Plant biotechnology advocacy.** Functional and science-based regulatory biosafety frameworks facilitate stable food supply, productivity and innovations.

technology; under-investment in R&D essential for beefing up the pipeline for higher-yielding rice hybrids; and a lack of political will in some countries in the region to strengthen rural infrastructure, Macintosh said.

In Asia, agriculture is dominated by small farmers. Many lack knowledge on best practices and have limited access to technology and other innovations to help them expand production. The ESCAP has urged governments to focus on promoting sustainable agriculture among small farmers. This includes "conservation farming, ensuring that the soils retain vital nutrients, and that farmers and others protect biodiversity".

To expand farmer outreach, the plant science industry has taken the lead to partner with governments in Asia on training farmers to use crop protection products responsibly, integrated pest management and other good agricultural practices. The partnerships also cover plant biotechnology acceptance programs that help farmers understand benefits

and access cutting-edge innovations. Regulatory advocacy initiatives that speed up the pace of approvals for biotechnology products in the region are also in place.

These partnerships add tremendous value to the region's millions of small farmers. Not only do they enhance food security, they fuel socio-economic benefits, helping growers transcend subsistence farming.

To be sure, enhancing food security is also about improving trade flows. The financial crisis is expected to spark a decline in world trade volumes in 2009, a first since 1982. This will especially impact developing nations that depend heavily on exports, in the form of reduced export credits and higher costs of export insurance.

The collapse of the Doha round last year dealt a blow to the agriculture industry, particularly for small farmers in Asia and elsewhere. Trade has expanded substantially over the past decade, but agriculture's share of trade has fallen by about a third. High tariffs help to explain why agricultural markets are so thin. For instance, only 6 percent of rice is traded internationally. Existing trade barriers, the bulk of which are supported by rich agricultural nations, have created an unfair playing field for small farmers in the developing world. As a result, these small farmers have been unable to respond quickly to growing global demand. The result is the global food crisis.

In Asia, the food crisis of 2007-2008 has shown the importance of expanding agricultural production and for governments in the region to boost R&D as well as investment in rural development. There is also a need for governments to develop sound regulatory frameworks to ensure food safety and trade. In addition, farmers should be encouraged to adopt more productive seed varieties, including genetically modified technologies, to sustain food production going forward.



*Adding value: Passada Khiawkhajee enjoys higher margins from milling the rice he grows, which he then sells at the local markets.*



# FINDING THE SILVER LINING

In conversation with **Ganesh Thapa**, Regional Economist for the Asia and Pacific Division of the International Fund for Agricultural Development.

**AgroLinks:** What is the impact of the global economic recession on food security in developing Asia?

**Thapa:** The severity of the impact of the economic slowdown is unfolding itself with a marked slowing down of the growth rates in India and China. Exploring the links between credit and growth and between credit and hunger, a recent study by IFAD showed conclusive evidence of negative effects of credit contraction on growth, as well as food security.

What's also affected is the availability of microcredit. International funding agencies have either pulled out or are unwilling to lend. To the extent that microcredit contributes to household income through supplementary economic activities, contraction of microcredit would further amplify the negative effects of the looming recession in Asia.

**AgroLinks:** What challenges and opportunities do you see for small farmers in Asia in the next five years as a result of the global recession?

**Thapa:** One important challenge that small farmers in Asia will likely face are cuts in agricultural credit and microfinance. This will result in reduced access to production inputs such as fertilizer, which will crimp productivity. In extreme cases, farmers could hold back on planting crops. Public spending for rural service infrastructure may also decline and this could exacerbate the problem of poor output.

On a brighter note, because agriculture is back on the development agenda, diversification into high-value agriculture holds considerable promise for smallholders. Awareness of new technologies and access to them would enhance yields, while producers' associations could help meet stringent quality standards and help enhance revenues. Through easier access to the Internet, there is better awareness of remunerative prices in neighbouring markets. Participatory agricultural research and adaptation of state-of-the-art technologies ought to be assigned greater priority.

**AgroLinks:** Are governments in Asia doing enough to make up for the years of neglect in agricultural research? What are some of the challenges they face in this area?

**Thapa:** Governments in Asia have not done much to correct the neglect of agricultural research. The allocation of financial resources to agricultural research as a percentage of public spending is declining in many countries and the bulk of funding is used for non-program expenses such as salary.

Another important problem is the neglect of areas such as uplands and rain-fed areas, where there is a concentration of poor people. The impending challenge of climate change has further highlighted the importance of developing technologies crops that are drought resistant and flood resistant.

In addition, there is a need to invest in developing capacities of farmer organizations that enable growers to voice their technology needs, learn and implement new technologies. Other important areas include investing in integrated watershed development in sloping drylands, and emphasizing participatory approaches for the identification of opportunities for livelihood improvement.

**AgroLinks:** What should governments in Asia do to improve food security amid current economic woes?

**Thapa:** Apart from fiscal stimulus designed to strengthen rural infrastructure and through multiplier effects on livelihoods and yields, the focus has to shift to smallholders. These farmers respond to higher prices and benefit proportionately more from better rural infrastructure – especially in terms of easier market access.

Finally, better coordination between donors and domestic governments is imperative in stimulating domestic demand, given that export markets have collapsed for many export-oriented countries such as China and Vietnam.

*The International Fund for Agricultural Development (IFAD) works with poor rural people to enable them to increase their incomes, build their livelihoods and have a voice in the decisions that affect their lives.*



# FROM FARM TO FORK

A myriad of regulations governing the trade of food crops are in place to ensure food safety for consumers. Yet, when approvals surrounding low level presence of genetically modified organisms are asynchronous among importing and exporting nations, international trade could be disrupted.

*By Sonny Tababa and Sarah Lukie*

With population rates in Asia growing nearly twice that of developed nations, the region's appetite for meat and agricultural commodities is expected to expand at a steady clip over the next decade. To meet the region's demand for corn – used primarily as animal feed – and soybean, crushed to make cooking oil or processed as feed meal, more farmers globally are growing higher-yielding genetically modified (GM) crops.

Besides Korea, Japan and China, Southeast Asian nations are also key growth markets for mega-biotech grains exporting nations such as the US, Brazil and Canada. According to a US Department of Agriculture report published in February, meat consumption in Southeast Asia is expected to climb steadily over the next 10 years. Because of the region's limited capacity to grow adequate supplies of feed grains, demand for corn is projected to rise by 32 percent through 2018. For soybeans, China will account for more than 80 percent of the projected 27-million-ton growth in global imports. The world's most populous country currently imports nearly half of global supplies, the report said.



The millions of tons of grains that Asia imports travel a long way from the exporters' farms, silos, and ports before landing at various seaports in the region. In the process, the release of unapproved GM material into the environment unavoidably occurs.

Asynchronous approvals of GMOs across countries contribute to the problem. This happens because of time discrepancies to process GMOs through the regulatory authorization process, or when governments have regulatory regimes that preclude safety assessments for GMOs until they are authorized in the country of cultivation.

The possibilities: Massive losses due to trade disruption should shipments be rejected and heightened consumer concerns about food safety.

"During handling and delivery, unintentional commingling may occur within the seed, on the farm, or within the global handling and transportation systems as the grain is produced and moved between buyers and sellers," said Randal Giroux, Science and Regulatory Leader of Agricultural Biotechnology at Cargill. "This results in adventitious, or low level presence (LLP) of GM organisms (GMOs) in grain, grain products, seed, food products, or animal feed," said Giroux, who is also the chairman of Risk Management at the Global Adventitious Presence Coalition (GAPC).

Experts said the presence of trace levels of transgenic plant material among conventional seeds or grain cargoes happens despite sound stewardship programs and rigorous application of good agricultural practices by growers and grain handlers.

Indeed, the international grains trade could be enhanced by synchronizing approvals of GM crops among countries. The adventitious presence of GM material in these situations can be managed in ways that ensure food safety and minimize trade disruptions.

To ensure a win-win situation for Asia and grain exporting nations, sound regulatory frameworks should be in place in importing nations to enable greater synchronization of GM crop approvals among major markets. Ideally, this should take place within 24 months from the date of submission.

## The Global Adventitious Presence Coalition

Commonly known as the Global AP Coalition, the group focuses on preventing disruption to international trade as a result of adventitious, or low level presence of GMOs in shipments of agricultural produce. The Coalition represents a united approach by the food, grain, feed, seed and the plant biotechnology industries in helping governments worldwide develop science-based and functional regulatory frameworks to deal with the unavoidable presence of GMOs in international agricultural shipments.



In addition, the Codex Annex on LLP Guidance, an international guideline – approved last July by the Codex Alimentarius Commission of the United Nations Food and Agriculture Organization (FAO) and the World Health Organization (WHO) – provides another tool for governments to secure their grain supplies with minimum or no disruption. The Annex helps regulators globally assess the safety of GMOs in shipments.

Codex members globally are to make data and information available at a central database maintained by the FAO, as soon as a GMO is approved in their countries. This should allow rapid access to information by other Codex members for food safety assessments. And as new scientific information that could impact food safety assessment becomes available, it too, should be added to the database.

The grain industry urges importing governments to perform low level risk assessments as soon as information of an approved GMO is available on the website, Giroux said. When that is done, importing countries should reveal a marketing tolerance. This practice facilitates trade and minimizes the likelihood of shipments being rejected.

However, when governments of importing nations apply the Codex LLP Guidance and conduct risk assessments only when unapproved GMOs are detected at the point of unloading, unnecessary delays and costs will likely occur, he said.

Moving food from farm to plate is a Herculean task. Amid concerns about food security, governments are focused on harnessing technology to boost crop yields, including encouraging farmers to grow higher-yielding biotech crops. In 2008, the number of farmers who planted biotech crops jumped 11 percent to a record 13.3 million, according to the International Service for the Acquisition of Agri-biotech Applications (ISAAA) earlier this year. The crops covered an unprecedented 125 million hectares in 25 countries, a rise of 9.4 percent from 2007.

To be sure, biotech crops and GM-derived foods are here to stay. To facilitate the international trade of grains and seeds, “functional, science-based regulations on low level presence of plant biotechnology products must be continuously pursued, sustained and protected”, said CropLife Asia’s Executive Director, Tan Siang Hee.

## WHAT IS...

### CODEX ALIMENTARIUS COMMISSION

- Promotes fair practices in international food trade and contributes to food safety for consumers through the Joint FAO/WHO Food Standards Program.
- Harmonizes international rules for trade in food.
- Facilitates the import and export of food internationally.

### CODEX ANNEX ON LOW LEVEL PRESENCE (LLP)

- Approved in July 2008
- Addresses concerns about the low level presence of GMOs in international shipments of grains, seeds and other agricultural produce.
- Facilitates the import and export of grains, oilseeds and other agricultural produce internationally by applying science-based regulations on the low level presence of GMOs in shipments.
- Can be applied in two dietary exposure situations: first, the trade of commodities such as oilseeds and other grains; second, the trade of agricultural produce such as fruits and vegetables.
- Established a FAO-managed website where Codex members have ready access to information on approved GMOs. Member governments should perform low level risk assessment as soon as that information is available and determine a marketing tolerance of GMOs for imports.



# PRIORITIZING FARMING

Empowering farmers, enhancing food security.

By Robynne Anderson

Addressing the common need for food, feed, fiber and fuel requires a global action plan to increase agricultural output in an environmentally sustainable and socially responsible manner.

At the heart of the solution are farmers – they are the ones who grow our crops, manage the land and safeguard biodiversity. Howard Minigh, CEO of CropLife International, is concerned that not only has the global population almost tripled since 1950 but that “with an expected 1.7 billion more mouths to feed by 2030, and risks from the effects of climate change, finite land supplies and water scarcity, farming is becoming even more important”.

To cope with this reality, the world’s farmers need to double or even triple food production by 2050. However, farming policies have neglected the critical role which farmers, especially smallholders, must play to make sustainable development a reality. To meet the challenges, CropLife and its partners recently launched Farming First. The initiative provides a call to action for policy makers and practitioners to develop a locally sustainable value chain for global agriculture. It emphasizes the need for knowledge networks and policies centered on helping subsistence farmers become small-scale entrepreneurs (see sidebar).

The pressures are acute. The ratio of arable land to population is expected to decline by up to 55 percent by

2030. By 2025, 1.8 billion people will be living with acute water scarcity.

Simultaneously, climate change will put regional and global food supplies at risk. Lindiwe Sibanda, CEO of the Food, Agriculture and Natural Resources Policy Analysis Network, points out that the basic livelihoods of hundreds of millions of farmers in developing countries will be threatened and that “we must prevent the bottom billion farmers crashing into welfare dependency”.

Returning farmers to the center of policy decisions is fundamental to sustainable development. Governments, businesses, scientists and civil society groups must focus attention on the source of food security. These groups must work together to enable small farmers to grow more crops sustainably through effective markets, collaborative research and committed knowledge sharing.

“Agriculture is the only basis we have for feeding humanity. If agriculture is unsustainable, then we, as a species, are unsustainable. It is time we come together again and put Farming First.”

*Ajay Vashee, President of the International Federation of Agricultural Producers*

A broad-based, knowledge-centered approach to agricultural development is needed.

Besides Farming First, others such as the Commonwealth of Learning, a voluntary intergovernmental organization, also recognize the role of empowering farmers through knowledge and technology. Its Lifelong Learning for Farmers (L3) program aims to improve the flow of knowledge from researchers to farmers by offering tips, advice and information on best practices to local growers through Internet-based kiosks.

Farmers form a local association and identify their needs and objectives. L3 then provides the relevant information to help them achieve these objectives. Information is provided by national or regional institutions, such as universities.

L3 started as a pilot project in four villages in southern India in 2004. The success of this initiative led to the launch of L3 in Sri Lanka in 2007. The program is also being adapted and introduced in Jamaica, Kenya, Mauritius and Papua New Guinea.

To be sure, putting farmers at the heart of policy making is essential for ensuring food security. The approach starts by focusing on farmers and the tools they need to steward land, grow crops, secure their harvest and then get it to market.

While modern agricultural technologies and management approaches have doubled the production of world food calories over the past 50 years, many small-scale farmers struggle to achieve even the most basic level of subsistence. New investments, incentives and innovations are needed to achieve greater sustainability while delivering increased agricultural production.

Combined with better functioning markets, an enhanced farming system will contribute to improved economic development, providing food security, fair prices and better land management.

To succeed, any new approach must be based on a stable policy environment within which farmers can work and invest. There is a need for a radical shift in thinking which places the farmer at the center of sound and sustainable agricultural practices.

## WHAT IS FARMING FIRST?



It comprises a framework that proposes six interlinked imperatives for sustainable development.

**Sharing knowledge.** While much knowledge to improve global agriculture already exists, it often does not reach farmers who could benefit most. Programs like village-based knowledge centers are useful.

**Building local access.** Fundamental resources should be available to farmers to help them manage their production processes more reliably, including mechanical tools, seed, fertilizer and crop protection.

**Prioritizing research imperatives.** Achieving sustainable agriculture requires intensified and continuous research, prioritizing key local crops, stewardship techniques, and adaptation to climate change.

**Enabling access to markets.** Farmers need to get their products to market and receive equitable price treatment. Information such as up-to-date market pricing should be provided to farmers even in remote areas.

**Protecting harvests.** In many of the poorest countries, 20 to 40 percent of crop yields are lost because of inadequate pre-harvest and post-harvest support. Likewise, vast quantities of food are squandered during production and consumption phases of the food chain.

**Safeguarding natural resources.** Training farmers on sustainable practices of water and land use, such as conservation technology.

## YOU CAN HELP

- Visit [www.farmingfirst.org](http://www.farmingfirst.org)
- Click on the "I support" button on the home page
- Link the Farming First video onto your website
- E-mail your friends and colleagues



# THE CRACKS ON THE LAND

The pressure on arable land is rising as countries step up measures to grow more food.

*By Christopher Samuel*

**A** bundant rains last year brought prosperity to 49-year-old Indian cotton and soybean farmer Pundlik Upase. The grower of Bt cotton hybrid and soybean in Wardha district in the state of Maharashtra paid off part of his debt from higher income, thanks to adequate precipitation and better seeds.

"Compared to 2004, my finances are better today," Upase said. I got better yields because of my seeds

and the rains. Other farmers I know were not so lucky," he said.

In India, about 68 percent of net sown area is rainfed. Studies have shown that these areas are one of the most fragile, despite sustaining substantial populations. Globally, more than 250 million are directly hurt by land degradation, sparked by factors such as climate change, soil erosion, over-farming and the deterioration of the



physical, chemical, biological and economic properties of soil, according to an October 2008 report from the United Nations Convention to Combat Desertification (UNCCD) High-Level Policy Dialogue in Bonn. And Asia is the worst hit in terms of the number of people afflicted by desertification and drought, it added.

The United Nations has projected that by 2025, 66 percent of the world's population will be living in either drought or water-stressed conditions. In Asia, more than 80 percent of available water is used for agriculture, compared with less than 40 percent in Europe and North America. Steps are thus necessary to reduce water consumption by crops, including changes in irrigation management and cropping practices.

Yet, irrigation boosts the yields of most crops by as much as fivefold. Between 1997 and 2030, the use of water for agriculture in developing countries is expected to balloon by 14 percent, according to the Food and Agriculture Organization of the United Nations (FAO). This is necessary to meet growing global food demand, as the world's population rises to a projected 9 billion by 2050, experts said.

"Food security is fundamentally about soil health, water availability and food production, all of which are severely jeopardized by desertification, land degradation and drought," said Grégoire de Kalbermatten, Deputy Executive Secretary of UNCCD, in the October report.

Besides pressure on water supplies, climate change is threatening agriculture, especially in developing countries where farming is dominated by small-scale farmers. These growers typically own marginal land and rely on rainfall to sustain their livelihoods. In addition, extreme weather events such as flooding and storms can "contaminate freshwater and damage facilities used by farmers to store and carry water", the FAO said.

Indeed, agriculture is the key driver of land use, land change and degradation. Farmers should thus be equipped with knowledge on better land management, environmental protection and using crop protection products responsibly in order to conserve biodiversity.

To be sure, technology is essential in helping farmers deal with inclement weather conditions and boosting production. Leaders of the Group of Eight (G8) nations in April called for mid- to long-term measures to enhance food security, including accelerating agricultural research and development, increasing growers' access to new technologies to raise farm output and promoting science-based risk analysis "on the contribution of seed varieties developed through biotechnology".

Conservation tillage farming, enabled through herbicide use and biotech crops, helps to maintain soil moisture and reduce water run-off. The plant science industry is focused on developing tools to meet the future challenge of water and climate change.

"The plant science industry is committed to helping farmers reduce the water footprint of crop production," said Howard Minigh, CEO and President of CropLife International.

"Modern agriculture using plant science has already made considerable gains in reducing water use in crop production. Every year, CropLife and its members train thousands of farmers in Integrated Crop Management as a means to improve resource management, including water."

Drought-tolerant traits are being added to crops to decrease demands for irrigation and increase productivity in dry conditions. Regulatory application has already been made for a drought-tolerant corn. In addition,

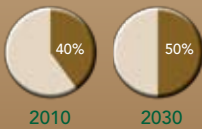
investment is also being channeled towards the development of crops that can survive in highly saline soils or very hot conditions.

## DID YOU KNOW?

On average, human beings need to drink between 2 and 4 liters of fluids a day, but consume 2,000 to 5,000 liters through the water used in producing food.

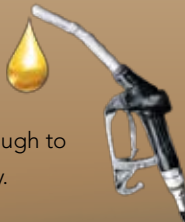


Grown on irrigated land



40 percent of total food production in developing countries is grown on irrigated land. By 2030, the amount will be close to 50 percent.

Around 2 percent of water for irrigation is used for liquid biofuel production. It takes 2,500 liters of water to produce 1 liter of liquid biofuel used for transportation – enough to provide basic food for one person for a day.



Adapted from *Growing More Food – Using Less Water*, March 2009, FAO

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## WORLD DAY TO COMBAT DESERTIFICATION

The World Day to Combat Desertification is observed every year on 17 June. This year's theme focuses on conserving land and water. These are key elements of a sustainable agriculture framework supported by the plant science industry. CropLife Asia is committed to helping farmers be responsible stewards of their land by equipping them with knowledge of Good Agricultural Practices.

GROWING FOOD • CREATING RENEWABLES • SUPPLYING SUSTAINABLY

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