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Center for Genomic Gastronomy

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Seeds Keep Wisdom Alive

Our world is facing complex sustainability challenges that are threatening not only our capacity to feed the growing population, but also to nurture it. The Green Revolution and the introduction of sophisticated technological innovations were once considered the best way of fulfilling the food needs of the world population. Unfortunately, this approach doesn't come close to meeting these needs and every year more people become undernourished, both of food and wisdom.

Seeds play a key role in addressing this challenge. They are the first input for food production and a reservoir of biocultural diversity and wisdom. They hold the genetic diversity necessary in the event of plagues and crop diseases. Seeds store decades of knowledge that are transmitted across generations and communities who have produced, bred, and exchanged seeds. Families and indigenous farmers cultivated this wisdom by relaying recipes, practices, rituals, and stories.

Societal divisions of labour often put women in charge of collecting, saving, exchanging and keeping seeds. The transmission of knowledge through seeds became an instrument for their communication. Women used seeds as a nutrient—eating them, growing them, using them as medicine and even art. Seeds were common in women's goods like textiles, where they were crafted into multicolour threads in the collective process of knitting in communities.

Recent transformations in the way seeds are produced, bred and exchanged, has led to a great loss of biocultural diversity, cultural activity and the wisdom that comes with it. The emergence of new genomics-based technologies and the worldwide diffusion of strict intellectual property rights that restrict the use of seed material have caused a shift in control—from family farmers, to agronomists, public institutions and, nowadays, mostly to private companies. Ownership has also shifted from women to men. Today, just three agro-chemical companies dominate commercial plant breeding and global seed markets. Seeds have become a mechanism for corporate profits.

Several challenges arise from these shifts in control. The global firms that now dominate the market focus their breeding efforts on large commercial seed markets. Minor crops, marginal agro-ecological environments, and the needs of smallholder farmers (the majority of the world's farmers) are neglected,

resulting in diminished crop diversity, unsuitable seed varieties (for many farmers), and a much narrower variety of agricultural systems. Seeds have also been taken out of houses, and with them, recipes, medicines, practices and associated conversations are lost as well. The wisdom knitted by seeds is breaking.

Many groups are concerned about the future of seeds and are proposing alternatives for multiplying, breeding and exchanging seeds. The most well-known alternative is the 'seed bank'. Seed banks are intended to store and maintain the diversity of the seeds we still have. Their cold and dry conditions are seen as the safest way of keeping seeds, but they are far away from communities, and inaccessible to farmers and the groups of women who traditionally cared for seeds. Although seed banks have contributed to maintaining genetic diversity, they do not preserve the wisdom grown and bred by groups of grandmothers and young women. Seed banks are a demonstration of how we favour systemization over local knowledge. Local knowledge is a form of wisdom that relies on spoken tales, the making of jewellery, medicine and recipes. These practices are very hard to codify. That may be a good thing.

Important questions arise when we realize that it isn't possible to keep all the remaining varieties of seeds in a bank. Which seeds are kept? Why are they considered more important than others? Who decides which seeds to preserve? What kind of agriculture are they serving? Who is the owner of those seeds?

Some communities have found an intermediate solution—seed houses: small-scale local living depositories where people keep the seeds for their communities. Farmers can borrow seeds to grow their crops with the promise to deposit the same amount or more seeds back at the end of the season.

There are many advantages to this system. First, the community decides which seeds are strategically beneficial for their sovereignty and therefore which they will preserve. Second, given that seeds circulate, are bred, stored, lent, and borrowed, they are alive and there is far less risk of them losing their germinative power and dying off. Third, since the seeds are of their community, farmers have the power to decide what to grow, how, and which adaptations to co-develop. Lastly, this form of seed circulation is hand-to-hand, person-to-person and word-to-word, meaning it enables conversations, knowledge transmission and wisdom sharing.

Initiatives from the academic sector also seek to challenge the strict intellectual property rights put on seeds. Inspired by open source software, academic groups

have created tools for managing seeds. One example is Bioleft, an Argentinean initiative that facilitates exchanges of knowledge relevant to the development of new seeds. Bioleft seeks to connect existing dispersed capabilities, and to create new ones by enabling a network of public sector plant breeders, independent breeders, farmers, and organic/agro-ecological growers to exchange, test and collaboratively improve novel germplasm at multiple sites.

There are three key tools that have been developed in Argentina for this purpose. First, three types of open source 'material transfer agreement' licenses have been designed to enable the legal exchange of seeds among network participants, ensuring continuous free circulation of the material exchanged and tested. Next, a network has been formed consisting of breeders, farming associations, and other actors committed to developing this initiative. Lastly, the network has co-produced a digital platform to facilitate the exchange of information, knowledge and germplasm between plant breeders and farmers, and the distributed testing of germplasm. The digital platform is intended to enable farmers and breeders to communicate about seed and trait requirements, as well as input and share data on their performance in different contexts.

Like seed houses and Bioleft, multiple initiatives around the world are seeking to address the sustainability challenges we are facing as a result of transformations in seed production, breeding and exchange. All of them have contributions which are working to make to a better agricultural system. It is essential for initiatives to respect and enhance the sovereignty of communities and reestablish seeds as a common good. We must work quickly to connect all the initiatives, to knit a seed network that distributes, socializes and honours the wisdom that women have bred and exchanged. To maintain biocultural diversity, it is necessary to enact regulations that do not criminalize seed exchanges, and instead give the power of the seeds back to communities. To do so, seeds must be free and must go back home. With initiatives like Bioleft we are aiming to relocalize people with seeds and territory.

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