Cultivating awareness of nature’s fundamental importance, and the urgency with which its management must be dramatically improved, is at the forefront of the United Nations World Food Programme’s work. Executive Director, Achim Steiner highlights some of the Programme’s recent developments in its unrelenting quest to draw parallels between ecology and the economy, paving the way towards a greener future.

As complex economic forces drive competition for space between food and biofuel crops, how might the biological and geological sciences contribute to solving such broad societal challenges?

Dr Manfred Lexer
University of Natural Resources and Life Sciences, Vienna

This is not a challenge the biological sciences can address alone. Natural and social sciences must interact in order to identify the conflicts and pathways which frame future options of land and resource use. One of the key goals is to better communicate scientific results to a broader public and stakeholder audience, which is expected to contribute to this search for solutions.

In an exclusive interview, Secretary General of the European Water Association, Johannes Lohaus underlines the organisation’s key priorities to facilitate the provision of clean water to Europe and the rest of the world. He also highlights their efforts to promote sustainable water management and international cooperation in addressing fundamental technical and policy issues.

The two-spotted spider mite (Tetranychus urticae) severely damages the apple leaf surface, creating feedbacks within its microclimate. © Amélie Ezanic

Tracking functional identity of different cell types in Arabidopsis roots by expression of a blue fluorescent reporter.

Iron coated stream bed.

Ischnocodia annulus in Nicaragua. © Anabela Cardoso

In the Round

BEAUTIFUL SCIENCE

International Innovation showcases the most exciting research highlights and interviews published in recent editions, available open-access online.

NATURE’S TRUE VALUE

WATER FOR THE WORLD

IN THE ROUND

The Hub
EXPLORING ALTERNATIVE RICE CROPPING METHODS

Rice is the main staple for over 3 billion people. Researchers within the ICON Research Unit, coordinated by Professor Dr Volkmar Wolters, are examining the ecological, environmental and economic impacts of alternative rice production methods across Southeast Asia. Their hope is to identify methods that can cultivate rice in high yields whilst decreasing water consumption to ensure sustainable agricultural practices.

A SOURCE OF SUNFLOWER STERILITY

Professor Dr Renate Horn is working with a team of researchers at the University of Rostock, Germany, to elucidate the molecular basis of PET2-mediated cytoplasmic male sterility in sunflowers. Understanding this phenomenon could benefit agriculture by increasing crop yields through the use of hybrid breeding.

THE PLANT PIONEER

Professor Ralf Kaldenhoff is a renowned German botanist who was among the first to describe plant aquaporins – an assembly of proteins that control the flow of water. He works with a team of researchers at Darmstadt Technical University to advance the accepted understanding of aquaporin function, with special regard to the protein’s effect on CO2 diffusion.

EXPLORING THE CULTURE OF AQUACULTURE

Aquaculture represents an ever-growing area of food production but, given that its foundations lie in small-scale farming, much is still to be understood about its true role within the food production network. Dr Rohana Subasinghe is Senior Aquaculture Officer on the Aquaculture for Security, Poverty Alleviation and Nutrition (AFSPAN) project which is exploring the scale of aquaculture’s impact on human development worldwide to assist policy makers and funding agencies on the most effective areas to direct funding for aquaculture research and production.

COOL FOR COWS

The US dairy industry currently loses an estimated $900 million every year as a result of decreased milk production, low fertility of lactating dairy cows and reduced growth of developing heifers. Dairy science expert, Professor Robert Collier from the University of Arizona, has developed an innovative cooling technology to replace current strategies that have a large carbon and water footprint, and could offer solutions to the existing inefficiencies within the industry.

BERRIED TREASURE

The EU’s berry industry is facing threat from a changing climate and pressure to improve sustainability. To tackle these challenges, a large-scale collaboration, EUBerry, coordinated by Professor Bruno Mezzetti, is employing cutting-edge methods to help improve the quality and profitability of berry fruit production in the European market. The project provides a strong foundation for growers to cultivate berry fruits using sustainable methods inbuilt with a greater tolerance to pests and varied environmental conditions.