

BIOVERSITY INTERNATIONAL



Currently, humankind meets over half of its protein and calorie requirements from maize, wheat and rice. The green revolution has played a part in this. However, the other side of the coin is that, as a result of increasing mass production and standardisation, many traditional crop varieties are disappearing from our plates – and from our ecosystem. Matthias Jäger is working at Bioversity International to help neglected and forgotten crops make a comeback.

Alexander Coffee is a chain of coffee shops that is Bolivia's answer to Starbucks. But the trendy snacks that get served across the counter there are not blueberry muffins or cinnamon rolls, but have names like quinoa tart or amaranth wrap. Quinoa, amaranth and cañihua have been grown by people in the Andes for many thousands of years, but over the last 40 years they have become an increasingly rare sight in the fields. Matthias Jäger, who is an agricultural economist and expert in marketing neglected crops, knows the reason for that: 'These Andean crops have a major image problem because they are seen as poor people's food – even though they are far richer in protein and other important nutrients than mainstream grains. If we succeed in using these grains to make modern products – which is what we did in conjunction with Alexander Coffee – we can change things.'

'In my work I help to get neglected crops from the Andean and Amazon regions into the fields again and into the food markets. That not only helps conserve biodiversity but also contributes to safeguarding the long-term income and food security of the local population.'

Matthias Jäger, CIM expert at Bioversity International
www.bioversityinternational.org

Another reason that these varieties have been neglected is that, unlike with maize or rice, hardly anyone is interested in researching them or in constantly improving seed quality and cultivation methods.

Research meets market reality

Matthias Jäger has his finger on the pulse of research. He is familiar with the latest research findings on Andean crops and therefore with the opportunities inherent in certain crop varieties. But he is also familiar with market needs and latest product trends and constantly seeks to reconcile the two sides. He does that, for example, by holding workshops at regular intervals and inviting research institutes, farmers' organisations, producers and exporters, state actors and NGOs to participate. 'When different perspectives, knowledge and interests come together we often see innovative products and improved value chains emerging as a result,' says the 43-year-old agricultural economist.

Bremen-based oil supplier Henry Lamotte, for example, has shown great interest in the unprepossessing amaranth and its high oil content. Jäger and Lamotte did not however meet at a workshop but at BioFach, the world's leading trade fair for the organic industry. To date, the company has bought just the grains

in Ecuador and pressed them in Germany to produce oil. But if the quality were adequate, Lamotte would also buy the oil directly in the country of origin. To meet demand of this kind and increase the value added in the growing countries, a number of things need to be tackled with some urgency. 'We need to identify suitable amaranth varieties that have a high oil content and suitable fatty acid structure and analyse the oil to establish whether it meets the customers' wishes and relevant standards. We are working in conjunction with farmers to further develop individual varieties. To be competitive we have to make sure we know what oil extraction methods are available to us and which are most cost-effective. We need to send samples to companies, talk to exporters, and calculate costs,' says Matthias Jäger describing the many small steps that go into establishing a sustainable value chain.

Responses to climate change

As well as conserving biodiversity and improving the living conditions of farmers and local suppliers, climate change is another reason for the increased interest in neglected crop varieties. By contrast with the seed industry's uniform varieties that are cultivated on vast expanses of land, usually involving high levels of fertilizer and pesticides, traditional crop varieties have adapted perfectly to their environment and climate conditions over centuries. That is particularly true of traditional varieties from the Andes, which flourish even at altitudes of 3800 metres where virtually nothing else grows. They are cold-tolerant and need very little chemical input. 'By preventing these crop varieties from dying out and protecting biodiversity, we are preserving options we may need in the future to adapt to changing climate and growing conditions. However, we do have to continue to develop these

varieties. Because if, as in recent years, the rainy season is two months later than usual and we see more frost and hail, we will have to find varieties that ripen more quickly and are even more resistant to extreme weather conditions,' says Jäger, explaining another important part of his work.

A way to get off the treadmill of the mass markets

But the diversity or rather monotony in the fields has attracted greater attention internationally in recent years – not only because of climate change. The increasing power of individual seed companies and the agro-industry over smaller farms has made many consumers increasingly distrustful and has raised awareness. The distinct trend away from anonymous mass consumption may also be related. 'Ecological, social and ethical criteria are becoming more and more important in purchasing decisions, as the continuing boom for products that have organic and fair trade certification clearly demonstrates,' says Jäger. He is one of the people at Bioversity International who are promoting the establishment of worldwide standards of certification for biodiversity products.

One aspect of this is greater use of protected designations of origin. There are over 2000 of these categories in Europe – Emmental cheese and sherry are just two examples. These designations of origin not only help to protect income, but also conserve biodiversity. In Germany, for example the designation saved the Swabian-Hall Swine from extinction. By contrast, the only protected designation of origin in Latin America is Café de Colombia ; the potential these designations could generate for many farmers who are cut off from the world market is vast.

The participants

Bioversity International is one of 15 international agricultural research centres that constitute the **Consultative Group on International Agricultural Research** (CGIAR). The common goal of these public-sector research establishments is to solve urgent agricultural problems through application-focused research with the overriding aim of averting poverty and safeguarding food supply.

The **Centre for International Migration and Development** (CIM) and the **Advisory Service on Agricultural Research for Development** (BEAF),

which is a GIZ (Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH) project, support these endeavours – for example by placing German experts at these agricultural research centres and contributing to funding their deployment. Matthias Jäger is currently one of 30 German experts working in key positions at the 15 research centres to ensure that important scientific findings are translated into practice and lead to genuine development progress.