Unilever
MAGAZINE

Cultivating sustainable agriculture

Sustaining future growth

Agriculture provides over two-thirds of the raw materials for Unilever's brands. Building on its reputation for best practice, Unilever is now an industry leader with its Sustainable Agricultural Initiative. The way forward, it believes, is to develop environmentally sustainable supply chains that deliver profits, create value for stakeholders and meet consumer needs now and in the future. Juliet Walker reports.

CHRIS MARTIN

Protests such as those recently in Seattle and Davos are evidence that governments and leading international companies are increasingly seen as targets for attack by those wishing to protect environmental resources. The days are long gone when concern for the environment was routinely satirised in the media as the preserve of woolly thinkers in woolly jumpers. Today, environmental issues concern all responsible citizens: from individuals to big business.

This means that today's consumers are more concerned than ever before with the way their food is produced. They follow with interest the vigorous environmental debate on topics such as biodiversity, protecting clean water supplies, maintaining soil fertility, global warming and the impact of food production on wildlife.

"In Unilever we know that we have no choice but to pursue responsible agricultural practices and that this is vital to sustaining a healthy environment and maintaining our reputation as a good corporate citizen," says chairman Antony Burgmans.

"Our environment policy in the areas of agriculture, fisheries and clean water supports everything we are working towards in the Path to Growth. We can only reconnect with the consumer if Unilever is seen as a company that pursues sound environmental practices and is able to address in an open and honest way consumer concerns about the manner in which our raw materials are grown and delivered. If we get this wrong, we will increasingly find ourselves in an unsustainable relationship with society."

The challenge for companies such as Unilever is balancing the need to protect the environment with the need to produce sustained economic growth. An important element of this challenge involves ensuring that corporate policy is turned into responsible action on the ground.

"In practical terms Unilever has to continue to grow and be productive and profitable, but in ways that are more sustainable to the environment. This won't impact on profitability," adds Burgmans.

"I am convinced that if you do things right it actually saves money in the long term. Think back to the 1980s when we introduced Total Quality Maintenance (TQM); everyone said this could only be achieved at horrendous cost, but it turns out that we actually saved money. And with the BSE issue in Europe, we have all seen the horrendous cost in both human and financial terms of not pursuing best practice."

Unilever supports the widely held view that sustainable agriculture requires alignment of economic progress, environmental protection and social development. Its sustainable agriculture policy is based on 'integrated' farming methods. Broadly defined, this means using judicious amounts of agrichemicals to maximise outputs, while minimising environmental impact in ways that are defined in the Company's Agricultural Best Practice Guidelines.

"These guidelines provide the basis for our current agricultural operations," explains Jan Kees Vis, environmental manager, Foods. "But we want to improve our supply chain and put it on a more sustainable footing.

"Our first step was to formulate the Sustainable Agriculture Initiative (SAI) programme with the help of farmers, scientific advisers and a wide variety of concerned stakeholders. We are now in the early stages of seeing how this programme

"Sustainable agriculture is productive, competitive and efficient while at the same time protecting and improving the natural environment and conditions of the local communities"

can be implemented in practical terms for our key crops: palm oil, peas, spinach, tea and tomatoes."

Vis is keen to stress that sustainable development is not just about farms and plantations in the western world; it is also about developing good practice that can foster sustainable agriculture on farms and plantations worldwide.

Next step

Unilever enjoys a good environmental reputation: the Company is currently rated number one for Foods in the Dow Jones Sustainability Index. "So in our SAI programme we are building on firm foundations," adds Vis. "But the issue is much bigger than Unilever – obviously, and it's up to us to be proactive. Our next step is to create an international platform for sustainable agriculture, in order to promote the policy with key stakeholders. We welcome the participation of others, including those whom we normally regard as our competitors."

Why would Unilever wish to share its advantages with its traditional competitors? "The reason is long term," replies Vis. "The principle is the same as with our initiatives with fisheries and water quality: to see overall standards improve."

Unilever recognises the concerns of consumers and wants to help set internationally accepted standards for sustainable agriculture. This cannot happen unless other leading international companies are willing to share their experience and knowledge. Unilever is keen to support research and other activities in this area, at local, national and international level.

This is in keeping with its role as a responsible corporate citizen. But at the same time this initiative does not work against the business interests of the Company.

"Once we have communicated this initiative to consumers, their confidence in our food supply chains will be strengthened," explains Vis. "Consumers vote with their purses and are not slow to express their preferences. Their support is crucial to our profitability."

So how did it all start? Where does Unilever's Sustainable Agricultural Initiative have its origins?

It was back in the early 1990s that the Company took a long hard look at the major agricultural challenges for the next century. The broad issue, then as now, was: how can farming become more productive, but at the same time protect the environment? Can we preserve natural resources and contribute to rural communities – where people often have no alternative means of employment – while using fewer agrochemicals?

Jeroen Bordewijk, chairman of the Unilever SAI Steering Group, explains: "By the 90s we had seen almost half a century of huge increases in productivity brought about by scientific advances in farming. In many cases famine had been eradicated and standards of living had risen dramatically, but unfortunately not everywhere, and not in ways that are sustainable in the long term."

The problems of the global agricultural industry are familiar: degradation of the environment and loss of biodiversity, soil erosion, water pollution and shortages, lack of available land, and the weakening of traditional social networks.

"Add to that recent scares – whether real or imagined – including BSE, dioxin, salmonella, foot and mouth disease and GMOs, and you can see why agriculture is such an emotive issue," says Bordewijk. "And there is vigorous debate about ethical procurement and fair trade, the benefits of organic products and eco-labelling."

Consumers are well informed. Where they were once relatively unconcerned about the constituents of food products, consumer attitudes have shifted and become more demanding. People are concerned about what precisely goes into the foods they eat.

"For a company the size of Unilever, which aspires to meet the everyday needs of people everywhere, these are concerns we take extremely seriously," adds Bordewijk.

Public acceptance

Unilever is dealing with the long-term issues of public acceptance and the protection of its reputation. Establishing transparent supply chains is a priority. That is relatively easy for smaller companies using local supply chains, but it is very different for a global business such as Unilever.

"Our responsibilities are clear, especially when local governments may not be able to deal with that kind of complex supply system," explains Bordewijk. "Control of international supply chains is likely to become even more complex than it already is as open trade systems are developed. Unilever, along with its competitors, has a duty to meet these new challenges in a sustainable way."

Unilever is a major buyer of raw materials on world markets: oils, vegetables, tomatoes and tea in particular. It also

WHAT UNILEVER MEANS BY SUSTAINABLE AGRICULTURE:

In Unilever's definition of sustainable agriculture, land is managed so as to guarantee continuing high yields of agricultural produce over time, while minimising inputs and costs in terms of fossil energy, fertilisers, pesticides, herbicides or other auxiliaries. According to our definition, it is not sustainable to keep yields high by continuously increasing inputs into the process, while eroding the inherent productivity of the soil.

In Unilever's view sustainable agriculture is characterised by a combination of sound economics, environmental protection and social progress. Sustainable agriculture systems combine targeted technological and human capital inputs to produce crops with high yield and nutritional quality while keeping resource inputs as low as possible.

This is achieved by minimising adverse effects of agriculture on soil fertility, water and air quality and biodiversity, and making a positive contribution where possible. Furthermore, sustainable agriculture aims to optimise the use of renewable resources while minimising the use of non-renewable resources. Sustainable agriculture should also enable local communities to protect and improve their well-being and environments.

UNILEVER'S FOUR FUNDAMENTAL PRINCIPLES OF SUSTAINABLE AGRICULTURAL PRACTICES:

- Produce crops with high yield and nutritional quality to meet existing and future needs, while keeping resource inputs as low as possible
- Ensure that any adverse effects on soil fertility, water and air quality and biodiversity from agricultural activities are minimised and positive contributions are made where possible
- Optimise the use of renewable resources while minimising the use of non-renewable resources
- Enable local communities to protect and improve their well-being and environments

Opposite page (clockwise from top left): a spinach seedling is inspected for strong roots and leaf growth; a spinach crop that will be processed within a few hours of being harvested; a school on Unilever's Pamol oil palm plantation in Malaysia; clean water initiatives encourage varied bird and plant life on Unilever's plantations; tomato grower Ray Sellwood and family check wind speed readings at a weather station on his farm in Australia. This page: a water tower and homes for employees working on the Pamol oil palm plantation in Malaysia.

PILOT PROJECTS ON THE PLANTATIONS

Unilever has been running pilot SAI projects on its tea plantations in Kenya and oil palm holdings in Malaysia since 1998, with the long-term aim of providing industry standards and guidelines.

"Tea and oil palm are different products, but they have much in common," says Richard Fairburn, senior plantations manager, Africa, Middle East and Turkey Business Group. "Brooke Bond Kenya (BBK) and Pamol have been collecting data on the ten indicator clusters to measure the sustainability of their management systems."

BBK is probably one of the most sustainable tea companies in the world, thanks to 75 years of careful management and long-term research. By running a pilot on its Kenya tea estates, Unilever can build on existing good practice, which can then be extended to other regions.

BBK generates 70% of its own electricity. Eucalyptus trees are grown as a renewable energy source for its tea-processing factories. Mature tea bushes are not sprayed for pests or diseases, and an extensive indigenous tree planting programme has begun. "And we have worked continuously to avoid soil erosion," adds Fairburn.

Good practices such as these are no reason for BBK to rest on its laurels. "We will be defining our targets for improvement this year, followed by a practical guide for other growers."

The tea pilot is now being rolled out on other estates. Last year it was introduced in the Hindustan Lever tea gardens in southern India. Growing conditions here are quite different, but the principles remain the same. Unilever estates in Tanzania and Assam will follow.

The SAI is by its very nature outward looking and the aim is to soon start sharing findings with third-party growers. "By developing a guide for third parties, we can make a global contribution to the sustainable production of tea," says Fairburn. "And it will give supply-chain managers the opportunity to discuss ways our suppliers, large and small, can farm more sustainably too."

In oil palm, two years of pilot research at Pamol in Malaysia have provided the basis for a programme which will be rolled out to oil palm plantations in Ghana this year. "At Pamol, we have been collecting data within the same ten indicator clusters to see how we can improve on our current good practice," says Dr Vengeta Rao, research manager at Pamol.

Pamol has already adopted significant sustainable practices: planting on terraced slopes to prevent erosion, using solid organic waste as mulch and liquid effluent as fertiliser, providing owls with roosting sites and nesting boxes to help control the rat population and leaving steep hillsides as natural rainforest. "Later this year we plan to go public with Unilever's views on sustainable oil palm production to stimulate a sustainability debate with the rest of the Malaysian industry," says Rao.

The International Centre for Research into Agro Forestry (ICRAF) is Unilever's research partner, providing particular help with biodiversity and social issues, which are especially important given Unilever's contribution to the rural communities concerned.

owns plantations in Africa, India and South East Asia, but it grows only a very small proportion of the raw materials it uses. Although its greatest influence on good agricultural practice is on the farms and plantations it owns, there is also the far bigger issue of good agricultural practice throughout all supply chains. This is a daunting area, but Unilever believes that is no reason to put off tackling the problem.

Agriculture has a greater impact on natural resources than any other activity. It contributes to greenhouse gas emissions, and the uncontrolled use of fertilisers and pesticides affects biodiversity and pollutes water supplies. Pesticide trade has nearly doubled since 1990, yet 85-95% of pesticides never reach their targets, which is clearly wasteful and worrying. Meanwhile soil degradation and water shortages are real threats to future agricultural productivity. These and other issues are of great concern to Unilever.

Future demand

Another source of concern is the need to meet future demand. World population is expected to grow from six to eight billion in the next 25 years (UNDP Demographic Yearbook) and the increased population will have to be fed.

"This demand will have to be met by increasing productivity from land under cultivation, while at the same time such nature as is left in the world will need protection," says Bordewijk. "It's generally recognised that organic farming systems will not be able to meet this demand at the global level."

Six years ago, aware of these challenges, Unilever invited the views of key players and opinion formers among consumers, farmers, agribusinesses, the food industry, retailers and NGOs worldwide with an interest in the environment and sustainable development.

"In the first of two commissioned studies, we asked them to define 'sustainable agriculture', and to say how they felt a company like Unilever could contribute," says Vis, who has worked for almost ten years in the field of life-cycle analysis and environmental management.

"The first study showed that there was no consensus about sustainable agriculture, but there is emerging consensus on the elements that should be included. A second study produced a list of over 100 practical sustainability indicators based on expert conventions, which we narrowed down to about 15 appropriate for use for Unilever products."

In 1998 the SAI Steering Group was established, composed of Unilever business leaders and agricultural experts. In the same year, a workshop was held for Unilever employees and external agriculture experts. The workshop led to the development of a mission statement and a definition of sustainable agriculture, which emphasised the need to combine long-term high yields with minimised levels of fertilisers and other inputs (see panel).

Four principles of sustainable agriculture were defined, setting out the need to balance high yield against artificial inputs, contain adverse effects, optimise the use of renewable resources and consider the protection of local communities (see panel). Ten broad indicators of sustainability were also identified.

In the summer of 2000, a second workshop was held, and participants and experts were able to pool their research.

"Good agricultural practice did not suddenly begin in the 1990s in Unilever. It has always been our claim, and indeed we have a reputation for it," continues Vis. "Look at our tea plantations in Kenya, where some of the tea bushes are over 75 years old and still productive. That would not have happened if we had not cared for the bushes and soil in a sustainable way from the beginning. But we wanted to do even better and were increasingly aware of global concerns."

World expert

Unilever benefits from the advice it receives from its many partners, stakeholders and specialist advisers. Among its advisers is Professor Jules Pretty, director of the Centre for Environment and Society at the University of Essex, and world expert on agricultural systems. "It is very promising that a large company such as Unilever is involved in sourcing from sustainably produced resources," says Pretty. "Consultation with stakeholders and thinking in the round have to be good in the long term."

The Sustainable Agriculture Advisory Board (SAAB) had its first meeting in December 2000, attended by Antony Burgmans and Clive Butler. SAAB members will meet with SASG twice a year and scrutinise Unilever's approach to sustainable agriculture. At the first meeting Unilever received valuable feedback, which included strong support for its openness and willingness to share the results with others.

The Company has begun to work more closely on five key crops – peas, oil palm, tea, tomatoes and spinach. "We

Opposite page: a Brooke Bond Kenya tea plantation where native trees provide a natural windbreak to protect the crop and help prevent soil erosion. This page (top): healthy oil palm kernels; a pheromone trap is set to attract rhinoceros beetles (right) that previously would have been controlled by using agrochemicals. Below (from left): chairman of the sustainable agriculture steering group Jeroen Bordewijk, Unilever chairman Antony Burgmans and Unilever corporate development director Clive Butler at the first meeting of the Sustainable Agriculture Advisory Board (SAAB).

"Unilever supports the widely held view that sustainable agriculture requires alignment of economic progress, environmental protection and social development"

started with these crops because we have a degree of control over their production, and we are working initially with farmers and plantation managers where we have longstanding co-operation. What we have now asked them to do is to look at their agricultural work through our sustainability eyes," explains Vis.

Broader issues

The framework has been established, with the agreed ten indicators to measure the outcome. This approach is nothing new to many farmers. Anyone growing crops responsibly will be looking all the time at issues such as optimisation of water use or nutrient balances.

"But in irrigating his fields, a farmer may not have considered some of the broader issues. For example, where does the water come from? Does it come from a sustainable source? Is the regional rainfall sufficient to sustain this use of water, bearing in mind that it is also being used by neighbouring farmers and communities?" says Vis. "Clearly these broader issues are crucial when you consider future growth."

People working in agriculture have always worried about maintaining the fertility of the soil, or at least maintaining the productivity of the field. And if that required inputs of fertiliser, the farmer would, more often than not, use large amounts.

If the regulatory authorities required that the leaching of fertiliser to ground water was kept to certain levels, then the farmer would attempt to keep to the rules. "But we all know that in reality water courses have been polluted with nutrients from agriculture for a long time – farmers have not always kept to the rules," says Vis. "In the light of what we now understand about sustainable agriculture, these practices can no longer be justified. They are not sustainable in the longer term."

Short-termism in agriculture is no longer acceptable to Unilever. A bumper tomato harvest and profits to match this year and next must not be at the expense of the future. If mistreatment of the soil leads to such extensive soil exhaustion that a farmer is obliged to move his crop to entirely new land (assuming it is available) in five or ten years' time, neither the farming community nor future consumers are better off in the long term. This is exactly what has happened in some areas of Brazil.

"Such practices are bad for the environment and bad for the local community," says Vis. "They make long-term production planning difficult – and we all know that the world's resources are finite."

Unilever has selected a number of partners for its SAI programme. Farmers participating in the projects are asked to scrutinise their existing practices and think about possible improvements in the light of the four principles of sustainable agriculture. It is for the farmers themselves to identify the performance indicators that are most relevant to their farming: climate, soil type and local climate will play a part in determining how farmers can best measure their achievements.

The first pilot programme, the Birds Eye Wall's Sustainable Agriculture Project (BEW-SAP) (see panel) was established at two growing areas in the UK to improve sustainable agricultural methods in growing peas.

The programme is now moving into its third year of operation. Following two years of monitoring over two annual rotations, the participating farmers are starting to make changes based on their previous careful measurements and sampling.

The BEW farmers involved recently limited their pesticide use to 15 pesticides out of a group of 45 that can legally be used on pea crops. They have eliminated the other 30 pesticides, using criteria they have established themselves, which are based on toxicity, efficiency and safety for use by humans. That is a major change in farming practices, which could only have been achieved with the co-operation of the farmers participating in the initiative and the experience they gained through it. "I doubt we would be at this stage without the SAI," says Vis.

Drip irrigation

Other changes are taking place, thanks to the SAI. In Brazil, tomato crops are benefiting from drip irrigation. Seedlings are planted over a hosepipe which has holes strategically placed to deliver water direct to the roots.

This method of irrigation is around 70% more efficient in use of water because it is no longer necessary to flood the whole field. It has also resulted in a 20–40% increase in yield per hectare. A disadvantage of this system is the high investment required by farmers to install the pumps and hoses. To encourage the adoption of drip irrigation, Van den Bergh Alimentos Brazil has devised a scheme to pay for the installation, which will be repaid by the farmers over three years out of their increased yields. And it is hoped that in three years' time all the tomatoes supplied to the company will have been grown using drip irrigation.

Myles Standish, Foods Research, Sustainable Agriculture, is a systems engineer

TOMATOES LEAD THE FIELD

In Australia, Unilever's leading tomato grower, Geoff Spencer, has developed an innovative use of 'trickle' irrigation over the last 15 years. Spencer has devised an ingenious system of 'fertigation', which combines fertiliser use and irrigation – and saves on both.

Spencer constructed his own equipment, initially to deliver water direct to the plant roots, and then developed it to add judicious quantities of chemicals. He claims that you grow half the area, use half the chemicals, half the water, and produce double the crop.

"If that's not sustainability, I don't know what is," says Tim Dyer, supplier manager and sustainable agriculture pilot project leader.

Unilever processes tomatoes from Australia, Brazil, Chile, Greece, India and the US and has launched two sustainability pilots: one in Tatura, Australia, and one in Rio Verde, Brazil. A third pilot study is planned in the US.

In Australia, a major risk to tomato production in the longer term is persistent drought. The country has just experienced the driest five years on record with reservoirs much lower than normal, rising water tables and resulting salinity. "If this continues the land will become infertile in perhaps only 50 years," says Dyer. "Water allocation has been reduced, and moves now towards greater sustainability are therefore crucial for the long term."

Nonetheless crop yields per hectare in Australia are among the highest of any of Unilever suppliers worldwide, with an average yield of some 79 Mt/ha (metric tonnes per hectare), rising to over 120 Mt/ha among the best growers, thanks to trickle irrigation and a well-managed pesticide regime.

Dyer and his team, which includes the Australian Horticultural Research and Development Corporation (which has contributed funds), the Greenhouse Commission, 15 farmers and a dozen or so stakeholders, have nearly completed their first year of auditing the ten SAI indicator clusters.

"From what we learn we hope to develop a management system which can be the basis for sustainable tomato production worldwide," says Dyer.

Today 60% of all tomato crops in Australia are grown under the 'trickle' system, using half as many chemicals as five years ago, on half as many hectares, and yet achieving the same return. The pilot projects include an energy audit, with the aim of making a 10% cut in energy use. Biodiversity studies on virgin wetlands adjacent to a large tomato farm should offer useful comparative data.

Unilever's experience in Australia has been shared with farms in Brazil (see main text), so that good practice established in one part of the world can be shared with farmers in others.

"The challenge for us in Australia now is to convince the wider community of the importance of moving towards sustainable agricultural practices," says Dyer. "I believe that with the information from the SAI programme we are further advanced than our competitors and will be able to sustain a two-year advantage into the future."

Opposite page (clockwise from top left): each year Unilever needs one million metric tonnes of fresh tomatoes, which include the Australian plum variety; a soil moisture reading is taken as part of the Tatura pilot project; harvesting takes place when the crop is in peak condition; insect pests are monitored in order to control disease; drip irrigation reduces water use and pressure on the water table – an important benefit in areas of water shortage. This page: an Australian tomato crop grown using the trickle system.

LOOKING INTO THE FUTURE AT COLWORTH

At Colworth in the UK eight fields have been designated for the review of agriculture practices throughout an entire annual farm rotation, with particular reference to peas and oilseed rape – two key Unilever crops. In addition, a range of individual projects are monitoring different treatments, comparing conventional good practice, which Unilever follows, with prospective SAI practices.

The research includes the timing of crop sowing, which has implications for stubble management over winter, and levels of agrochemical use. And field margins of varying widths are left to native flowers and grasses. In some cases even the middle of a field will be greened with indigenous species as part of the research.

"Through our research, we hope to identify practices that improve the performance of crops while protecting biodiversity and respecting the natural potential of the land," says David Pendlington, SAI research leader.

who is working for two years on the SAI programme for Unilever. While still at the University of Virginia, he developed case studies on Unilever's SAI as an example of an innovative approach to environmental management. "What impressed me from the start was Unilever's holistic and long-term view of the opportunities and threats to its business. People are beginning to demand more and more information about the supply chains that deliver the products they buy and at the same time society is imposing increasingly high standards of environmental and social performance.

"By recognising this and developing the SAI, Unilever has put itself in a position to seriously address these concerns."

The SAI programme is one way to help ensure transparency in the supply chain. There are major environmental issues which still have to be tackled. "Take oil palm, or perhaps tea," says Bordewijk. "We can maintain our standards on our own plantations which observe a charter and guidelines, but our needs are huge. We source around 95% of our oil from the open market."

A transparent supply chain is therefore vital to Unilever. There is a difference in buying from long-established plantations and from those that are the result of recent and illegal logging of primary rainforest.

"Clearly we can't take full responsibility from start to finish with every supplier of our raw materials," says Bordewijk. "But I believe we should know more about our sources by working more closely with partners in the chain."

Then, with the help of others in the industry, Unilever can help to install proper systems of accountability so that it can answer its critics with the facts.

These are also some of the challenges that make the SAI programme such an important and worthwhile initiative for the long-term prosperity of Unilever.

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PROGRESS WITH PEAS

The first SAI project was initiated by Birds Eye Wall's (BEW) in the UK where it has worked in partnership with local growers for more than 50 years. The company is now in its third year of working closely with 20 suppliers on specific areas although all 500 BEW suppliers are involved.

The project began by looking at detailed issues within the ten established indicator clusters to establish a baseline. This initial work took two seasons, and BEW and the farmers involved are now considering whether and how to change practices in the light of the findings.

Among other activities the pilot has: recorded and analysed energy inputs; monitored activity levels in soil microfauna such as worms and beetles; identified the importance of field margins for butterflies, birds and flowers; and monitored activity within local economies.

Changes are already being made in the light of the findings. This summer experiments will include different sized field margins and treatments, new selective weeding programmes and greater use of biological controls.

Crucial to the success of this project is the partnership approach it has with a wide range of individuals and organisations, including University of Essex Centre for Environment and Society led by Professor Jules Pretty, the Centre for Agriculture and Development (Netherlands), British Trust for Ornithology, the Wildlife Trusts, Soil Survey and Land Research Centre, LEAF (Linking Environment and Farming), ADAS (UK independent agricultural consultancy), R&D Associates (consultant) and Forum for the Future, the leading UK environmental charity.

Colin Wright, agriculture general manager, BEW, with additional European responsibility for peas in terms of sustainability, says: "Now that we're into the second phase of the project and ready to implement changes, we are also starting to consider how we can contribute our knowledge more widely."

The work done on peas will be shared with the agricultural community at large, to encourage the development of sustainable agricultural systems. "We want to put our methodology in the public domain and will continue our dialogue with stakeholders and NGOs," adds Wright.

Opposite page: one of Unilever's Pamol oil palm plantations in Malaysia showing the use of cover crops in the foreground. This page (clockwise from top left): owl nesting boxes in the palm canopy – owls help to control the rat population and in so doing reduce the use of rodenticides: organic effluent from a processing factory is diverted to the plantation along shallow irrigation channels; nitrogen-fixing plants are used as cover crops on Unilver's Pamol oil-palm plantations in Malaysia; each tonne of palm oil produced by a responsible grower needs fewer inputs, resulting in less pollution and soil degradation than a tonne of any other vegetable oil; solid organic waste is returned to the fields, providing added nutrients for the soil.

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