

Agroecological Essay

As a farmer from South America, I've often heard agroecology promoted as a solution to the environmental and social challenges in agriculture. The rich biodiversity of our region and our traditional knowledge systems are cited as perfect foundations for sustainable farming. While these concepts are certainly appealing, I've found that putting agroecological practices into action faces many practical obstacles, especially on a large scale.

In our current economic state, there's little to no financial incentive to adopt sustainable methods. Large-scale production dominates the market, and international crop standards are strict, leaving absolutely no room for any ecological experimentation.

Agroecology emphasizes integrating biodiversity, reducing chemical inputs, and utilizing traditional farming techniques. This approach works well for smaller farms or communities that supply local markets. For example, some small-scale farmers in Mexico have successfully used polycultures and natural pest management to increase their yields while preserving the local ecosystems. These methods are sustainable in the long run but are also labor-intensive more expensive and depending on the local community not sold at a price that justifies the practice. "Organic" so to say products are worth their price at first world countries like the United States but exporting these products while being a small farmer is simply impossible.

For those of us relying on large-scale production of crops like soy, wheat, corn, sesame, and chia, these methods aren't practical. The global agricultural market demands strict standards, prioritizing uniformity, high yields, and low costs over environmental

concerns. We're not just producing crops we're meeting international expectations that leave little room for taking ecological risks which ultimately is financial risks with no benefit.

The economies of South American countries like Brazil and Argentina heavily depend on large-scale farming for export crops like soybeans and corn. Here in Paraguay, soy and chia are major exports. These crops require vast monocultures and heavy machinery. Agroecological practices, which often involve diversifying crops and minimizing chemical inputs, can lead to lower yields or variations in crop quality outcomes that are unacceptable in competitive export markets.

Another hurdle is the lack of financial incentives. Subsidies and support usually go to large-scale, conventional farming. Farmers attempting to implement sustainable practices often face higher labor costs and reduced efficiency without any guarantee of higher profits. While methods like intercropping are impractical for us, the only method that works is crop rotation, but that's mainly due to the climate. Every region has its own climate and seasons for example, it would be unwise to plant soy after soy because winter temperatures will reduce yields. It's better to rotate to a crop that performs better in the winter months. However, even implementing crop rotation requires significant restructuring on a large farm, leading to lost time and revenue risks that many of us can't afford.

International trade agreements have also impacted agriculture significantly. Take NAFTA, for instance. When it was implemented, Mexico was flooded with cheap, subsidized corn from the United States. Local farmers couldn't compete with the low prices, making traditional maize varieties often grown using agroecological practices less viable. Many were forced to adopt hybrid seeds and chemical inputs to survive, disrupting traditional farming systems and pushing small-scale farmers out of business.

From my perspective, agroecology seems better suited for small, local farms rather than large-scale operations focused on exports. While its benefits for biodiversity and soil health are clear, the economic realities make it challenging to adopt these practices on a larger scale. Implementing natural pest control over hundreds or thousands of hectares is nearly impossible, especially when buyers expect perfectly uniform crops. Even practices like composting or using organic fertilizers can be cost-prohibitive due to the volumes required.

That said, I do believe agroecology has a place in our agricultural system. For smallholder farmers producing for local markets, these methods can offer sustainable solutions and help preserve cultural traditions. Governments and international organizations could assist by creating incentives for farmers to adopt sustainable practices. Subsidies for ecological farming or premium pricing for sustainably grown crops might encourage more farmers to experiment with agroecology, even on larger farms. But without such support, it's unrealistic to expect farmers to prioritize sustainability over profitability.

Agroecology offers a compelling vision for sustainable farming, it doesn't align with the economic realities of large-scale agriculture in South America. We're caught between the demands of international markets and the need to make a living, leaving little room for ecological experimentation. Until financial incentives or structural changes make sustainable practices viable for large farms, agroecology will remain an admirable idea that's tough to implement on a broader scale.