"Agroecological Transition: Bio-inputs", a book to socialize agroecology in the territories

By ROOTS

“Agroecological Transition: Bio-inputs” is a book edited by the National School of Agroecology of the Rural Federation for Production and Rooting (ENA, by its acronym in Spanish), a rural organization that brings together more than 35 thousand family farming producers throughout the territory of Argentina. The material is the result of the compilation of ancestral experiences transmitted from generation to generation, of the day-to-day encounter between rural workers in their productive and community tasks, of training among producers throughout our region, and of contributions from professionals committed to the food sovereignty of our people.

The book "Agroecological Transition: Biopreparations" aims to contribute to the improvement of production and the construction of food sovereignty. Source: ENA

This book is intended as technical, understandable, and concrete reference material for the promotion and accompaniment of agroecological transition processes in different geographical areas. The content begins with a first chapter dedicated to reviewing the basic principles of the agroecological production paradigm and the steps of the transition processes towards agroecology. Then, throughout seven chapters, the central topic of the material is addressed: bio inputs, its preparation, use, advantages, and care. Through explanations written in an accessible language, with illustrations, and photos, the book enables one to better comprehend the step-by-step preparation of different types of bio inputs (rooting, insect control, fungal control, fertilizers and fertilizers, bio inputs for animal production), as well as simple techniques to analyze soil composition.

In addition to being a pedagogical and technical tool, this book is also a contribution to the dispute between two production models or paradigms: the agribusiness model and the agroecological model. In recent years,

agribusiness has shown special interest in bio inputs, beginning to market biological inputs as an alternative to agrochemicals and chemically synthesized fertilizers. In this way, they seek to appropriate knowledge about bio inputs to maintain a logic of dependent production.

The development of materials that systematize and socialize the experiences of preparation and use of bio inputs, putting peasant knowledge in dialogue with technical knowledge, is a way of defending this knowledge in peasant hands.

According to the authors, "What we propose and do is build new ways of conceiving productive systems with rural families. For this we have to put the first link at the service of the transition process towards agroecology: bio inputs in peasant hands." In this sense, the purpose of the book is to contribute "to the growth of production, to the improvement of our work and the construction of our food sovereignty."

The book is a technical and pedagogical tool for farmers, with accessible language, illustrations, and photos. Source: ENA

Below, we share a fragment of the first chapter of the book.

Introduction to Agroecology

The term "agroecology" is very recent and that is why its meaning is still a matter of debate. From the ENA we adhere to a definition that is crossed by the historical struggles of peasant-indigenous movements. It represents a response and an alternative to the conventional production model that strips peasants of the land on which they work, makes their ancestral knowledge invisible, and prioritizes profits for a few to creating decent working conditions, access to healthy food for the entire population, and protecting the environment we live in.

Agroecology is not reduced to a set of techniques. It is the proposal of another mode of production, of another rural model. In our definition, we distinguish four fundamental ideas of agroecology:

1. Historically, farmers have been subjected to expropriation processes of land, knowledge, and seeds, for the benefit of transnational agricultural companies. In short, control over production has been taken away from us. This has led to a lack of appreciation of our work, we receive little for the great work we do: nothing more and nothing less than producing food for our people.

2. In contrast to this, we defend the active role that peasants play in production, recognizing their work environments, observing their daily lives, planning, and researching. Recovering that active role means ceasing to be consumers of production techniques researched by isolated specialists and sold by companies.

3. Agroecology respects our social, cultural, and community realities in which we produce and that are part of our local identity. While the conventional model tends to do everything in the opposite, it erases our history and our culture.

4. We understand that agroecology is necessarily part of a process of collective struggle and a vocation for the social transformation of the system with the objective of defending life. For the ownership of the land that allows us to cultivate, for the preservation of our local communities, our cultures, the water and soil, and our health.

In summary, agroecology promotes productive, environmental, organizational, cultural, collective, health, and economic strategies that seek:

- Encourage practices that reduce or eliminate the use of contaminating chemical inputs, such as herbicides, insecticides, and chemical fertilizers.
- Reduce dependence on external inputs, such as agrochemicals, fertilizers, and hybrid seeds.
- Promote the consumption of healthy foods and care for the population's health.
- Promote respect between nature and subjects.
- Generate various alternatives to market products at fair prices.
- Preserve the cultural practices and knowledge of male and female producers.

Let's look at some concepts that emerge from this vision of agroecology. We understand our country house, field, or farm as an ***agroecosystem***, that is, a natural system that is modified by our actions for one purpose: to produce food. Therefore, we have to see it comprehensively, with all its components and relationships between them. We try to achieve a balance in the management of this agroecosystem that allows us to minimize problems, designing our productive unit with different types of crops, that is, guaranteeing ***biodiversity***. That it is efficient and does not lose the capacity to produce as the years go by, that it is ***sustainable***. It can be easily recovered from climatic events such as droughts and floods. That is why we talk about generating certain ***resilience*** in our system. To achieve this, we need to break the habit of dependence on external inputs when finding a solution to problems.

These are some questions that can help us think about how our farm, field, or establishment has been functioning under the conventional model: What do we usually do when a pest appears in our crops? How many times do we go to the agrochemistry to try to solve the problem? Are the agrochemicals we apply working for us? Are we enough with the recommended doses or have we had to increase the doses or applications? What economic cost does that have? What effects does it have on our cultivation? Does it only eliminate the pest? And on our health, do we see any effects?

With agroecology, on the other hand, we start to look at the crop more carefully and try to find the solution there. We look for, for example, plants and minerals that can be used to make biopreparations to control pests or to fertilize the soil. We seek to recover the health and life of the soil. We seek to help all those animals that help us control pests live in our field. We call these animals "natural enemies" and they are generally animals that feed on pests.

From agroecology we not only look at what happens in our productive system (farm, field, orchard, etc.), but we also seek the development of the place where we live. We seek to generate local markets that supply the nearby population and shorten the production-distribution-consumption circuits, lowering production costs, selling healthy foods so that the entire population can access them, and promoting rural roots.

Agroecology seeks to recover the health and life of the soil. Source: ENA

What do we have to do during the agroecological transition?

There is no single way to transform a conventional farm into an agroecological farm. There are as many forms as there are producers. The important thing is to guide ourselves by the following proposals:

- **Systematic look:** We are going to try to look at the different types of crops, soil, water, trees, environments with spontaneous vegetation ("weeds"), etc. as a whole to understand what part of our productive design we have to improve when we encounter a problem.
- **Autonomous systems:** We will always seek autonomy. Not depending on agrochemicals, the seed industry, on a single market that commercializes our production.
- **Low-risk system:** The more we take care of our crops, the less risk we will run of being attacked by pests or losing crops due to storms. For this we need soil with nutrients, insects that help control pests, plants that serve as shelter for these insects, a variety of crops to run less risk of losing crops, etc.
- **Value local resources:** It is important to try to recover local seeds that are more adapted to the area and we can reproduce them year after year. It is also important to take advantage of the plants in the area for different types of biopreparations or bio inputs, local fairs, seed exchange fairs, etc.
- **Diversified systems:** It is very important that we work to have a variety of crops. A field or farm with few crops is more prone to attack by pests and diseases, is more at risk to storms, the soils become poorer, and more fertilizers are needed for the plants to grow well.

Are there steps in the transition?

The transition to agroecology takes time. It is necessary to incorporate practices that help improve the farm little by little, detoxifying the productive system from the use of agrochemicals and recovering some of the properties of the farm, such as healthy soil with nutrients, diversity of plants, and animals that control and avoid the appearance of pests.

The reality in which we live is complex. The times, interests, needs, and possibilities of change are not the same in all the villas. That is why it is important to keep in mind that the practices that are sought to be incorporated in the management of a productive unit in agroecological transition, and that we mention below, do not always occur one at a time or

in a specific order. They can occur simultaneously or in a different order. Each experience is unique.

1. Replace insecticides, fungicides, and chemical fertilizers with biopreparations that are made with natural elements that are mostly present in the countryside. These are not harmful to health, do not deteriorate the environment, and are less expensive.
   Replacing agrochemicals with bio inputs is a huge step towards agroecological production but it is very important to advance in practices that help improve the soil and biodiversity in the field so as not to continue depending on the application of external inputs, whether chemical, synthetic, or bio inputs. That is, as we improve the field we will need less and less bio inputs.

Preparation of bio inputs as the first stage of the agroecological transition. Source: ENA

2. Another very important aspect is working to recover the soil. In view of the fact that the soil works like a living organism. When we produce conventionally we deplete its nutrients and organic matter, contaminate and kill the living beings that inhabit it. In this way, the crops cannot grow and there is a greater possibility of pests appearing. All living organisms that are in the soil are very important because they process organic matter allowing plants to take it as food. This is why in the transition stage it is very important to work on soil improvement.

    - Nourish it to improve its structure.
    - Stop applying agrochemicals so that the microorganisms that live in them can develop.
    - As far as possible, start reproducing your own seeds and reduce the purchase of external seeds. This helps us have crops better adapted to the environment, gaining independence from the input market.
      This is a great step but it is not enough. If we stay at this stage we will have fewer expenses but we will continue to have pest and disease problems. That is why it is important to advance in the redesign of the field.

3. A transcendental step to strengthen the agroecological transition is the field redesign. Along with soil improvement, it helps eliminate the root causes of many problems that exist in the crop. So more than finding healthier ways to solve problems such as pests and diseases, its appearance is prevented. The redesign includes planning the crops so that they are diverse, planting intercrops, rotating them, and incorporating aromatic plants, trees, and flowers in the vicinity of the crops.
   It is also very helpful to incorporate fruit trees and animals such as chickens, rabbits, pigs, etc. on the property.

Agroecological farm with planned crop diversity. Source: ENA

4. When we begin to produce in an agroecological way, it is important to always work on our values. Agroecology seeks to revalue the knowledge we bring from our ancestors, our customs, and our traditions. Our ethics are also very important: always fight so that each and every one of us has a good **quality of life**, a **decent job**, and access to **healthy food**.

In the National School of Agroecology, values of collective work and knowledge exchange are built for the agroecological transition. Source: ENA

In the words of Arnoldo (agroecological producer, co-author of the book): “On this path, it is important to rely on experienced colleagues, not be afraid to consult, exchange experiences. We build agroecology together!”

If you are interested in obtaining more information about the book, you can contact the National School of Agroecology (ENA), and learn more about the work of peasants in the Global South to promote the agroecological transition.