

Learning Series: Importance of Monitoring

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Monitoring in the ROO Program

This session covered monitoring techniques and their roles in regenerative organic agriculture.

The topics covered are:

- Why monitoring is essential in a regenerative organic farming journey.
- How monitoring informs farm management decisions.
- Insights into the ROO monitoring strategy and what's involved in on-farm visits

The Regenerative Organic Oats (ROO) Program was designed as a platform for practitioners to solve challenges, experiment with management approaches, and learn from each other. The ROO team recognizes that each farm has its unique context, so the program aims to facilitate knowledge-sharing rather than provide one-size-fits-all solutions. There is a great emphasis on knowledge as information with understanding. Participants are encouraged to share their experiences to enrich the learning process for everyone.

Knowledge and Connection in Regenerative Organic Farming

There are two key pillars in regenerative organic farming:

- Knowledge; understanding regenerative organic farming within the ecological context of each unique farm.
- Connection; building a community of like-minded farmers while also connecting with the broader food value chain, including marketplace partners.

Knowledge is place-based. Each farm has its own unique challenges and opportunities. Farmers don't need to wait until they have all the knowledge to take action; learning happens through experience. The ability to solve problems is a fundamental human trait, and the ROO program encourages collaboration to refine decision-making. The program coordinators were intentionally selected not as traditional agronomists but as partners and catalysts for learning. Their role is to support monitoring, challenge assumptions, and facilitate knowledge-building through collaboration rather than providing one-size-fits-all solutions. The goal is to help participants gain confidence in their own expertise and problem-solving abilities while fostering shared learning.

Shifting the Food System and Regenerative Organic Mindset

Regenerative organic agriculture is evolving and showing up across many industries beyond farming.

The goal within ROO is to help shift the food system:

- Moving away from degrading resources toward enhancing the air, water, soil, plants, and biodiversity.
- Acknowledging that agriculture has an impact but aiming for a net positive effect on ecological and social systems.
- Recognizing the role of economic opportunities in supporting regenerative organic efforts.

Defining a Regenerative Organic Mindset

Farming regeneratively means focusing on:

- Managing the resources that create profitability, rather than focusing solely on profit.
- Understanding that agriculture operates within a complex, nonlinear system that is not a predictable machine.
- Viewing time as an investment; regenerative organic changes take patience and intention.
- Being present and observant rather than expecting immediate explanations for changes in the system.

The Role of Monitoring in Regenerative Organic Agriculture

Monitoring is a key practice but can feel intimidating. Try to observe first, without the pressure to explain immediately. ROO program coordinators are there to support by asking thought-provoking questions, such as "What are you seeing?" instead of "What does this mean?". The goal is to develop awareness and understanding over time, rather than seeking instant answers.

Shifting Perspectives and Reflection in Regenerative Organic Farming

Perspective shapes outcomes:

- Small changes come from changing actions.
- Major transformations require shifting how we see things.
- Holistic management and regenerative organic agriculture emphasize this shift in mindset.

Key quotes to consider:

- *"If you want to make small changes, change the way you do things. If you want to make major changes, change the way you see things."* (Don Campbell)
- *"Your farm is a reflection of you."* (Gabe Brown)
 - This is not about judgment but about awareness; how your farm and its ecosystem reflect your decisions and relationship with the land.

The Role of Observation in Decision-Making

Where do you see yourself in your farming system? Is the farm simply a tool under your control, or are you an integrated part of its ecosystem? Decisions should be made in relationship with the landscape and its organisms. Farmers who express deep care for their land often find joy and meaning in their work.

Monitoring as a Tool for Reflection and Management

Try being present in the field. Monitoring is about slowing down, observing, and reflecting before making decisions. For example, when you're watching water infiltrate into soil, are bubbles forming? Is silt shifting? What does that tell us? Creating space for observation allows deeper connections with the land. Monitoring is not a test; it's a management tool. It helps track whether decisions are improving or degrading resources and provides feedback for adjusting management practices over time.

Challenges and Community Support

Monitoring and shifting to a regenerative organic approach can feel unfamiliar or even challenging. That is why community support is key. Farmers in the ROO program are stepping outside the norm, and it's important to have a network of like-minded peers for invaluable support.

Shifting the Focus: Managing for Profitability and Risk Reduction

The traditional mindset implies that if you apply the right inputs, you'll get the desired output and a profit. The holistic management approach challenges you to start by defining the profit you want, then manage inputs accordingly. Inputs can be reduced, which leads to lower costs and improved profitability over time.

The Role of Monitoring in Regenerative Organic Agriculture

Certifications like ROC help differentiate regenerative organic products in the food value chain. Monitoring supports these claims and ensures credibility in the marketplace. Investments in cover crops or new equipment should be compared against doing nothing. Additionally, change involves risk, so farmers often test small areas first (i.e., gardens, small plots). The ROO community helps de-risk decisions, since learning from others' experiences reduces uncertainty.

Connecting Takeaways to Regenerative Organic Agriculture Principles

Regenerative organic principles become more meaningful when tied to real-world experiences. Context, diversity, and livestock integration are interconnected, each affecting multiple ecological processes. Management decisions impact soil function holistically.

The Role of Monitoring in ROO

The primary objective of the ROO program is to assess the impact of management decisions. It goes beyond numbers -- monitoring fosters understanding, curiosity, and collaboration among farmers. There is long-term value which helps develop an ecological language and informs adaptive management.

ROO Monitoring Strategy (Three-Year Cycle)

- Baseline Monitoring (Year 1)
 - New participants (2025) will establish a starting reference for soil health and management impact.
- Interim Monitoring (Years 2 and 3)
 - Tracks changes and keeps farmers engaged without overwhelming them in Year 1.
- Investment in Monitoring:
 - 25-33% of the total ROO program budget is allocated to monitoring (staff, travel, lab fees).
 - Monitoring isn't just an expense – it's an investment in farmer development and community learning.

Selecting Monitoring Fields

In the ROO Program, there are a minimum of three areas to track over three years:

- Best-performing or most consistent field
- Most challenging/worst field
- Unmanaged reference area (closest to natural conditions)

For ROC participants, additional field areas may be required under Regenerative Organic Alliance guidelines. Selection of fields is based on overall field conditions, not just crop performance.

Limitations of the Monitoring Strategy

There are limited sites within large management areas, and this leads one to focus on process value rather than absolute data. Comparisons reveal trends, not cause-effect relationships. Complex systems require observation, not mechanical assumptions. Expect the unexpected -- surprises often provide the most valuable learning.

Why Compare Managed vs. Unmanaged Areas?

It is encouraged to assess management impact in a similar context; this determines how degradation has affected productivity. Use the fence line/forest edge as a reference to show how an unmanaged system functions without intervention. Soil organic matter and degradation take time to measure, and some changes occur gradually before accelerating.

Why Compare Best vs. Challenging/Worst Fields?

The goal is to improve low-performing areas faster. Higher-performing fields shouldn't carry the farm's productivity alone. Addressing limitations (e.g., water infiltration, bulk density) can enhance overall farm success.

Monitoring Toolbox and Lab Analysis

- Field Selection Process:
 - Before farm visits, coordinators help select fields.
 - Discussions continue during farm visits.
- Data Collection Methods:
 - Soil pits and root observations → Visual insights into soil health.
 - Lab analysis (via CARA Labs):
 - Biological assessments: fungal and bacterial biomass, protozoa, nematodes, etc.
 - Chemical and physical factors: helps interpret biological data.
- Why Biology Matters:
 - Many interactions are invisible but crucial to soil function.
 - Understanding soil life helps drive better management decisions.
- Physical Properties:
 - Soil texture (sand, silt, clay) and bulk density impact nutrient cycling and gas exchange (e.g., carbon/nitrogen ratios, soil respiration).
 - Soil stability and structure are important for long-term soil health.
- Soil Chemistry:
 - Key components like phosphorus, potassium, magnesium, and micronutrients influence soil fertility.
 - Soil organic matter and cation exchange capacity are vital, though often overlooked in favour of focusing just on chemistry.
 - Emerging lab techniques allow more in-depth analysis of soil biology.
- Plant Nutrient Analysis:
 - Samples from plants will help determine how soil nutrients are taken up by crops.
 - Forage analysis might be used for things like cover crops, analyzing nutrients and how they link to soil conditions.
 - Understanding nutrient cycling gaps between soil and plants aids in refining management plans.
 - As the program progresses, yield analysis may also be added for a more complete picture.
- Water Infiltration:
 - Measures how water moves through the soil, revealing insights about soil compaction and management practices.
 - Comparing managed vs. unmanaged areas can offer "aha" moments for farmers in understanding soil health.
- Soil Compaction and Structure:
 - Penetrometer tests evaluate compaction.
 - Soil pits reveal horizons, color, texture, depth, and potential compaction layers (e.g., plow pans) that restrict root and water movement.
- Soil Conditions:
 - Soil crusting can indicate poor water infiltration.
 - Water ponding and root growth patterns help assess soil health.

- Other Observations:
 - Ground cover and plant health are key indicators.
 - Brix measurements reveal plant sugar concentrations, which correlate with nutrient cycling and overall plant health.
 - Insights gained from comparing crops to weeds can reveal unexpected benefits of certain species, aiding in more diverse, resilient systems.

Monitoring Commitment Overview

Participants are asked to select fields based on their knowledge and overall management plan. The focus is on fields where actions or changes are being made as part of the action plan. The monitoring process requires at least half a day, with some cases taking longer depending on travel and site location. Participants are encouraged to make themselves available for monitoring activities. The program coordinators will be available to help set up monitoring and ensure the data is collected properly. Their role will evolve as the program develops, with a goal to balance resources and support for participants.

Resource Support and Program Evolution

The program seeks feedback on whether participants would value ongoing support for monitoring in the years following their participation. This could include help with data collection or continued engagement to maintain progress. Given the large geographical coverage of the program, travel logistics can make it challenging to maintain consistent monitoring. Participants' input is crucial to finding solutions.

Change and Stress Management

The process of implementing regenerative organic practices can be stressful and requires continuous action. Participants may feel overwhelmed at times, but these feelings can also drive necessary change. The monitoring process plays a critical role in validating the changes being made. It helps confirm if progress is being made toward the goals, and if unexpected results occur, it provides an opportunity to adjust management practices. Monitoring offers feedback that can ease the stress of change by confirming if actions taken are producing the desired results or if further adjustments are needed.