



Genencor International®

Progress Towards Sustainability

2002 Sustainability Report

GENENCOR INTERNATIONAL SUSTAINABILITY DEFINITION

The pursuit of long-term viability and progress of our business while taking responsibility for improving the environmental, social, and economic conditions resulting from our enterprise.

FEATURE

CORPORATE PUBLIC POLICY ACTIVITY

In 2002, Genencor continued to play an active role in the policy and political spheres in the United States and Europe. We pursue an agenda in relevant policy centers that support our strategic business objectives. These objectives reflect our corporate commitment to sustainability.

Genencor approaches public policy activity in a broad and multifaceted way through both direct and indirect actions. The issues in which we are engaged, the principal organizations through which we work, and the policy progress that has resulted are summarized below.

ADVOCATING FOR A BIOBASED ECONOMY

One of the largest social and economic trends that Genencor is engaged in is the convergence of activities that we call the “biobased economy.” We believe industrial applications of biotechnology will enable the development of integrated biorefineries to produce chemicals, transportation fuel such as ethanol, and other valuable materials.

All societies will have increasing need for these materials. The challenge is to produce them in the most sustainable way possible. If we could produce them with renewable carbon from plant-

derived sources, including agricultural waste streams, we could have a major positive impact on the environment and the economy. We could reduce greenhouse gas emissions and end-of-pipe pollution. We could also stimulate rural farm economies by developing non-food uses of plants and crop residues. A full description of our vision of the biobased economy can be found at www.genencor.com/pdf/GC010_Bio_Broch_final.pdf.

Informing policy makers about the promise of a biobased economy is the highest priority of Genencor’s corporate public policy activity. We explain the environmental gains to be achieved when bioprocesses replace chemical synthesis in

industrial production and consumer products. Case studies of industrial biotechnology and its contribution to industrial sustainability can be found at www.oecd.org.

In Brussels, we work very closely with EuropaBio, the EU’s biotechnology industry association, to inform policy makers at European institutions. This has resulted in significant progress toward increasing industry visibility in 2002. Three major policy documents included reference to industrial (White) biotechnology: Life Sciences and Biotechnology Strategy, the Action Plan on Environmental Technologies, and the Framework Program VI relevant to their topics.

FEATURE (CONTINUED)

Genencor is represented on two formal policy advisory committees. The Business and Industry Advisory Council (BIAC) is an official stakeholder in OECD deliberations. Genencor is vice-chair and responsible for the industrial sector of BIAC's biotechnology committee. BIAC provides strategic insight and policy feedback to the OECD. Genencor also participates in the Biomass R&D Advisory Committee, a federally regulated committee set up by the U.S. Congress to advise the Secretaries of Agriculture and Energy on the development of a biobased economy.

RESEARCH SUPPORT

Genencor is recognized as a world leader in technology and product development within the industrial biotech sector. Our ability to win competitive contract awards from governmental agencies is evidence of this competence. In 2002, we continued work on a contract from the U.S. Department of Energy's National Renewable Energy Laboratory to develop highly effective cellulase enzymes to convert biomass to fermentation sugars for ethanol production.

We also continued to participate in EU-funded collaborations with other EU partners on several projects relating to industrial biotech.

SAFETY AND LABELING REGULATIONS

In the European Union, several ongoing regulatory regimes have been under review for the assessment and labeling of enzyme applications in food, animal feed, and other consumer products such as detergents. Genencor's engagement in these regulatory discussions has been conducted exclusively through its work in a variety of industry associations. Genencor participates in the following European organizations: AMFER, the Association of Manufacturers and Formulators of Enzyme Products; CEFIC, the European Chemical Industry Council; Fefana, the European Federation of Animal Feed Additive Manufacturers; and AISE, the International Association for Soaps, Detergents and Maintenance Products. In each of these industry forums, Genencor advocates for science-based safety assessments, regulatory transparency, and consumers' right to know what is in their foodstuff and in other consumer products through informative labeling.



SUSTAINABILITY CHAMPION: RCDC

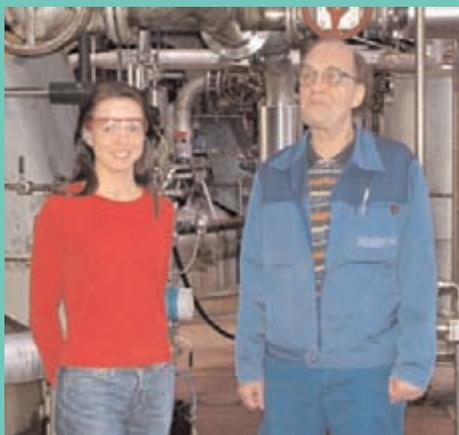
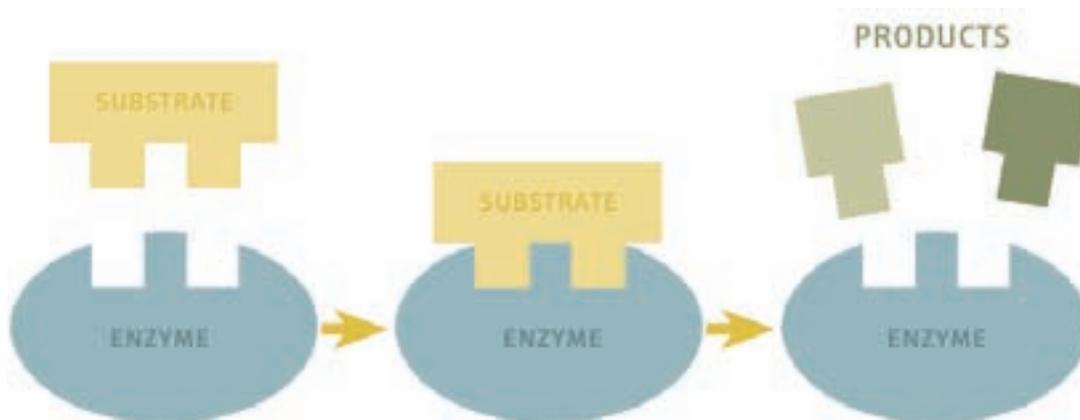
Rosalind Valeria | RCDC, Rochester, NY | Lab Technician – Corporate Culture Collection

As a member of the Rochester Center for Development & Commercialization's (RCDC) Sustainability Team, Rosalind Valeria championed the creation of a Wildlife Habitat Area at the site, developed with guidelines from the National Wildlife Federation. As part of the project, RCDC employees helped design and build the habitat and in 2002, the team planted two additional wildflower beds.

"The team wanted to maintain the current natural environment for wildlife at our site while adding a limited amount of structure for the employees to enjoy," Rosalind says. "The native plants, shrubs, and trees offer shelter to wildlife and provide nesting locations, while various berries and seeds offer food."

The team created a walking path with benches, planted evergreen and deciduous trees, installed birdhouses, and planted four wildflower patches that bloom in varying stages. "The center of the walking path is a large area of tall grasses that we hope will be home to nesting birds. We will continue to add to the wildflowers in the hopes of having a large mass of summer bloom," she says. "Our goal is to support the resident wildlife, provide a restful spot for employees, and create a pleasant sight for Genencor neighbors."

HOW ENZYMES WORK



SUSTAINABILITY CHAMPION: HANKO

Sanna Leskinen | Hanko Manufacturing Plant | Process Engineer

Pertti Heinonen | Hanko Manufacturing Plant | Fermentation Coordinator/Safety Officer

Sanna Leskinen is a process engineer in fermentation. Pertti Heinonen has multiple roles at the site as fermentation coordinator and safety officer. They are both members of Hanko's management teams – Sanna representing the Technology Leading Team and Pertti serving as a member of both the Sustainability Leading Team and the Manufacturing Excellence Leading Team.

Sanna and Pertti successfully implemented a process designed to simplify fermentation processes. The project involved making a relatively simple process change, which resulted in increased robustness with fewer contamination risks and less variation between batches during production. The new process also streamlined the laboratory workload. Finally, the site saw positive economic and

environmental benefits by using fewer inputs of raw materials and energy while reducing manufacturing costs. "This is a good example of eco-efficiency," says Sanna.

As a member of both the Sustainability and the Manufacturing Excellence Management Teams, Pertti finds this "cross-function" useful. "Although it can be challenging at times to juggle cross-functional tasks, it does provide for a broader understanding of issues and helps to take many different aspects into consideration when making decisions," Pertti says.

Sanna believes that sustainability is a visible part of the Hanko site. "Today sustainability issues are much higher on the agenda at our site than they were six years ago," she says. "But there is still much we can do to improve our performance."

FUTURE SUSTAINABILITY GOALS: • **Improve** equipment and installations • **Reduce noise** in the fermentation, maintenance, welding, and outdoor entrance areas • Identify and contract with additional companies to receive materials for **recycling** • Increase number and frequency of **site drills** • Extend sustainability, health, and **safety objectives** to the warehouse, lab, and maintenance areas

ARROYITO, ARGENTINA

Our facility is located on an 8,919-square-meter site and employs approximately 50 people. Approximately 30% of our products are sold to local markets, with the remainder exported primarily to the United States, Japan, and Singapore.



We are committed to investing in our people and maintaining a supportive work environment. Implementing SMS and a new management style helped employees respond to changing circumstances.

REBOUNDED FROM CHALLENGES

The first half of 2002 presented critical challenges for our facility. A major restructuring resulted in plant downsizing which decreased our fermentation capacity. While ongoing political difficulties in Argentina continued to present an uncertain economic environment, our production levels began to rebound in the second half of the year.

We improved management of capital projects and completed several initiatives, including establishing a continuous feed system, automating fermentation, and constructing a new maintenance warehouse. The goal of many projects was to optimize resources. We also purchased new energy-efficient compressors and variable frequency drives that resulted in approximately \$200,000 in annual savings.

OUR PEOPLE, OUR FOUNDATION

We are committed to investing in our people and maintaining a supportive work environment. Implementing SMS and a new management style helped employees respond to changing circumstances. We improved communication between management and employees, obtained continuous input and feedback, and emphasized ownership and teamwork. An assessment found higher levels of employee motivation and morale.

“People generally feel that communication at the plant is the best it has ever been,” said Mario Aponosovich, Environmental Health and Safety Manager. “Job satisfaction is very high. People feel empowered, and having clear understanding of the plant’s direction has improved their motivation.”

Education is also a priority. Employees received training to improve their English language skills. Training in mathematics and chemistry will be provided in 2003. Flexible working hours, a new social activity room, and employee medical checkups created a more “worker friendly” environment.

SUPPORTING THE LOCAL COMMUNITY AND CONTRACTORS

We maintained efforts to support the social and economic well-being of our community. Employees provided training in environmental health, safety, and sustainability to teachers and students of local secondary schools. We also continued to emphasize working with local contractors and suppliers.

ENVIRONMENTAL HEALTH AND SAFETY AWARENESS

An assessment found better understanding of environmental health and safety (EH&S) programs and policies, especially with regard to compliance, hazardous waste management, and contractor safety. Last year we implemented EH&S in all capital projects and process changes. Production employees began incorporating health, safety, and sustainability objectives and goals, and are involved in EH&S issues such as risk assessments.

Contractor compliance with health and safety and sustainability objectives increased dramatically. Plant managers provided on-the-job training to assist contractors in attaining compliance.

CONTINUING IMPROVEMENTS IN RECYCLING

During last year, 100% of our paper waste was recycled. We also began recycling plastic films. We reduced the number of printer toner cartridges used by half. We also chose a reliable waste contractor for oil waste, and consolidated an appropriate classification of residues.

FUTURE SUSTAINABILITY GOALS: • **Improve recycling** system to include paper, packaging, and construction materials • **Review** waste disposal alternatives, including by-product disposal methods and hazardous waste disposal management • **Enhance quality** of working environment by modifying the material handling system to improve ergonomics and reduce exposure to hazardous material

WUXI, PEOPLE'S REPUBLIC OF CHINA

The Wuxi facility is located in Jiangsu Province, only 128 km from Shanghai, one of China's major economic centers. The 33,537-square-meter site has approximately 160 employees. We produce more than 30 products, which are mainly exported to the United States, Europe, and Asia. We began implementing the SMS in 2002.



To protect people from potential leaks, we upgraded the ammonia supply system, which now meets high safety standards. Our “media preparation” project protects employees from exposure to dust and provides a more hygienic and safe working environment.

HIGH QUALITY AND ENHANCED PRODUCTIVITY

Our SMS work helped support increases in productivity and continued high levels of quality. In 2002, we increased our production output, driven significantly by process improvements. The mayor of Wuxi visited the site and praised our contribution to the local economy.

We are working to continuously increase our output by leveraging technology and appropriate management tools, and improving the utility system.

“Customers outside China are satisfied with our product quality,” said Li Deqiang, QA/QC Manager. “We are proud to say that we are one of the preferred suppliers within Genencor.”

PROTECTING EMPLOYEES AND THE ENVIRONMENT

Our facility attaches great importance to employees’ health and safety and environmental protection. Last year we completed several health and safety projects. We installed a public paging, emergency alarm, and lighting system to help employees react promptly to emergencies. To protect people from potential leaks, we upgraded the ammonia supply system, which now meets high safety standards. Our “media preparation” project protects employees from exposure to dust and provides a more hygienic and safe working environment.

We also completed a noise reduction project on the cooling tower. Noise and hazardous waste disposal are still challenging issues, and will be addressed in 2003.

SOCIAL EQUITY ACHIEVEMENT

We are committed to building solid social relationships both internally and externally. As a high-tech company, we have made efforts to develop a positive relationship with the local Yangtze University. Senior managers attended the university’s scholarship awards ceremony as sponsors. Staff scientists gave two lectures to students at the university, and we hosted 21 students as interns for three weeks.

Internally, we provided many opportunities for employees to build a sense of community. These included “dialogue meetings,” an annual evening party, and a mid-autumn activity. Employees were happy with these changes and activities. “Through better communication, we will try to further improve relationships with our local stakeholders,” said Lendy Cao, Human Resources Supervisor.