



GROWING FOR THE FUTURE

SPINACH: FOR A SUSTAINABLE FUTURE



Unilever

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WHAT THIS BOOKLET IS ABOUT

Spinach is one of five key crops that Unilever is testing under its sustainable agriculture initiative. This booklet explains why the initiative is necessary, Unilever's sustainability principles, and the ten broad sustainable agriculture indicators which are being refined and tested on spinach (and the other four key crops) in the light of learnings. It looks in detail at spinach growing projects on farms in Germany and Italy, and indicates the challenges ahead for Unilever's spinach suppliers.

WHO WE ARE AND WHAT WE DO

Unilever is a truly international company, with operations in more than 90 countries spanning every continent. Unilever products fall into two main categories: home and personal care, and foods. The Unilever portfolio includes a balanced mix of local, regional and international brands that take account of the differences as well as the similarities in consumer needs worldwide. Some of our food brands are: Annapurna, Bertolli, Hellman's, Knorr, Lipton, Magnum, Ragu, and in frozen foods Iglo and Birds Eye, and Findus in Italy.

OUR CORPORATE PURPOSE STATES:

"Our purpose in Unilever is to meet the everyday needs of people everywhere – to anticipate the aspirations of our consumers and customers and to respond creatively and competitively with branded products and service that raise the quality of life."

"We believe that to succeed requires the highest standards of corporate behaviour towards our employees, consumers and the societies and world in which we live."

MESSAGE FROM THE CHAIRMEN

Since the mid-1990s Unilever has been consulting with experts and engaging with suppliers, customers, consumers and business partners to find a sustainable way forward for agriculture. Unilever's chairmen explain.



Antony Burgmans

Niall FitzGerald

As one of the largest consumer goods companies in the world Unilever is highly dependent on agricultural raw materials such as tea, vegetables, including spinach, and vegetable oils, and therefore on the future of agriculture. This has led us to develop the sustainable agriculture initiative.

We have experienced a growing interest and willingness to participate in finding ways to make agriculture more sustainable. However, a dramatic acceleration of efforts to develop more sustainable practices is still required. We still face many issues with an adverse affect on farm productivity. For agriculture to become truly sustainable and able to feed fast-growing populations, matters such as soil fertility, biodiversity, water resources and the quality of rural life must be addressed.

We believe there needs to be a greater diversity of approaches to farm and plantation management. All agricultural systems have something to offer, and we want to find out what works best in different local circumstances.

Our earlier experience on fisheries has confirmed our belief that market mechanisms offer the way forward in the long term. They can stimulate performance improvement and efficiency along the supply chain and raise quality standards to meet consumer needs and expectations.

Ultimately we want the market to work for sustainable development and to encourage fully sustainable agricultural systems. We wish to contribute to this development and benefit from it.

We are starting to make progress on this long journey, but we need the continued help of others. We are committed to engage with our stakeholders and share our work with them in our projects. We urge them to make contact if they wish to contribute in any way.

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Antony Burgmans

Niall FitzGerald

UNILEVER, AGRICULTURE AND SUSTAINABILITY

Agriculture provides more than two thirds of the raw materials for Unilever's branded goods. We are among the world's largest users of agricultural raw materials, and a major buyer of agricultural goods for processing on world markets. We are thus in a position to make a difference.



Unilever processes vegetable oils including sunflower, soy and rape seed for use in our spreads and dressings. We produce palm oil as well as buying it on the open market. We cultivate and manufacture tea. We are one of the world's largest producers of tomato-based sauces and pastes with many growers working under contract. And we use vegetables such as peas and spinach in our frozen brands.

"We feel that these goals can only be achieved in the long term if our actions are determined by the broader principles of sustainable development. For us 'sustainable development' is defined as ensuring we meet the needs of today without jeopardising the ability of future generations to meet their needs. This in turn means that we must align our economic goals with the social and environmental consequences of our activities," says Bordewijk.

Unilever's ultimate objective is to create market mechanisms that favour sustainable practices. "We have begun to do this by working with a range of partners, starting locally, and then providing information to those who shape the market – other producers, buyers, processors and consumers," adds Bordewijk. "If people understand the issues and the long term implications of their choices, they are then in a position to influence sustainable production. We believe this is the best way forward for the future of agriculture," he adds.

Unilever has also started similar sustainability initiatives with water and fisheries in response to pressures on water resources and fish stocks.



Jeroen Bordewijk, chairman Unilever Sustainable Agriculture Steering Group (top). Unilever has pilot sustainable agriculture projects with four key crops apart from spinach – peas, black tea and tomatoes, plus oil palm, seen here growing on the Pamol plantations in Malaysia (above).

For many years Unilever has worked closely with farmers to develop agricultural best practice guidelines which maximise yield while minimising environmental impacts – in some cases we have been working with farmers for over 30 years, moving forward together by trial and error. These guidelines are incorporated into our contracts with growers. Current best practice is mainly based on integrated farming principles, and involves judicious use of fertilisers and pesticides to maximise yield while minimising environmental impacts.

But as agriculture has come increasingly under environmental pressure it has become clear that if we are to meet the aims of our Corporate Purpose we need to do even more, which is why we launched our sustainable agriculture initiative in the mid-1990s.

Jeroen Bordewijk, senior vice-president, supply chain excellence programme, explains the background. "We say that the aims at the heart of our Corporate Purpose are 'to meet the everyday needs of people everywhere' and to use 'the highest standards of corporate behaviour towards our employees, consumers and the societies and world in which we live'. The implications here are serious.

MODERN AGRICULTURE

The reason for the global debate on agriculture is that there are now serious concerns that the intensive agricultural practices of the last 50 years, with their high inputs of chemical fertilisers, pesticides, water and energy, do not offer a sustainable future either for agriculture, or for society's capacity to feed itself. Indeed, hunger and poverty still exist, and the environmental pressures following the 'Green Revolution' of the 1960s could be damaging.

Consumers are increasingly interested in issues such as food safety, human health, production methods, and the impact of agriculture on the environment and communities.

Also, many consumers want local communities to have a fair share in the economic benefits from the food they produce. The debate centres on the best methods to feed fast-rising populations and ensure regular supplies of agricultural goods; it requires a holistic approach, taking into account social values as well as science.

Developments in organic farming on the one hand, and biotechnology on the other, may both contribute to the future of sustainable agriculture. Many techniques and approaches used in organic farming focus on the underlying health and vitality of agricultural systems and will meet our

standards in social, economic and environmental terms. Similarly, we feel that some of the aspects of biotechnology offer real social, economic and environmental benefits. But if biotechnology is to find a place within our vision of sustainable agriculture we will need to be satisfied that this approach is not only safe for consumption but for the environment as well.

Within Unilever we will continue to work on our own and with others to track developments in science and public opinion as part of our response to demands in different local markets to provide products that meet consumers' expressed needs.

UNILEVER'S SHARE OF KEY CROPS

percentage of world volume

Tomatoes
7%

Peas (frozen)
13%

Spinach (frozen)
28%

Palm oil
7%

Black tea
16%



THE UNILEVER SUSTAINABLE AGRICULTURE INITIATIVE

Unilever believes that Sustainable Agriculture is productive, competitive and efficient while at the same time protecting and improving the natural environment and conditions of the local communities.



Bringing in the harvest – peas, oil palm, tomatoes and tea. The sustainability pilot projects started with peas in eastern England in 1997 (main picture), quickly followed by oil palm (top right) in Malaysia, and in 2001 in Ghana. Tomato (bottom right) projects began in 2000 in Brazil and Australia. Tea (above) projects have been running in Kenya since 1999, in India since 2000, and in Tanzania since 2001. Spinach projects started in Germany in 1999, and in Italy in 2000.

IN THE BEGINNING

The Sustainable Agriculture Initiative began in the mid-1990s. By then it was clear that mounting pressures on agriculture worldwide will have implications for Unilever's future needs as well as posing threats to the quality of life of consumers in the long term. Competition for land, soil erosion, water shortages, pollution from nutrients and pesticides and consumer concerns about food quality are just a few of the difficulties that agriculture is facing today.

"Our aim is straightforward," says Jan Kees Vis, sustainable agriculture manager. "We need to ensure that Unilever has continued access to key agricultural raw materials for the long term, and ultimately we want to develop market mechanisms that allow consumers and customers to influence the sourcing of quality raw materials through their buying habits."

"This is not a simple challenge. The overall question we face is this: how can farming become more productive, at the same time protect the environment, preserve natural resources and contribute to rural communities, while using fewer

agrichemicals and other inputs? We can't find answers to these issues on our own, but with our partners – farmers, scientists and other experts, governments and businesses – I believe that with this initiative we are making a start in the right direction."

We have taken our first steps with crops we know well, and in areas where we directly influence agricultural practices used, i.e. on our own tea and oil palm plantations, or where we work with contract farmers growing spinach, tomatoes and peas. "We realise that what can be achieved at farm level is limited," says Vis, "There are wider aspects of water management, for example, or biodiversity and rural development, that must be addressed on a broader scale. But we've made a start, and we hope that by sharing our knowledge so far that industry peers will take initiatives similar to our own so that we help to stimulate continuous improvement."

DEVELOPING THE PROJECT

In 1995 Unilever commissioned a study to learn the views of leading players and opinion formers among consumers,

farmers, agribusinesses, the food industry, retailers and non-governmental organisations with an interest in the environment and sustainable development. A workshop in 1998 drew participants worldwide from the company and academia, and its outputs have shaped this project.

- We defined what we mean by sustainable agriculture and established four principles (see Box).
- We identified 10 broad indicators of sustainability in agriculture (see pages 6 and 7).
- We established three groups to create a framework for the learning process: a Sustainable Agricultural Advisory Board (SAAB) (see Box) to provide independent advice, direction and judgement for Unilever; a Steering Group of Unilever staff to manage the initiative; and Consultative Groups to advise on world markets and supply chains for oils, tea, tomatoes and vegetables and to run pilot projects.
- We selected five key crops through which our indicators are being refined and tested: spinach, tea, peas, tomatoes and oil palm.

SPINACH FIELD WORK

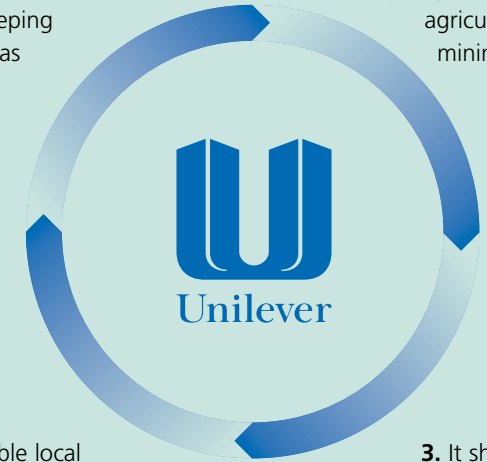
With spinach we have begun pilot projects in Germany and Italy in close cooperation with growers, farmers' organisations, research institutes, local government and sometimes community groups and others.

Having established the baseline measured against the 10 indicators on selected farms where spinach is part of the rotation, we are now beginning to evaluate improved farming practices and pushing parameter values to a more sustainable level. Discussions with stakeholders are important to reach agreement on what constitutes a "more sustainable" level. Once changes in practice are made, the effect on the parameter values is monitored, and so by a process of trial and error we move forward. Our progress so far on these two spinach pilot projects is explained on pages 8-11.

SUSTAINABILITY PRINCIPLES

Unilever believes that sustainable agriculture should support the following principles:

1. It should produce crops with high yield and nutritional quality to meet existing and future needs, while keeping resource inputs as low as possible.
2. It must 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.
3. It should optimise the use of renewable resources while minimising the use of non-renewable resources.
4. It should enable local communities to protect and improve their well-being and environments.



THE SAI PLATFORM

"As we make progress we are also starting to share our findings not only with the wider farming community but others in business too," says Bordewijk. To this end the SAI Platform has been created together with Groupe Danone and Nestlé.

"Food companies can join this platform to exchange knowledge and learning about sustainable agriculture, and from this basis we hope we can go forward together," he adds. (see <http://www.saiplatform.org>).

SAAB MEMBERS


- **Janet Barber**, independent advisor, trustee of Forum for the Future, formerly with WWF UK, United Kingdom
- **Hartmut Bossel** – University of Kassel (retired), Germany
- **Barbara Dinham** – Pesticides Action Network UK (PAN UK), United Kingdom
- **Amadou Diop** – Rodale Institute, USA
- **Bernward Geier** – International Federation of Organic Agriculture Movements (IFOAM), Germany
- **Anne-Marie Izac** – International Centre for Research on Agroforestry (ICRAF), Kenya
- **Richard Perkins** – WWF UK, United Kingdom
- **Per Pinstrup-Andersen** – International Food Policy Research Institute (IFPRI), USA
- **Jules Pretty** – Centre for Environment and Society, University of Essex, United Kingdom
- **Rudy Rabbinge** – University of Wageningen, The Netherlands
- **Bernard Tinker** – Oxford University (retired), United Kingdom

SUSTAINABLE AGRICULTURE INDICATORS



Sustainable agriculture indicators 1,2 and 4: Soil fertility and health (top) is crucial for the growing of good quality spinach as for other agricultural products. Field margins, or the 'greening' of part of a field (middle), not only encourage biodiversity but can also help to slow water run-off and soil loss on a sloping field. Pheromone traps (bottom) are an effective natural pest control that reduces dependence on synthetic substances.


1. Soil fertility/health

 Soil is fundamental to agriculture. A rich soil ecosystem improves performance of crops and livestock. Sustainable agriculture practices can improve the quality of the soil's ecosystem.

Possible parameters include:

- the number of beneficial organisms and predators;
- soil organic carbon
- soil structure and
- compaction


2. Soil loss

 Erosion by wind and water can lead to soil losing its structure and organic matter, so reducing the main asset of the agricultural system. Sustainable practices can reduce soil erosion.

Possible parameters:

- soil cover index (proportion of time soil is covered with crop);
- soil erosion


3. Nutrients

 Crops need a balance of nutrients. Some, such as nitrogen, can be created locally. Others must be imported. Nutrients are lost through cropping, erosion and emissions to air. Sustainable practices can enhance locally produced nutrients and reduce losses.

Possible parameters:

- nutrient inputs and balance over crop rotations;
- gross up-take by plants;
- water contamination;
- emissions to air

4. Pest management


 When pesticides are applied to crops or livestock, a small but significant proportion can escape to water and air, or accumulate in foods, affecting ecosystems and human health. Sustainable practices can substitute natural controls for some pesticides, reducing dependence on synthetic substances.

Possible parameters:

- level of Integrated Pest Management;

- pesticide toxicity;
- residues in waste water


5. Biodiversity

 The diversity of biological systems (biodiversity) can be improved or reduced by agricultural practices. Sustainable agricultural practices can help improve biodiversity – eg by 'greening the middle' of fields as well as 'greening the edge'.

Possible parameters:

- percentage of farm area as natural habitat;
- indicator native wildlife species


6. Product Value

 Product value is a measure of the desired outputs of an agricultural system. Sustainable practices should maintain or improve product value.

Possible parameters:

- potential yield and actual yield per hectare;
- contaminants;
- quality standards


7. Energy

 Although energy from sunlight is essential for growth, the energy balance of agricultural systems depends on additional energy, from non-renewable sources to power machinery. Sustainable practices can improve the balance of energy, ensuring there is more coming out than going in.

Possible parameters:

- total energy input and output;
- transport;
- emissions to air


8. Water

 Irrigation and other practices can lead to pollution of ground and surface water with pesticides, nutrients or soil. Sustainable practices target inputs and reduce losses.

Possible parameters:

- amount of water used;
- leaching and run-off of nutrients to surface water


9. Social/human capital

 The challenge of using natural resources sustainably is fundamentally a social one, requiring collective action, the sharing of new knowledge and continuous innovation. Sustainable practices can improve social and human capital. The prime responsibility for this should remain with the local community.

Possible parameters:

- growers' satisfaction;
- re-investment in the farm;
- community understanding of benefits of sustainability to wider society

10. Local economy

 Sourcing agricultural inputs locally helps sustain businesses, livelihoods and communities. Sustainable practices maximise use of local resources to increase efficiency.

Possible parameters:

- amount of money/profit reinvested locally;
- goods, labour and services sourced locally



Sustainable agriculture indicators 5,6 and 8: Encouraging biodiversity (above) is not only environmentally sound but can make for an attractive landscape too. Inspecting leaves for product value (left) is an on-going task – regular checks mean incipient problems can be tackled early. Sustainable farming practices take account of run-off into drainage ditches (below left) so as to ensure good water quality within the wider eco-system.

SPINACH PILOT PROJECT GERMANY

Langnese Iglo (LI) has collaborated with contract farmers for 40 years in the area surrounding its Reken factory near Münster, north-west Germany, to grow spinach and other vegetables.



Inspecting the fields (top); Hansjörg Komnik, a horticulturalist with Langnese Iglo, and Bernhard Loick-Oesing, one of the five pilot farmers. Pheromone traps (middle), are used to trap insects so reducing mating and the resulting caterpillar problem. One of the state-of-the-art harvesting machines (above), designed to minimise leaf damage and soil compaction. Field margins (opposite) are tested for their contribution to the biodiversity of the wider habitat.



The Münsterland countryside is dotted with woodlands and mixed farms as well as rural tourist and wildlife attractions. The average field size is 4-5ha, and the soils mainly sandy with acceptable yield potential. Spinach is grown from March until September on a four-year rotation, ideally following maize or barley, or sometimes sugar beet, carrots, cabbage or herbs such as basil and chives. The crop is typically harvested after 40 days.

Following the establishment of the ten 'Indicators' at the 1998 workshop, five growers together with LI fieldsmen and other scientists and advisors pioneered the sustainability initiative on their spinach fields. As of 2003 all 105 contract farmers are participants.

"We see our approach to sustainable spinach growing as a logical extension of our long term policy of integrated crop management with its inherent continuous improvement," says Volker Schick, LI's general agricultural manager and project leader. "We learn as we proceed, and our fieldsmen's contacts with one another make it easy to disseminate new best practice among the group very quickly."

STEP BY STEP

Hansjörg Komnik, a horticulturalist, is one of LI's three fieldsmen and other expert partners working with the five pilot farms.

"On sandy soil replacement organic matter (OM) and dealing with soil compaction are critical in maintaining **soil fertility**. In 2002 we began 'spade testing' fields and organising seminars and demonstrations – spade testing is a quick and simple way of soil assessment. We are looking particularly at ways to compensate for OM losses – for example, by encouraging more cereals and developing a proper

green-manure system within the crop rotation. A recent decision was to extend the spinach rotation, so that we now allow three spinach-free years," he explains.

Soil loss might not seem an issue on relatively flat fields, but high winds and rainfall can be damaging. Various solutions are under test, including assessing potential damage on susceptible sites, longer periods with cover crops before and after spinach, tilling and sowing parallel to slopes, and planting trial 3-6m vegetation strips within and beside fields to bind the soil.

When it comes to **nutrients**, Komnik stresses that nutrient efficiency must be optimised. "Best practice means attention to the characteristics of each field through winter soil sampling, considering the effects of preceding crops and encouraging the sowing of following cover crops that will help take up excess nutrients," he says. Sustainable farming should maximise the nutrients that are recycled within the system, so minimising imported nutrients.

Integrated Pest Management (IPM) is the key to sustainable pest control. Insecticide is only used on detection of a pest according to damage thresholds. "We search for the least hazardous control strategies – for example, we are investigating Bt, a pesticide derived from natural material. LI is also funding a three-year programme to research natural controls such as biological traps and other alternative strategies," says Komnik.

Biodiversity is best encouraged by attention to the characteristics of each farm and even individual fields. On the pilot farms flowering herb mixtures are grown on field margins to test their benefit in enhancing the wildlife



potential of the whole habitat. Bernhard Droste, one of the pilot farmers, reports that for the first time in 2002 the lapwing had breeding success because of the field margin he created.

While we wish to ensure that sustainable agriculture is productive we will not sacrifice our quality targets. With spinach as with many other crops nitrogen management is crucial to optimum yield and quality and thus **product value**. The improvement process is supported and documented by controls of the key nutrients and residues.

Water supplies are more than adequate for irrigation. "But we need to monitor for volume used in spinach growing to improve overall irrigation strategies on the farms. Remember spinach is only one part of a mixed farm that needs water. We are currently assessing a variety of post-harvest cover crops," says Komnik, adding, "Since 2002 field margins 3m wide have been established as a buffer between our fields and ditches or brooks".

Energy and the use of renewables needs further attention, with some issues beyond the control of LI. **Social and**

human capital, and **local economy** are other indicators where LI has yet to develop detailed best practice parameters.

THE WAY AHEAD

"Producing spinach sustainably is not something that happens overnight," says Schick. "Rather it is a matter of constant adjustment of practices to small indicator details, learning as we go from our many partners, and sharing our findings. Regular informal contacts and workshops are part of the process, along with a commitment to step-by-step innovation in the light of further developing knowledge. The intention is that ultimately all farmers supplying vegetables to the Reken factory will become part of the ISO certification process. We believe our approach underlines our commitment to sustainable agricultural practices which will have wide benefits for all."

PROJECT PARTNERS

- Iglo Contract Farmers' organisation
- Chamber of Agriculture Westfalen-Lippe (Agriculture Extension Service)
- University of Hannover, Institute for Vegetable and Fruit Science and Institute for Plant Diseases and Plant Protection
- University of Applied Sciences Fachhochschule Südwestfalen
- Biodiversity Research Station Zwillbrock
- Trifolio (biological pest control products)
- TerrAquat (soil, water, and nutrient consultancy)
- ccgis (GIS consultant and programming)
- County Borken Local Government
- IGZ (research institute for plant growth and mildew epidemiology modelling)
- Regional Water Supply company RWW



SPINACH PILOT PROJECT ITALY

Farms in Italy have provided vegetables to the Sagit factory in Cisterna di Latina for over 40 years. Spinach is part of the rotation in spring and autumn on Latina's flat soils (drained marshlands), and from November until March in the slightly more varied terrain beyond Italy's mountain backbone in the Foggia area to the south-east of Rome.



A spinach field in Latina (top) in peak condition for harvesting. Regular checks by farmers on soil quality (middle) are simple to execute, yet what they reveal is crucial to sustainable farming methods. Sagit's custom-built harvester (bottom) is designed to ensure minimum bruising of leaves and damage to the soil as well as on-field elimination of foreign bodies, especially caterpillars.



"Italians are keen on frozen leaf spinach. Sagit is the market leader, and we're widely perceived as providing the benchmark in key areas: quality, varieties grown, and harvesting machinery – we design our own harvester," explains Andrea Granier, factory agricultural manager.

The lowland southern Mediterranean climate is warm even in winter, but with it comes the probability of contamination including large unwelcome caterpillars that are a key challenge in both growing and factory processing. Downy mildew is a further persistent problem in Foggia that has recently appeared on some Latina fields too.

Sagit's project started in 2000 with four pilot farms in Latina and three in Foggia, and from 2003 all 200 contract farmers will have the opportunity to be involved. Latina average field size is small, about 2.5ha, while in Foggia fields can be 5-10ha with inherent potential for economies of scale. So far most work with growers has concentrated on five of the ten indicators: **product value, pest management, nutrients, water and soil fertility**. These indicators were chosen at the start of the project because they are regarded as the most important ones for spinach growing.

"Pesticide residues, yields and foreign bodies demand particular vigilance in our climate and directly affect **product value** – customers do not appreciate blotchy yellow leaves or foreign bodies. Our success depends on growing high quality leaves – there is little that can be added during the factory process," says Granier.

Sagit's on-going collaboration with scientists to find focused rather than generalised solutions is key to

sustainability. "The supply of good spinach leaves depends on a detailed understanding of the causes and effects of our activities in any given corner of a field. This means knowing how and why things happen, measuring inputs and outcomes, and learning all the time so that we build a bank of solutions that help with quick decision making in facing future specific problems. Whatever we learn we want to share with other farmers as soon as possible," says Granier.

Pest management (plus weed control) has been considerably improved by the full application of IPM (Integrated Pest Management) principles. Granier says, "We need further localised research on bio-control agents – predators, parasites, bio-fungicides and pheromones, as IPM tools. Agrochemical use has been considerably reduced since 1998, but more improvements must be made in field treatments." Sagit's cooperation with the agrochemical industry has helped in the approval of a new low toxicity insecticide which will be of wider benefit to other spinach growers in Italy and Spain.

Reducing nitrogen application is key in **nutrient management**. Following extensive studies, nitrogen fertilisers were reduced by 15%, and phosphate and potash by 60%. "We can help reduce loss of nitrates and phosphate in surface run-off and to ground water by growing a high-nitrogen-requiring crop, typically maize or tomatoes, immediately after spinach. We also will apply greater care and improved practices in keeping chemicals away from watercourses," says Dr Stefano Canali, soil scientist at Rome's Experimental Institute of Plant Nutrition who is working with Sagit.

ENZO NARDOZZI – PIONEER IN LATINA



Vegetable farming is a relatively new occupation in the Latina region, historically an area of unproductive marshland until the extensive drainage programme that started in the 1930s. Sagit grower Enzo Nardozzi's grandfather migrated here as a share-cropper from east Italy. Over time the family acquired land, and today Enzo and his brother cultivate 21ha and represent some of the most progressive of Sagit's suppliers. The family has sold spinach to Sagit for 15 years and Enzo is a key member of the Sagit programme.

Enzo's farm rotation includes sugar beet, onions, tomatoes and maize, and up to 15ha of spinach in spring and autumn. "In applying advanced technology and optimising the use of agrochemicals, we've seen yields double in 20 years," Enzo says. "But we face uncertainty with reforms to the EU agricultural policy, young people leaving the land, and small farmers like me lacking political clout. Then there are global problems that impact here. For example, water shortages were never a problem, yet in 2002 Latina had drought for the first time in decades."

Enzo with Mario Cavallo and Piero Pozzi, Sagit's agriculturalists, meet regularly to review sowing schedules, inputs, yields and harvesting, as part of the company programme of establishing a guide to good practice leading towards sustainable agriculture. Cavallo says, "We visit fields weekly during the growing period, and several times weekly during the harvest. Enzo is a farmer who invests in soil analysis, who understands the detailed character of his fields and the desirability of balancing efficiencies, inputs and uptake of nutrients in the light of learning. This is the right way ahead for all our suppliers."

In 2002 reduced **water** availability for irrigation was a new problem in the Latina area, while in Foggia water scarcity has regularly been an issue. A model has been developed to minimise water use. After extensive two-year trials, as of 2003 the model is being tested on 20% of the Latina farms, with a potential of 30% water saving.

Soil fertility is helped by appropriate crop rotation, cover crops, plus organic fertilisers and soil improvers. Soil compaction remains an area of concern, especially from machinery tyres, and work continues to improve harvesters further and find ways of reducing the number of machine passes over the fields.

Soil loss is not a major issue in Latina. However, some of the slopes in Foggia need greater attention.

Biodiversity, energy, social and human capital, and local economy are all indicators to be further developed together with local stakeholders.

Matteo Lauriola, general agricultural manager, concludes: "Because of the independent character of our growers, who very often have small farms and problems with labour resources, as well as overall uncertainty about the future of farming, it is taking time and effort to convince growers of the benefits of the sustainable approach. But we are making good progress and are keen to share what we have learned. On our pilot farms we have shown that an integrated approach not only boosts efficiency and safety, but reduces growers' costs and improves yields, as well as protecting the environment for the longer term."

PROJECT PARTNERS

- Growers' trade unions and organisations: ColDiretti, ConfAgricoltura
- Local Water Consortium
- Growers' suppliers: Ricci Agricoltura and Agriprogress
- Universities and Research Institutes: University of Perugia, University of Piacenza, University of Ancona, ISNP (Plant Nutrition Institute), ISMA (Experimental Institute for the Agricultural Machinery), ISPaVe (Plant Pathology Institute)
- Private Corporations: DuPont, Syngenta, Seminis, G&O
- Key pea (and other vegetable) suppliers: EQT Sweden, Marollo
- Local Government institutions: Lazio County
- Specialised media: Informatore Agrario
- FiBL Switzerland (Forschungsinstitut für biologischen Landbau)



SUSTAINABLE SPINACH: CHALLENGES AHEAD

Hans Reiterer, Operations Director Frozen Foods Europe, explains what lies ahead for sustainable spinach production.



Hans Reiterer and colleagues at a workshop in Italy to discuss progress in growing spinach sustainably in pilot projects here and in Germany.

“Before talking about the challenges we face, I would like briefly to reflect on the history of our sustainable agriculture initiative in Europe. By the 1990s the debate about the future of agriculture in the light of new farming technologies, plus developments in biotechnology and the agri-chemical business, was in full swing. Applying ‘best practice’ in growing crops, we realised within Unilever, was no longer sufficient for a sustainable future. It became clear to us that a whole new approach to farming was necessary. I think it’s a fair comment to say that Unilever has been a pioneer with its sustainable agriculture activities which are a direct response to the problems facing modern agriculture.

In all our agronomic operations in Europe we have established a long, close relationship with our contract farmers. They have always grown our crops following the principles of ‘agricultural best practice’. But within that approach, the focus was largely confined to the continuous improvement of crop-specific environmental indicators.

Those indicators are important, but they are only part of what we should be monitoring and improving today. The sustainable approach is much broader. It considers the effect of our agricultural activities on other environmental and social indicators, still ensuring a sound economic performance of the whole agronomic operation. Ultimately our aim is to incorporate sustainable standards into every stage of our frozen vegetables management system.

We started our sustainability initiative for frozen vegetables in the mid 90s with pea growing in the UK. The initiative has been rolled out fast to our other key vegetable crop, namely spinach, in Germany and Italy. With the pilot studies established, and our partner contract

spinach farmers now joining the project in larger numbers, I want our growers to be even more ambitious and look at the wider perspective.

Spinach (and also peas) represents only a proportion of our growers’ total farm enterprise. Our protocols will ensure a sustainable way of growing this single crop on a field within the crop rotation. But the real challenge is the overall implementation of sustainable agriculture practices for all crops grown on the farm, leading to a ‘sustainable whole-farm concept’ of the future.

So I want to encourage our farmers to apply and extend the sustainable practices applied to spinach to all their other crops as well. This should form an important element of their long term approach to their own sustainable future.

For this to happen we need the full buy-in from our growers, supported by important stakeholders. Each of them must believe in the advantages of operating their farms in a sustainable way. So, there is still a lot of ‘convincing work’ for all of us to do.

I strongly believe this integrated, whole-farm approach is the only way forward to safeguard a sustainable future for all of us: for our farmers, the local community in which we operate, and last, but not least, for our own Unilever business.”



FURTHER READING



Agriculture
www.unilever.com
click on links to Environment & Society: Sustainability initiatives: Agriculture



Palm oil
www.unilever.com
click on links to Environment & Society: Sustainability initiatives: Case studies; Agriculture: Palm oil



Tea
www.unilever.com
click on links to Environment & Society: Sustainability initiatives: Case studies; Agriculture: Tea

See also **SAI Platform**
www.saiplatform.org



Fish
www.unilever.com
click on links to Environment & Society: Sustainability initiatives: Fish
www.msc.org



Water
www.unilever.com
click on links to Environment & Society: Sustainability initiatives: Water

Credits
Writing Juliet Walker
Design Red Letter Design, London
Printing Scanplus, London



“Unilever is committed to making continuous improvements in the management of our environmental impact and to the longer-term goal of developing a sustainable business. Unilever will work in partnership with others to promote environmental care, increase understanding of environmental issues and disseminate good practice.”



Antony Burgmans and Niall FitzGerald, Chairmen of Unilever.