

CREATING
IMPACT

Creating impact
by developing
sustainable solutions for
improved productivity



Knowledge grows

Scan this code to see how Yara engages in value chains – creating impact, *creating value*.



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Impacting voices

Making a difference *implies active engagement.*



**DAVID
WALLER**
SCIENTIST, YARA

Innovating catalyst technology to curb GHG emissions.

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**MOHAMMADU
NINDOW**
FARMER, GHANA

Improving agricultural productivity and maize production.

PAGE 20



**JAKAYA
KIKWETE**
PRESIDENT, TANZANIA

Developing enabling policy frameworks for agriculture.

PAGE 17



Global challenge: Climate change

- ➔ Agriculture is responsible for a quarter of all man-made GHG emissions
- ➔ Most of this stems from land use change
- ➔ Production and use of mineral fertilizer is responsible for about 2 percent



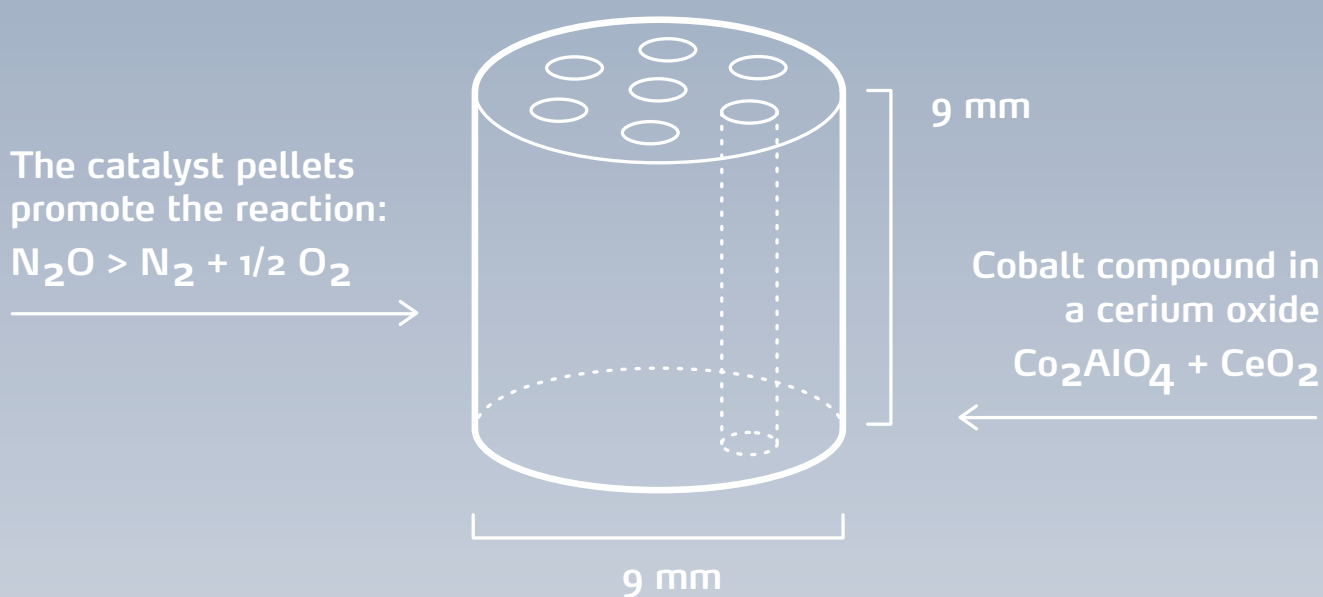
Response:

- ➔ Increase agricultural productivity
- ➔ Lower emissions from fields
- ➔ Lower emissions from production



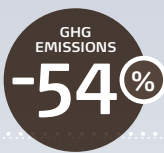
Small pellet packs a punch

Yara's catalyst pellets are making an impact, off and on the field.



MINIMIZED EMISSIONS

Production of nitrate fertilizers, known for their agronomic efficiency, can cause large emissions of nitrous oxide (N_2O) – a greenhouse gas (GHG) with about 300 times the global warming potential of CO_2 . Yara's catalyst pellets can reduce these emissions by as much as 90 percent.



LARGE-SCALE IMPACT

Largely thanks to its catalyst technology, Yara has reduced its total GHG emissions by 54 percent since 2004. The innovative pellets enable Yara to produce fertilizers with a very small carbon footprint: low-carbon nitrate fertilizer with clear advantages both before and after application on the field.



LIFE-CYCLE ADVANTAGES

The catalyst technology is putting a shine on Yara's competitive edge. Combining low-carbon nitrate fertilizers and best practice application tools, Yara offers a solution to cut the carbon footprint from fertilizer use for food production by half.

Curbing the carbon

10 years that changed fertilizer production →

Efforts on a tiny scale →

10 years of research. 20 centimeters of a 1.5 square kilometer plant. NOK 200 million in investments.

Yielding a great result →

Yet, a huge impact: Increasing food production while reducing carbon footprints.

Chasing footprints

A GAME-CHANGER. Agriculture drives land use change, contributing to global warming. Increased agricultural efficiency and productivity can mitigate emissions. Yara combats high carbon footprint and drives efficiency:

Jørgen Ole Haslestad, President and CEO →





The benefits extend to the field. We've made our nitrates the fertilizers of choice for climate-conscious growers.

David Waller

Chief Engineer, Yara Technology Center



➔ *Jorgen Ole Haslestad, President and CEO*

CLIMATE CHANGE has much more to it than mathematical calculations and political quarrels. Being a farmer myself, I have first-hand experience with erratic weather patterns affecting yields.

As an industry leader, I can be part of the solution. Yara has engaged to mitigate global warming –

innovating to provide technology and knowledge, curbing emissions.

We have already developed catalyst technology that drastically reduces harmful emissions. We have cut greenhouse gas emissions from our own operations – by about half. This has made it possible for us to offer the world's first guaranteed

low-carbon mineral fertilizer. Major food companies eager to reduce their carbon footprints are exploring this as an opportunity in their supply chain.

CARBON FOOTPRINTS can be cut all along the food value chain. As the world-leading provider of crop nutrition solutions we collaborate with partners to increase yields while

PORSGRUNN: “It’s a real kick to develop something of such huge environmental proportions,” says David Waller, Chief Engineer at Yara’s Technology Center in Porsgrunn, Norway. The ‘something’ in question is, or rather was, a novel technology for curbing greenhouse gas (GHG) emissions from production of nitrate fertilizers. It has been doing well in Yara’s plants

for several years; in some for over five years. However, its impact on the fertilizer industry landscape and carbon footprint of food production has barely surfaced. “Our technology raises the bar, not only for fertilizer producers,” Waller adds. “The benefits extend to the field. We’ve made our nitrates the fertilizers of choice for climate-conscious growers.”




reducing emissions. Agriculture has the potential to become a solution to global warming – not just a cause. Globally, we have engaged to link the issues of food and climate.

An open mind and innovative spirit is also needed to find new approaches and develop new methods. We participate in research collaboration

and pilot projects to examine climate- and environment-friendly solutions.

Yara is a partner in the Sahara Forest Project, which launched its pilot future-lab in the Qatari desert in 2012. In the spirit of collaboration we also teamed up with Brazil’s renowned research institution, Embrapa.



Jørgen Ole Haslestad, President and CEO 

Certainly, the farmers' fields are central in limiting climate change. In a 2012 report the Consultative Group on International Agricultural Research (CGIAR) concluded that food systems were responsible for up to one third of all man-made GHG emissions in 2008. Agricultural production, including land use change, accounts for as much as 86 percent of emissions from food systems. Next on the list is fertilizer production, responsible for 3–3.5 percent. Breakthroughs are needed both on and off the field.

CATALYTIC IMPACT

Yet breakthrough is about the last word that comes to mind at the sight of Yara's catalyst technology: a matte green-grayish honeycombed pellet, about the size of the tip of your little finger. "Size and shape are important, but the real secret is in the composition," explains David Waller. "It consists mostly of cerium oxide, but it's the cobalt inside that makes it work."

And work it does. When placed in the burner of a nitric acid plant the pellets reduce N₂O emissions by as much as 90 percent. The catalyst splits nitrous oxide (N₂O) – a highly potent GHG and an unwanted byproduct from nitric acid production – into harmless nitrogen and

oxygen. Since its first full-scale installment in 2002, the catalyst technology has reduced Yara's total GHG emissions from production by roughly half.

GAME CHANGER

The catalyst pellets were conceived at Yara's Technology Center in Porsgrunn, part of the 1.5 square kilometer industrial site that hosts Yara's – and Europe's – largest production capacity for NPK complex fertilizers. To a stranger it resembles seemingly endless spaghetti of pipes surrounding and embracing large industrial structures that tower over the dock. From here, finished fertilizers are shipped in bags or bulk to customers worldwide. Some of the largest volumes find their way to China and other parts of Asia.

The impact of the catalyst technology goes beyond reduced emissions from nitrate fertilizer plants like Porsgrunn. It has also impacted on the perception of – and awareness of – nitrate-based fertilizers. To European farmers nitrates are known as the most efficient and reliable source of nitrogen. Now, with the catalyst technology, the clear climate and environmental advantage adds even more value. Nitrates perform better on the field, improving yields with less GHG emissions and loss of

nutrients. Before the catalyst these benefits were offset by large GHG emissions from the production. In came the pellets, removing emissions at the production stage and leaving nitrates with a clearly advantageous carbon footprint over their life cycle.



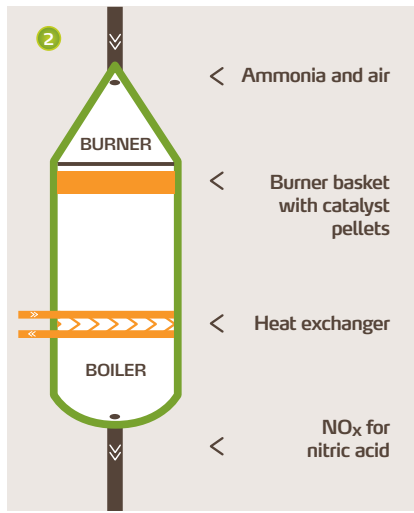
Triggered by the N₂O catalyst technology, Yara launched the world's first Carbon Footprint Guarantee in Scandinavia in 2010. This guarantees that the carbon footprint for nitrate fertilizers sold in Denmark, Finland, Norway and Sweden is below 3.6 kg CO₂ equivalents per kg nitrogen. Yara's nitrate fertilizer meets requirements for the Swedish Climate Certification for the Food Chain, an initiative supported by Yara.

➔ Jørgen Ole Haslestad, President and CEO



IMPROVED PRODUCTIVITY is the key to increasing yields and reducing emissions. Yara's main contribution is to offer solutions that improve the efficiency of scarce resources needed to produce the 70 percent more food needed by 2050.

Improving agricultural productivity and water use efficiency are priorities in Yara. Water scarcity and resource efficiency are two of our innovation pillars.



1 Chasing improvements: Yara's scientists work continuously to increase the efficiency and reduce the carbon footprint of fertilizer production. Access to a unique pilot plant allows for testing under real conditions. **2 Efficient removal:** The N_2O is formed when ammonia is reacted to produce the key ingredient in nitric acid. A 5–20 cm layer of catalyst pellets in the burner basket removes up to 90 percent of the N_2O emissions. **3 Best Available Technique:** Yara's catalyst pellets qualify as BAT under the EU IPCC Directive on industrial emissions.



Increased production and environmental responsibility must go hand in hand, and farming must be a profitable business, also for the world's smallholders. To produce enough food, fiber and fuel to meet future demand, we depend upon improving smallholders' productivity. Adequate crop nutrition and better practices are vital to meet growing demand.

We are facing a common future – and common, global challenges. Resolving the challenges can be done in partnerships.

GLOBAL ENGAGEMENT is Yara's way of contributing to the dialogue and the policy agenda, sharing our expertise on frameworks for sustainable agriculture.

In 2012 I had the opportunity to engage in key global and regional venues debating the future. One was the launch of the New Alliance for Food Security and Nutrition. Here, US President Barack Obama took the lead – illustrating the level of political attention to agriculture.



Resolving the challenges can be done in partnerships.

Jørgen Ole Haslestad, President and CEO

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1 PepsiCo's Tropicana: Yara's crop nutrition program can potentially decrease the carbon footprint of orange juice production by up to 50 percent. 2 PepsiCo potatoes: Field evaluations of Yara's low-carbon nitrates show that they can reduce the carbon footprint of growing potatoes for Walkers Crisps by 27 percent.



➔ Jørgen Ole Haslestad, President and CEO

“
*We create value
 by responding to
 the challenges of
 food, resources and
 environment.*”

AFRICAN AGRICULTURE has a huge untapped potential. I had the pleasure of presenting the 2012 Yara Prize at the African Green Revolution Forum (AGRF) in Arusha, Tanzania. We honored two outstanding contributors to the continent's food security.

AGRF has become *the* venue for exchanging ideas and entering partnerships, across business boundaries and sectors. It was inspiring to take part, to feel the enthusiasm and momentum.

A great swath of land across Sub-Saharan Africa has been dubbed 'Africa's Cerrado', referring to the vast expanse of highly productive cropland in Brazil. In 2012 Yara positioned itself for significant expansion in Brazil, which still harbors potential to increase its agricultural output, for food as well as fuel. We intend to help realize that potential.

YARA'S ENGAGEMENT is not altruistic. I'm a businessman heading a listed company; we're in it for business – to

SECRET: CORN

“It is a true case of innovation,” says David Waller of the process behind the pellet catalysts. “We harvested ideas from different disciplines, such as metallurgy and ceramic engineering, and applied them to our own.” He explains that the team struggled to find the right support phase, the base material, for the pellets. That’s when a failed test was turned into a success: The pellets changed color as the performance went from good to poor. Conclusion: The cobalt worked, but they had to find a support phase that would not react with the cobalt under the extreme conditions in the burner. The scientists found what they were looking for – in a fuel cell component: a cerium oxide with just the right properties.

Cornstarch is another and surprising key to the pellets’ efficiency. “Cornstarch gives them the right porosity. We mix it in with the other materials and then carefully burn it off from the finished pellet, leaving small cavities of the perfect size,” Waller explains enthusiastically. He praises the entrepreneurial attitude of the research team. “We had a strong and dedicated team that was willing to roll up their sleeves, push boundaries and really step into production of manufacturing equipment and pellets.”

FOOD FRONTIER

The team’s innovative spirit and hard labor has added to Yara’s competitive edge. “Food companies are increasing the pull for our crop solutions. They have ambitious sustainability and quality targets, and are passing new requirements on to their suppliers and contract growers,” says Egil Hogna, Yara’s SVP and Head of Downstream. “Our low-carbon fertilizers and agronomic knowledge resonate very well with their ambitions.” Hogna sees partnerships with food companies as an attractive way to reach more growers and spread Yara’s message that farming can become more productive without compromising the climate and environment.

“Yara’s work on fertilizers is one of the key elements in the carbon footprint work for our bakeries,” said Jacqui Macalister, Sustainability Executive of McDonald’s Europe, following a workshop at Yara’s agronomic R&D center Hanninghof in 2012 investigating options for reducing the footprint of the company’s burger buns.

The combination of state-of-the-art fertilizer production technology and best farming practices has already proven successful in projects on orange juice and potatoes with PepsiCo, and on coffee in Vietnamese fields.



It is a true case of innovation

David Waller

‘Halve the GHG impact of our products across the lifecycle by 2020.’ ‘Reduce the carbon emissions of the products in our supply chain by 30 percent by 2020.’ Ambitions for GHG reductions are high among food giants Unilever, Tesco and their like, driven by discerning consumers and general concerns over global warming.

Farming – and particularly the use of fertilizer – is a hotspot for achieving carbon emission reductions. Yara offers solutions to help food companies reach their targets: Low-carbon fertilizers and best farming practices can reduce the carbon footprint associated with fertilizer use for food production by 50 percent or more.

create value. But having a century long history, we take a long term approach. Yara positions itself by creating value not only for our shareholders.

Executing our growth strategy, we create value also for our customers, and we create value for society at large. By creating value, we create impact.

CREATING IMPACT is our blueprint to create business value in the way we respond to the human challenges of food, resources and the environment.



160
million people

Worldwide, Yara’s crop nutrition solutions support food production feeding 160 million people.

Jørgen Ole Haslestad, President and CEO

1 Halving the footprint: Yara's low-carbon fertilizer and best farming practices can reduce the carbon footprint of fertilizer use for food production by 50 percent or more, while saving land and maintaining yield.



I'd like to know if the principles of the catalyst can reduce emissions from other processes.

David Waller

GOOD FORESIGHT

Back at the technology center in Porsgrunn, David Waller is proud of Yara's forerunner role: "The technology is a case of good foresight and determination. We started to make provisions to regulations on emissions of N₂O well before this became an issue. The project was thoroughly anchored in management, and they were ready to spend."

Development of the catalyst hasn't stopped. Yara's scientists continue to investigate modifications, but Waller's curiosity now extends beyond N₂O emission. "We've spent ten years investigating what goes on in 20 centimeters of a huge plant, with exciting results. I'd like to know if the principles of the catalyst can reduce emissions from other processes."



➔ Jørgen Ole Haslestad, President and CEO

With our crop nutrition yields increase and quality improves – giving farmers a better income, creating opportunities. With our environmental solutions municipalities can cleanse the air, improving the health of their citizens.

We shall continue to make a difference; engaging in global dialogues while delivering solutions that add value to shareholders, customers and society alike – driving business growth.


Jørgen Ole Haslestad
President and CEO

NO_x

Worldwide, Yara's environmental solutions contributed to **reducing NO_x emissions by 866,000 tons** in 2012.



Strategic ambition: *Creating Impact!*

CREATING IMPACT is Yara's blueprint to create business value in the way the company responds to the human challenges of food, resources and the environment.

Yara's commitments include adherence to international human rights, labor rights and the principles of transparency and accountability. Yara firmly believes that its business conduct and development can deliver strong results both financially, environmentally and in terms of societal value.

In 2012, Yara fully adopted Creating Impact as the driver to create business value and our growth strategy. The foundation for this long-term growth is the

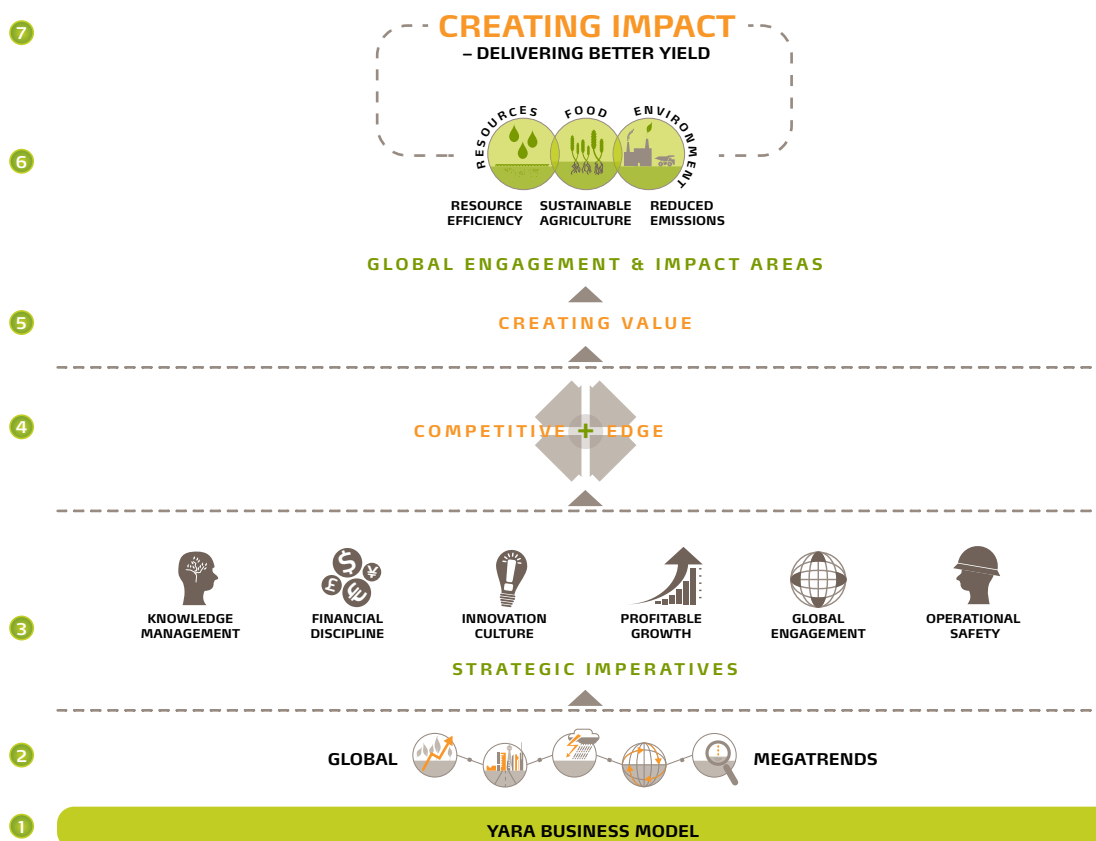
company's approach to creating shared value. Successful alignment of the company's current and future core business with global challenges will strengthen the company's position and develop a sustainable competitive edge.

IMPACT AREAS

By developing and delivering solutions addressing global challenges relating to food, resources and the environment, Yara will grow its business and find new business opportunities.

The three impact areas are intrinsically linked. Improved agricultural productivity is vital to meet an anticipated 70 percent increase in food demand by 2050. As the increased output has to be obtained with less input, resource efficiency is imperative. Simultaneously, global warming is already thought to affect world food production negatively, making reduced emissions another key intervention.

Yara contributes agronomic solutions to improve resource use efficiency, reduce the



Yara builds on its industry platform and **1** business model and is influenced by **2** global megatrends, when executing its strategy through six **3** strategic imperatives: priority areas. Yara's **4** competitive edge is the key to **5** creating value. Engaging globally, Yara has identified three **6** impact areas where it contributes substantial solutions – **7** creating impact.

need for land use change, drive technological innovation and introduce environmental solutions to reduce greenhouse gas emissions and other pollutants.

Yara is positioned to drive global dialogues, which also provide a platform for forging partnerships and engaging in global initiatives. Yara contributes its knowledge and solutions in debates on policy frameworks, industry processes and management practices. In recent years Yara has played an active part in several key initiatives, and

has entered into a number of partnerships. The common thread for Yara's engagement is improving efficiency, productivity and profitability – in a sustainable manner.

GLOBAL COMMITMENT

Yara is committed to transparency and accountability, which constitutes a foundation for the company's Code of Conduct and a core element of its Ethics and Compliance Program. Here, and through being a signatory to the UN Global Compact, Yara adheres to key international agree-

ments – including human rights and labor rights – and to international and national legislation where it operates.

A key commitment relating to production is Yara's adherence to the industry standard of Product Stewardship. Also, Yara has a clear policy on Health, Environment, Safety and Quality (HESQ) with strong emphasis on safety – and an ambition of zero accidents.



FTSE4Good

UN GLOBAL COMPACT LEAD

Yara has been admitted to the UN Global Compact LEAD. The group of companies comprise a vanguard playing an essential role in shaping expectations of corporate sustainability as well as advancing broader UN goals and issues. LEAD was launched in 2011 to provide knowledge and inspiration on advanced aspects of corporate sustainability, and to provide leadership for global issue platforms.

UN GLOBAL COMPACT

Yara has signed the United Nations Global Compact, embracing its principles. The UN GC is a strategic policy initiative for businesses committed to aligning their operations and strategies with ten universally accepted principles in the areas of human rights, labor, environment and anti-corruption.

FTSE4Good

FTSE Group confirms that Yara International ASA has been independently assessed according to the FTSE4Good criteria, and has satisfied the requirements to become a constituent of the FTSE4Good Index Series. Created by the global index company FTSE Group, FTSE4Good is an equity index series that is designed to facilitate investment in companies that meet globally recognized corporate responsibility standards. Companies in the FTSE-4Good Index Series have met stringent environmental, social and governance criteria, and are positioned to capitalize on the benefits of responsible business practice.



IMPACT *chronicle*

GLOBAL TRENDS *and challenges* p.12

are influencing Yara's business environment, challenging agriculture and future food security

YARA *engages* p.13

in policy processes, seeking answers to resource scarcity, food security and climate change

YARA *responds* p.16

by developing and delivering solutions for sustainable agriculture and the environment





We must find new ways to exploit the links between agriculture and other sectors, including health, nutrition, water, and energy.

International Food Policy Research Institute
'2011 Global Food Policy Report',
Washington D.C., 2012



1961



2005

Cultivated land per person has been halved since 1961.
UNESCO

CropWorld Global:

Yara participated in the 'CropWorld Global 2012' conference in London in November 2012, sitting on a panel on sustainable agricultural intensification.



B4E Global Summit:

Yara participated at the Business for Environment (B4E) annual Global Summit in Berlin in May 2012, presenting recommendations for the P. 13 Rio+20 conference.

GLOBAL TRENDS and challenges

During 2012 attention to the links between food demand, resource availability and climate change gained prominence. Within this context, agriculture is key.

2012 witnessed dramatic events with regard to climate conditions and food production, including the hottest summer ever recorded in the USA and the coldest winter in decades in China and Russia, all major food producers. World food prices remained high, at a level established after the food crisis of 2008. High prices are an incentive for farmers to invest in productivity, while threatening food availability to low-income families.



GLOBAL CHALLENGES

The world is facing a number of interrelated challenges relevant to agriculture and food production, as well as to key environmental issues.

RESOURCE SCARCITY

Related to food production, there is limited land available for farm expansion, and several regions face a critical scarcity of water.

FOOD SECURITY

To respond to population growth and dietary changes, world agriculture must almost double its output by 2050. This increase requires resource use efficiency and improved agricultural productivity.

CLIMATE CHANGE

Global warming is a major threat to future food security. Agriculture is vulnerable to climatic conditions, but may also mitigate global warming.



GLOBAL RESPONSES

Global challenges require integrated global responses from multiple stakeholders, where the private sector has an important role within all key issues.

RESOURCE SCARCITY

In 2012 global attention focused on P. 13 water scarcity. Agriculture currently consumes about 70 percent of freshwater withdrawals. In the future it will have to do with less. Entering the International Year of Water Cooperation 2013, the United Nations (UN) launched its new 'Water Development Report', noting the critical role of water in feeding the future world population with climate change exacerbating water stress.

An action framework for agriculture and food security, 'Coping with water scarcity', issued by the Food and Agriculture Organization of the United Nations (FAO) in 2012, pointed to improved agricultural practices and increased water productivity as major response options.

FOOD SECURITY

In 2012 global attention focused on investments in agriculture. In its 'The State of Food and Agriculture 2012', the FAO called for more and better investments as one of the most effective ways to reduce hunger and poverty while safeguarding the environment.

The outcome document of the P. 13 Rio+20 conference, 'The future we want', called for increased private sector participation, and committed to food security and sustainable agricultural development. In May, the G8 launched its P. 13 'New Alliance for Food Security and Nutrition', responding to the continuous high levels of food insecurity in Africa.


CLIMATE CHANGE

In 2012 global attention focused on climate change. The Rio+20 summit stated that "climate change is one of the greatest challenges of our time". The World Bank report 'Turn Down the Heat' indicated a potential rise in global temperatures of 4°C. Another 2012 study, by the Global Carbon Project Consortium, stated that with present levels of atmospheric CO₂ global warming could reach 5°C by 2100 – with dire consequences.

YARA engages

Engaging in global issues through policy processes and business partnerships is an integral part of Yara's business strategy.

In 2012 Yara reiterated its commitment to promote solutions for sustainable agriculture and the environment. This global engagement largely targets three focal areas where Yara can wield particular impact: resources, food, and the environment.

In 2012 Yara issued policy papers on Agriculture and climate;  the Baltic Sea; Genetically Modified Organisms; Biofuels; and Organic farming.

PARTNERING AT WEF

WEF: Yara is an industry partner to the World Economic Forum, participating at the annual meetings in Davos as well as regional summits. The WEF provides a unique platform for engaging with major stakeholders. Within this framework Yara has joined processes such as the New Vision for Agriculture.

At the 2012 WEF Annual Meeting Yara co-hosted and moderated a session on the 'Food, Water, Energy, Climate Change Nexus'. The President and CEO of Yara, Jørgen Ole Haslestad, co-chaired a meeting on Green Growth, framing the debate on agriculture's role in promoting sustainable economic progress.


During 2012 Yara's Senior VP Sean de Cleene was a member of the WEF Global Agenda Council on Climate Change, focusing on low-carbon and resource-efficient growth.

MEETING IN RIO

RIO+20: World leaders

and a variety of stakeholders convened for the UN Conference on Sustainable Development in Rio de Janeiro, Brazil in June 2012.

Yara participated at the Rio+20 summit, and in the Sustainable Growth Summit at the WEF on Latin America, in Puerto Vallarta, Mexico, in April 2012, leading up to the Rio summit. Here the importance of public-private partnerships as an approach to sustainable growth was highlighted.

G20: Yara joined the Green Growth Action Alliance (G2A2), launched at the  G20 / B20 Summit in Los Cabos, Mexico, in June 2012.

The G2A2 is a public-private partnership initiative comprising 50 global companies that aims to address the shortfall in green infrastructure investment, including sustainable agriculture.



RESOURCES

In 2012 Yara reinforced its attention to resource management, with an emphasis on nutrient and water use efficiency. Satisfying future demand for agricultural products requires improved productivity and resource use efficiency.

WATER SCARCITY

SCI: Yara sponsored the "More crop per drop – raising water use efficiency" seminar hosted by



Food security is a moral imperative, but it's also an economic imperative.

BARACK OBAMA
President of the USA
Launching the New Initiative,
Washington, 2012



The New Alliance for Food Security and Nutrition is a commitment to raise **50 million people** out of poverty over the next

10
years




Investment Forum:

Yara participated in the 'Grow Africa Investment Forum' in Addis Ababa, Ethiopia in May 2012, which was held in conjunction with the WEF on Africa summit, and included several heads of state.

A New Alliance to Grow Africa

In 2012 the New Alliance for Food Security and Nutrition, a public-private partnership, was launched at the G8 summit, building on the Grow Africa partnership established in 2011.

The Grow Africa partnership aims to accelerate private sector investments, enable multi-stakeholder partnerships and expand knowledge. The platform builds on partnership models championed through the  New Vision for Agriculture.

Yara is a member and a co-chair of the Grow Africa Task Force and has been a catalyst and contributor to the process leading to its formation. The first step was the launch of the  Agricultural Growth Corridor concept for the African Green Revolution.

The G8 collaborated with Grow Africa when establishing the New Alliance for Food Security and Nutrition in 2012, with a goal to support inclusive and sustained agricultural growth. Yara represented the private sector in Washington DC, USA in May 2012, when President Barack Obama launched the New Alliance.

» yara.com/sustainability

the Society of Chemical Industry in London, UK.

WEF: The Nexus meeting at the 2012 WEF Annual Meeting, co-hosted by Yara, focused on the unprecedented crunch on water and other global resources in the years to come and the need to look for holistic solutions.



FOOD

In 2012 Yara made its commitments to the African Green Revolution more specific, increasing its involvement in food **16** value chains. Yara advocates sustainability in agriculture as a way to increase profitability while reducing environmental footprint.

» yara.com/sustainability

AFRICAN GREEN REVOLUTION

AGR: Yara has engaged in the African Green Revolution for a decade, and continued to take an active part in 2012.

The second African Green Revolution Forum (AGRF) convened in Arusha, Tanzania, in September. Yara was one of the main sponsors and CEO Jørgen Ole Haslestad co-chaired the event. He emphasized the great value of the AGRF as *the* meeting place for African agriculture development and an important incubator for innovative solutions.

Discussions centered on ways to scale up investments and innovation, and through this build the foundation for rapid growth in agricultural productivity and income for African farmers. Proposed actions included initiatives to leverage catalytic finance and reinforce capacity for regional trade. Other actions

suggested were innovative development of stable food chains and active engagement by the private sector with parliamentary select committees.

THE YARA PRIZE

YP: The Yara Prize for an African Green Revolution 2012 was awarded to two prominent African leaders, from the public and private sector: Dr. Agnes Kalibata, Minister of Agriculture and Animal Resources in Rwanda, and Dr. Eleni Gabre-Madhin, former CEO of the Ethiopian Commodity Exchange (ECX) in Ethiopia.

» yara prize.com

UNITED NATIONS GLOBAL COMPACT

UNGC: Yara is a signatory to the UN Global Compact and was invited in 2012 to join its Core Advisory Group on Sustainable Agriculture Business Principles.

The UNGC works together with the FAO on developing 'Voluntary business principles for sustainable agriculture', to be ready late 2014. Yara will participate in this, sharing its knowledge and offering its expert opinion on key issues pertaining to the future of agriculture and food production.

In early 2012 the UNGC presented its framework for action on Corporate Sustainability Leadership to the **13** Rio+20 process. Yara was one of the signatories, as a member of the UNGC's Caring for Climate group.

INVESTING IN PRODUCTIVITY

G20: Yara's CEO Jørgen Ole Haslestad was a member of the Task Force on Food Security, established by the Mexican presidency



Green growth strategies are growth strategies with the additional goal of fostering a better environment.

The World Bank
'Inclusive Green Growth'
Washington D.C., 2012

43%

of developing-world farmers are women. (FAO)



BCTA

Yara is a member of the Business Call to Action (BCTA), challenging companies to develop innovative business models that achieve commercial success which drive sustainable development.

IFDC

Yara is a partner to the International Fertilizer Development Center (IFDC), promoting research and knowledge to increase food production, especially in the developing world.

at the G20 / B20 summit. Key recommendations of the B20 Summit in June 2012 were to:

- increase investments to improve productivity
- ensure sustainability through effective resource management, including improving water use efficiency
- apply climate smart agriculture.

The Task Force pointed at the need for increased private investments in agriculture to help reach the twin goals of improving productivity and increasing production. Also, it advocated optimization of productivity through actions like strengthening the **16** value chains and agriculture systems, improving market access for smallholder farmers and bolstering the support for small-scale farmers, especially women.

FEEDING THE WORLD

FtW: Yara participated in the Feeding the World conferences hosted by The Economist in Johannesburg, South Africa, in November 2012, and in Amsterdam, the Netherlands in January 2013.

In Amsterdam Yara's CEO Jørgen Ole Haslestad discussed smart partnerships and how to explore opportunities to collaborate in order to deliver improved nutrition and sustainable agricultural markets to benefit local communities and global consumers. Yara has engaged in public-private partnerships for several years, including **16** value chains as one avenue of transformative collaboration.

MICRONUTRIENTS FOR HEALTH

IFA: Yara's general crop nutrition and specialized

m micronutrient knowledge is drawn upon in several international forums.

In 2012 Yara's senior scientist, Dr. Kevin Moran, was a member of the editorial committee of the three-volume scientific review 'Fertilizing Crops to Improve Human Health', issued by the International Plant Nutrition Institute (IPNI) and the International Fertilizer Industry Association (IFA). The review was launched at the COP18 in Doha.

ENVIRONMENT

In 2012 Yara remained committed to developing and delivering environmental solutions for agriculture, industry and society through both innovative technologies and policy dialogues arguing for improved practices.

EU AGRICULTURE

CAP: In 2012 Yara continued to take part in processes on farming within the European Union (EU), the company's largest market.

Issuing a position paper on the future of the EU's Common Agricultural Policy (CAP) towards 2020, Yara advocated the provision of incentives to improve resource use efficiency and promote good agricultural practices.

BALTIC: In 2012 the EU launched its 'Blueprint to Safeguard Europe's Water Resources', building on the 2000 Water Framework Directive.

In 2012 Yara launched a position paper describing the company's approach and engagement in the Baltic Sea region, pointing to

the implementation of best agricultural practices as the most viable solution. Several of Yara's principles were accepted in public documents and policies for the region. Key innovations have been tailored to the challenges of the Baltic Sea region and are recommended by EU Baltic Sea flagship projects, among them the **P.18** Yara N-Sensor and the P-trap project to trap phosphorous in the field.

CLIMATE CONFERENCE

COP18: World leaders convened for the 18th Conference of the Parties in Doha, Qatar in November–December 2012.

Yara was present at the COP18, where the **P.17** Sahara Forest Project pilot facility outside Doha was unveiled. At the COP Yara participated in a session of long-term fertilizer demand forecasting to 2050, including the controversial 'Peak Phosphate' hypothesis.

COOL FARMING

CFI: Yara is one of the founding partners of the Cool Farm Institute (CFI), a not-for-profit organization promoting agricultural practices that reduce GHG emissions.

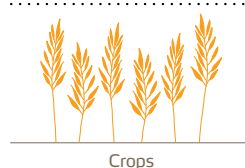
Launched in May 2012, the CFI's mission is to enable millions of growers to make better informed on-farm decisions that improve their environmental impact. Focusing on GHGs first, the institute provides the Cool Farm Tool (CFT), a free support tool that helps growers measure the carbon footprint of crop and livestock products.

By 2012 the CFT had been used on about 30 different crops worldwide. As of 2013, Unilever requires all its suppliers of fruits and vegetables



Balanced fertilization [...] increases resource use efficiency by crops, particularly the efficiency of nitrogen and water use.

The International Fertilizer Industry Association (IFA) in 'Increasing Agricultural Productivity to Mitigate Greenhouse Gas Emissions', Paris, 2012



Crops

Precise tools

Yara's tools for precision farming range from the handy **ImagelT** and **CheckIT** mobile apps to the tractor-mounted **P.18 N-Sensor**.



Future Forum:

Yara participated in the 5th 'Forum for the Future of Agriculture' (FFA) event in Brussels, Belgium in March 2012, where Yara's Head of Downstream Egil Hogna held a presentation on sustainable agriculture and its future role at the heart of the EU's Common Agricultural Policy (CAP).

Imaging the crop

Yara continued its digital innovation in 2012, adding the new smartphone app **ImagelT** to its range of mobile tools for growers.

The **ImagelT** app essentially turns a smartphone camera into a high-tech crop nutrient scanner. It analyzes images taken by growers and calculates the nitrogen uptake in the crop based on leaf cover, color and fraction of brown leaves. The growers receive the nitrogen rate along with quality assured fertilizer recommendations that will increase the yield and quality of the crop.

ImagelT is a highly advanced yet user-friendly and flexible agricultural tool. It is largely insensitive to camera type and is available in selected markets for iOS, Android and Windows Mobile. In poor signal areas pictures can be stored offline and growers can also receive nutrient reports via email.

ImagelT joins the two other Yara apps **CheckIT** and **TankMixIT**. The first helps growers identify and correct nutrient deficiencies in their crops. The latter provides advice on the suitability of spray mixtures with the Yara-Vita range of foliar products and other agrochemicals. Easy to use, the three apps keep Yara's knowledge readily at hand for customers.

to complete the CFT for a sample of at least 30 farmers per crop, amounting to over 10,000 farmers worldwide.

CAP AND TRADE

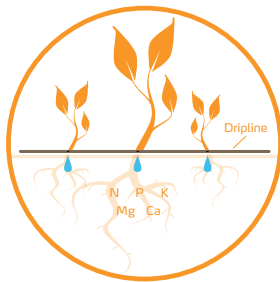
ETS: Entering its phase III in January 2013, the European Union's Emission Trading System (EU ETS) includes European nitric acid plants for the first time.

All of Yara's nitric acid plants had installed catalyst technologies for reducing GHG emissions ahead of time, making the economic impact of the ETS neutral for Yara.

BURGER BUNS

LCA: Global food companies are eager to reduce their carbon footprints. One of these is McDonald's.

In 2012 Yara's agronomic R&D center Hanninghof helped McDonald's Europe examine the carbon footprint (CFP) of bakery products by studying the production of wheat grain. Yara carried out scientific trials on how to produce high quality wheat at the lowest possible CFP.



Fertigation

Yara is the industry leader within fertigation – the practice of applying soluble fertilizers along with water through an irrigation system.



Green Week 2012:

Yara participated in the European Union's (EU) Green Week Conference 'Every Drop Counts' in Brussels in May, presenting the company's solutions regarding water scarcity and resource use efficiency.



Better buns

McDonald's and Yara together examined the carbon footprint of bakery products in 2012.

YARA responds

Yara aims to grow its business and explore new opportunities by developing and delivering solutions addressing global challenges.

In 2012 Yara continued to contribute agronomic and environmental solutions within the three areas where the company can make the most impact: resources, food and the environment. Yara also expanded its participation in value chains, regarding this as a way to help boost sustainable food production while demonstrating the effectiveness and efficiency of the company's solutions.



RESOURCES

Yara is addressing the global challenges of water scarcity by improving water use efficiency, turning this constraint to agriculture into a business opportunity.

In 2012 Yara stated its ambition to be the market shaper for water scarce agriculture and the leading supplier of crop nutrition solutions responding to water scarcity issues. The water innovation platform Yara launched in 2011 guides the company's efforts to provide new solutions. Several projects have been initiated based on the platform, including the development of water footprint sensors.




FOOD

Yara has identified agricultural productivity as the main avenue to achieving food security in a sustainable way.

NEW VISION

At the WEF 2013 Annual Meeting the New Vision for Agriculture (NVA) initiative presented a report highlighting new models for action.

Yara participated in the development of the NVA, launched in 2010, and has remained a member of the Project Board. The initiative has catalyzed a number of multi-stakeholder partnerships in Africa, Asia and Latin America, including the regional partnership  13 Grow Africa.

The report highlights model partnerships like the coffee value chain in Vietnam, to which Yara is a partner. Another example is the development of infrastructure and value chains along a growth corridor in Tanzania, a concept originally launched by Yara.

VALUE CHAINS

Yara has engaged in several food value chains, helping to increase food security and economic development, as well as providing business opportunities.

In 2012 Yara reaffirmed its engagement in food value chain developments by continuing its participation in existing initiatives in Ghana, Mozambique, Tanzania and Vietnam. Yara also committed to new ones in Burkina Faso, Ghana and Tanzania, as well as expanded its collaboration with Nestlé to look into new coffee value chain opportuni-

ties, potentially in Africa and Latin America.

GROWTH CORRIDORS

After launching the Agricultural Growth Corridors (AGC) concept at the United Nations in 2008, Yara has been a catalyst in the establishment of two corridors in East Africa: The Beira Agricultural Growth Corridor (BAGC) in Mozambique and the Southern Agriculture Growth Corridor of Tanzania (SAGCOT) are inclusive public-private partnerships for agricultural transformation.

In SAGCOT a Greenprint was developed in 2012 as a green growth investment framework to ensure that the corridor development is environmentally sustainable, socially equitable and economically feasible. The strategy aims to help large numbers of farmers move from being subsistence producers to generating marketable surpluses. » yara.com/sustainability

BOD: In June 2012 Yara's Board of Directors and CEO Jørgen Ole Haslestad were received by the President of Tanzania, Jakaya Kikwete, to discuss SAGCOT progress. The Board of Directors visited Tanzania where the construction of Yara's new fertilizer terminal in Dar es Salaam commenced in 2012. This is a corridor project scheduled for completion in 2013.

GROWTH COMMITMENTS

In connection with the launch of the ¹³ New Alliance several global businesses signed Letters of Intent (LoI), committing to invest in Africa.

Yara signed LoIs with the governments of Ethiopia, Ghana, Burkina Faso and

Tanzania respectively, with the intention of continuing ongoing initiatives as well as establishing more food value chains. New initiatives covered include rice value chains in Ghana and Burkina Faso, and two to three value chains under SAGCOT. At a pan-African level Yara is undertaking a significant business development activity to identify the most competitive location to develop a world-class fertilizer production facility, taking into consideration a range of factors including pricing of raw material, infrastructure developments and location relative to market potential. The overall local and regional potential for agricultural development is of critical importance, where a manufacturing facility can act as a catalyst for growth and underpin the viability of sustainable food production.

KNOWLEDGE TRANSFER

The transfer of knowledge to farmers is a key to sustainable agriculture. In 2012 Yara continued its interaction with local growers around the world.

Yara shared its knowledge on crop nutrition and fertilizer application with growers in several ways; through ¹⁵ fertilizer application tools and by engaging farmers in local meetings, often in connection with demonstration plots. Farmers' meetings were held in several countries, including Ghana where Crop Clinics in the form of open forums and field-based one-on-one consultations allowed farmers to discuss strategies for increased farm productivity and efficiency. In Thailand Yara aimed at reaching about 60,000 farmers at 1,200 workshops throughout 2012.



We should involve the private sector. Proactively.

JAKAYA KIKWETE
President of Tanzania
African Green Revolution Forum,
Arusha 2012



Crop Nutrition

The Yara Crop Nutrition concept offers growers a unique package of products and services, bringing local answers to global challenges.

Greening the desert

In 2012 the visionary idea of growing food in the desert, utilizing solar power and seawater, was realized through the Sahara Forest Project's (SFP) pilot facility outside Doha, Qatar.

The project, which is supported by Yara and its joint venture Qafco, opened its greenhouses for guests during the ¹⁵ COP18 in Doha in December, offering vegetable snacks grown using solar power and salt water.

The SFP is a pioneering environmental project with a unique approach to food security and climate change, using restorative practices to establish vegetation in desert areas.

Yara signed the cooperation agreement to build a pilot facility in February 2012, paving the way for construction and testing. The project aims to produce food, fresh water, clean energy and biomass using proven green technologies.

» yara.com/sustainability



Fertilizer innovation:

Yara CEO Jørgen Ole Haslestad served as Chairman of the International Fertilizer Industry Association (IFA) Standing Committee on Innovation and Research in 2012.



ENVIRONMENT

Yara has identified reduced emissions as a major global issue to which it can contribute sustainable solutions.

CLIMATE COMPATIBILITY

R&D: Improving agricultural productivity is the main avenue towards achieving food security while protecting the environment.

In Tanzania Yara looks at climate compatible, sustainable intensification of maize and rice production. Field trials conducted in 2011–12, continuing in 2013, indicate significant increases in crop productivity as well as farmer profitability as a result of improved input application. At the same time the carbon footprint (including potential land use change emissions) has been radically reduced compared to traditional practices.

The project, conducted in partnership with Syngenta of Switzerland, Tanzania's Sokoine University of Agriculture and the Norwegian University of Life Sciences, is linked to the development of 16 growth corridors in East Africa.

FOOD ECO-IMPRINT

WFLDB: In 2012 Yara joined with other key stakeholders in founding the World Food Life Cycle Analysis Database (WFLDB), aimed at charting the environmental impact of the food industry.

A full life cycle approach is needed to understand and assess the environmental impacts, risks and opportunities connected to food production and consumption, of which carbon footprint is one element. The databases

will collect and provide inventory data to aid decisions and communication on the eco-impact of food products and processes. The project will be completed in 2015.

BRAZILIAN PARTNERSHIP

R&D: Efficient use of crop nutrients and their environmental impact on production systems in tropical soils is the core of the research agreement between Yara and *Empresa Brasileira de Pesquisa Agropecuária* (Embrapa). Through the agreement signed in November 2012 the world leader in crop nutrition and a world leader in agronomic research joined efforts to investigate agronomic efficiency and carbon footprint on different crops in Brazil, one of the fastest-growing economies in the world.

Embrapa is the largest research institution in Brazil and a key contributor to the country's agricultural growth. Brazil has become one of the world's largest agricultural producers, with significant potential for increases in acreage and yields. Yara further strengthened its position in Brazil in 2012, aiming to become the country's number one fertilizer company.

SWEET SUCCESS

CANE: Sugarcane is a major crop in Brazil, especially as feedstock for biofuel production. In 2012 Yara launched its first sugarcane PlantMaster to support productivity improvements. Yara also introduced its Crop Nutrition program 'Longevita' in 2012. Brazil is by far the world's largest, and a highly efficient, producer of sugarcane. Still, productivity can be improved based on Yara's recommendations and use of the N-Sensor technology.



Benchmark technology

The tractor-mounted N-Sensor reads nitrogen requirements and adjusts fertilizer application rates as the tractor moves across the field.



Plantmaster

Yara launched its first Plantmaster nutrient guide for sugarcane in 2012.

866,000
tons

of NO_x emissions were cut in 2012 by Yara's deliveries of abatement solutions.



YARA'S BIRKELAND PRIZE 2012 was awarded to Dr. Yun Cheng for her doctoral thesis 'Hydrodynamics and Freeze Out Problems in Energetic Heavy Ion Reactions', carried out at the University of Bergen, Norway.

POWERFUL SALTS

R&D: In 2012 Yara launched a new grade of potassium calcium nitrate, a salt that reduces cost and improves performance in concentrated solar power (CSP) plants. CSP systems use mirrors or lenses to concentrate sunlight and heat water, oil, or molten salts. The stored heat is then converted to

electricity when needed. Yara's solution reduces the melting point of the molten salt and is less corrosive. This makes the molten salt more versatile and reduces cost significantly for CSP plants.

EMISSION TERMINATORS

NO_x: In 2012 Yara's NO_x abatement solutions saw continued strong growth, further reducing global emissions. Yara is the world's largest producer of AdBlue/DEF/ARLA 32, the reagent used in NO_x abatement in vehicles. Demand for the reagent continued to grow in 2012, particularly in the USA. Yara also launched its product in the Brazilian market and closed several supply agreements with leading producers of heavy-duty vehicles.

In the industrial market for NO_x abatement Yara has become a global leader in SNCR systems. Following the acquisition of PetroMiljö in 2011, YaraMiljö has emerged with a united portfolio of chemicals, technology and services. In 2012 YaraMiljö sold a record-high 28 systems, contributing to reduced NO_x emissions from industry worldwide.

Thriving on partnership

5 years of transformative collaboration:
Maize for prosperity

Ghana Grains Partnership

*Partnering to improve maize productivity
and increase farm profitability*

Value chain intervention

*Engaging throughout the food value chain
to enhance food production*



1 **Maize:** With good harvests, Ghana is practically self-sufficient in maize. 2 **Cocoa:** Ghana ranks among the world's leading exporters of cocoa.

Prosperity in Ghana

AN AFRICAN SUCCESS STORY.

Agriculture is the economic backbone. Economic growth has been consistent. Ghana is moving towards prosperity.



“Now, I can even afford to send my children to school.”

Mohammadu Nindow

Maize farmer



➔ Prosperity in Ghana

+5%

During the past 25 years Ghana has recorded annual agricultural growth of more than five percent.¹

GHANA was the black star of Africa's quest for independence. Again, the West African country shines bright – hailed as the continent's premier development success story. After years of consistent economic growth, Ghana in 2012 entered the ranks of low middle-income countries. The country is on track to reach the first of the Millennium Development Goals: to cut poverty in half by 2015.

GOLD used to be the main contributor to Ghana's coffers, before and after independence, competing with cocoa as the main foreign exchange earner. Even with oil and gas adding revenues, and more than half of the 25 million inhabitants now living in urban areas, agriculture remains the backbone of Ghanaian economic development and social fabric – creating jobs and food security.

DUYIN: “I’m known around here as Papa Actyva, because I married Yara Actyva fertilizer as my wife! That’s why they call me Papa Actyva!” Muhammadu Nindow, a wiry, enthusiastic – and successful – smallholder maize grower in the Northern Region of Ghana says with delight. Which his first two wives, Ayishetu Muhammadu and Adiza Muhammadu, undoubtedly can cope with. After all, their husband’s affair with Actyva has brought prosperity to their village compound. Higher yields have increased the household income – and improved its livelihood. All according to plan.

‘Papa Actyva’ is a well-known farmer in the Duyin village, 15 kilometers out of Tamale, the region’s capital town – in this rather dry and dusty part of West Africa. Here, the Ghana Grains Partnership (GGP) has made an impressive imprint since it was formed and field-tested in this corn country – within the breadbasket of Ghana – back in 2008.

Maize is the staple crop of Ghana, and the major source of income for smallholders of the North. Maize is life. No wonder that the farmers’ association, which the GGP helped to set up in 2009, bears the name

Masara N’Arziki: ‘Maize for Prosperity’ in the local Hausa language.

SOIL DEPLETION

In the off-season most fields here lie exposed to erosion. “Soil depletion is an epidemic,” declares Dr. James Mantent Kombiok, a crop scientist with the Council for Scientific and Industrial Research (CSIR)/the Savannah Agricultural Research Institute (SARI) in Nyankpala near Tamale. Poor soil fertility is the major problem in the north he says, stating: “Without fertilizer the soil will have no nutrients; without fertilizer no cereals can be produced here.”



1 ‘Papa Actyva’: In Duyin village, Northern Region, Muhammadu Nindow has increased his yields and income by adopting improved technologies on his 20 acres of maize and 10 acres of rice. His average maize yield is now 3.75 ton/ha, more than three times higher than his previous harvests. 2 Dr. James Mantent Kombiok: Ghana’s internationally known agronomist and soil scientist argues the need to replenish lost nutrients from the soil with mineral fertilizers, if yields are to improve.



Soil depletion is an epidemic.

James M. Kombiok

Soil scientist

COCOA remains the single most important agricultural produce, the main cash crop. Ghana ranks second only to neighboring Côte d’Ivoire as the world’s leading producer. Ghana’s high quality beans often sell at significant premiums on the international futures markets. Cocoa represents about 20 percent of the country’s agricultural GDP, employing around 720,000 people² – mainly smallholders.

MAIZE is the second most important commodity crop in Ghana after cocoa. It is the main staple crop, accounting for more than 50 percent of total cereal production³, followed by rice. Of the estimated 5 million small-scale farm households, more than one million earn their main income from the production of maize⁴. With production increases and an output of about 1.7 million tons⁵, Ghana is self-sufficient in maize.



¹ IFPRI: ‘Ghana Strategy Support Program, Discussion Note #019’ (2012). ² ADB/AfDF: ‘Republic of Ghana Country Strategy Paper 2012–2016’ (2012) ³ USDA: ‘Ghana Grain and Feed Annual’ (2011)

⁴ WABS: ‘Maize Value Chain Study in Ghana’ (2008) ⁵ MoFA, Ghana (2012)

1



1 Fertilizer facility: In the port city of Tema, Yara operates a blender facility and a warehouse for mineral fertilizers with a capacity of two millions bags. Yara is the major importer of mineral fertilizers to Ghana, offering solutions to a number of crops, including cocoa – a major foreign exchange earner. **2 Mehdi Saint-André:** The Managing Director of Yara Ghana has seen fertilizer application – and crop yields – increase during his four years in Ghana, contributing to the country's agricultural progress. **3 Henry Otoo Mensah:** The Masara N'Arziki was established as a vehicle to address the challenges confronting the smallholder maize farmers of Northern Ghana. **4 Luuc Smits:** Through the Ghana Grains Partnership and the Mazara N'Arziki maize farmers are offered the tools they need. Picking them up, they can triple their yields.

2



3



➔ Prosperity in Ghana

x2

Field trials adding Nitrabor saw cocoa yields double, to about 1,600 kg/ha – or even more.⁶

YIELDS are well below their potential, for both cocoa and maize. Even for the all-important cocoa only about 20 percent of the acreage is fertilized, and application is normally below recommended levels. Yara is the main provider of mineral fertilizers to Ghanaian agriculture. In 2012 Yara introduced the Nitrabor specialty fertilizer to complement its leading Asaase Wura ('Master of the Land') blend.

GROWTH in food production is ascribed to expansion of cropland and increases in commodity prices rather than increased productivity. The Government of Ghana estimates that stagnating productivity has resulted in yields for most crops typically being 20–60 percent below levels achievable with available technologies⁷, including the use of improved seeds and mineral fertilizers.

His method is basic: “The knowledge-based approach is essential to improve farmers’ yields,” Dr. Kambiok argues. “If you know what is missing in the soil, you recommend a replacement.”

Still, to replace all depleted nutrients of the African field is not feasible, says Mehdi Saint-André, Managing Director of Yara Ghana Ltd. To be efficient, nutrients must be targeted at the plant itself. This is the essence of Yara’s Crop Nutrition Concept, supporting plant growth and farm productivity. “If you provide the right inputs to a farmer, he can easily triple the yield. And the whole community will benefit from it.”

CROP KNOWLEDGE

Fertilizer is not enough. “You have to bring the knowledge with it,” argues Saint-André. “That’s how we add value to the farmer.”

“I got the crop nutrition knowledge from Yara,” ‘Papa Actyva’ declares. “They give me knowledge on how to plant and how to apply the fertilizer, how to do it. So, I have seen difference from the other fertilizer companies. I realized that only Yara people came to our communities to educate us. We have never seen any come and educate us! This is our fertilizer!”

Although most of his crop is stored in the Masara warehouse, the farmer has kept some sacks of maize: white, dried kernels – the region’s staple. “When applying Actyva we can see the root go down and get strong. Even with heavy rain it will not cause erosion, but tie the ground. It supports the environment of the land,” he says – pointing at another sustainability aspect of the program.

FARMERS ASSOCIATION

“Generally, Ghanaian farmers are confronted with a lot of problems, including inputs and knowledge, and – of course – financial capacity to carry out their activities,” explains Henry Otoo Mensah, Retail Sales Manager with Yara Ghana. Within the GPP, the Masara N’Arziki was established as a vehicle to address these problems.

The small- or medium-scale farmers are the backbone of Ghana’s agriculture, Luuc Smits, the Masara General Manager adds. “If you want to make an impact, you have to include the smallholders.” The farmers’ association, he says, is a tool for the farmers to access the four things most in want; credit, quality inputs, know-how and ready markets. “If they take it up, they can do what they already do – much better.”



If you want to make an impact, you have to include the smallholders.

Luuc Smits

General Manager

FERTILIZER use is encouraged by the government, which in 2008 introduced a subsidy program covering about 40 percent of fertilizer imports and contributing to increased application. The low rate of nitrogen fertilizer application (about 6 kg/ha⁶) is a major reason for the low – and stagnating – yields of main crops. Without subsidies, fertilizers would be prohibitively expensive, especially for smallholder farmers.

YARA is the main provider of mineral fertilizer to Ghana. From its bulk blender facility in Tema and a warehouse with a capacity of two million bags, Yara’s fertilizer is distributed throughout the country. Yara cooperates closely with the authorities, research institutions and other companies, and shares its crop nutrition expertise with growers through Crop Clinics.

STRATEGIES approved by the Ghanaian government emphasize a productivity-driven and high value agricultural growth to transform the sector. Enhancement of productivity within the commodity value chain is a policy priority, and the government encourages investments in agriculture and the development of inclusive public-private partnerships and smallholder linkages to increase on-farm productivity.

⁶ Yara Ghana field trial reports (2012) ⁷ IFPRI: ‘Economic Transformation in Ghana’ (2012).

⁸ WB/ARD: ‘Agribusiness Indicators: Ghana’ (2012)



It's only through tackling the full value chain that we will be able to make a massive impact for smallholders in Africa.

Mehdi Saint-André

Managing Director

Through Masara the farmer can get access to all the things he needs for a productive and high-yielding farm. “All the partners involved, like the suppliers and the farmers themselves, are in this model equally. Everybody understands that the success of one is success for everyone.”

“Belonging to Masara you get a lot of benefits,” says Asutani Baba, another Duyin maize grower. “In the last three to four years I have seen good quantities of maize. Myself, I got 397 minibags from six acres this year, which is a very, very fantastic result.”

Economically, the GGP and Masara have empowered a lot of farmers. Yara’s Henry Mensah says. “Farmers are able to take their children to school and to hospital,

and to build their own houses.” Which is confirmed by ‘Papa Actyva’, Mohammadu Nindow: “Even a poor peasant farmer can use one bag of Actyva and get yields to feed his family. Now I can even afford to send my children to school. This year, three children go to senior high school, others are still in primary school.”

“If you look at developing the farming sector in Ghana, the smallholder farmers – cropping about one to five hectares – should be the target group,” argues Henry Mensah.

By the end of 2012 Masara listed over 9,000 smallholder maize farmers. Mensah considers the program a good one: “It’s efficient and has helped the farmers to achieve higher yields and increase their profits.”

VALUE CHAIN

The value chain is the key, Mehdi Saint-André emphasizes. Through the GGP, several companies have joined forces to provide vital inputs and finance services, while food companies guarantee a market for the extra yield – with Masara buying the crops and paying the farmers.

“It’s only through tackling the full value chain that we will be able to make a massive impact for smallholders in Africa,” says Saint-André, who has seen the GGP become a success story during his four years in Yara Ghana, three of them as the

company manager. “We will not change agriculture in Africa without addressing the smallholders. And we need to have a long vision, because this will take time.”

VIABLE MODEL

“The GGP,” explains Saint-André, “is a viable business model, able to tackle the smallholders’ challenges by improving their production, increasing their profit and tackling food security in North Ghana.”

“In the region, many farmers are looking at us as model farms and trying to adapt the practices we are using, putting away orthodox ways,” explains Masara member, maize farmer Asutani Baba. “With time,” he ponders, “adapting these practices, we will not have problems with food production, at least not for maize.”

In the capital Accra, achievements up north are acknowledged. “The Ghana Grains Partnership is a wonderful model for agricultural development,” states Emmanuel Asante Krobea. The Director of Crop Services with the Ministry of Food and Agriculture hails the GGP as the way to address the critical challenge of productivity.

“It makes sure that the farmers prepare their land at the right time, with the right inputs – and that they use the right technology. So the Ghana Grains Partnership model has come to stay; and it’s something we want to upscale.”

➔ Prosperity in Ghana

10kg per hectare

is the average fertilizer application rate for maize in Ghana.⁹

TAMALE is the regional capital of Northern Ghana, and the home of the Masara N’Arziki, the farmers association set up by the Ghana Grains Partnership (GGP) in 2009. The GGP reaches about 8,300 smallholders growing maize. To increase agricultural performance, it is essential to target smallholders, who constitute the largest segment of producers. The average Ghana farm size is only 2.27 ha¹⁰.

NORTHERN Ghana suffers from poorer natural resources and its distance from the economic and political centers further south. The poverty rate in the north is about three times higher than in the rest of the country¹¹. Although poverty reduction in Ghana has been profound, one third of the population live below the poverty line. To reduce rural poverty, agricultural productivity has to be improved.



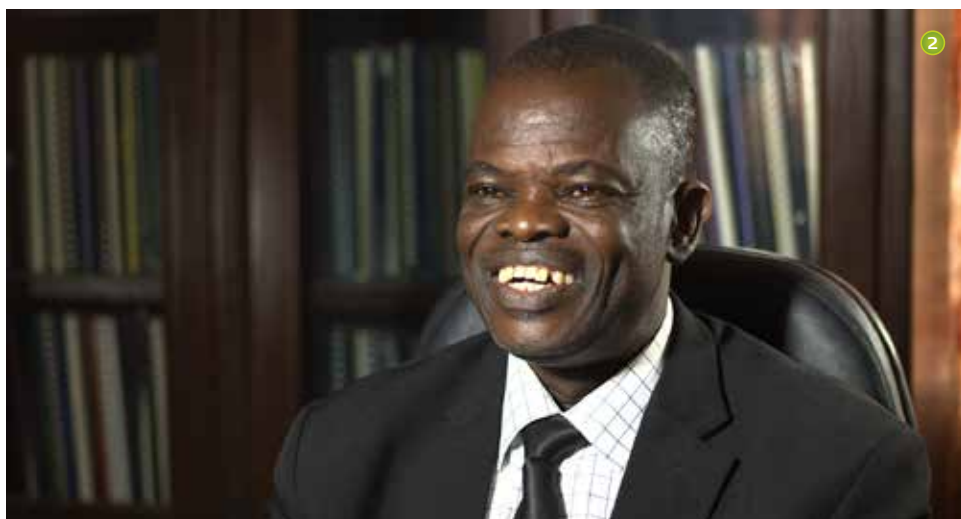
1



The Ghana Grains Partnership model has come to stay.

Emmanuel Asante Krobea

Director of Crop Services



2

1 Maize warehousing: In Tamale, the GGP operates two warehouses for storing maize from Masara N'Arziki members. The association guarantees to buy and pay for the members' crop – finding a ready market at the end of the season. Safe storage also reduces post-harvest losses. **2 Emmanuel Asante Krobea:** Agriculture is the number one contributor to Ghana's economic development. The medium-term policy, aiming for food security, is to promote maize, rice and soya beans as the three main food crops.

CLIMATE change is expected to impact on Ghana's agriculture, and may inhibit future growth. The vulnerability is largely due to dependence on rainfall, particularly in the semi-arid north, which depends on rain-fed agriculture. With adequate adaptation, major staple crops, like maize, may be able to sustain current yields or even increase. Without adaptations, yields of major food crops are likely to decrease.

+1°C

Since 1960 the mean temperature in Ghana has increased by one degree.¹²

THE GGP is an example of how yields can be improved by engaging with key stakeholders of the value chain. As a proven model for value chain cooperation, it may be duplicated and upscaled. Through the Grow Africa partnership, Yara has committed to explore the opportunities of establishing a rice value chain in Ghana – and in neighboring Burkina Faso.

⁹ MoFA Ghana (2012) ¹⁰ ODI: 'Ghana's Story' (2010) ¹¹ Feed the Future (2012)

¹² IFPRI: 'Ghana Strategy Support Program, Policy Note #3' (2012)

The Yara Prize 2012

Since 2005 the Yara Prize for an African Green Revolution has been awarded in recognition of outstanding contributions to African agriculture. In 2012 the prize honored two leaders for their work on transformative change in Rwanda and Ethiopia, respectively.

The Yara Prize was established as part of the company’s centennial celebration and has so far been awarded to ten individuals and one organization. The laureates represent a diverse range of African society; entrepreneurs and scientists, activists and organizers, businessmen and politicians.

The Yara Prize 2012 was awarded during the African Green Revolution Forum in

Arusha, Tanzania, in recognition of the laureates’ work on groundbreaking areas of agricultural development: effective public policies in support of agricultural growth, and profound innovation in agricultural markets. In its recognition the Prize Committee noted that by applying innovative approaches and collaborating with partners in new ways, both leaders have demonstrated how transformative change

can be achieved in a complex and challenging environment.

In 2013 the Yara Prize will have a specific focus on young women and men who are making a particular effort within agriculture, paying particular attention to innovation and entrepreneurship.

» yaraprize.com

Impacting voices:

Making a difference *implies active contributions*



DR. AGNES KALIBATA was awarded the prize for her great leadership in the transformation of food security and agricultural development in Rwanda in a relatively short period of time, aligning national policies with regional frameworks.

DR. ELENI GABRE-MADHIN was awarded the prize for showing visionary and remarkable leadership in managing the transformation process toward an efficiently functioning market, especially for smallholder coffee producers in Ethiopia.



The most important thing is to improve access to inputs for farmers.

Agnes Kalibata

Minister of Agriculture and Animal Resources, Rwanda
Yara Prize Ceremony, 2012



We have to get out of the mindset of old agriculture.

Eleni Gabre-Madhin

(Outgoing) CEO, Ethiopia Commodity Exchange
Yara Prize Ceremony, 2012



Performance

Environment p 28

Yara is succeeding in reducing negative environmental impacts from its operations.

Health and safety p 29

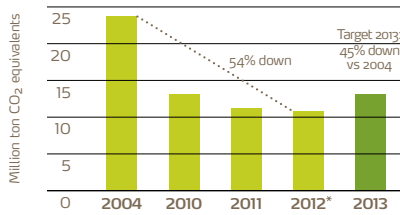
Yara's longstanding commitment to safety is founded on the belief that every accident is preventable.

Workforce p 30

Yara's success depends on the skills and expertise of its diverse workforce



GHG EMISSIONS FROM YARA PRODUCTION



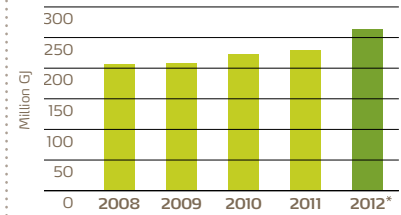
At year-end 2012 Yara had reached a 54 percent reduction of GHG emissions since 2004. If including Yara Pilbara in Australia, the reduction was at 48%; however this plant was not operational in 2004 so its zero emission baseline affects the resulting figure.

* Incl. Yara Pilbara: 12.3 million ton; 48% reduction

↓
13%

Yara has identified further room for reducing its GHG emissions. The new challenge is to reduce emissions from European ammonia and nitric acid plants by 13% by 2017. Improved N₂O emission abatement and the Brunsbüttel plant conversion (see below right) will bring the target within reach.

ENERGY CONSUMPTION



Energy consumption in production rose to 263 million GJ in 2012. This increase reflects higher production volumes and includes Yara Pilbara and the re-start of the Lifeco plant, Libya. Close to 90% of the energy is consumed in ammonia production.

* 2012 includes Lifeco and Yara Pilbara

Environment

Yara is always looking for ways to reduce negative impacts on the environment. Most notable are the company's achievements related to climate change, where its efforts to reduce emissions and optimize energy use, along with Yara's agricultural knowledge, have resulted in solutions that can significantly reduce the carbon footprint of crop production.

In 2012 Yara continued to cut its carbon footprint, exceeding its goal for GHG emission reductions from its production system. This has been made possible by the application of Yara's N₂O catalyst technology (see p. 2), supported by steady improvements in energy efficiency and reliability in Yara's plants.



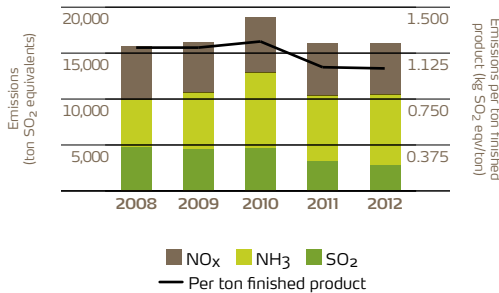
One of Yara's ammonia plants in Europe still uses oil as feedstock. Yara is converting the Brunsbüttel site in Germany to be able to also use natural gas. The conversion will improve energy efficiency and reduce its emission of CO₂ and SO₂ significantly.

+26,000
tons of ammonia

By 2014 an energy improvement project at the Tringen I joint venture plant in Trinidad is expected to add about 26,000 tons of ammonia to annual capacity while reducing energy consumption by 12%.

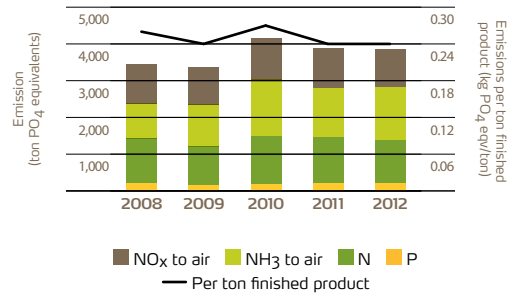
-12% in energy consumption

EMISSIONS TO AIR CONTRIBUTING TO ACIDIFICATION



Yara has lowered its emissions to air in recent years and in 2012 set a new target to reduce emissions by 17% by 2017. Conversion of the Brunsbüttel plant along with investments in deNO_x units are keys to achieving the new goal.

EMISSIONS CONTRIBUTING TO EUTROPHICATION



In 2012 emissions contributing to eutrophication remained at the same level as in 2011. Measures to reduce emissions to air are also expected to reduce the eutrophication potential of Yara's emissions.

TARGET:

0

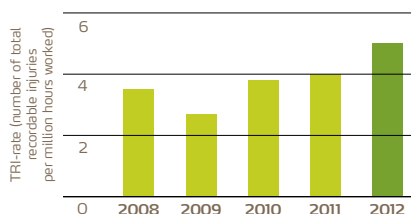
major accidents

Entering 2013 Yara pursues a target of no major accidents and a TRI rate below 3.5 – a stepping-stone towards the ultimate goal of zero accidents.

3.6%

Absence due to illness at Yara's production plants remained unchanged from 2011 at 3.6%.

TOTAL RECORDABLE INJURY (TRI) RATE*



In 2012 Yara achieved a TRI rate of 5.0 for employees and contractors combined, up from 4.0 in 2011. While Yara takes the increase seriously, it also reflects more accurate reporting of incidents across the organization.

* 2008–2009 figures are for Yara employees only; 2010–2012 also include contractors.



During 2012 Yara developed the new 'Safe by Choice' safety campaign for launch in 2013. The aim of the campaign is to raise Yara's safety culture to the next level, based on deep management commitment and a strong spirit of caring for every individual working in Yara.

Health and safety

Yara has a longstanding commitment to safety for employees, contractors and our neighbors, founded on the belief that every accident is preventable. Strong management commitment and active employee involvement are key elements of the company's safety program. Going forward, Yara will emphasize visible and felt safety leadership to take its safety culture to the next level.

Yara's health and safety track record is strong, yet the company experienced two fatal accidents in 2012. A contractor worker in Colombia died from falling to the ground after unhooking his harness to help a colleague also working at height. In Ghana, a worker fell and injured his spine while carrying bags, with fatal outcome. Yara works continuously and systematically to prevent accidents from occurring.

2012 Yara Safety Award winners: Yara Ambès and Yara UK / Ireland



- Yara Ambès involved a broad range of stakeholders in a common drive for a better safety culture.
- Yara UK / Ireland excelled in reporting incidents and clocked in more than 1000 days without recordable injuries.



In early 2013 Yara North America achieved "Product Steward Excellence" – the highest level under the IFA's product stewardship initiative. Yara participated in the development of the initiative and several of the company's units are in the certification pipeline.

Yara aims to have all its major production plants certified to:

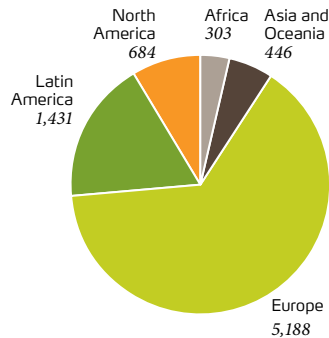
- ✓ **ISO 9001** (Quality Management)
- ✓ **ISO 14001** (Environmental Management)
- ✓ **OHSAS 18001** (Health & Safety Management).

At year-end 2012, 19 of the 22 major sites had achieved certification to the three standards.

8,052
employees

At year-end 2012 Yara had 8,052 permanent employees worldwide. The increase of 425 employees from 2011 resulted from growth – both organic and through acquisitions – on all continents.

YARA'S GLOBAL WORKFORCE 2012



Yara has operations in more than 50 countries. Roughly two-thirds of the workforce is employed in Europe.

1 in 5

About 20% of Yara employees are women, a reflection of the historically male-dominated fertilizer industry. Three of the seven members of Yara's Board of Directors are women.

Workforce

Successful execution of Yara's strategy depends on the qualifications and skills of its workforce. Yara aims to attract, retain and develop the best talent, where and when needed, regardless of ethnicity, gender, nationality, background, age or culture. By developing its workforce Yara intends to give all employees the opportunity to reach their full potential and offer them attractive, long-term prospects.

In 2012 Yara developed and revised its human resources (HR) strategy, launching its new People Strategy which has three focus areas: Performance Culture, Talent Development, and Talent Acquisition. The company rolled out its new Talent Development and Performance Management processes, reaching over 7,200 employees.



7,200
employees

Yara's Talent Development process was rolled out to 7,200 employees during 2012, resulting in about 5,700 individual plans with defined development areas and detailed action.



Yara is establishing a global, corporate source of education, YaraLearning. This education platform will support further talent development within Yara, offering business-required learning programs.

Yara's People Management process

ensures a uniform approach to aligning goals for all employees with business objectives. It was rolled out in globally in 2012.

YARA'S GLOBAL WORKFORCE 2012

	Africa	Asia and Oceania	Europe	Latin America	North America	Total
<i>Permanent employees</i>	303	446	5,188	1,431	684	8,052
<i>Non-permanent contracts</i>	10	19	1,610	520	131	2,290
Total workforce	313	465	6,798	1,951	815	10,342

Impact review *sustainability reporting*

The Impact Review 2012 reflects the way Yara executes its corporate strategy of Creating Impact, with an emphasis on how impact is made through engaging within the three focal areas of resources, food, and the environment.

In 2012 Yara redefined its corporate strategy as one of creating impact (pages 9–10) placing this strategic ambition center-stage in its business development and value creation. Through its strategy Yara aims to create value for its customers and shareholders, as well as for society at large.

IMPACT REVIEW

The Impact Review 2012 provides an outline of Yara's global engagement. The company uses its core business operations to address the major global challenges of resource efficiency, sustainable agriculture and reduced emissions. This review, alongside the Financial Report and GRI reporting, together constitute the company's Annual Report. All three documents are available on the corporate website:

» www.yara.com

In addition, the website offers in-depth and video presentations of the two feature stories included in the review: on carbon footprint innovation from Norway and value chain partnership from Ghana.

The corporate website also features background information on Yara, including position papers on key issues relevant to the company's operations, Yara's Code of Conduct and its Ethics Handbook. An outline of Yara's global engagement, as well as supplementary information on the impact areas and key initiatives, are available in the sustainability section of the website.

GRI REPORTING

Yara's sustainability reporting is based on the Global Reporting Initiative (GRI) G3.1 guidelines and reporting framework, with 2012 actions and performance published on the corporate website.

The Impact Review 2012 provides a summary disclosure of Yara's sustainability performance (pages 28–30). The company's GRI reporting for 2012 can be accessed online, along with actions and results related to Yara's Creating Impact strategy:

- > For Yara's Impact reporting: www.yara.com/impact
- > For Yara's GRI index: www.yara.com/gri
- > For Yara's position papers: www.yara.com/opinions



Scan this code to see how Yara engages to reduce greenhouse gas emissions.

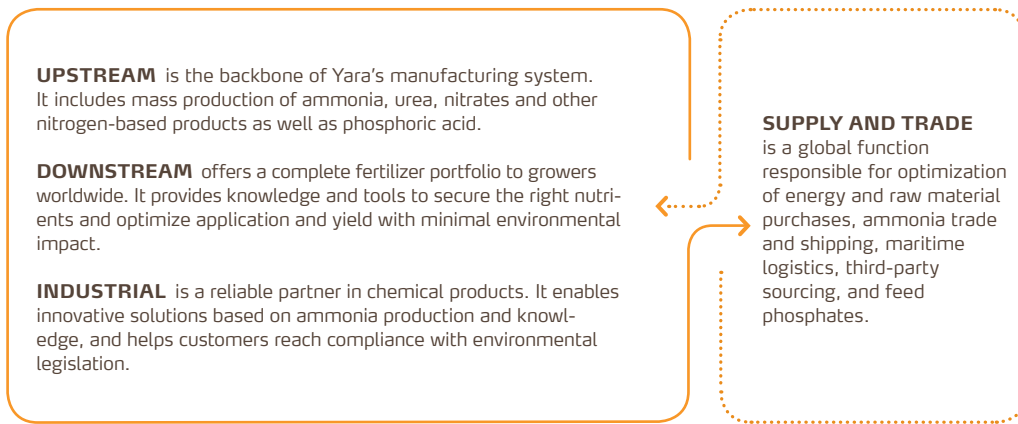


Scan this code to see how Yara engages in value chains.

Who we are

Yara delivers solutions for sustainable agriculture and the environment. Our fertilizers and crop nutrition programs help produce the food required for the growing world population. Our industrial products and solutions reduce emissions, improve air quality and support safe and efficient operations. Founded in Norway in 1905, Yara has a worldwide presence with sales to 150 countries. Safety is always our top priority.

WHAT WE DO



WHAT WE OFFER

AGRICULTURAL PRODUCTS

We offer a complete portfolio of fertilizers covering all necessary nutrients for any crop.

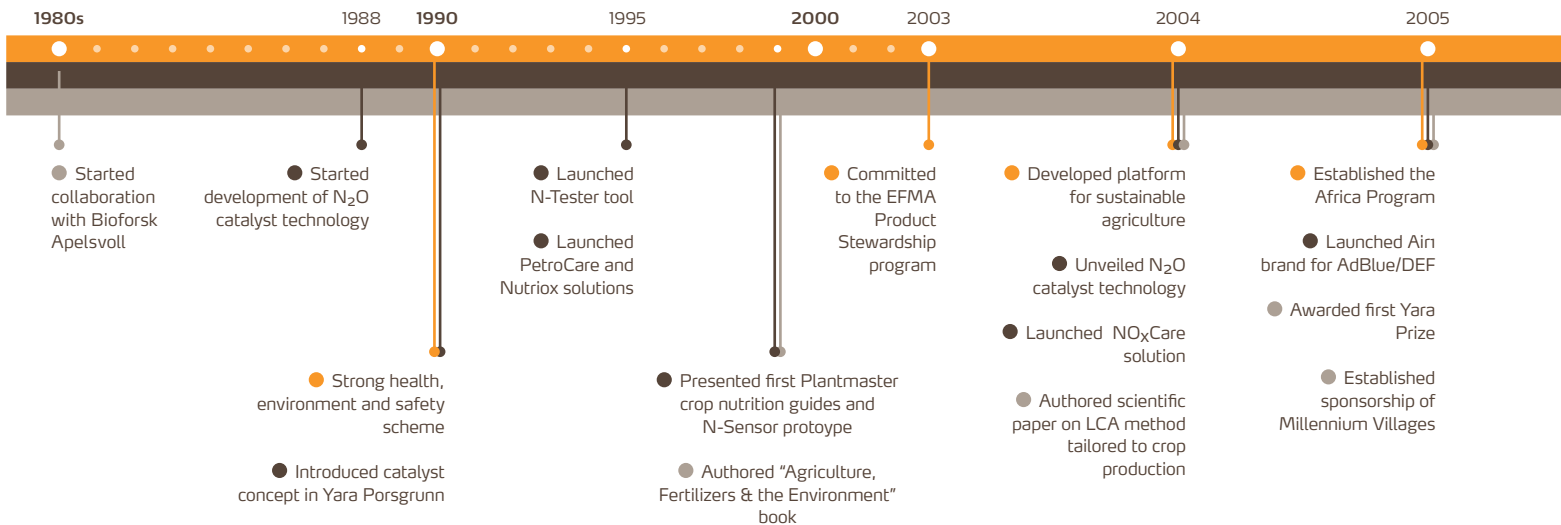
ENVIRONMENTAL SOLUTIONS

We offer complete solutions for NO_x abatement, odor control, water treatment and corrosion prevention.

INDUSTRIAL PRODUCTS

We offer a wide range of nitrogen and specialty chemicals in addition to CO₂, dry ice and civil explosives solutions.

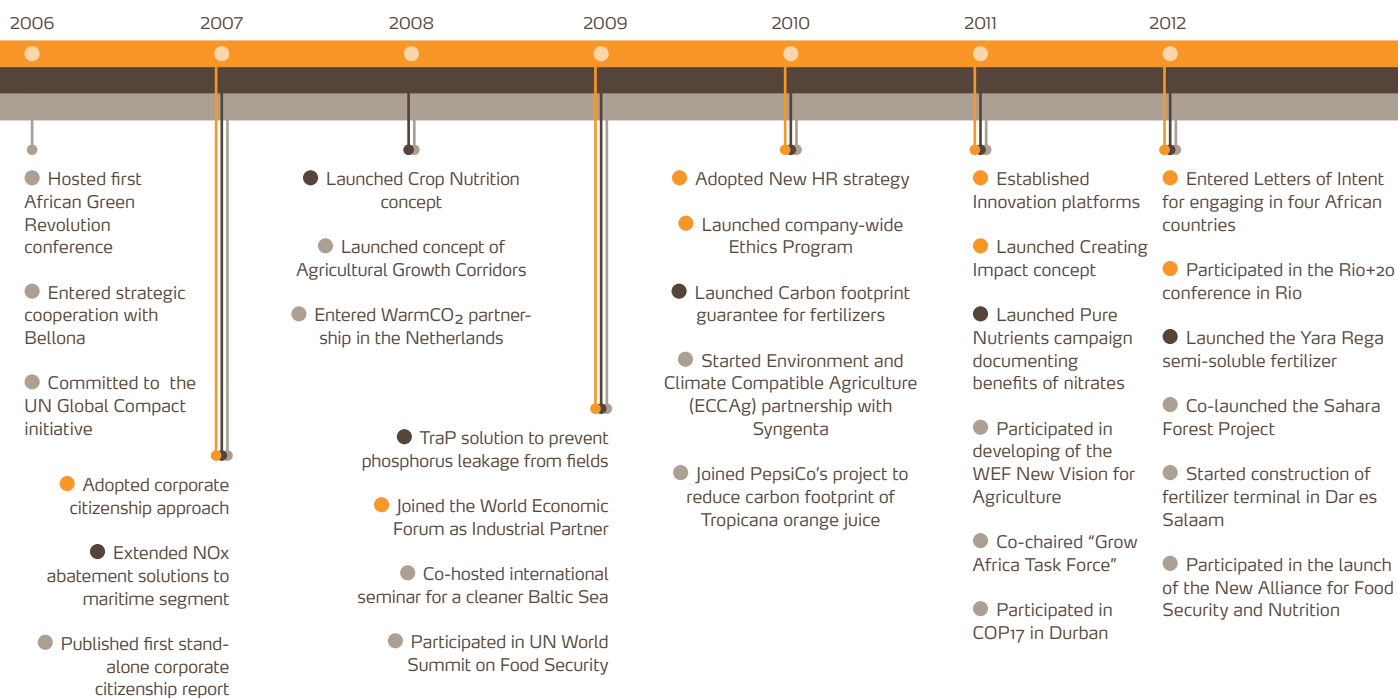
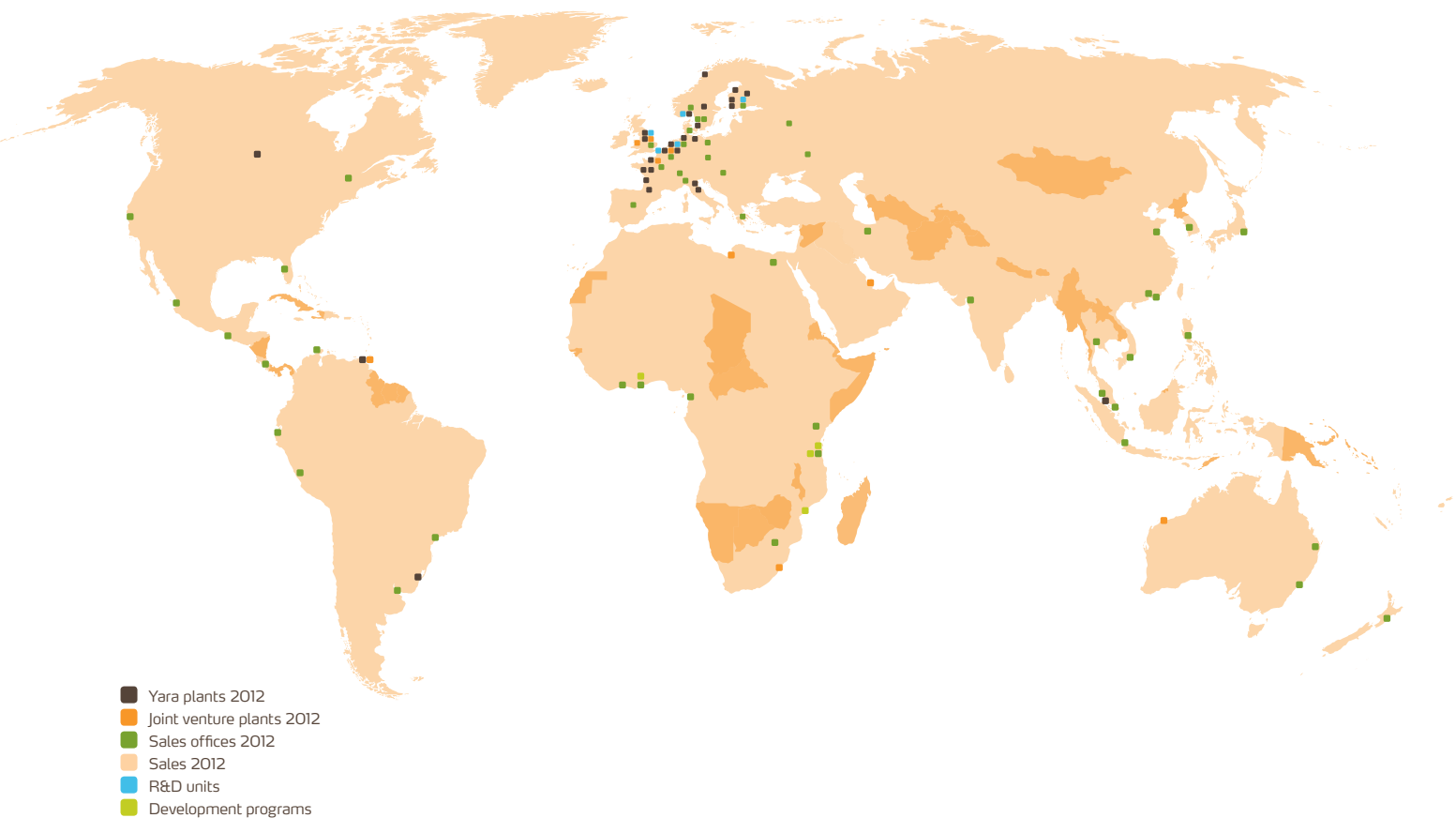
SUSTAINABILITY TIMELINE



- Policy
- Products and solutions
- Projects and initiatives

Where we are

As the industry's only global player, we have production on six continents, operations in more than 50 countries – and sales to 150 countries.





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Executing our growth strategy, we create value also for our customers, and we create value for society at large. By creating value, we create impact.

YARA PIONEERED mineral fertilizers a hundred years ago, creating impact within world agriculture – increasing yields, improving food security. Building on our agricultural expertise and leveraging our industrial experience, we have developed crop nutrition concepts and environmental solutions, creating value for our shareholders and stakeholders, and for society at large.

Connecting major challenges such as resource management, food security and environmental issues, we remain dedicated to contributing solutions and seizing opportunities – benefiting the future.

Creating impact.
Creating value.



Scan this code to see how Yara engages to reduce carbon emissions.