

Excerpt from the Introduction of Helen's new book, available in 2021

SOIL REVOLUTION

Managing relationships rather than just crops in gardens and on farms.

The revolution starts in the earth just below our feet at the intersection where plant roots, the soil microbes that cling to them, and the most fertile soils mingle and evolve together. It spreads out to minerals, biochemicals, and polysaccharides, all cycling through soil water from one soil particle to the next among a web of soil fungi, bacteria, nematodes, and plant roots. It moves on to earthworms, beetles, and small animals that bring what is beneath us to the soil surface. There the soil revolution, and the millions of relationships within it, spreads everywhere and includes everything that affects plant growth: the soil and leaf microorganisms that cause and inhibit plant disease, the insects that attack plants and the ones who eat plant-attacking insects, weed seeds that cause weed outbreaks and provide habitat for soil dwelling beneficial insects and birds, and the myriad of ecological relationships that enhance or thwart crops growing in our backyards and fields.

Even when things are uncertain, there is a certainty in tending plants. Nurturing the healthy goodness in a field of multi-colored kale and lettuce or coaxing so much sweetness from a special peach tree makes me feel I belong wherever I am. The process of creating farms and gardens opens my eyes to awe, tunes my ears to listening, and offers the gifts of curiosity, discovery, and connection. Being part of this soil revolution, I get my own, personal growth for free.

When I began farming organically and studying horticulture in the early 1980s, I focused on the specific needs of individual crops. I researched and learned to manage each crop's nutritional needs, light, temperature, water, and soil requirements, insect and disease pests, and special growth preferences. I studied the ecology, etiology, and phenology of specific crop diseases, insect pests and weeds. As I continued to farm and garden in different states, climates, soils, and at different scales of production, my farming/gardening evolved towards a different focus. I began to think about plants within whole systems, and tried to understand ecological functions and interactions within plant communities. Rather than a targeted, direct stream of light, my focus is now more like a diffuse light illuminating all the relationships that make up a farm-garden-ecosystem.

In 2011, I met my husband who was evolving a similar farming perspective, methods, and strategies, based on lessons from his 30 year-old certified organic orchard. Farming together we realized that our ecological approach meant managing relationships rather than simply managing crops. This book is a culmination of our 40 years of farming and gardening lessons, successes, and mistakes. It will focus on soil and habitat-building for beneficial organisms and systems thinking for gardeners and farmers. Our goal is to understand ecological functions and interactions within plant/soil/microorganism/insect communities and learn how to identify and manage all the relationships that make up a healthy farm-garden-ecosystem, one that does not require pesticides or large off-farm fertilizer inputs.

We start with a look at the end-goal: a developed/developing garden and/or farm ecosystem and our "recipe" consisting of ten principles for managing ecological relationships. Then, we move to the process and the details: looking at farmer "interventions" for specific crops as the farm/garden system is developing, including necessary interventions if things get out of balance and troubleshooting is needed to manage insects, diseases, weeds, and/or poor soil fertility and crop growth.

What is a Developed/Developing Farm-Garden-Ecosystem?

Definitions are difficult when you are trying to describe a moving target, or better yet, an ever-changing system of interactions. Farm-garden-ecosystems attempt to mimic natural plant communities and the ecological processes and synergies that keep them functioning.

They are farmer/gardener created systems undergoing human-induced progressive change.

Systems Thinking for Farmers & Gardeners:

How to Start Managing Relationships Rather Than Crops.

Farming and gardening systems are not static. All biological systems change, moving regularly back and forth through *at least* three stages:

Developmental: In this rapidly changing stage, farmers and gardeners disturb the original plant system present and help to direct “succession”, which is progressive change in an ecological community. More fertilizer and pest management inputs are usually required as the developing system establishes. Our focus is soil and habitat-building, with specific crop interventions usually required.

Dynamic Equilibrium: In this stage, the farm-garden-ecosystem is reaching a dynamic but relatively steady state, with mostly seasonal and long-term change. Farmers and gardeners find they can generally intervene less often, with fewer, but more targeted fertilizing, weeding, and insect/disease management inputs that affect many parts of the system at once.

Senescence: In this stage, the agroecosystem is aging out of the dynamic steady state and requires more farmer input. Senescence stages flow naturally back into Developmental stages.

Now, our **Ten Principles for Managing Ecological Relationships** and how we practically applied them on our farms in California and Montana and are still learning how to apply them on our Oregon farm.



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