Friends of the Earth

Regenerative Food Labels: What's Behind the Claim?

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Acknowledgments

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INTRODUCTION

Across the food system, there is enormous momentum behind regenerative agriculture. Yet there is no widely accepted definition of what makes a farming system regenerative. In this absence of clear standards, a growing number of labels claim to verify regenerative agriculture, each offering its own interpretation of what qualifies.

Regenerative agriculture is a complex and multifaceted concept, and this analysis does not attempt to evaluate every dimension of it. We focus on three scopes of analysis: (1) **agrochemicals**, (2) **soil health practices**, and (3) **standard integrity**. Our evaluation framework focuses on crop production systems rather than livestock production. We center agrochemical reduction in our analysis. In doing so, we evaluate both criteria that directly address the prohibition or reduction of synthetic inputs and those that advance soil health practices that reduce reliance on them by disrupting pest and disease cycles, improving nutrient cycling, strengthening crop resilience to stress, and reducing crops' susceptibility to pests and disease.

We examine synthetic fertilizer and pesticide restrictions and prohibitions, as well as five key Integrated Pest Management (IPM) principles. IPM is an ecological approach to pest control that emphasizes strategies to minimize chemical pesticide use. In addition, we assess how each labeling program addresses four core soil health practices. Finally, because a label's credibility depends on the strength of its oversight, we examine each program's verification processes and chain-of-custody standards to assess the integrity of its claims. We also include a high-level assessment of social fairness, animal welfare, and protection of native landscapes in the Appendix.

We wrote this guide with two primary audiences in mind: consumers and purchasers. By purchasers, we refer to food retailers, food manufacturers (CPGs), and large institutions such as schools and hospitals. Consumers and purchasers may choose foods with regenerative labels for a range of reasons. They may want to support farming systems that regenerate soil, ecosystems, and communities. Companies may be seeking to meet important targets around supply chain sustainability and resilience. Some consumers may be primarily motivated by more personal outcomes, such as reducing dietary exposure

to pesticides. Recognizing this, we seek to answer two different questions for our audience:

What verifiable claims about the *finished product* does the label represent? This question is particularly relevant to health-conscious consumers who want to reduce their dietary exposure to pesticides. Knowing which labels provide the strongest assurance in this regard is important to those consumers as well as to purchasers who seek to meet that demand.

What verifiable claims about *practices on the ground* does the label represent? This question is relevant to consumers seeking to buy products that align with their values as well as purchasers who are seeking to meet supply chain goals around sustainability, resilience, and human welfare.

We found that regenerative labeling programs vary widely in their agrochemical restrictions, soil health requirements, and verification systems. Some programs are able to provide strong assurance to consumers and purchasers about the finished product, others provide strong assurance about practices on the ground, while others don't have transparent or robust enough verification models to guarantee either. The strongest labeling programs combine clear agrochemical reduction requirements with active soil-building practices and robust auditing systems that verify implementation.

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Research on soil health, biodiversity, climate, and human health makes clear that reducing reliance on synthetic pesticides and fertilizers is foundational to credible regenerative agriculture systems.[1] While the assumption is often made that strengthening soil health can naturally reduce reliance on synthetic inputs, without clear restrictions and transition pathways away from fossil-fuel-based synthetic fertilizers and pesticides, regenerative claims risk perpetuating business-as-usual practices rather than advancing genuine ecological transformation. Addressing the widespread use of these chemicals is one of the most urgent challenges facing our food system, as they cause devastating harm to soil health, human health, biodiversity, and the climate.

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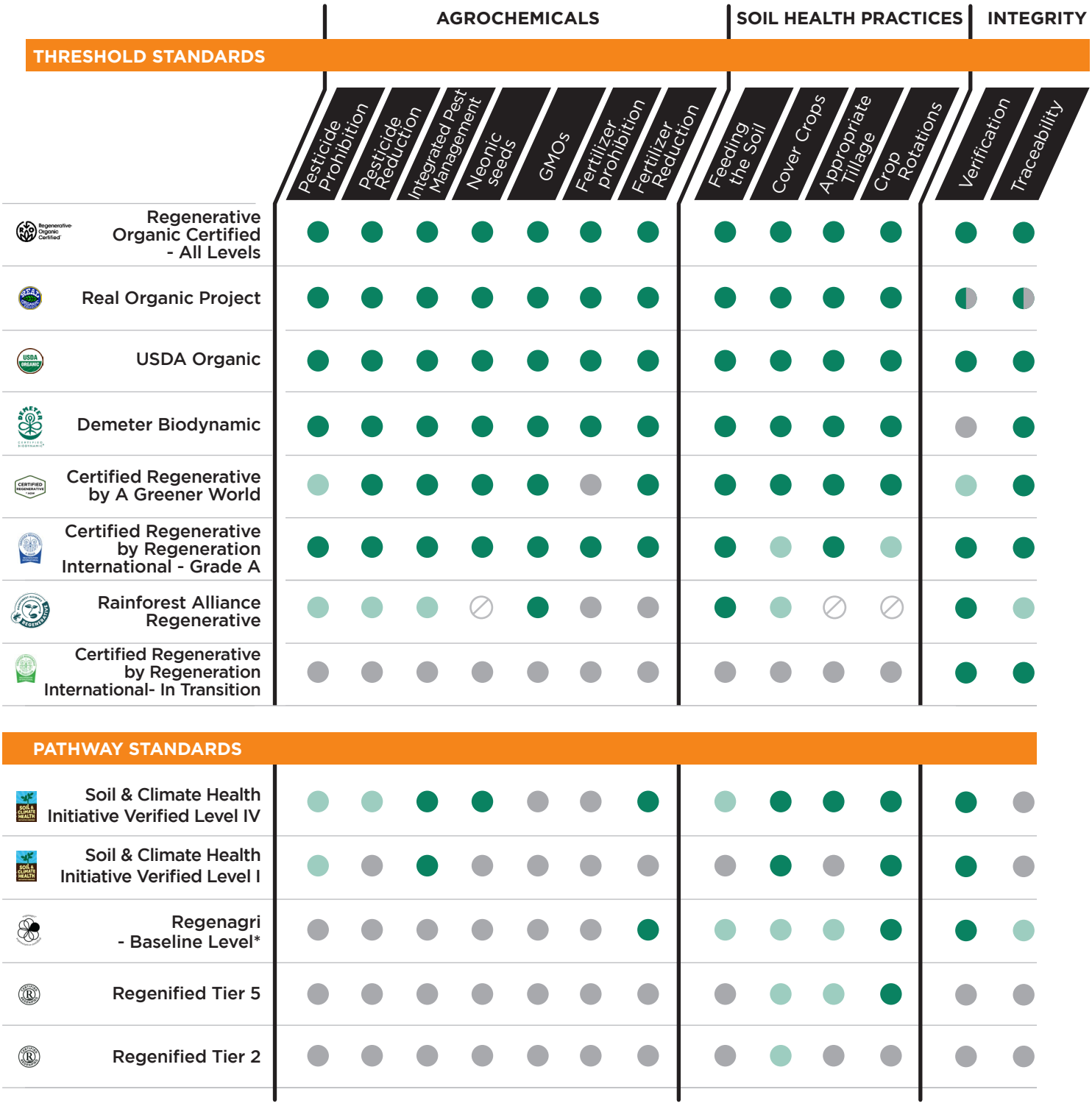
Summary of Regenerative Agriculture Certifications



** Evaluation of the top Regenagri tier is not possible with current public data.*

Fully meets the bar | Partially meets the bar | Does not meet the bar | Not applicable

"Threshold" labeling programs set standards that farmers must meet on an ongoing basis to become and remain certified.

"Pathway" labeling programs require continual improvement for farmers to remain certified.

"Pesticide prohibition" refers to toxic/synthetic pesticides.

"Fertilizer prohibition" refers to synthetic fertilizers.

LABELS VERSUS PUBLIC POLICY

The very existence of environmental food labels is, in many ways, an indictment of failed public policy. The architecture of the Farm Bill—the federal bill that largely determines what farmers grow and how they grow it—operates as a structural subsidy for monoculture, pesticide-intensive industrial agriculture. For every $1 the Farm Bill invests in conservation agriculture practices, it spends $5 propping up chemical-intensive farming systems.[2] Farmers face *more* financial risk for choosing to diversify their crops, plant cover crops, or adopt other ecological practices because the federal crop insurance program is calibrated to corn, soy, and wheat grown in industrial monoculture systems. Meanwhile, the U.S. Environmental Protection Agency (EPA) fails to follow the science on pesticide risks to health and the environment time and again, allowing continued use of over 80 pesticides that have been banned in other countries—substances with documented links to rising rates of childhood cancer, Parkinson's disease, hormone disruption and more, as well as the collapse of pollinator populations and severe degradation of soil health.[3] The result is a set of public policies that are actively accelerating the destruction of soil, biodiversity, the climate, and public health.

A different path was visible long before the current crisis deepened. In the 1960s and 1970s, a vanguard generation of farmers drew on traditional and indigenous agricultural knowledge and emerging ecological science, building on foundational soil health work by Lady Eve Balfour, Sir Albert Howard, and J.I. Rodale.[4] From that intellectual and practical tradition grew what we now call organic farming. After a decade-long process of democratic consultation with farmers and citizens across the country, the U.S. Department of Agriculture (USDA) codified organic standards in 2002.[5]

Today, there is a powerful resurgence of interest in soil health, increasingly carried under the banner of regenerative agriculture. A growing movement is grappling with the failures of the dominant food system. Some are doing the hard and necessary work of transforming public policies. Others are pursuing a parallel strategy: developing labeling programs designed to incentivize and support farmers in adopting regenerative practices. The rapid proliferation of regenerative food labels reflects inspiring momentum—but it also brings real challenges, including label fatigue and consumer confusion about what labels truly mean. This guide exists to help navigate that landscape.

Our ultimate vision is a food and farming system in which the highest standards these labels represent become not exceptional achievements, but a baseline expectation for what our agricultural policies deliver in terms of environmental health, community well-being, sustainable farmer livelihoods, and public health protection. Until that systemic transformation is complete, consumers and purchasers have a meaningful role to play. By supporting credible labels, they can help create the market conditions that make it financially viable for more farmers to transition to healthy, regenerative systems.

REGENERATION AND SOIL HEALTH

Building healthy soil is one of the core pillars of regenerative agriculture. Achieving meaningful improvements in soil health requires a comprehensive strategy that both reduces reliance on agrochemicals and actively implements farming practices designed to foster, protect, and enhance living soil ecosystems.

A substantial body of scientific research demonstrates that reducing—and ultimately eliminating—synthetic agrochemicals is essential to restoring and maintaining soil health. Synthetic pesticides—a term that encompasses herbicides, insecticides, and fungicides—have been shown to disrupt the soil microbiome and harm the diverse communities of organisms that underpin soil function.[6,7] These organisms play critical roles in nutrient cycling, soil structure formation, water retention, and soil and plant health, which underpin resilience. Similarly, synthetic fertilizers can interfere with natural soil processes, diminish biological activity, and

degrade key soil health indicators over time by weakening symbiotic relationships between plants and soil organisms.[8,9]

The most rigorous labeling programs recognize the importance of addressing both sides of this equation: phasing out harmful chemical inputs while requiring robust soil-building practices that actively nourish soil biology. Together, these measures create a reinforcing feedback loop. Reducing harmful inputs allows soil organisms to recover and thrive, while practices such as diversified crop rotations, compost application, cover cropping, and appropriate tillage rebuild organic matter and ecological balance. As soil systems regain function, farmers often experience reduced dependence on costly synthetic inputs, strengthening both environmental and economic resilience.

REGENERATION AND POLLINATORS

Pollinators are essential to food production and ecosystem health, yet they are declining at alarming rates. A growing body of scientific evidence shows that agricultural pesticides are major drivers of pollinator declines worldwide, alongside habitat loss and climate change.[10,11] Forty percent of insect species are at risk of extinction in the coming decades, leading scientists to warn of the potential for "catastrophic ecosystem collapse" if current trends continue.[12] These pollinator declines also pose material risks for food companies, as food costs are predicted to rise as managed and wild pollinator populations decrease.[13]

Pesticides harm pollinators in multiple ways: they can kill bees and butterflies outright, impair their navigation and learning, weaken immune systems, reduce reproduction, and disrupt the flowering plants and habitats pollinators depend on. Regenerative agriculture must protect and restore the ecological relationships that sustain life, and that begins with reducing and eliminating toxic pesticides. Protecting pollinators is not just an ecological necessity—it is integral to any meaningful definition of regeneration.

REGENERATION AND THE CLIMATE CRISIS

Ninety-nine percent of all synthetic chemicals, including the synthetic pesticides and fertilizers widely used in agriculture, are derived from fossil fuels.[14] Fossil fuels are also used as an energy source for manufacturing processes for agricultural chemicals.[15] The result is that synthetic pesticides and fertilizers alone account for a staggering 40% of the total energy used to produce crops and livestock in the United States.[16,17] To transform our agricultural system into one that regenerates and mitigates climate change, the significant carbon footprint of pesticides and synthetic fertilizers must be addressed, and agrochemical reduction must be prioritized alongside other effective practices.

REGENERATION AND HUMAN HEALTH

Agricultural pesticides are designed to harm living organisms—they are toxic by design—and therefore can also harm people. Farmworkers, rural communities, and children

are uniquely vulnerable to toxic exposures. Decades of research show that many pesticides widely used in our food system can disrupt the healthy functioning of the human body.[18] Numerous pesticides are linked to cancer, endocrine disruption, infertility and reproductive toxicity, and impairment of the developing brains of infants and children. Others are associated with long-term neurological and chronic diseases, such as Parkinson's.

Synthetic fertilizer use is a major source of nitrate pollution in drinking water, which has been linked to increased risk of cancer, thyroid disease, and neural tube defects, among other health issues.[19]

A credible regenerative system cannot depend on chemicals that undermine human health or compromise the well-being of those who grow, harvest, and consume food. Transitioning away from synthetic agrochemicals should therefore be a foundational requirement for any farming system that claims to regenerate.

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REGENERATION IN THE CONTEXT OF PLANETARY BOUNDARIES

Agrochemicals not only threaten human health, pollinators, and the climate—they also destabilize the Earth's life support systems. Modern chemical agriculture is now a major driver of planetary-scale ecological disruption, pushing key environmental processes beyond safe limits.

The Stockholm Resilience Centre's planetary boundaries framework identifies "novel entities" (including synthetic chemicals, pesticides, industrial compounds, plastics,

and genetically modified organisms) as a distinct boundary. The volume and diversity of such substances being released into the environment without adequate testing and control has already pushed this boundary into a high-risk zone.[20,21]

Every year, vast quantities of these chemicals enter soils, waterways, and oceans. Many are invisible, poorly monitored, and persistent. Their combined ecological and health impacts are not fully understood, but the trend is clear: chemical pollution is overshooting the planet's capacity to safely absorb and process these substances.

Synthetic pesticides and fertilizers in agriculture are major drivers of this problem. A truly regenerative agriculture must therefore do more than improve soil structure or increase cover cropping; it must phase out dependency on agrochemicals that undermine the very ecological functions on which resilience depends.

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SCOPE OF THE ANALYSIS

This report evaluates ten labeling programs. Six labels specifically use the term regenerative or a variant: **Regenerative Organic Certified**, **Certified Regenerative by A Greener World**, **Certified Regenerative by Regeneration International**, **Regenified**, **Regenagri**, and **Rainforest Alliance Regenerative,** a label for coffee released by Rainforest Alliance in September 2025. We also include four labels that address regenerative farming principles without specifically claiming to be regenerative labels: **Soil & Climate Health Initiative Verified, USDA Organic, Real Organic Project** and **Demeter Biodynamic**. Two labeling programs—**Real Organic Project** and **Regenerative Organic Certified**—use **USDA Organic** certification as a baseline. Evaluations of these standards are therefore based on both the requirements of USDA Organic and the additional requirements of each labeling program.

Our analysis encompasses three scopes of criteria:

1. **Agrochemicals:** We assess agrochemical use by determining whether the standards include a clear prohibition of toxic synthetic pesticides and synthetic fertilizers. For labels that do not prohibit these chemicals, we assess whether the standard includes quantifiable requirements to reduce pesticide toxicity and synthetic fertilizer use over time. We also assess whether the standard includes a prohibition of neonicotinoid-treated seeds and genetically engineered (GMO) seeds. GMO seeds go hand-in-hand with use of synthetic herbicides—98% of acres planted to GMO crops in the U.S. are engineered to tolerate herbicides, such as glyphosate, glufosinate, dicamba, and 2,4-D.[22] In addition, we evaluate whether the standard includes clear and auditable requirements for five key Integrated Pest Management (IPM) principles: prevention, monitoring, economic thresholds in decision-making, prioritizing non-chemical interventions, and prioritizing low-risk chemicals. IPM is an ecosystem-based approach to controlling pests. Instead of relying on pesticides, IPM uses a step-by-step strategy that prioritizes prevention and monitoring, with least-risk chemical controls used only when necessary.
2. **Soil health:** We assess soil health requirements by determining how each labeling program addresses four key agricultural practices: feeding the soil ecosystem with natural sources of fertility, cover cropping, appropriate tillage, and crop rotations.
3. **Integrity:** A regenerative labeling program's credibility depends not only on the rigor of its standards for farming practices and principles, but on how those standards are verified. For this analysis, we evaluate each of the ten labeling programs on their verification mechanisms and traceability and segregation requirements—the backbone of any credible labeling program.

Beyond the core scopes of our analysis, we also assess three other pillars of regenerative agriculture—whether the label includes criteria related to 1) deforestation and conversion of native ecosystems, 2) animal welfare, and 3) social fairness, including farmworker rights and protections. The results of this analysis are included in Appendix II.

Note that the regenerative labeling programs we evaluate may have meaningful strengths (or weaknesses) that fall outside the scope of our analysis. For example: **Soil & Climate Health Initiative Verified** and **Regenified** are both known for providing significant technical assistance and agronomic support to farmers who are enrolled. Another example: **USDA Organic** provides assurance to consumers that products with the organic seal are free of hundreds of synthetic food additives, such as

artificial dyes, as well as more than 450 drugs otherwise allowed in livestock production, including all growth hormones and antibiotics. These are laudable strengths of the labeling programs that are not reflected in this analysis. Our analysis is by no means narrow—it covers a broad range of criteria that are at the heart of both regeneration on the ground and credible labeling—but it is important to note that it does not cover every aspect of these programs.

"THRESHOLD" AND "PATHWAY" LABELING PROGRAMS

We chose to group the labeling programs we evaluate into two different categories: "threshold" and "pathway" programs. The reason for this choice is that programs meaningfully differ in their stated goals and structures. We grouped the programs so that consumers and purchasers are able to compare them both within as well as across categories.

Pathway Programs

We define "pathway" programs as those that *require* continual improvement for farmers to remain certified. This can look like a timebound requirement to move up a tiered framework or improve an overall score based on on-farm practices. Most of these programs place an emphasis on "meeting farmers where they are" and do the important work of reaching farmers at the beginning of their regenerative journey and supporting them as they make incremental improvements. The programs that fall into this category include **Regenified, Soil & Climate Health Initiative Verified**, and **Regenagri.**

For "pathway" programs, we evaluate both the lowest and highest levels of the standard associated with consumer-facing labels and assess whether the programs have enforceable and auditable standards for verifying that meaningful change is occurring on the ground.

Regenified has five tiers. Products may carry the Regenified seal on consumer-facing labels once a producer reaches Tier 2. For this reason, our analysis evaluates Regenified at Tier 2—the minimum level eligible for on-package claims—as well as Tier 5, the highest level and verifiable endpoint of a farmer's journey with Regenified. **Soil & Climate Health Initiative Verified** similarly uses a tiered structure with four levels. We assess the lowest and highest levels—Level I and Level IV—both of which qualify a producer to use the Soil & Climate Health Initiative Verified label on package. Both Regenified and Soil & Climate Health Initiative Verified require producers to advance to a higher level within three years, and producers are required to eventually reach the highest level.

Regenagri also requires continual improvement, though through a different model. The Regenagri standard lays out a set of minimum requirements farms must meet for certification. Additionally, enrolled farmers are given a score based on the practices they implement on their farm. A score of 65% is required for certification, and farmers must improve every year to remain certified, until they reach a score of 95%. Farms that start with a lower score are required to make greater annual improvements to remain certified. As with Regenified and Soil & Climate Health Initiative Verified, we evaluate Regenagri at the baseline level for certification—the minimum requirements that make a producer eligible for on-package claims—equivalent to Regenified Tier 2 or Soil & Climate Health Initiative Verified Level I. Unfortunately, because Regenagri's scoring algorithm is not publicly available, we are not able to evaluate their highest level—i.e., what standards are verifiably required for farmers with a 95% score. This makes it difficult to compare Regenagri to the other pathway programs, and we encourage readers to keep this in mind.

It is important to note that none of the on-package labels for these three "pathway" certifications distinguish which level a producer has reached. As a result, while the package labels indicate that producers have, at the least, begun a regenerative journey and met the minimum requirements set by

each standard, they do not indicate that the product in the package represents production methods beyond the minimum requirements. This poses potential challenges for consumer misinterpretation.

Threshold Programs

The other seven labeling programs we evaluate set a single "threshold" that farmers must meet on an ongoing basis to become and remain certified. In most cases, this bar is significantly higher than the entry-level requirements for the pathway frameworks, representing many enforceable and verifiable requirements related to agrochemicals, soil health, ecological management, and other regenerative principles. Also, we note that though continuous improvement is not required, that does not preclude those farms from pursuing improvement.

Note that **Regenerative Organic Certified (ROC)** includes multiple levels—Bronze, Silver, and Gold—but does not require producers to advance to higher levels over time, which is why we have placed them here rather than in the "pathway" category. Additionally, Regenerative Organic Certified differs from other tiered frameworks by requiring the certification level to be disclosed on the consumer-facing label, ensuring transparency about the standard the farm has met.

Rainforest Alliance Regenerative includes some requirements for continuous improvement between certified farms' first, second, and third audits. However, these requirements are minimal, and across the criteria we evaluate, Rainforest Alliance Regenerative performs the same whether we evaluate their first-audit requirements (minimum for on-package labeling) or third-audit requirements (requirements that must be met by the third audit cycle). Thus we place Rainforest Alliance Regenerative in the "threshold" category. Its scores reflect the first-audit requirements, the minimum for on-package labeling.

Certified Regenerative by Regeneration International offers two levels, "Grade A" and "In Transition." Different labels must be used for each level, creating some distinction for consumers (although this is limited by the fact that the two labels have near-identical designs). Additionally, there is no timebound requirement for producers to move from "In Transition" to "Grade A." Therefore, Certified Regenerative by Regeneration International – Grade A and Certified Regenerative by Regenerative International – In Transition essentially function as two separate labeling programs administered by the same entity. We have placed both in the "threshold" category and scored them separately.

EVALUATING PRACTICE-BASED STANDARDS, NOT OUTCOMES

This analysis focuses on labeling programs that have practice-based standards—both programs that are exclusively practice-based and those that contain both practice-based requirements and outcomes-based measurement of environmental indicators like soil carbon and biodiversity. Assessing the credibility of outcomes-based criteria would require a detailed review of sampling design, measurement methods, verification procedures, and statistical rigor. That type of analysis is important work, but it falls outside the scope of this report.

Practice-based standards define the management actions that are widely understood to drive ecological outcomes and can be consistently verified through certification and inspection**.** Our analysis centers on assessing the strength, clarity, and rigor of practice-based requirements as a practical and comparable basis for evaluating labels.

EVALUATING LABELING PROGRAMS, NOT INDIVIDUAL FARMS

It is important to be clear that this analysis evaluates the standards and structural integrity of labeling programs and is not a commentary on individual farms or farmers. Even an excellent labeling program may have some cases of noncompliance or fraud. Conversely, a poorly designed labeling program may have some certified farmers who exceed every bar. Exceptions do not prove the rule—individual farms cannot be used to determine whether a labeling program is 'good' or 'bad.' Likewise, critiques of labeling programs should not be read as critiques of enrolled producers.

An analogy may be helpful here. Traffic lights exist to create order and safety on the roads. As a system, they work. That does not mean every driver always stops at a red light. When drivers run red lights, accidents occur—not because the system is flawed, but because individuals fail to comply. Applying this to our analysis, the relevant question we seek to answer when assessing labeling programs is not whether every farm performs perfectly, but whether the certification system itself establishes clear guardrails and includes credible mechanisms to verify compliance with them. Our focus is not on whether every certified farm represents an aspirational "best case" example of the label's principles, nor on isolated cases that may not align with consumer expectations.

When drivers run red lights, accidents occur—not because the system is flawed, but because individuals fail to comply. We evaluate whether certification systems establish clear guardrails and include credible mechanisms to verify compliance with them.

THE IMPORTANCE OF STANDARD INTEGRITY

A strong written standard alone cannot ensure credible labeling; a labeling program is only as trustworthy as its system of independent verification to confirm that producers and other supply chain actors actually meet its requirements.

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Integrity of Verification Systems

Verification systems generally fall into one of three categories: first-party, second-party, or third-party. First-party is the weakest, amounting to self-assessment. Third-party is the strongest, guaranteeing independent verification.

There are international standards that set requirements for organizations that certify products, processes, and services called ISO/IEC 17065. Both second-party and third-party certifiers can be accredited to these standards, which ensure that the certifiers operate in a consistent, impartial, and reliable way. (Note that ISO/IEC does not certify the agricultural standard itself, it accredits auditors of the standards.)

In a first-party system, the farmer or company evaluates its own compliance with the standard—effectively self-declaring that it meets the claim. This amounts to a self-proclamation and provides little meaningful assurance.

In a second-party system, an entity other than the farmer or company sets the standard and also conducts inspections, audits, and compliance determinations. While this approach can improve consistency, it still lacks independence, as the verifier is employed by or affiliated with the standard-setting body and therefore has an inherent conflict of interest. Some programs operating under this model are accredited to ISO/IEC 17065, improving assurance of consistent and reliable auditing. However, because standard-setting and verification remain housed within the same organization, these systems provide less structural independence than models that separate these functions.

The most credible is the third-party model. In a third-party system, one entity establishes the standard while a separate, independent entity makes the decision regarding whether farmers and supply chain actors meet the criteria for certification, using independent inspectors who conduct on-farm and supply-chain inspections and audits to verify compliance. Because the entity that makes the final compliance decision is independent of both the producer and the standard-setting organization, this model provides the highest level of assurance and is the norm for credible sustainability labeling. Many third-party auditors are accredited to ISO/IEC 17065.

Supply Chain Integrity

As noted earlier, consumers and purchasers may choose foods with a regenerative label for a range of reasons, including values alignment, supply chain goals, or personal outcomes like reduced dietary exposure to pesticides. Regardless of motivation, the promises made or implied by a regenerative label on a package of food are often only meaningful if crops can be traced from verified farms to the final product purchased by a consumer.

Traceability, segregation, and verification throughout the supply chain are therefore foundational to credible certification. Without these safeguards, there is little assurance that foods labeled as regenerative were produced in accordance with regenerative standards. Strong on-farm production requirements alone are insufficient; they must be paired with equally robust chain-of-custody systems to prevent fraud, substitution, and co-mingling of certified and non-certified products.

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This is especially important for claims related to agrochemical use. For consumers wishing to reduce their dietary pesticide exposure, reduced pesticide use on farms is only meaningful if it translates into reduced pesticide residues in food. That outcome depends on physical segregation and traceability from the farm (or verified field, in the case of split operations) through processing, manufacturing, and distribution. Split operations—farms or ranches that produce both certified and non-certified products—are common, particularly during transition periods. In these cases, segregation starting at the field level is essential to ensure that products grown or raised under certified conditions are not mixed with products produced using prohibited or restricted inputs.

Credible certification systems therefore require verification and auditing of supply-chain actors, including processors, handlers, and manufacturers, to ensure certified products are handled in accordance with the

standard, as well as mandatory segregation and prevention of co-mingling of certified and non-certified products at every stage of the supply chain. For consumers seeking foods produced without synthetic pesticides—or with demonstrably reduced pesticide use—a regenerative label is only meaningful if these systems are in place.

Some labeling programs instead rely on a mass balance approach, which allows certified and non-certified crops to be mixed during storage, transport, or processing, with certification applied on a bookkeeping basis. Mass balance can be appropriate for certain sustainability objectives where the physical identity of the product does not affect consumer health. For example, in a no-deforestation program, what matters is that an equivalent volume of deforestation-free commodity entered the supply chain, not whether the specific ingredient in a finished product originated from a particular farm.

However, mass balance is not appropriate for claims that imply reduced agrochemical exposure or other product-specific health attributes (e.g., “antibiotic-free”). When consumers purchase foods labeled as regenerative because they expect lower pesticide residues or other direct benefits, allowing blending of certified and non-certified ingredients undermines those expectations and the credibility of the claim.

KEY FINDINGS ON AGROCHEMICALS

Figure 2. Agrochemicals

	Pesticide Prohibition	Pesticide Reduction	Integrated Pest Management	Neonic seeds	GMOs	Fertilizer prohibition	Fertilizer Reduction
THRESHOLD STANDARDS							
Regenerative Organic Certified - All Levels	●	●	●	●	●	●	●
Real Organic Project	●	●	●	●	●	●	●
USDA Organic	●	●	●	●	●	●	●
Demeter Biodynamic	●	●	●	●	●	●	●
Certified Regenerative by A Greener World	◐	●	●	●	●	○	●
Certified Regenerative by Regeneration International - Grade A	●	●	●	●	●	●	●
Rainforest Alliance Regenerative	◐	◐	◐	⊘	●	○	○
Certified Regenerative by Regeneration International - In Transition	○	○	○	○	○	○	○
PATHWAY STANDARDS							
Soil & Climate Health Initiative Verified Level IV	◐	◐	●	●	○	○	●
Soil & Climate Health Initiative Verified Level I	◐	○	●	○	○	○	○
Regenagri - Baseline Level*	○	○	○	○	○	○	●
Regenified Tier 5	○	○	○	○	○	○	○
Regenified Tier 2	○	○	○	○	○	○	○

● Fully meets the bar ◐ Partially meets the bar ○ Does not meet the bar ⊘ Not applicable

** Evaluation of the top Regenagri tier is not possible with current public data.*

Prohibition or Restriction of Toxic Pesticides

Does the standard prohibit the use of toxic pesticides?

Yes = *Allowed pesticides are limited to least-toxic, least-persistent substances*

Partial = *Includes meaningful restrictions on highly hazardous pesticides or classes of high concern such as organophosphates*

No = *Allows pesticides with few or no restrictions*

None of the programs we evaluate are "pesticide-free." Safety and sustainability depend on the characteristics of a given substance and how its use is regulated. The relevant questions are whether standards prohibit pesticides that are harmful to human health and the environment, and if not, whether they have structured, auditable frameworks for reducing use of toxic pesticides.

USDA Organic and the programs that use it as a baseline—**Regenerative Organic Certified** and **Real Organic Project**—fully meet the bar. USDA Organic has a federally regulated National List of Allowed and Prohibited Substances. The Organic Foods Production Act dictates that all substances on the National List must not be harmful to human health or the environment and be consistent with organic principles. USDA Organic uses a risk-based approach: synthetic pesticides are prohibited unless specifically allowed after rigorous review for environmental and health impacts, while natural substances are permitted unless they are shown to be harmful. The scientific process for determining which pesticides are allowed in organic production is built around a structured, evidence-based review system that evaluates: human health risks, environmental fate (how quickly it breaks down, whether it contaminates water or soil), ecological effects, and necessity (whether there are safer or non-chemical alternatives available). Substances are re-reviewed every five years by the National Organic Standards Board, ensuring that new scientific findings—such as updated toxicology or environmental data—can lead to reevaluation or removal. Additionally, even the limited number of vetted, least-toxic substances that are allowed by on the National List are subject to use restrictions. Over 900 synthetic pesticides available for use in U.S. agriculture are not permitted for use in organic production.

Demeter Biodynamic places the same prohibitions on pesticide use as USDA Organic, even though organic certification is not required, fully meeting the bar.

Certified Regenerative by Regeneration International – Grade A prohibits the use of all synthetic pesticides and therefore fully meets the bar for this criterion. While this is not as robust an approach as USDA Organic (given that its prohibitions are based wholly on whether compounds are synthetic and not on potential risk to health or the environment), it does eliminate use of highly hazardous pesticides and all classes of high concern, significantly reducing overall pesticide risk.

Three of the remaining programs partially meet the bar. These programs have prohibited pesticide lists or meaningful restrictions on pesticide use.

Soil & Climate Health Initiative Verified partially meets the bar for both Levels I and IV. The standard restricts the use of certain classes of pesticides based on risk to human health and the environment and requires that their use be phased out over time. Prohibited or restricted pesticide classes include organophosphates, *N*-methyl carbamates, and neonicotinoids. Other pesticides, including pyrethroids and glyphosate, are allowed only under specified conditions and must follow outlined risk-mitigation measures, with an expectation of reduced toxicity over time.

Certified Regenerative by A Greener World partially meets the bar. The standard prohibits specific categories of herbicides, including neonicotinoids, chemicals used for soil sterilization, and herbicides used for crop termination prior to harvest. All agrochemical use is classified as "restricted," meaning that synthetic pesticides may only be used if they are planned, targeted, and explicitly included in an approved Regenerative Plan. Any approved use must be phased out over time according to a producer-specific timeline agreed upon with A Greener World.

Rainforest Alliance Regenerative partially meets the bar. The standard has three lists: Prohibited Pesticides, Obsolete Pesticides, and a Risk Mitigation List. Determinations are based on the FAO/WHO Guidelines on Highly Hazardous Pesticides; 163 pesticides are prohibited, including atrazine, paraquat, and nitroguanidine neonicotinoids, and 166 pesticides are restricted, including glyphosate and organophosphates. These prohibitions and restrictions apply to farms of all sizes.

Regenagri does not meet the bar. The standard references a prohibited pesticides list, but this list applies only to coffee production. While the use of highly hazardous pesticides does result in point deductions that may impact a producer's overall score, this functions as an incentive to avoid highly hazardous pesticides, not an actual prohibition.

Regenified does not meet the bar. The standard includes only one restriction on chemical pesticide use: chemical pesticides must not be applied to grains within 21 days prior to harvest. No comparable restrictions apply to other crops, and the standard does not prohibit specific pesticides or pesticide classes. This applies to all five tiers.

Certified Regenerative by Regeneration International – In Transition does not meet this bar because there are no explicit, auditable requirements for certification.

Toxicity Reduction Requirements

Does the standard require a quantitative reduction in pesticide toxicity load?

Yes = *The standard uses a risk-based approach to prohibit toxic pesticides OR specifies a required percentage reduction in toxicity load over time, with a specified goal of ultimately eliminating the use of toxic pesticides*

Partial = *The standard specifies a quantitative reduction in pesticide toxicity but does not specify a goal of complete elimination of toxic pesticides*

No = *The standard specifies a reduction in pesticide use, but it is not based on toxicity and there is no quantitative requirement (e.g., no percentage reduction specified)*

Many regenerative agriculture advocates acknowledge that elimination of all harmful agrochemicals is a high bar and that reducing reliance on inputs is a journey for many growers. While focusing on soil health principles is fundamental to gradually breaking pest cycles, rebuilding ecological balance, and eventually reaching a point where toxic pesticides are no longer needed, focusing on soil health alone is not a guarantee that farmers will significantly reduce or eliminate pesticide use. To ensure that growers achieve this goal, certifications should include quantifiable, enforceable mandates for reducing use of toxic pesticides over time, with a clear and defined end point—ideally a full or nearly full transition away. At a minimum, programs should require a documented baseline of pesticide use and quantitative reduction targets for toxicity load (e.g., a percentage reduction by a certain date).

Importantly, efforts to reduce pesticide use should be grounded in risk and toxicity, not simply the total pounds applied or frequency of application. Some of the most hazardous pesticides are designed to be effective at very low application rates, meaning a smaller quantity can pose a greater risk to human health and the environment. If guidelines focus only on reducing overall volume, they may unintentionally incentivize a shift toward more potent, highly toxic chemicals. A similar dynamic applies to requirements focused on application frequency. Many lower-toxicity pesticides—particularly biological pesticides—break down quickly in the environment and may need to be reapplied more often. Insecticidal soaps, for example, are non-toxic and act through physical mechanisms, but often require reapplication after rainfall. Standards that emphasize fewer applications can therefore favor pesticides that persist longer in soils and waterways.

Five of the ten labeling programs in our assessment automatically meet the bar based on their comprehensive pesticide prohibitions—**USDA Organic**, **Real Organic Project**, **Regenerative Organic Certified**, **Demeter Biodynamic** and **Certified Regenerative by Regeneration International – Grade A.**

For the labeling programs that do not comprehensively prohibit use of toxic pesticides, we assessed whether they require a quantitative reduction in pesticide toxicity over time with an end goal of elimination. One of the five programs fully meets this bar, two partially meet it, and two do not meet it.

Certified Regenerative by A Greener World fully meets this bar. The standard prohibits the use of certain high-risk pesticide classes while allowing other synthetic agrochemicals only on a restricted basis and only when their use is planned, targeted, and explicitly incorporated into an approved Regenerative Plan. Importantly, the standard requires that any restricted agrochemical use be phased out over time, with the expectation of complete elimination. While the standard does not establish uniform, numeric reduction targets or a fixed timeline applicable to all producers, it requires that a producer-specific timeline for the elimination of agrochemicals be defined and agreed upon between the producer and A Greener World and verified through the certification process. This requirement for documented, time-bound reduction and eventual elimination of agrochemical inputs satisfies the bar for a quantifiable and enforceable trajectory away from pesticide toxicity.

Rainforest Alliance Regenerative requires a policy to reduce the amount and toxicity of pesticides, mandates baseline data and monitoring, and calls for demonstrable reduction—but it does not set a numerical reduction target nor does it specifically require the eventual elimination of all harmful pesticides. It therefore partially meets this bar.

Soil & Climate Health Initiative Verified Levels II and above partially meet this bar. The standard requires producers to assess pesticide intensity using EPA signal words on the pesticide label (Caution, Warning, Danger) as a proxy for relative toxicity and to demonstrate reductions in pesticide intensity over time. At Level I, producers are required to establish a baseline of pesticide use and toxicity, but reductions are not yet required, thus Level I does not meet this bar. Producers are required to move to Level II within three years. Beginning at Level II and continuing through higher levels of verification, producers must demonstrate a reduction in pesticide intensity, based on both the amount of pesticide applied and its toxicity classification. This requirement effectively moves producers away from higher-toxicity chemical interventions and toward lower-risk options, and over time encourages a broader shift toward less hazardous and more preventive pest management strategies. Soil & Climate Health Initiative Verified's approach emphasizes verified reductions in pesticide risk through a structured scoring system, allowing flexibility in how producers achieve those reductions while requiring measurable progress. Because the standard does not require that producers' trajectory culminates in a phaseout of toxic synthetic pesticides, Soil & Climate Health Initiative Verified Levels II and higher partially meet this bar.

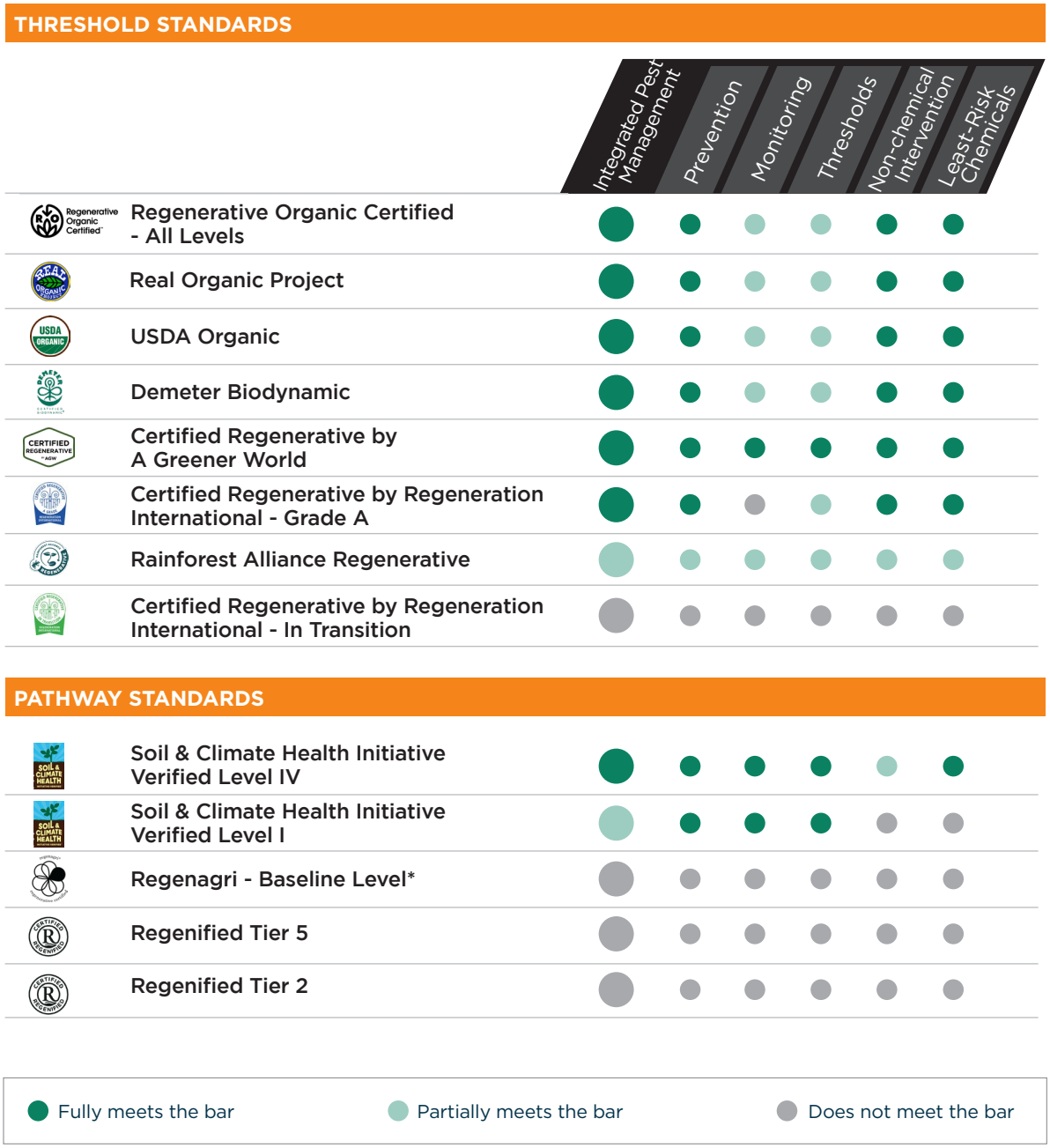
Regenified does not meet this bar. Regenified requires that pesticide use "must decrease each year." However, this is measured by pounds of active ingredient applied and the number of applications, which does not address pesticide toxicity. Focusing exclusively on reductions in volume or application frequency can unintentionally incentivize use of more toxic pesticides. Regenified does not incorporate toxicity-based considerations into its reduction requirements or set clear goals for elimination of hazardous inputs in any of its five tiers. As a result, reductions in pesticide risk are not clearly defined or verifiable within the program, and it does not meet this bar.

Regenagri does not meet this bar. The standard does not establish toxicity-based metrics or quantitative targets to guide pesticide selection or reductions. As discussed above, requiring reductions in pesticide use without specifying reductions in toxicity can inadvertently lead to the use of more hazardous products and increased pesticide risk. Regenagri's standard notes that the use of highly hazardous pesticides results in point deductions that may impact a producer's overall score. Since producers are required to improve their scores to remain certified, this creates a functional incentive to phase out highly hazardous pesticides. However, given that Regenagri's scoring algorithm is not public, it is unclear how strong this incentive is and whether highly hazardous pesticides must be fully phased out to achieve a 95% score, the level at which improvement is no longer required. As a result, reductions in pesticide risk are not clearly defined or verifiable within the program.

Certified Regenerative by Regeneration International – In Transition does not meet this bar because there are no explicit, auditable requirements for certification.

Integrated Pest Management

Figure 3. Integrated Pest Management



** Evaluation of the top Regenagri tier is not possible with current public data.*

Strong Integrated Pest Management (IPM) practices are essential to reducing or eliminating the use of toxic pesticides. Notably, five of the programs we evaluate categorically prohibit toxic synthetic pesticides, allowing only a handful of clearly defined least-toxic pesticides: **USDA Organic, Real Organic Project, Regenerative Organic Certified, Demeter Biodynamic, and Certified Regenerative by Regeneration International**. Thus, our evaluation of IPM practices in these programs pertains only to the use of these restricted, least-toxic substances.

We evaluate the following five components of IPM:

1. **Preventive measures** (e.g., crop rotation, sanitation, resistant varieties, beneficial insect habitat);
2. **Monitoring and scouting** for pests;
3. **Economic thresholds** or decision-making triggers that guide chemical interventions;
4. **Prioritization of non-chemical interventions** before chemical options; and
5. **Assessment of pesticide risk** with a requirement to select lower-risk products first.

Preventive Measures to Avoid Pest Outbreaks

Does the standard require the use of practices to prevent key pests from damaging crops. (E.g., planting resistant varieties, crop rotation, physically blocking entry)?

Yes = *The standard requires preventive measures as part of an IPM program OR the standard prohibits toxic pesticides and requires practices that prevent pest outbreaks*

Partial = *The standard requires an IPM plan including preventive measures, but the requirement does not apply to all farms, such as small farms*

No = *The standard does not specify that preventive measures such as crop rotation, sanitation measures, beneficial insect habitat and others are required as part of an IPM plan*

For this IPM principle, we evaluate whether the labeling program requires an Integrated Pest Management plan that includes the implementation of preventive practices to reduce pest pressure and avoid pest damage, such as crop rotation, planting pest- and disease-resistant varieties, and physical or mechanical barriers.

USDA Organic and the programs that use it as a baseline, **Regenerative Organic Certified,** and **Real Organic Project** fully meet this bar. Before allowing use of a restricted list of least-toxic substances, the USDA Organic crop, pest, weed, and disease management practice standard states that producers must use management practices to prevent crop pests, weeds, and diseases including but not limited to: crop rotation and soil and crop nutrient management practices; sanitation measures to remove disease vectors, weed seeds, and habitat for pest organisms; and cultural practices that enhance crop health, including selection of plant species and varieties with regard to suitability to site-specific conditions and resistance to prevalent pests, weeds, and diseases.

Certified Regenerative by Regeneration International – Grade A also fully meets this bar. The management plan outlines the transition from monocultures to more diverse systems and methods for managing pests and diseases, emphasizing ecological approaches instead of sprays.

Demeter Biodynamic also fully meets this bar. The standard, in addition to requiring compliance with the USDA Organic standards, explicitly emphasizes prevention as the foundation of pest and disease management, stating that the foundation of disease and insect control needs to be based on strategies that emphasize prevention located within the life of the farm itself.

Certified Regenerative by A Greener World requires preventive practices through its Integrated Crop Management (ICM) section, including crop rotation designed to break pest, disease, and weed cycles. It mandates that weeds be managed primarily through cultural control methods and emphasizes ecological prevention, thereby fully meeting this bar.

Soil & Climate Health Initiative Verified fully meets this bar because the program requires an IPM plan that must include the implementation of prevention and avoidance strategies.

Rainforest Alliance Regenerative requires an IPM strategy that includes preventive measures, and its accompanying guidance document lists specific preventive practices. However, these requirements do not apply to small farms—an important gap—so the program only partially meets this bar.

Regenagri does not meet this bar. The standard requires producers to develop an Integrated Pest Management (IPM) plan but does not audit the implementation of the plan. Therefore, there is not an explicit, enforceable requirement in standard for prevention and avoidance strategies.

Regenified does not meet this bar. For perennial crops (i.e., native rangeland, introduced pasture, vineyards, orchards), the Regenified standard states that producers *must* develop a basic pest management plan before the use of any pesticide. But for producers of annually planted crops (i.e., grains, most vegetables), the standard states producers *should* develop a basic pest management plan. In both cases, the basic pest management plan does not include preventive measures. Moreover, the use of *should* for annual crops signals non-binding guidance rather than enforceable requirements. This applies to all five tiers of the standard.

Certified Regenerative by Regeneration International – In Transition does not meet this bar because there are no explicit, auditable requirements for certification.

Monitoring and Scouting

Does the standard require the use of inspection, monitoring, and/or scouting?

Yes = *The standard requires the use of inspection, monitoring or scouting or another systematic, science-based approach, AND use of those monitoring results to inform pesticide application decisions*

Partial = *The requirement does not apply to all farms, such as small farms OR monitoring is functionally but not directly required*

No = *Monitoring as part of an IPM program is not required in the standard*

For this IPM principle, we evaluate whether a standard requires regular inspection, monitoring, or scouting to inform pest management decisions rather than relying on routine or calendar-based pesticide applications.

Certified Regenerative by A Greener World requires producers to monitor fields to detect pest, weed, and disease pressure early. This requirement is explicit, mandatory, and enforceable, thereby fully meeting this bar.

Soil & Climate Health Initiative Verified mandates monitoring as a required component of its IPM plan. Because monitoring is explicitly required of all producers within the program, it fully meets this bar.

USDA Organic, **Regenerative Organic Certified, Real Organic Project,** and **Demeter Biodynamic** partially meet this bar. Producers are required to implement and document proactive and preventative pest, weed, and disease management practices before they can use a restricted list of least-toxic substances. The requirement to document that preventive measures were insufficient functionally, but not explicitly, requires scouting and monitoring.

Rainforest Alliance Regenerative partially meets this bar. The standard requires monitoring within its IPM strategy for most farms, and its guidance document provides additional detail on monitoring expectations. However, these monitoring requirements do not apply to small farms—an important gap—so Rainforest Alliance Regenerative only partially meets this bar.

Regenagri does not meet this bar. The standard requires producers to develop an IPM plan but does not audit the implementation of the plan. Therefore, there is not an explicit, enforceable requirement in standard for prevention and avoidance strategies.

Regenified does not meet this bar. For perennial crops (i.e., native rangeland, introduced pasture, vineyards, orchards), the Regenified standard states that producers *must* develop a basic pest management plan before the use of any pesticide. But for producers of annually planted crops (i.e., grains, most vegetables), the standard states producers *should* develop a basic pest management plan. Even for producers of perennial crops, who must develop a basic pest management plan, the inclusion of planned monitoring strategies is a recommendation rather than a requirement. This applies to all five tiers of the standard.

Certified Regenerative by Regeneration International – Grade A does not meet this bar. The standard does not include monitoring or prevention as part of an IPM plan.

Certified Regenerative by Regeneration International – In Transition does not meet this bar because there are no explicit, auditable requirements for certification.

Threshold-Based Decision Making

Does the standard require the use of economic thresholds to inform management/treatment decisions as part of their IPM program?

Yes = *The standard requires the use of economic thresholds to inform management and treatment decisions*

Partial = *The requirement does not apply to all farms, such as small farms OR only least-toxic pesticides are allowed, but economic thresholds for use of least-toxic substances are not mandated*

No = *The standard does not require the use of economic thresholds to inform management and treatment decisions as part of their IPM program*

For this IPM principle, we evaluate whether a program requires the use of economic thresholds to guide pest management decisions, ensuring that treatments are applied only when pest pressure reaches levels that justify intervention, preventing the routine or prophylactic use of pesticides.

Certified Regenerative by A Greener World requires producers to make treatment decisions based on pest thresholds and field observations, fully meeting the bar.

Soil & Climate Health Initiative Verified requires IPM plans to include monitoring and thresholds for decision-making for taking action, fully meeting the bar.

Five of the ten labeling programs in our assessment have comprehensive pesticide prohibitions: **USDA Organic**, **Regenerative Organic Certified**, **Real Organic Project**, **Demeter Biodynamic,** and **Certified Regenerative by Regeneration International – Grade A.** These programs partially meet the bar. Only least-toxic pesticides are allowed, but economic decision-making thresholds are not required for the application of these least-toxic pesticides.

Rainforest Alliance Regenerative requires the implementation of an IPM strategy, which includes threshold-based decisions. Additional guidance specifies to "intervene only when economic thresholds so indicate," but this requirement does not apply to small farms. Therefore, it only partially meets the bar.

Regenagri does not meet this bar. The standard requires an IPM plan but does not audit the implementation of the plan. Therefore, there is not an explicit, enforceable requirement in standard for prevention and avoidance strategies.

Regenified does not meet this bar. As noted earlier, Regenified recommends but does not require a basic pest management plan for producers of annual crops. Thresholds for decision-making are included in the standard as a recommendation rather than a requirement in the pest management plan. This applies to all five tiers of the standard.

Certified Regenerative by Regeneration International – In Transition does not meet this bar because there are no explicit, auditable requirements for certification.

Prioritization of Non-Chemical Interventions

Does the standard require the use of non-chemical interventions like cultural, biological and physical control methods before using chemical interventions?

Yes = *The standard prohibits toxic pesticides OR requires the use of non-chemical interventions before using pesticides*

Partial = *The requirement does not apply to all farms, such as small farms OR IPM plan is required and toxicity reduction is required but no specific sequencing of non-chemical before chemical is required*

No = *The standard does not require the use of non-chemical interventions before using pesticides*

For this IPM principle, we evaluate whether the program requires producers to prioritize non-chemical pest management strategies—such as cultural, biological, and physical controls—before chemical interventions. While the prevention criterion evaluates whether standards require practices designed to reduce the likelihood of pest outbreaks in the first place, this IPM principle focuses on the strategies producers use once pest pressure occurs. It is especially important for labeling programs that do not categorically prohibit synthetic pesticides, as it requires producers to consider and prioritize non-chemical forms of pest control.

USDA Organic and the programs that use its standard as a baseline, **Regenerative Organic Certified**, **Real Organic Project**, and **Demeter Biodynamic,** fully meet this bar. The USDA Organic regulations establish a clear hierarchy of pest management responses. Producers are prohibited from using toxic synthetic pesticides and must rely on cultural, mechanical, and biological controls, and may only use substances from the National List when these non-chemical approaches prove insufficient to prevent or control the target pest.

Certified Regenerative by Regeneration International – Grade A also fully meets this bar. The standard emphasizes ecological pest management and prohibits the use of synthetic pesticides. As a result, producers must rely on cultural, biological, and other non-chemical approaches to manage pest pressure, functionally prioritizing these interventions before any synthetic chemical controls are considered.

Certified Regenerative by A Greener World requires producers to prioritize biological and cultural controls. The program also restricts all agrochemical use and allows interventions with chemical pesticides only when other methods have proven ineffective and economic thresholds are exceeded. This clear, enforceable standard fully meets the bar.

Soil & Climate Health Initiative Verified requires producers to develop and implement an Integrated Pest Management plan, which does not explicitly mandate a sequence requiring non-chemical or preventive interventions to be exhausted before chemical controls are used. Instead, the standard requires that the IPM plan must include "non-chemical controls that utilize integration of cultural, mechanical, or biological pest management strategies" as well as "chemical controls." The verification structure requires producers at Level II and above to demonstrate a reduction in pesticide intensity over time, creating a functional requirement to move away from higher-risk chemical interventions. The prioritization or sequencing of non-chemical strategies is not explicitly mandated within the standard; however, the requirement to reduce toxicity effectively compels producers to rely increasingly on preventive and non-chemical approaches in order to meet higher certification levels. At Level I, baseline monitoring of pesticide toxicity is required, but not a reduction. Thus, Level I does not meet this bar, while Levels II and higher partially meet this bar.

Rainforest Alliance Regenerative requires an IPM strategy, and its guidance document states that non-chemical methods should be used first. Since the requirement to implement an IPM strategy is not required for small farms, it only partially meets the bar.

Regenagri does not meet this bar. The standard requires an IPM plan but does not audit the implementation of the plan. Therefore, there is not an explicit, enforceable requirement in standard for prevention and avoidance strategies. Regenagri also does not require reduced pesticide toxicity over time. The standard references nature-based crop protection products and organic-approved inputs but does not require that these options be prioritized or used before chemical interventions. While the program requires an Integrated Pest Management (IPM) plan aligned with the FAO definition—which states that pesticides should be applied only as a last resort when non-chemical alternatives are inadequate and use is economically justified—this principle is not translated into an explicit, enforceable requirement within the standard itself. As a result, prioritization of non-chemical interventions is implied but not mandated or verifiable.

Regenified does not meet this bar. As noted earlier, Regenified recommends but does not require a basic pest management plan for producers of annual crops and furthermore states that pest management plans *should* include cultural, biological, or mechanical suppression but does not require their use or prioritization (a recommendation rather than a requirement in the pest management plan). This applies to all five tiers of the standard.

Certified Regenerative by Regeneration International – In Transition does not meet this bar because there are no explicit, auditable requirements for certification.

Requirement to Assess Pesticide Risk and Use Lower-Risk Pesticides

Does the standard require that producers assess pesticide risk and prioritize and use lower risk products?

Yes = *The standard prohibits toxic pesticides OR requires that producers assess pesticide risk and prioritize and use lower risk products*

Partial = *The requirement does not apply to all farms, such as small farms*

No = *The standard does not require that producers assess pesticide risk and prioritize and use lower risk products*

Integrated Pest Management allows for the use of chemical pesticides when necessary but emphasizes that any chemical intervention should be selected to minimize harm to human health, non-target organisms, and the environment. For this IPM principle, we evaluate whether a program requires producers, when a chemical intervention is used, to assess the relative toxicity of available pesticide options and to prioritize lower-risk products over more hazardous alternatives.

Five of the ten labeling programs in our assessment have comprehensive prohibitions on toxic pesticides: **USDA Organic**, **Regenerative Organic Certified**, **Real Organic Project**, **Demeter Biodynamic, and Certified Regenerative by Regeneration International – Grade A.** They fully meet the bar for this criteria.

None of the other labeling programs explicitly require an assessment of pesticide risk. However, due to other requirements that make this an implicit requirement, two of the programs fully meet this bar, one partially meets it, and two do not meet it.

Certified Regenerative by A Greener World fully meets this bar. The standard includes robust IPM requirements and classifies all pesticides as restricted inputs. When chemical interventions are used, the standard requires that risks to non-target species, water, and soil be minimized. By treating all pesticides as restricted and conditioning their use on risk minimization, the standard effectively requires producers to consider relative toxicity and to prioritize lower-risk pesticide options when chemical interventions are necessary.

Soil & Climate Health Initiative Verified does not explicitly require producers to prioritize lower-risk pesticides. However, the structure of the standard effectively produces the same outcome. Soil & Climate Health Initiative Verified requires producers to assess pesticide intensity using EPA signal words as indicators of relative toxicity and to demonstrate a reduction in pesticide intensity over time. This framework creates a clear incentive for producers to shift away from higher-toxicity products and prioritize lower-risk pesticide options when chemical interventions are used. At Level I, baseline monitoring of pesticide toxicity is required, but not a reduction. Thus, Level I does not meet this bar while Levels II and higher fully meet this bar.

Rainforest Alliance Regenerative is the only program among the five that explicitly references lower-risk pesticide choices. The standard requires an Integrated

Pest Management plan, and accompanying guidance encourages producers to consider "soft pesticides" and products approved for organic production. However, because this requirement for an IPM plan does not apply uniformly to all farms—it does not apply to small farms—the program only partially meets this bar.

Regenagri does not meet this bar. The standard requires an Integrated Pest Management (IPM) plan but does not audit the implementation of the plan. Therefore, there is not an explicit, enforceable requirement in standard for assessing and using lower risk pesticides as part of an IPM strategy.

Regenified does not meet this bar. As noted earlier, Regenified recommends but does not require a basic pest management plan for producers of annual crops. Additionally, there are no requirements to assess pesticide risk or prioritize lower-risk alternatives when chemical interventions are used. This applies to all five tiers of the standard.

Certified Regenerative by Regeneration International – In Transition does not meet this bar because there are no explicit, auditable requirements for certification.

Neonicotinoid-Treated Seed

Does the standard prohibit the use of neonicotinoid-coated seeds?

Yes *=neonic-coated seeds are prohibited or allowed only when there is no commercially available alternative*

Partial *= [none]*

No *= neonic-coated seeds are allowed*

Neonicotinoids are an ecologically devastating class of insecticides associated with extensive threats to soil organisms, pollinators, and other beneficial insects. The largest use of neonicotinoids in the U.S. is at coatings on

seeds, such as corn and soy seeds.[23,24] The widespread use of neonicotinoid-treated seeds continues even as research increasingly shows that they have few economic benefits for farmers, and sometimes actually lead to decreased production by harming beneficial insects.[25,26]

Neonicotinoid-treated seeds are prohibited in **USDA Organic** and the four programs that either build on a foundation of organic or prohibit synthetic pesticides: **Regenerative Organic Certified, Real Organic Project, Demeter Biodynamic, and Certified Regenerative by Regeneration International – Grade A.**

Of the programs that don't explicitly ban synthetic pesticides, only one, **Certified Regenerative by A Greener World,** prohibits neonicotinoid-coated seeds outright.

Soil & Climate Health Initiative Verified requires the phaseout of neonicotinoids starting at Level II and higher. Therefore, Level I does not meet this bar. For Levels II – IV, the standard allows neonicotinoid

seed treatments only in narrowly justified cases where no alternatives are commercially available for producers, and therefore fully meets this bar.

For **Rainforest Alliance Regenerative**, neonic-treated seeds are largely irrelevant to its core tropical crops.

Two programs, **Regenagri** and **Regenified**, which certify grains (for which treated seeds are a concern), allow synthetic pesticides and do not explicitly prohibit neonicotinoid-treated seeds. They do not meet this bar.

Additionally, **Certified Regenerative by Regeneration International – In Transition** does not meet this bar because there are no explicit, auditable requirements for certification.

Genetically Engineered Seed

Does the standard prohibit the planting of GMO seeds?

Yes = *The standard prohibits GMO seeds*

Partial = *[none]*

No = *The standard does not prohibit or address GMO seeds*

Because the vast majority of genetically engineered crops (GMOs) planted in the U.S. are modified to withstand the application of herbicides, the use of genetically engineered seed nearly always goes hand-in-hand with continued use of and reliance on synthetic herbicides.

Seven programs, **USDA Organic**, **Regenerative Organic Certified**, **Real Organic Project**, **Demeter Biodynamic**, **Certified Regenerative by Regeneration International – Grade A**, **Certified Regenerative by A Greener World,** and **Rainforest Alliance Regenerative** prohibit genetically engineered seeds. They fully meet this bar.

Three programs do not address genetically engineered seeds in their standards: **Soil & Climate Health Initiative Verified**, **Regenagri,** and **Regenified**. They do not meet this bar.

Certified Regenerative by Regeneration International – In Transition does not meet this bar because there are no explicit, auditable requirements for certification.

Prohibition Of Synthetic Nitrogen Fertilizers

Does the standard prohibit the use of synthetic nitrogen fertilizers?

Yes = *The standard prohibits the use of synthetic fertilizers*

Partial = *[none]*

No = *The standard does not prohibit the use of synthetic fertilizers*

The widespread use of synthetic nitrogen fertilizer in agriculture has devastating impacts on the climate, biodiversity, and human health.

Synthetic nitrogen fertilizers are prohibited in **USDA Organic**, and therefore also prohibited in labeling programs that require organic certification as a baseline—**Regenerative Organic Certified** and **Real Organic Project**. **Certified Regenerative by Regeneration International – Grade A** and **Demeter Biodynamic** similarly prohibit synthetic fertilizers, requiring that soil fertility be derived from natural sources and supported through soil-building practices.

The remaining programs—**Certified Regenerative by A Greener World, Soil & Climate Health Initiative Verified**,

Rainforest Alliance Regenerative, Regenagri. Regenified, and **Certified Regenerative by Regeneration International – In Transition** do not prohibit synthetic nitrogen fertilizers.

Synthetic Fertilizer Reduction

When synthetic fertilizers are allowed, does the standard require a quantifiable reduction in synthetic nitrogen fertilizer use?

Yes *= The standard prohibits synthetic nitrogen fertilizers OR The standard requires a quantifiable and verifiable reduction in volume over time*

Partial *= [none]*

No *= The standard does not require a quantifiable and verifiable reduction in volume over timethe use of synthetic fertilizers*

Among the programs that do not prohibit synthetic nitrogen fertilizers, there is wide variation in whether synthetic fertilizer use is meaningfully restricted. We evaluate whether each of these standards includes clear, verifiable requirements to measure use and mandates a quantifiable reduction over time.

Of the programs that allow synthetic nitrogen fertilizers, **Certified Regenerative by A Greener World** places the strongest limits on their use and fully meets the bar. The standard designates all agrochemicals as restricted, meaning they may be used only if planned, targeted, and justified within an approved Regenerative Plan, with a requirement that they be phased out over time according to a timeline agreed upon with A Greener World. While synthetic fertilizers are not categorically prohibited, this restricted-use framework establishes enforceable limits that are designed to reduce reliance on them over time.

Soil & Climate Health Initiative Verified allows the use of synthetic fertilizers but requires the implementation of a Nutrient Stewardship Plan and includes established tiered requirements for reduction. At Level I, no reduction in synthetic fertilizer use is required. At Levels II and higher, a documented reduction must have occurred. As a result, Level I does not meet the bar for requiring reduction over time, while Levels II and higher do.

Regenagri meets this bar. The standard permits synthetic nitrogen fertilizers but includes a clear and enforceable requirement for reduction. The standard requires farms to develop, implement, and regularly update an improvement plan to reduce synthetic fertilizer use relative to a documented baseline. Application rates must follow agronomic recommendations, and farms are required to demonstrate a reduction in synthetic fertilizer use over a consecutive three-year period, unless a specific and justifiable event—approved by Regenagri—prevents such a reduction.

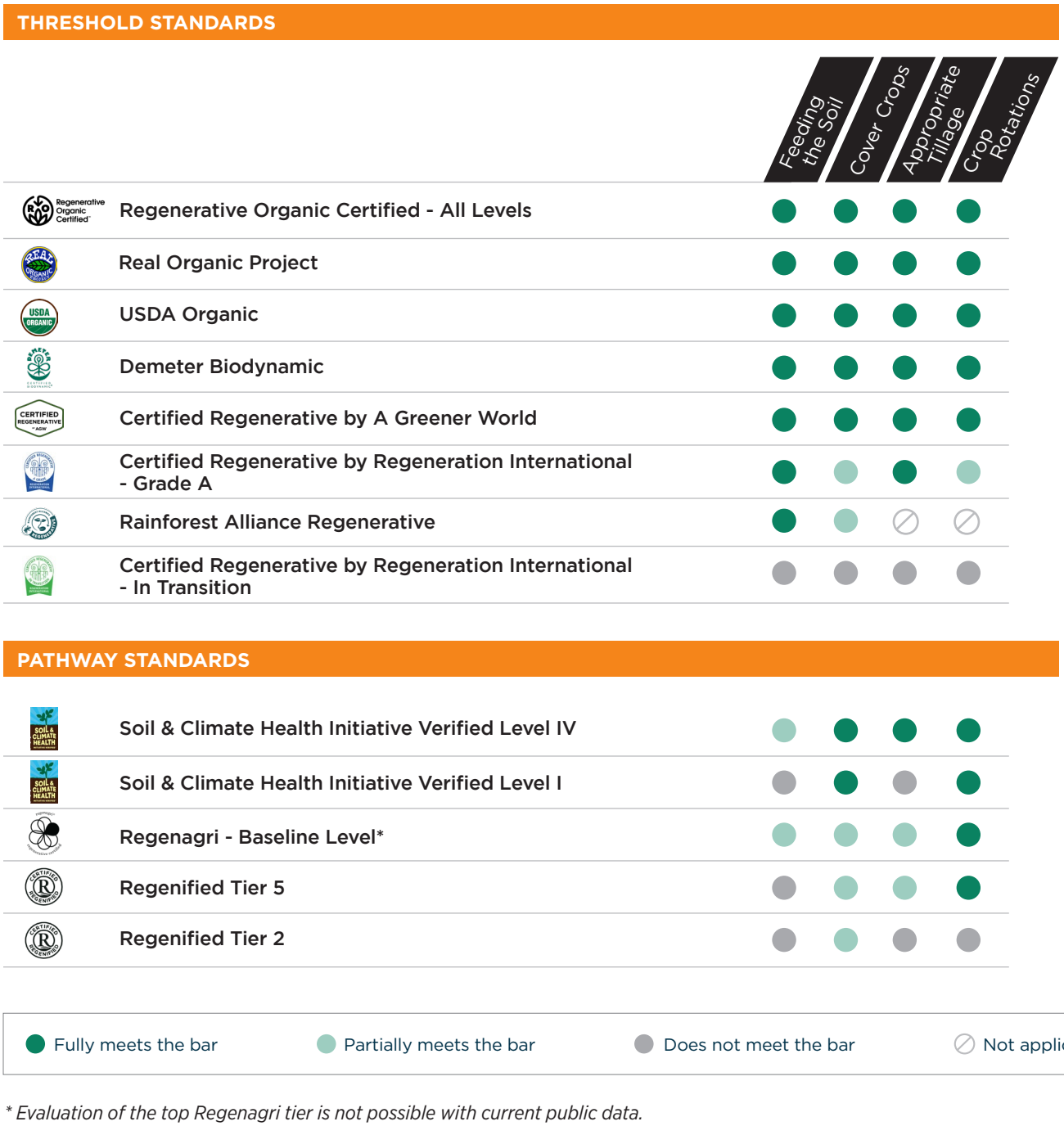
Regenified does not meet this bar. The standard does not prohibit synthetic fertilizers and explicitly allows the application of purchased or farm-produced nitrogen fertilizers at or below crop-removal rates. While the standard states that nutrient application rates *should* be reduced, this language is advisory rather than mandatory and does not establish an enforceable requirement. No quantifiable reduction targets are specified. This applies to all five verification tiers.

Rainforest Alliance Regenerative does not meet this bar. The standard allows synthetic fertilizers and does not include a requirement to measure or reduce the volume of synthetic fertilizers over time.

Certified Regenerative by Regeneration International – In Transition does not meet this bar because there are no explicit,auditable requirements for certification.

KEY FINDINGS ON SOIL HEALTH PRACTICES

Figure 4. Soil Health Practices



** Evaluation of the top Regenagri tier is not possible with current public data.*

In this section, we assess whether labeling programs include strong, enforceable standards on four soil health practices essential for ecological farming systems: feeding the soil through natural sources of fertility, cover cropping, appropriate soil disturbance, and diversity through crop rotations.

This analysis of soil health practices focuses primarily on row crops and annual fruit and vegetable systems. It emphasizes practices such as feeding the soil ecosystem through sources of biological fertility, cover cropping, crop rotations, and tillage and cultivation management, which are foundational to regenerative management in annual systems.

Tillage and crop rotations are less central in perennial systems—such as orchards, coffee, and cocoa—where tillage is uncommon and crop rotations are irrelevant. This distinction is important when interpreting results for programs like Rainforest Alliance Regenerative, which primarily certify perennial cropping systems and therefore apply different approaches to soil health and disturbance than standards designed for annual row crops.

Feeding The Soil Ecosystem

Does the standard require the use of practices that return organic matter to the soil, such as cover cropping and the application of plant (e.g., compost) and animal (e.g., manure) materials?

Yes = *Management of soil fertility through the return of organic matter with natural sources of soil fertility is required (e.g., cover cropping and the application of plant and animal materials)*

Partial = *The use of natural sources of soil fertility is not required for initial certification but must increase over time OR the use of natural sources of fertility is encouraged (but not required) alongside a requirement to reduce use of synthetic fertilizer over time*

No = *Management of soil fertility through the return of organic matter with cover cropping and the application of plant and animal materials is not required*

Certain farming practices, including cover cropping and applications of plant- and animal-based materials (e.g., compost, manure), are central to ecological farming because soil is a living ecosystem, and fertility strategies must feed soil organisms rather than only feeding plants directly. We assessed whether the standard requires practices that return organic matter to the soil.

USDA Organic explicitly requires practices that build soil organic matter. The standard prohibits synthetic fertilizers and mandates that producers manage soil fertility through "rotations, cover crops, and the application of plant and animal materials," ensuring that soil is fed biologically rather than chemically. Because both **Regenerative Organic Certified** and **Real Organic Project** require USDA Organic as a baseline, they inherit organic's soil-fertility requirements, including mandatory use of rotations, cover crops, compost, and manure. All three therefore fully meet this bar.

Certified Regenerative by Regeneration International – Grade A also fully meets this bar. It requires natural fertility practices. The standard mandates methods such as green-manure cover crops, legumes for nitrogen, and natural minerals (lime, dolomite, gypsum, basalt, rock phosphate, trace elements). It also prohibits synthetic nitrogen fertilizers, reinforcing reliance on soil-feeding approaches.

Demeter Biodynamic requires fertility to originate within the farm system through livestock integration, compost, green manures, nutrient-catch crops, and crop rotation. Its focus on generating fertility internally to build humus and biological activity fully meets this bar.

Certified Regenerative by A Greener World fully meets this bar. The standard requires that soils be managed to improve or optimize soil structure, biological activity, and natural fertility. It emphasizes building soil health through natural processes and inputs, with examples including diverse crop rotations—particularly those incorporating nitrogen-fixing species—retention and incorporation of crop residues, and the application of manure, compost, or other natural amendments. These requirements are reinforced through separate standards addressing crop residue management and compost use and management. Together, these provisions require reliance on natural sources of soil fertility rather than synthetic nutrient inputs.

Rainforest Alliance Regenerative includes detailed requirements for organic nutrient sources, and the standard mandates composted organic matter, plant residues, mulches, and biological inputs as part of the fertility plan. In addition, although synthetic fertilizers are allowed, organic nutrient sources are prioritized and

their use is expected to increase over time. Rainforest Alliance Regenerative therefore fully meets this bar.

Regenagri requires that producers track the amount of nitrogen, phosphorus, and potassium (NPK) applied to the soil and that a certain percentage of these nutrients comes from organic or natural origins. The standard also mandates that this percentage must increase over time. However, Regenagri does not explicitly mandate that organic sources of fertility must be prioritized over chemical sources of fertility. Regenagri thus partially meets this bar.

Soil & Climate Health Initiative Verified partially meets this bar. The program's Nutrient Management Plan instructs producers to "consider" organic options and to prioritize organic and sustainable nutrient sources that enhance soil health. However, the standard does not require reliance on natural sources of soil fertility, nor does it prohibit or strictly limit synthetic fertilizer use for Level I. As a result, while Soil & Climate Health Initiative Verified encourages the use of natural and organic nutrient sources, it does not require their use as a condition of certification or establish a consistent, auditable requirement applicable to all certified operations at Level I, which does not meet this bar. Starting at Level II, the standard requires a documented and verifiable reduction in synthetic fertilizers. Combined with the standard's instruction to consider organic sources of fertility, Levels II and higher partially meet this bar.

Regenified does not include explicit requirements for managing soil fertility through natural inputs such as cover cropping, compost, or manure. The standard also references principles of "armor" and "living roots" and lists cover cropping as an option but does not require it. Because neither broader soil-feeding fertility practices nor cover cropping are explicitly required, Regenified does not meet this bar.

Certified Regenerative by Regeneration International – In Transition does not meet this bar because there are no explicit, auditable requirements for certification.

Cover Cropping

Does the standard require the use of cover crops?

Yes = *The standard requires the use of cover crops*

Partial = *Soil cover and living roots are required but these can be met by practices other than cover cropping OR the standard only requires cover crops on a low percentage of applicable acreage OR the standard encourages cover cropping but does not require it*

No = *The standard does not require the use of cover crops*

Planting cover crops is a foundational soil health practice that maintains living roots, protects soil structure, enhances biological activity, improves nutrient cycling, suppresses weeds, and provides erosion control. Programs fully meet the bar when cover cropping is explicitly required. Programs that instead require broader soil health principles—such as maintaining living roots or keeping soil covered—but allow those principles to be met through alternative practices (e.g., mulching) partially meet the bar.

USDA Organic fully meets this bar. The organic regulations explicitly require the use of crop rotations that include cover crops. The Crop Rotation Practice Standard requires that rotations—including cover crops—be implemented to maintain or improve soil organic matter, support pest management, manage nutrient imbalances, and provide erosion control. In addition, the Soil Fertility and Crop Nutrient Management Practice Standard requires producers to manage soil fertility and crop nutrients through rotations, cover crops, and the application of plant and animal materials. Together, these provisions make cover cropping a mandatory and enforceable component of organic production systems.

Regenerative Organic Certified builds on USDA Organic and goes further by requiring quantitative percentages of year-round vegetative cover. For Bronze level, 25–50% of all cultivated land must have year-round vegetative cover. This increases to 50-75% for Silver, and the Gold level requires 75–100% year-round vegetative cover and at least one nitrogen-fixing cover crop in every full crop rotation. These requirements ensure both continuous ground cover and biologically active cover cropping across arable fields.

Real Organic Project adopts and strictly enforces the USDA Organic soil management requirements, including the mandatory use of cover crops. Real Organic Project therefore fully meets this bar.

Certified Regenerative by A Greener World fully meets this bar. The standard requires ground cover and strongly integrates cover cropping into its soil health requirements. Soils must be managed to improve biological activity; examples include the use of cover crops. Soils must have living roots for at least eleven months, where climatically possible—an expectation that effectively requires cover crops in most annual systems. These combined requirements ensure continuous or near-continuous living cover.

Soil & Climate Health Initiative Verified fully meets this bar. The standard mandates living cover in both growing and non-growing seasons. It requires that at least 50% of enrolled acres must have photosynthetic activity during the growing season, and 50% must have vegetative cover during the non-growing season. This requirement increases to 60%, 70%, and 80% at higher levels. The standard also requires middle-row vegetation. These thresholds cannot be met without cover crops or equivalent vegetation.

Regenagri partially meets this bar. The Standard contains a clear, explicit requirement: "The farms shall apply cover crops on soils that would otherwise be bare," but at the baseline level for certification, farms only need to meet this requirement on 10% of applicable acreage.

Rainforest Alliance Regenerative partially meets this bar. The standard requires significant ground cover as part of its soil fertility and conservation section. Producers must maintain at least 40% soil cover, which may include mulch, soft weeds, or cover crops (preferably flowering). By the second audit, soil cover must increase to at least 60%. Cover cropping is offered as one option for maintaining soil cover but is not required.

Regenified partially meets this bar. Regenified does not explicitly require the planting of cover crops at any tier level. The standard references soil armor and living root principles, and for the principle of soil armor, establishes a scoring system from 0% to 100%, where a 100% score equates to 60-100% ground cover. However, it is unclear if and how the scoring system translates to a requirement for any of the tiers of certification. Furthermore, the ground cover provisions can be met through multiple pathways, including crop residues, mulches, perennials, or cash crops—not necessarily through cover cropping. Cover crops are recognized as an eligible regenerative practice within crop rotations and as a tool for transitioning bare soil, but the language remains advisory rather than binding. The standard embeds structural incentives for the implementation of principles practices that often, in annual systems, are operationalized through cover cropping—yet stops short of requiring them.

Certified Regenerative by Regeneration International – Grade A partially meets this bar. While it does not explicitly require cover cropping, its prohibition on synthetic and soluble sources of soil fertility functionally forces producers to rely on natural, soil-building fertility practices—including cover crops—to maintain soil health. The standard further reinforces this by requiring the management plan to describe fertility-building practices "such as cover crops for green manure, legumes for nitrogen, and ground natural minerals." Because synthetic fertility inputs are prohibited, cover crops and other organic matter–building practices are likely necessary components of maintaining soil fertility in practice.

Certified Regenerative by Regeneration International – In Transition does not meet this bar because there are no explicit, auditable requirements for certification.

Appropriate Tillage

Does the standard require that tillage and cultivation techniques be performed in a way to maintain or improve the physical, chemical and biological condition of soil and minimize soil erosion?

Yes *= The standard requires tillage and cultivation techniques be performed in a way that maintains or improves soil quality and reduces erosion*

Partial *= The standard requires tillage and cultivation techniques be performed in a way that maintains or improves soil quality and reduces erosion, but on only on a low percentage of applicable land OR the standard addresses tillage but has strict no-till requirements without corresponding herbicide reduction requirements*

No *= The standard addresses tillage frequency but not depth, intensity, or impact on soil structure and erosion*

Reducing soil disturbance—both mechanical and chemical—is a foundational soil health principle. The impact of physical disturbance on the soil depends greatly on the depth, spatial coverage, and frequency of tillage and the implement used, as well as other practices in the farming system. Excessive or intensive tillage can have significant negative impacts, including increasing soil erosion. On the other hand, research shows that judicious tillage and cultivation can be tools for incorporating organic amendments to feed the soil biologically, breaking pest or disease cycles, and can improve soil health when used as part of a holistic system.[27,28,29,30,31]

It is important to recognize that overly prescriptive or restrictive tillage requirements, such as mandatory no-till, can push farmers toward greater reliance on herbicides to manage weeds and chemical fertility instead of ecological practices.[32,33,34,35] In corn and soy, no-till has been linked to the increased use of harmful synthetic herbicides.[36] What's more, while no-till was historically assumed to increase soil carbon sequestration, current science shows there's no direct association,[37] and studies show that practices such as crop diversification have a greater impact on the level of carbon in the soil than tillage does.[38]

From a regenerative standpoint, the core question is not whether tillage is "good" or "bad" in the abstract, but whether a system

prioritizes integrated soil management, allows farmers the flexibility to use cultivation where appropriate, and phases out hazardous chemical inputs that damage ecosystems and human health.

Our analysis takes a science-based approach to the question of soil disturbance, using "appropriate till" as the evaluation benchmark rather than "no till." We evaluate whether each labeling program requires that tillage and cultivation be conducted in ways that maintain or improve the physical, chemical, and biological condition of the soil and minimize erosion—without imposing rigid, prescriptive limits that undermine ecological weed management.

We did not include Rainforest Alliance Regenerative, which is a labeling program that only applies to coffee, a production system that does not typically use tillage).

USDA Organic fully meets this bar. The standard contains a clear, enforceable requirement that "the producer must select and implement tillage and cultivation practices that maintain or improve the physical, chemical, and biological condition of soil and minimize soil erosion." This provides a flexible but rigorous requirement ensuring tillage is used appropriately and in support of soil health.

Real Organic Project fully meets this bar because it is based on the USDA Organic standard.

Regenerative Organic Certified strengthens the organic baseline, which already requires producers to select and implement tillage practices that maintain or improve the soil. The ROC standard adds specificity, such as specifying that shallow tillage tools must be used whenever possible and that the Gold level of the standard can be achieved only when a farm adopts a no-till system where soil disturbance occurs only at the time of planting. Because synthetic pesticides are prohibited in the ROC standard, ROC balances the need for minimal disturbance with ecological weed and fertility management, fully meeting the bar.

Certified Regenerative by A Greener World fully meets this bar. The standard includes multiple enforceable requirements related to disturbance, including that tillage practices must minimize soil disturbance and reduce depth/frequency over time, that soil must be managed to prevent erosion and improve structure, biology, and natural fertility, and that weeds must be managed primarily through cultural control, with herbicides used only when non-chemical and mechanical controls fail or jeopardize soil health. Together, these provisions protect soil while avoiding a rigid no-till mandate.

Demeter Biodynamic fully meets this bar. The standard requires minimizing tillage during the growing season and avoiding bare soil for long periods. Tillage frequency and type must be documented in the Biodynamic System Plan. This flexible but enforceable requirement ensures soil is protected while still allowing ecological cultivation practices.

Certified Regenerative by Regeneration International fully meets this bar. The standard addresses tillage by prohibiting "damaging tillage." The standard specifies that damaging tillage includes practices that destroy soil structure or cause erosion, as well as tillage conducted under inappropriate conditions, such as when soils are excessively wet or dry. Thus, the standard explicitly prohibits tillage practices that compromise soil structure and function.

Soil & Climate Health Initiative Verified Levels II and higher address tillage through a performance-based scoring approach. The standard uses a modified version of the NRCS Soil Tillage Intensity Rating (STIR), adapted to focus on tillage type, depth, and surface disturbance, to quantify overall soil disturbance. This approach allows limited tillage where appropriate—particularly in organic and transitioning systems—while requiring producers to reduce soil disturbance over time across certification levels. The standard also prohibits primary inversion tillage implements and the burning of crop residue. By emphasizing measured reductions in disturbance rather than fixed limits on

tillage passes, the standard avoids creating incentives for increased herbicide use while still promoting improved soil management outcomes. Level I establishes a baseline but does not meet the bar, as no reduction in tillage intensity is yet required. Levels II and higher fully meet this bar.

Regenagri partially meets this bar. The standard includes a conservation tillage requirement, stating that farms must apply conservation tillage practices on at least 20% of applicable land, and encourages conservation tillage be implemented as widely as possible The stated objectives of this requirement focus on improving soil health outcomes, including boosting soil biology, increasing soil organic matter, and enabling nutrient cycling. Because conservation tillage is required on only a portion of arable land and the standard does not explicitly address soil erosion as an objective, Regenagri partially meets the bar for appropriate tillage.

Regenified does not meet this bar for Tier 2 and partially meets this bar for Tier 5. The standard addresses tillage through a tiered system that requires progressively fewer tillage or soil-disturbance periods over time. At Tier 2, producers must only demonstrate a decrease in tillage periods relative to conventional practices. "Relative to conventional practices" is not well defined in the standard, making this difficult to audit or enforce. Additionally, the standard focuses on tillage *frequency* but does not include language around tillage intensity, depth, or whether cultivation must be performed in a manner that maintains soil structure or minimizes erosion. To this point, the standard states that tillage may include full-width tillage equipment, row cultivation implements, hoe drills, and high-disturbance fertility applicators. At higher tiers, tillage is increasingly restricted, culminating in a limit of one tillage period every four years at Tier 5. While this effectively minimizes mechanical soil disturbance, the standard does not pair this strict no-till requirements at higher tiers with corresponding requirements to reduce herbicide use, raising concerns about unintended consequences, such as incentivizing increased use of toxic herbicides to manage weeds given that mechanical management is prohibited.

Certified Regenerative by Regeneration International – In Transition does not meet this bar because there are no explicit, auditable requirements for certification.

Crop Rotations

Does the standard require the use of crop rotations to manage fertility and break pest, weed, and disease cycles?

Yes = *Crop rotations are required as part of a soil fertility plan and as part of a pest management plan*

Partial = *[none]*

No = *Crop rotations are required but not as part of a soil fertility plan (synthetic fertility is allowed) and pest management plan (synthetic pest management is allowed) and can be as little as 2 crops in the rotation (a 2-crop rotation is not a true rotation)*

Crop rotations are fundamental to ecological and regenerative farming in annual cropping systems. Rotating crops breaks pest, weed, and disease cycles and thereby reduces reliance on pesticides. Farmers who don't use synthetic fertilizers also use nitrogen-fixing crops as part of a crop rotation to provide soil fertility for subsequent crops. In systems that restrict or prohibit synthetic pesticides and fertilizers, crop rotation becomes even more essential: without synthetic chemicals, farmers must rely on ecological processes—especially biological diversity in time and space—to maintain fertility and suppress pests naturally.

For these reasons, we assessed whether the standard requires crop rotations to manage soil fertility and break pest, weed, and disease cycles. We did not include Rainforest Alliance

Regenerative, which is a labeling program that only applies to coffee, a perennial production system that does not use crop rotations.

USDA Organic fully meets this bar. The standard contains two explicit, enforceable requirements: producers must manage soil fertility through rotations, cover crops, and plant and animal materials, and they must implement crop rotation as a core preventive pest, weed, and disease management practice. This legally binding mandate ensures crop rotations serve both fertility and ecological pest-management functions.

Real Organic Project requires USDA organic as a baseline and therefore adopts the USDA Organic soil management requirements, including for crop rotations.

Regenerative Organic Certified builds on the USDA organic requirement by setting quantitative thresholds by level: Bronze requires a minimum of 3 crops in rotation, Silver requires a minimum of 4 crops in rotation, and Gold requires a minimum of 7 crops, including at least one nitrogen-fixing cover crop. These requirements ensure meaningful rotation diversity that supports soil fertility and ecological pest suppression.

Certified Regenerative by A Greener World fully meets this bar. The standard mandates crop rotation within its regenerative plan. The rotation must break pest, disease, and weed cycles, reduce reliance on synthetic inputs, and support long-term soil health, and soil health must be managed through practices such as diverse crop rotations.

Soil & Climate Health Initiative Verified fully meets this bar. The standard has highly specific crop-rotation requirements. Level I requires at least three crops in rotation, including three of four functional groups (cool-season grasses, warm-season grasses, legumes, forbs). Level II requires at least four crops in rotation, while Levels III and IV must include a multi-species cover crop mix representing three of four functional groups. Soil & Climate Health Initiative Verified's functional-group approach ensures rotations with ecological depth and diversity.

Demeter Biodynamic fully meets this bar. The standard includes a strict rotational requirement that no annual crop may be planted in the same field for more than two consecutive years. This ensures meaningful rotation and prevents monocropping.

Regenagri fully meets this bar. The standard requires a diverse rotation on at least 75% of agricultural land. Rotations must include species with different root structures and growth patterns. The lowest scoring level starts at three crops, ensuring a minimum meaningful rotation, and scores must increase over time.

Regenified Tier 2, the minimum tier eligible for consumer-facing claims, does not meet this bar. Tiers 3 and above fully meet this bar. Tier 2 requires only a two-crop rotation, which is common in conventional agriculture and does not reliably break pest, weed, or disease cycles. The standard requires increasingly robust crop rotations at Tier 3 and above, including three- to five-crop rotations.

Certified Regenerative by Regeneration International – Grade A does not meet this bar. Regeneration International acknowledges the importance of moving away from monocultures, stating that the management plan outlines the transition from monocultures to more diverse systems. However, the standard does not explicitly require crop rotation or specify minimum crops, functions, or rotation frequency. The requirement is implied but not enforceable.

Certified Regenerative by Regeneration International – In Transition does not meet this bar because there are no explicit, auditable requirements for certification.

KEY FINDINGS ON STANDARD INTEGRITY

Figure 5. Standard Integrity

THRESHOLD STANDARDS	Verification	Traceability
Regenerative Organic Certified - All Levels	●	●
Real Organic Project	◐	◐
USDA Organic	●	●
Demeter Biodynamic	○	●
Certified Regenerative by A Greener World	◔	●
Certified Regenerative by Regeneration International - Grade A	●	●
Rainforest Alliance Regenerative	●	◔
Certified Regenerative by Regeneration International - In Transition	●	●

PATHWAY STANDARDS		
Soil & Climate Health Initiative Verified Level IV	●	○
Soil & Climate Health Initiative Verified Level I	●	○
Regenagri - Baseline Level*	●	◔
Regenified Tier 5	○	○
Regenified Tier 2	○	○

● Fully meets the bar ◔ Partially meets the bar ○ Does not meet the bar

** Evaluation of the top Regenagri tier is not possible with current public data.*

Verification And Enforcement

Is the standard verified by a first, second, or third party?

Yes *= 3rd party (The standard-setting body is separate from the auditing body that conducts audits and inspections)*

Partial *= 2nd party with ISO/IEC 17065 (The standard-setting body conducts the audits and inspections but has ISO/IEC 17065 accreditation)*

No *= 1st or 2nd party (The standard-setting body is the same as the auditing and inspection body without ISO/IEC 17065)*

To assess the credibility of verification and enforcement across regenerative labeling programs, we evaluate the degree of independence of each program's verification system. Programs fully meet the bar where verification is conducted through a third-party model, meaning the entity that sets the standard is institutionally separate from the certifying body that conducts on-farm and supply-chain inspections and that makes the final decision regarding certification. Partial credit was assigned where the standard-setting body also makes certification decisions and conducts audits and inspections, but operates under ISO/IEC 17065 accreditation, which introduces safeguards to mitigate conflicts of interest. Programs receive no credit where verification relies on first-party self-attestation or second-party systems in which the standard-setting body also conducts inspections, audits, and makes the final certification decision without ISO/IEC 17065 accreditation, providing insufficient independence or assurance.

USDA Organic relies on third-party verification and provides a strong level of assurance. The National Organic Program (NOP), a federal government agency, develops organic standards through a transparent public process with formal stakeholder input via the National Organic Standards Board—comprised of public stakeholders, accredits independent certifying bodies, and conducts oversight and audits of those certifiers to ensure competence and impartiality. All certifiers must be accredited to ISO/IEC 17065. Because the standard-setting body (the NOP) is fully separate from the certifying agencies, organic certification functions as a third-party system. Additionally, USDA Organic is the only labeling program we assessed that is backed by federal law. Violations of organic standards are enforceable as federal offenses, providing a high level of legal authority and enforcement capacity compared to voluntary frameworks.

Regenerative Organic Certified relies on the same third-party mechanism as USDA Organic. While it adds additional requirements for regenerative management, the verification process is carried out by the same accredited, independent certifiers that conduct certification duties for the USDA Organic program. This separation between the standard-setting body (Regenerative Organic Alliance) and the certifying bodies preserves the integrity of the verification process.

Certified Regenerative by Regeneration International also uses the organic certification infrastructure, though organic certification is not required. The standard requires that farms and processors be certified by an accredited organic certifier, that the certifier be accredited to ISO/IEC 17065 or a regulated government scheme, and that the certifier be approved by Regeneration International. This approach aligns with a recognized international accreditation framework and maintains a third-party model. This applies to both labels offered by Regeneration International.

Three programs—**Regenagri**, **Rainforest Alliance Regenerative,** and **Soil & Climate Health Initiative Verified**—also fully meet this bar, because they use a third-party model. Regenagri requires the use of independent certification bodies to conduct verification, Rainforest Alliance Regenerative requires certifiers to be accredited by ISO/IEC 17065, and Soil & Climate Health Initiative

Verified uses SCS Global Services as its third-party certifier, which is accredited to ISO/IEC 17065.

Real Organic Project is a unique model. It fully meets the bar for its baseline, which requires USDA Organic certification. The additional criteria beyond organic certification, however, are verified through inspections conducted by Real Organic Project staff, constituting a second-party model. Given that Real Organic Project is not ISO/IEC 17065 accredited, the add-on components do not meet the bar. Thus, Real Organic Project received a split grade for this criteria.

Certified Regenerative by A Greener World partially meets the bar. Inspectors are staff of the A Greener World, which is also the standard-setting body. This represents a second-party model, however, A Greener World is accredited to ISO/IEC 17065, which provides important safeguards for competence and impartiality. For this reason, the standard partially meets the bar: it is not independent, but it does meet rigorous international accreditation standards.

Two labeling programs do not meet this bar because they do not use a third-party model and lack ISO/IEC 17065 accreditation, placing them squarely in the second-party category.

Demeter Biodynamic conducts the certification process and operates solely through Demeter's own inspectors, and because Demeter is both the standard-setting body and the sole certifier, the program lacks independent oversight.

Regenified does not rely on independent certification bodies; instead, Regenified uses field verifiers who conduct inspections and collect data. These verifiers are either employees of Regenified or contractors who work directly for Regenified. The certification decisions are not made by an entity separate from Regenified but by a Verification Review Board. As a result, the same organization is responsible for defining the standard, conducting inspections, and determining compliance, with no institutional separation between these functions. Regenified is not accredited to ISO/IEC 17065. In addition, Regenified is the only for-profit, privately owned standard-setting body among the programs reviewed. This ownership structure introduces a structural financial conflict of interest between program growth, fee generation, and the rigor and independence of verification—concerns that are heightened in the absence of third-party certification or external accreditation.

Traceability And Segregation

We assessed whether each of the labeling programs has a publicly available chain-of-custody standard and requires audits, traceability, and physical segregation from the field to the final consumer-facing product. We also evaluate whether products carrying regenerative claims are required to physically contain ingredients grown under certified regenerative management, or whether the program allows the mixing of certified and non-certified crops or ingredients within the supply chain.

Does the program require and verify segregation of the certified crop from non-certified crops through the supply chain, from field to final product?

Yes *= a publicly available Chain of Custody standard requires audits along the supply chain and segregation of certified and non-certified product from field to point of sale. Blending of certified and non-certified ingredients in single-ingredient products is not allowed on packaged foods displaying the certification mark or seal.*

Partial *= Chain of Custody standard requires audits and segregation of certified and non-certified product from field to point of sale, but allows blending certified and noncertified ingredients in a single-ingredient final product or mass balance accounting.*

No *= No Chain of Custody standard publicly available, or no audits required along the supply chain, or no segregation requirement.*

USDA Organic legally requires segregation throughout the supply chain, and annual inspections and certification at every stage of the supply chain, including mills, shippers, importers, and processing plants. The USDA Organic standard includes rules to prevent contamination and co-mingling of certified and non-certified foods.

Programs that require organic certification as a baseline—**Real Organic Project** and **Regenerative Organic Certified**—benefit from this underlying legal framework, even though their additional "Real" and "Regenerative" claims are not themselves federally regulated. Regenerative Organic Certified has its own chain-of-custody requirements and therefore fully meets this bar, while Real Organic Project does not and does not meet this bar for the standard's add-on requirements.

Certified Regenerative by A Greener World requires segregation and verification, mandating traceable and auditable systems to ensure certified products remain separate throughout the supply chain, and therefore fully meets this bar.

Certified Regenerative by Regeneration International requires certifying bodies and processors to follow the same chain-of-custody and post-processing requirements used for organic certification, providing a strong and well-established framework for traceability and segregation. It fully meets the bar. This applies to both labels offered by Regeneration International.

Demeter Biodynamic requires that products must be traceable to the certified source, with inspections throughout the supply chain. Mixing certified and non-certified product is not permitted. It therefore fully meets the bar.

Rainforest Alliance Regenerative has strong chain-of-custody requirements but allows a mass balance approach in its regenerative program. While mass balance may be suitable for objectives such as no deforestation, or when consumers purchase regenerative foods for the broader ecological and public benefits it provides, it is not suitable for consumers who expect the foods they consume to be grown on land under regenerative management for personal health benefits, such as reduced dietary pesticide exposure. It therefore partially meets the bar.

Similarly, **Regenagri** also has explicit chain-of-custody requirements, stating that the approved certification body must verify the chain of custody throughout the supply chain, preserving the integrity of regeneratively grown material up to the final customer. However, blending of 80% certified and 20% non-certified products is allowed, and therefore the standard partially meets the bar.

Soil & Climate Health Initiative Verified does not meet the bar because a chain-of-custody standard is not publicly available, nor was one shared upon request. Moreover, the labeling standard for Soil & Climate Health Initiative Verified allows a minimum of 70% of a product's ingredients to be from verified acres, meaning that up to 30% of a product bearing the Soil & Climate Health Initiative Verified label can come from acres that did not meet the standard.

Regenified does not meet the bar because a chain of custody standard is not publicly available, nor was one shared upon request.

STANDARD SUMMARIES

This section provides a concise summary of each of the labeling programs on the three scopes we evaluate: (1) agrochemicals, (2) soil-health practices, and (3) standard integrity for crop production systems.

PATHWAY PROGRAMS

Regenified

Like other pathway standards, Regenified's model is designed to have a low barrier to entry for farmers in conventional production or at the beginning of their regenerative transition. However, Regenified performs poorly across the core criteria we evaluate in this report—including in comparison to other pathway standards, like Soil & Climate Health Initiative Verified, that share its orientation and many aspects of its model. The standard does not prohibit synthetic pesticides or synthetic fertilizers, does not require reduction in use of synthetic fertilizers nor toxicity-based reductions in pesticide use over time, and lacks enforceable Integrated Pest Management requirements for annual cropping systems — even at the highest tier of verification. Soil-health practices such as cover cropping and the use of natural sources of soil fertility are recommended but not required. Of the four soil health practices we evaluate, only crop rotations are required, beginning at Tier 3 of the program. Highly prescriptive limits on tillage at the higher tiers of the standard risk increasing reliance on herbicides rather than reducing chemical dependency. It is possible that Regenified is taking farmers enrolled in their program on a meaningful journey away from agrochemicals and towards soil health and ecological outcomes, but there is no way for consumers or purchasers to be certain of this from the information in the publicly available standard. There are serious shortcomings in Regenified's verification and traceability protocols. Regenified does not rely on independent third-party certification, is not accredited to ISO/IEC 17065, and does not make its chain-of-custody standard publicly available. In addition, Regenified is the only for-profit, privately owned standard-setting body among the programs reviewed. This ownership structure introduces a financial conflict of interest between program growth, fee generation, and the rigor and independence of verification—concerns that are heightened in the absence of third-party certification or external accreditation. We encourage Regenified to address these key gaps in future versions of its standard and to seek ISO/IEC 17065 accreditation to strengthen the assurance it can provide to both consumers and purchasers. Alternatively, Regenified could eliminate its consumer-facing label and instead build on its strengths as a business-to-business entity focused on agronomic support for farmers on a regenerative journey.

Regenagri

As noted earlier, the Regenagri standard lays out a set of minimum requirements for certification and additionally scores farmers annually based on the regenerative practices they implement. A score of 65% is required for certification, and farmers must improve every year to remain certified until they reach a score of 95%. Farms that start with a lower score are required to make greater annual improvements. This approach combines a clear, relatively low bar for entry with an enforceable requirement for continuous improvement. The fact that Regenagri's scoring algorithm is not publicly available means that we could only evaluate their standard based on the minimum requirements for on-pack labeling and could not evaluate the 95% score endpoint they are moving farmers towards. At the baseline level for certification, Regenagri allows synthetic pesticides and fertilizers, but the standard includes several positive elements related to agrochemical use, including requirements to

reduce synthetic fertilizer use over time and incentives to shift away from highly hazardous pesticides. However, the standard does not explicitly require toxicity-based reductions in pesticide use, and while it requires that producers have an IPM plan, it does not audit the implementation of that plan. The standard does include a strong requirement for one of the four soil health practices we evaluate: crop rotations. For cover cropping, conservation tillage, and feeding the soil with natural fertility, the baseline requirements for certification are low, but producers are required to increase implementation over time. Regenagri's verification and chain-of-custody systems provide relatively strong assurance, with the exception of allowances for blending certified and non-certified material. Overall, Regenagri takes a unique approach to building a pathway program that has some advantages and some disadvantages. We would encourage Regenagri to build on existing strengths in the following ways: (1) to the extent possible, make publicly available more information about the scoring algorithm and practice standards required for producers that achieve a 95% score, (2) set toxicity-based pesticide reduction metrics instead of volume-based metrics, and (3) explicity require the implementation of the IPM plan. Outside our core scope, we note that Regenagri has standards around preserving native ecosystems, social fairness, and animal welfare (Appendix II).

Soil & Climate Health Initiative Verified

Overall, through our core scope of agrochemical use and soil health, Soil & Climate Health Initiative Verified is the strongest of the pathway programs that we evaluate. Soil & Climate Health Initiative Verified represents a structured, transitional approach to reducing agrochemical risk. The program allows synthetic pesticides and fertilizers but requires producers to document baseline use and, at higher levels of certification, demonstrate verified reductions in pesticide toxicity and fertilizer application rates. The standard also includes mandatory IPM planning and implementation, which includes required monitoring, decision-making thresholds, and performance-based scoring systems that incentivize lower-toxicity choices over time. This approach allows Soil & Climate Health Initiative Verified to meet farmers where they are—including farmers new to regenerative agriculture—and support them on a gradual transition away from reliance on agrochemicals in a manner that

is enforceable and auditable. Soil & Climate Health Initiative Verified also has strong soil health requirements, including cover cropping and crop rotations at all levels of certification. The program uses a third-party verification model with a certifier that is accredited to ISO/IEC 17065, which provides strong credibility. However, the program does not have a publicly available chain of custody standard. Products may carry the Soil & Climate Health Initiative Verified label at Level I of certification, meaning consumer-facing claims may reflect early-stage participation rather than achieved outcomes. The label can also be used when only 70% of the ingredients are from verified fields, which means that up to 30% of the ingredients in a package of food bearing the label can be from conventional agriculture. The Soil & Climate Health Initiative Verified program could be strengthened further by improving traceability and segregation requirements and shifting the program endpoint to the elimination of toxic agrochemicals, instead of only reduction. Outside the core scope of our analysis, we note that Soil & Climate Health Initiative Verified has standards around preserving native ecosystems and animal welfare (Appendix II).

THRESHOLD PROGRAMS

Certified Regenerative by Regeneration International – In Transition

This label, one of two offered by Regeneration International, is the weakest we evaluated, as it has almost no auditable requirements. To be certified as In Transition, the sole requirement is that producers submit a plan and timeline to Regeneration International for eliminating prohibited inputs and practices and eventually reach Grade A. There is no set time period in which a producer must reach Grade A. With no verifiable minimum requirements for the In Transition label, it scored poorly across all of our core criteria related to agrochemical use and soil health. Certified Regenerative by Regeneration International has strong protocols around verification and traceability, but this means very little when there are no meaningful criteria to verify. The design of the In Transition label is also nearly identical to the Grade A label, which could lead to consumers conflating the two, despite the fact that the requirements differ widely. We strongly encourage Regeneration International to end the use of the “In Transition” label on consumer packaging or, alternatively, to create a set of auditable, enforceable requirements for farms to qualify as “In Transition” related to agrochemical use and soil health.

Rainforest Alliance Regenerative

Rainforest Alliance Regenerative, which applies only to coffee as of the date of publication of this report, includes strong provisions in certain areas but significant weaknesses in others. The standard does not prohibit synthetic pesticides or fertilizers, and though it requires toxicity-based pesticide reduction requirements, no numeric targets are established. The standard does have strong IPM requirements for applicable farms, but exempts small farms from those requirements, a significant gap. For the two soil health practices we evaluate that are applicable to coffee production—biological fertility and cover cropping—the former is required while the latter is only encouraged. Finally, though Rainforest Alliance Regenerative uses third-party verification, the program also permits mass balance chain-of-custody models. This allows mixing of certified and non-certified crops in the supply chain, which does not provide assurance for consumers looking to reduce pesticide exposure. Outside our core scope, we note that Rainforest Alliance Regenerative may serve broader landscape or commodity-level sustainability goals by addressing social fairness and deforestation (see Appendix II).

Certified Regenerative by Regeneration International – Grade A

The Certified Regenerative by Regeneration International – Grade A is much stronger than the the In Transition label offered by the same program. Grade A prohibits synthetic pesticides and fertilizers, significantly reducing dependence on harmful agrochemicals. Some core IPM requirements are explicit, while others are implicit. The standard requires the use of biological fertility to feed the soil ecosystem and appropriate tillage, although cover cropping is only encouraged, not required, and there is no requirement for crop rotations. The program uses third-party certifiers that must be accredited to ISO/IEC 17065 or to a regulated government scheme, providing a credible verification model. The program also has strong requirements for traceability and supply chain segregation. Overall, there are many positive aspects of this standard, though there is room to strengthen the requirements around IPM, cover cropping, and crop rotations. Additionally, as noted above, the Grade A label for consumer packaging is nearly identical to the In Transition label, despite the fact that the standards differ enormously, which could create confusion for consumers. Outside the core scope of our analysis, we note that Certified Regenerative by Regeneration International – Grade A has standards around preserving native ecosystems (Appendix II).

Certified Regenerative by A Greener World

Certified Regenerative by A Greener World's is one of the stronger programs we evaluated, with standards around agrochemical use and soil health that are clear, enforceable, and ecologically grounded. The program restricts toxic agrochemical use, requires producer-specific phase-out timelines for both synthetic pesticides and fertilizers, and includes robust requirements for Integrated Pest Management which meaningfully reduce chemical dependency. The standard also has strong requirements for all four soil health practices we evaluate. The program has a robust chain of custody standard; verification, however, is conducted under a second-party model, with audits carried out by staff of the standard-setting organization, which also makes the final decision regarding a farm's certification status. This limits structural independence between rule-setting and enforcement. Importantly, as a certification body, A Greener World is accredited to ISO/IEC 17065, which provides assurance around consistency and impartiality. Overall, the program pairs strong, well-designed standards with a verification system that is rigorous but less independent than third-party certification models. Outside the core scope of our analysis, we note that Certified Regenerative by A Greener World has standards around social fairness and animal welfare (Appendix II).

Demeter Biodynamic

Demeter Biodynamic has comprehensive prohibitions on toxic pesticides and synthetic fertilizers, the strongest approach to reducing dependence on harmful agrochemicals. The standard mandates IPM practices, with room to improve by making the requirements for monitoring and threshold-based IPM decision-making explicit. The standards for soil health are rigorous, with strong requirements for all four practices we evaluate. However, Demeter relies on a second-party verification model. While some Demeter certifiers are ISO/IEC 17065 accredited, they are not required to be, weakening assurance despite strong standards. Demeter represents an ecologically robust system with limitations in verification independence. Outside the core scope of our analysis, we note that Demeter Biodynamic has standards around social fairness and animal welfare (Appendix II).

USDA Organic

USDA Organic, one of the longest-established labeling programs, is among the strongest and most credible that we evaluate in this report. It combines prohibition of toxic pesticides and synthetic fertilizers, mandatory IPM—with room to improve by making the requirements for monitoring and threshold-based IPM decision-making explicit—and robust requirements for all four soil health practices we evaluate. Organic also offers independent third-party certification with ISO/IEC 17065 required for all certification bodies, full supply-chain traceability, and federal enforcement authority. Organic standards are overseen by a public governance process that includes scientific review and stakeholder input—features that together provide a high level of accountability and assurance. Overall, the standard comprehensively addresses agrochemical use and soil health in a rigorous and enforceable way. Outside the core scope of our analysis, we note that USDA Organic has standards around animal welfare (Appendix II).

Real Organic Project

Real Organic Project builds on the USDA Organic standard and reinforces its core ecological commitments, particularly by requiring soil-based production systems. Because it requires organic certification as a baseline, Real Organic Project inherits organic's strong agrochemical prohibitions, IPM requirements, and soil health standards. It also inherits organic's independent third-party certification, supply-chain traceability, and federal enforcement authority—although only for the USDA organic part of the certification. The add-on requirements for Real Organic Project certification—such as the prohibition of hydroponic production—are verified through second-party inspections conducted by Real Organic Project itself, rather than independent certifiers. However, these additional requirements do not materially alter pesticide or soil management criteria, which remain aligned with USDA Organic standards. As a result, the program offers robust standards overall with partial assurance for its label-specific claims beyond organic. Outside the core scope of our analysis, we note that Real Organic Project has standards around animal welfare (Appendix II).

Regenerative Organic Certified

Regenerative Organic Certified builds on the foundation of USDA Organic by adding additional enforceable requirements around soil health, animal welfare, social fairness, and preserving native ecosystems. The program inherits organic's strong agrochemical prohibitions, IPM requirements, and soil health standards, with Regenerative Organic Certified's soil health standards including greater specificity than USDA organic in certain areas—such as a requirement to use shallow cultivation tools whenever possible and a minimum percentage of year-round vegetative cover on cultivated land. The additional requirements beyond USDA Organic certification are verified by independent, accredited third-party certifiers, preserving a clear separation between standard-setting and enforcement. Where Regenerative Organic Certified clearly outperforms USDA Organic is in its explicit prohibition on deforestation and its inclusion of comprehensive social fairness standards. It also has standards around animal welfare (see Appendix II).

DISCUSSION

The rapid rise of interest in regenerative agriculture presents both significant opportunity and considerable risk. Regenerative agriculture has the potential to restore degraded soils, rebuild biodiversity, eliminate reliance on harmful agrochemicals, and strengthen the long-term resilience of farming communities. However, the absence of a universally accepted definition—combined with the proliferation of labeling programs that vary widely in standards, metrics, and verification models—has generated uncertainty among retailers, brands, and consumers seeking to support regenerative systems.

PATHWAY VERSUS THRESHOLD PROGRAMS

With this analysis, we sought to answer two questions for consumers and purchasers: **What verifiable claims about the *finished product* does the label represent?** and **What verifiable claims about *practices on the ground* does the label represent?**

We found that the threshold programs provide stronger assurance that labeled products are produced in accordance with rigorous—and in the case of USDA Organic, legally enforceable—standards that address chemical use, soil health, and ecological management. For consumers seeking product-specific attributes such as reduced pesticide residues on food, USDA Organic, Real Organic Project, Regenerative Organic Certified, and Demeter Biodynamic stand out, as they place comprehensive prohibitions of toxic pesticides. Certified Regenerative by Regeneration International – Grade A and Certified Regenerative by A Greener World also provide relatively strong assurance on this front. In comparison, none of the three pathway frameworks we evaluate can provide this type of assurance for consumers—firstly, because each uses a single label that encompasses a range of farms that meet widely varying practice standards, and secondly, because each has gaps in their segregation and traceability protocols.

Because threshold programs set a high bar for entry, they are sometimes criticized as being "out of reach" for many farmers because of the stringent requirements. While this is true to a degree, the evidence suggests that meaningful scale is both achievable and already underway. For example, in the United States, more than 17,000 farms are certified under the USDA Organic program—despite longstanding federal policies that favor conventional production systems.[39] Globally, an estimated 4.8 million producers are certified organic.[40] Additionally, the high bar for entry is the very reason these types of programs can provide such strong assurances for consumers and purchasers about the final labeled products.

When it comes to claims about regenerative practices on the ground—as opposed to claims about final products—we found that both threshold and pathway programs can deliver assurances to consumers and purchasers. Among regenerative labeling programs that take a threshold approach, those with the most comprehensive standards—which score well across the criteria we evaluate—are the ones that can provide the most assurance about practices on the ground. In comparison to threshold programs, regenerative labeling programs that use a pathway model can be more flexible and capable of engaging producers at varying stages of transition. This approach offers a meaningful strength: it lowers barriers to entry, meets farmers where they are, and can provide structured support for continuous improvement over time. When paired with clear benchmarks, measurable milestones, and enforceable standards—such as those established by Soil & Climate Health Initiative Verified—the pathway model can create a credible and accountable pathway toward regenerative outcomes on the ground.

Our findings indicate that pathway programs may deliver greater value in business-to-business contexts than in consumer-facing applications. By design, these programs encompass a broad spectrum of producers, including conventional operations at the earliest stages of regenerative transition. This inclusivity, while important for scaling change, limits their ability to support consumer-facing labels that provide clear and meaningful assurances about the attributes of final products.

However, pathway programs can be highly valuable for purchasers such as food retailers and consumer packaged goods (CPG) companies. By partnering with credible programs, companies can actively support the transition of conventional supply chains toward regenerative models. Sourcing from farms enrolled in such programs—or incentivizing existing suppliers to participate—enables purchasers to drive on-the-ground change while advancing key goals related to sustainability and supply chain resilience. We encourage purchasers to explore opportunities to invest in and collaborate with pathway programs, with particular attention to credibility. Robust standards and strong verification protocols are essential to ensure these programs deliver real impact and maintain trust across the value chain.

At the same time, threshold programs can help purchasers meet sustainability and resilience objectives while also providing clearer, more specific assurances to consumers about the attributes of labeled products. In particular, they are well positioned to address consumer demand for cleaner, safer food, including products with minimal pesticide residues. We strongly encourage purchasers to prioritize, support, and invest in suppliers participating in threshold programs that demonstrate strong performance across the criteria we evaluate.

LABELING PROGRAMS VERSUS INDIVIDUAL FARMS

As noted in the introduction, a frequent point of confusion in conversations about labeling programs is the difference between the integrity of the *labeling programs* versus the integrity of *individual farms* certified to those programs. An often-cited critique of USDA Organic, for example, is that not all certified organic farms fully reflect the soil health requirements of the standard.[41] This is extrapolated into a conclusion that the label is not a sound regenerative certification. Conversely, leading farmers within emerging regenerative labeling programs are often held up as emblematic of the strength of those programs even when the certification criteria are weak.

It is important to separate the evaluation of the standard from the individual farms within the program. Poorly designed labeling programs may have exemplary farmers enrolled. The enrollment of these best-in-class practitioners, however, is not proof that the standard is rigorous. Similarly, well-designed labeling programs with clear, enforceable standards aligned with ecological outcomes will still deal with cases of violations, whether in letter or spirit.

In the case of USDA organic, the rules are sound, much like traffic laws are sound—the fact that drivers run red lights does not mean the traffic light system is flawed. As emerging regenerative labels scale, many of the same challenges that face organic will inevitably arise: not every farm will implement every required practice. This challenge will be even greater for standards that rely heavily on aspirational language and "shoulds" rather than auditable requirements. The relevant question when assessing labeling programs is therefore not whether every farm performs perfectly, but whether the certification system itself establishes clear guardrails and includes credible mechanisms to verify compliance with them.

Given that violations will occur in any large system, one of the defining strengths of credible labeling programs is their commitment to continuous improvement of their standards. Effective standards evolve in response to new science, implementation challenges, and documented gaps in enforcement. Importantly, the organic standard has been responsive to violations. Through the work of the National Organic Standards Board—a citizen advisory board that recommends policies and standards to the USDA to help maintain and improve the organic standard—the USDA's National Organic Program has recently established new rules that specifically address players in the system that circumvent or violate the standards, including the Strengthening Organic Enforcement rule (2023), the Organic Origin of Livestock rule (2022), and the Organic Livestock and Poultry rule (2024).

It would be unwarranted to assume that newer labeling programs—particularly those relying on second-party verification or lacking established traceability, audit, and enforcement requirements—will perform better as they scale. Absent clear guardrails and robust verification systems, these programs are likely to encounter the same, if not greater, implementation challenges over time.

It would be unwarranted to assume that newer labeling programs—particularly those relying on second-party verification or lacking established traceability, audit, and enforcement requirements—will perform better as they scale. Absent clear guardrails and robust verification systems, these programs are likely to encounter the same, if not greater, implementation challenges over time.

MEETING CONSUMER DEMAND FOR CLEANER, SAFER FOOD

No program we evaluate is "pesticide-free." The range of risk across the universe of legally available pesticides is staggering. At one end of the spectrum are substances benign enough to consume directly—vinegar and citric acid, for instance, are registered as pesticides and allowed in organic production. At the other end are neurotoxic compounds like chlorpyrifos, which regulators have determined has no safe level of human exposure, or paraquat, one sip of which can kill an adult. When it comes to which pesticides dominate American agriculture, the scales tip decisively toward the harmful end of the spectrum. The most commonly used pesticides in the U.S.—including glyphosate, atrazine, organophosphates, neonicotinoids, and carbamates—are associated with significant harm to human health, pollinators, soil life, endangered species, and waterways.

The strongest standards we evaluate restrict allowed pesticides to only the least toxic, least environmentally persistent substances and also place restrictions on farmers' ability to use those substances. In this regard, USDA Organic and the programs built on it—Real Organic Project and Regenerative Organic Certified—lead all evaluated programs in the strength of their pesticide prohibitions. Demeter Biodynamic takes a similar approach. Certified Regenerative by Regeneration International prohibits all synthetic pesticides, which, while not quite as robust an approach, eliminates over 900 pesticides allowed in U.S. agriculture, including all hazardous classes of pesticides.

USDA Organic and the programs built on it lead in the strength of their pesticide prohibitions.

The scientific process for determining which pesticides are allowed in organic production under the USDA National Organic Program is built around a structured, evidence-based review system that evaluates both synthetic and natural substances for safety, necessity, and environmental impact.

At the center of this process is the National Organic Standards Board, a citizen panel of scientists, farmers, environmentalists, and public representatives. This group has statutory authority to recommend substances be added to or removed from the USDA Organic National List of Approved and Prohibited Substances. When a substance is proposed for use (or removal), it undergoes a detailed technical review conducted by independent experts. This review compiles scientific data on the substance's health and environmental toxicity. environmental persistence, effects on non-target organisms (like pollinators and soil microbes), and potential for bioaccumulation.

Importantly, substances are reevaluated by the National Organic Standards Board every five years. This periodic review ensures that substances remain justified, necessary, and aligned with evolving scientific understanding.

In addition, organic-approved pesticides are often subject to additional stringent use restrictions under the organic standard. For example, copper sulfate is permitted, but its application is tightly limited: it may be used no more than once every two years, and application rates must not increase baseline soil copper levels beyond thresholds agreed upon by an accredited certifying agent.

Of the programs that allow synthetic pesticide use more broadly, Certified Regenerative by A Greener World and Soil & Climate Health Initiative Verified stand out for having clear, verifiable requirements for producers to reduce overall pesticide toxicity over time. While this is a strong approach, from a consumer perspective, it's not as meaningful as a program that has strong prohibitions from the outset.

In recent years, public scrutiny of toxic pesticides has intensified, driven by growing awareness of links between pesticide exposure and serious health risks, including cancer, infertility, and neurodevelopmental disorders. A large majority of Americans (87%) support aligning U.S. policy with the European Union by banning pesticides that are already prohibited there[42]—including neonicotinoids and atrazine.

At the same time, demand for organic food has risen steadily over the past three decades, with 90% of consumers citing avoidance of pesticides as a primary motivation for purchasing organic products.[43] Against this backdrop, regenerative labeling programs that implement comprehensive prohibitions on toxic pesticide use are best positioned to meet this core consumer demand and build trust in the marketplace.

CONCLUSION

This analysis makes clear that regenerative agriculture cannot be reduced to a set of aspirational ideas or loosely defined practices. If the term is to have meaning, it must be anchored in clear, enforceable standards that directly address one of the most consequential drivers of ecological and human harm in our food system—fossil-fuel-based agrochemicals. Continued reliance on toxic pesticides and synthetic fertilizers undermine some of the essential pillars of regeneration, including soil health, biodiversity, and community wellbeing, ultimately degrading the very systems that regeneration seeks to restore.

It is equally clear that transformation at scale will require multiple, complementary approaches. "Threshold" programs play a critical role by setting a high bar and providing strong assurance to consumers and purchasers about both practices and final products. "Pathway" programs serve another important function: they engage farmers who are not yet able to meet that bar and support them in beginning the transition. By lowering barriers to entry and offering structured, stepwise improvement, well-designed pathway programs can expand participation, accelerate learning, and move more acreage in a regenerative direction. For both types of programs, their credibility depends on whether they include clear benchmarks, enforceable requirements, and transparent metrics that ensure progress is real, measurable, and continuous.

The strongest labeling programs pair robust soil-building practices with decisive action to eliminate or meaningfully reduce agrochemical use, supported by rigorous verification and traceability systems that ensure integrity from farm to final product. Programs that fail to comprehensively address agrochemical dependency and soil health, or that lack rigorous verification and traceability protocols, risk confusing or misleading consumers.

For consumers and purchasers, the implications are significant. Labels are not interchangeable, and the differences between them matter—not only for environmental outcomes, but for human health, supply chain integrity, and trust. Choosing credible labels is one of the most immediate ways to support genuine transformation in agriculture.

At the same time, labeling alone cannot carry the full weight of change. The long-term success of regenerative agriculture depends on aligning public policy, market incentives, and scientific standards with the principles these labels attempt to advance. Until then, the responsibility—and opportunity—falls to those shaping demand. By prioritizing rigor, transparency, and accountability—and by supporting both high-integrity threshold programs and credible, outcomes-oriented pathway programs—consumers and purchasers can help ensure that "regenerative" is not diluted into a marketing claim, but instead becomes a meaningful, measurable pathway toward a healthier food system.

APPENDIX I: METHODOLOGY

For each labeling program, we:

- Collected official standards documents, including appendices, guidance documents, and explanatory webpages and slide decks where relevant;
- Identified all sections addressing:
  - Agrochemical use (pesticides and fertilizers);
  - IPM and related crop protection approaches;
  - Soil health practices and crop management;
  - GMOs and treated seed;
  - Ecosystem conservation, animal welfare, and social criteria;
  - Traceability and verification.

We evaluated the standards documents based on norms in regulations and standards, where the terms "must" and "shall" indicate clear requirements, where terms "should," "may," or "encouraged" signal suggestions or non-binding guidance.

We used the following criteria to evaluate each labeling program.

Agrochemical Criteria	
Pesticide Prohibition. Does the standard prohibit the use of toxic pesticides?	**Yes =** Allowed pesticides are limited to least-toxic, least-persistent substances **Partial =** Includes meaningful restrictions on highly hazardous pesticides or classes of high concern such as organophosphates **No =** Allows pesticides with few or no restrictions
Pesticide Toxicity Reduction. Does the standard require a quantitative reduction in pesticide toxicity load?	**Yes =** The standard uses a risk-based approach to prohibit toxic pesticides OR specifies a required percentage reduction in toxicity load over time, with a specified goal of ultimately eliminating the use of toxic pesticides **Partial =** The standard specifies a quantitative reduction in pesticide toxicity but does not specify a goal of complete elimination of toxic pesticides **No =** The standard specifies a reduction in pesticide use, but it is not based on toxicity and there is no quantitative requirement (e.g., no percentage reduction specified)
Neonic Seeds. Does the standard prohibit the use of neonicotinoid- or other pesticide-coated seeds?	**Yes =** neonic-coated seeds are prohibited or allowed only when there is no commercially available alternative **No =** pesticide-coated seeds are allowed
GMOs. Does the standard prohibit the planting of GMO seeds?	**Yes =** The standard prohibits GMO seeds **Partial =** [none] **No =** The standard does not prohibit or address GMO seeds
Fertilizer Prohibition. Does the standard prohibit the use of synthetic nitrogen fertilizers?	**Yes =** The standard prohibits the use of synthetic fertilizers **Partial =** [none] **No =** The standard does not prohibit the use of synthetic fertilizers
Fertilizer Reduction. When synthetic fertilizers are allowed, does the standard require a quantifiable reduction in synthetic nitrogen fertilizer use?	**Yes =** The standard prohibits synthetic nitrogen fertilizers OR The standard requires a quantifiable and verifiable reduction in volume over time **Partial =** [none] **No =** The standard does not require a quantifiable and verifiable reduction in volume over time

Integrated Pest Management Criteria	
Prevention. Does the standard require the use of practices to prevent key pests from damaging crops. (E.g., planting resistant varieties, crop rotation, physically blocking entry)?	**Yes =** The standard requires preventive measures as part of an IPM program OR the standard prohibits toxic pesticides and requires practices that prevent pest outbreaks **Partial =** The standard requires an IPM plan including preventive measures, but the requirement does not apply to all farms, such as small farms **No =** The standard does not specify that preventive measures such as crop rotation, sanitation measures, beneficial insect habitat and others are required as part of an IPM plan
Monitoring. Does the standard require the use of inspection, monitoring/ scouting	**Yes =** The standard requires the use of inspection, monitoring or scouting or another systematic, science-based approach, AND use of those monitoring results to inform pesticide application decisions **Partial =** The requirement does not apply to all farms, such as small farms OR monitoring is functionally but not directly required **No =** Monitoring as part of an IPM program is not required in the standard.
Economic thresholds. Does the standard require the use of economic thresholds to inform management/ treatment decisions as part of their IPM program?	**Yes =** The standard requires the use of economic thresholds to inform management and treatment decisions **Partial =** The requirement does not apply to all farms, such as small farms OR only least-toxic pesticides are allowed, but economic thresholds for use of least-toxic substances are not mandated **No =** The standard does not require the use of economic thresholds to inform management and treatment decisions as part of their IPM program
Non-chemical interventions. Does the standard require the use of non-chemical interventions like cultural, biological and physical control methods before using chemical interventions?	**Yes =** The standard prohibits toxic pesticides OR requires the use of non-chemical interventions before using pesticides **Partial =** The requirement does not apply to all farms, such as small farms OR IPM plan is required and toxicity reduction is required but no specific sequencing of non-chemical before chemical is required **No =** The standard does not require the use of non-chemical interventions before using pesticides
Prioritization of lower-risk pesticides. Does the standard require that producers assess pesticide risk and prioritize and use lower risk products?	**Yes =** The standard prohibits synthetic pesticides OR requires that producers assess pesticide risk and prioritize and use lower risk products **Partial =** The requirement does not apply to all farms, such as small farms **No =** The standard does not require that producers assess pesticide risk and prioritize and use lower risk products

Soil Health Practices Criteria	
Feeding the Soil. Does the standard require the use of practices that return organic matter to the soil? Such practices include cover cropping and the application of plant (e.g., compost) and animal (e.g., manure) materials.	**Yes =** Management of soil fertility through the return of organic matter with natural sources of soil fertility is required (e.g., cover cropping and the application of plant and animal materials) **Partial =** The use of natural sources of soil fertility is not required for initial certification but must increase over time OR the use of natural sources of fertility is encouraged (but not required) alongside a requirement to reduce use of synthetic fertilizer over time **No =** Management of soil fertility through the return of organic matter with cover cropping and the application of plant and animal materials is not required
Cover Crops. Does the standard require the use of cover crops?	**Yes =** The standard requires the use of cover crops **Partial =** Soil cover and living roots are required but these can be met by practices other than cover cropping OR the standard only requires cover crops on a low percentage of applicable acreage OR the standard encourages cover cropping but does not require it **No =** The standard does not require the use of cover crops
Appropriate Tillage. Does the standard require that tillage and cultivation techniques be performed in a way to maintain or improve the physical, chemical and biological condition of soil and minimize soil erosion?	**Yes =** The standard requires tillage and cultivation techniques be performed in a way that maintains or improves soil quality and reduces erosion **Partial =** The standard requires tillage and cultivation techniques be performed in a way that maintains or improves soil quality and reduces erosion, but on only on a low percentage of applicable land OR the standard addresses tillage but has strict no-till requirements without corresponding herbicide reduction requirements **No =** The standard addresses tillage frequency but not depth, intensity, or impact on soil structure and erosion
Crop Rotations. Does the standard require the use of crop rotations to manage fertility and break pest, weed and disease cycles?	**Yes =** Crop rotations are required as part of a soil fertility plan and as part of a pest management plan **Partial =** [none] **No =** Crop rotations are required but not as part of a soil fertility plan (synthetic fertility is allowed) and pest management plan (synthetic pest management is allowed) and can be as little as 2 crops in the rotation (a 2-crop rotation is not a true rotation)

Standard Integrity Criteria	
Verification and Enforcement. Is the standard verified by a first, second or third party?	**Yes =** 3rd party (The standard-setting body is separate from the auditing body that conducts audits and inspections) **Partial =** 2nd party with ISO/IEC 17065 (The standard-setting body conducts the audits and inspections but has ISO/IEC 17065 accreditation) OR The standard-setting body is an add-on label with USDA organic as a baseline, and conducts its own audits and inspections **No =** 1st or 2nd party (The standard-setting body is the same as the auditing and inspection body without ISO/IEC 17065)
Traceability and Segregation. Does the program require and verify segregation of the certified crop from non-certified crops through the supply chain, from field to final product?	**Yes =** a publicly available Chain of Custody standard requires audits along the supply chain and segregation of certified and non-certified product from field to point of sale. Blending of certified and non-certified ingredients in single-ingredient products is not allowed on packaged foods displaying the certification mark or seal **Partial =** Chain of Custody standard requires audits and segregation of certified and non-certified product from field to point of sale, but allows blending certified and noncertified ingredients in a single-ingredient final product or mass balance accounting **No =** No Chain of Custody standard publicly available, or no audits required along the supply chain, or no segregation requirement

APPENDIX II: KEY FINDINGS ON OTHER REGENERATIVE PILLARS

While this report focuses on verifiable requirements to reduce and eliminate agrochemical use and implement natural soil-health building practices, we also assessed other core dimensions of regeneration at a high level.

Specifically, we examined whether the labeling programs include standards to protect native ecosystems, such as forests and grasslands, address animal welfare, and uphold social fairness, including protections for farmers and farmworkers. These elements were not evaluated in the same level of detail as agrochemical and soil health criteria, but were reviewed to provide a more complete picture of how the reviewed labeling programs define and operationalize regeneration.

Deforestation

This criterion evaluates whether a labeling program prohibits the clearing or conversion of native ecosystems—such as forests, wetlands, and grasslands—for agricultural production, given the critical role these ecosystems play in biodiversity conservation, carbon storage, water regulation, and long-term ecological resilience.

Seven programs meet the bar. Five labeling programs include clear, enforceable prohibitions on producing crops on land that was previously part of a native or high-value ecosystem such as forests, wetlands, or native grasslands, and they specify a cutoff date before which conversion must not have occurred. These stronger standards—those that combine a prohibition with a defined date—are found in **Rainforest Alliance Regenerative**, **Regenerative Organic Certified**, **Certified Regenerative by Regeneration International**, **Soil & Climate Health Initiative Verified**, and **Regenagri.**

Two additional programs—**Demeter Biodynamic** and **Certified Regenerative by A Greener World**—also prohibit deforestation or ecosystem conversion, but they do not include a cutoff date. Without a date, auditors cannot assess historical land-use change, weakening the enforceability of the prohibition. Nonetheless, these programs still meet the bar by explicitly prohibiting conversion.

Three programs—**USDA Organic**, **Real Organic Project**, and **Regenified**—do not include any prohibition on converting native ecosystems or forests in their standards. As a result, they do not provide assurance that certified crops were produced without prior destruction of native or high-value habitats.

Animal Welfare

We examined whether each standard includes comprehensive, enforceable animal welfare requirements, including living conditions that allow animals to express natural behaviors, meaningful pasture and outdoor access, and humane treatment during transport and slaughter. Animal welfare requirements provide an important lens for assessing whether a labeling program meaningfully addresses the full integrity of agricultural production systems.

Seven programs include meaningful animal welfare requirements: **USDA Organic**, **Regenerative Organic Certified**, **Real Organic Project**, **Demeter Biodynamic**, **Regenagri, Soil & Climate Health Initiative Verified and Certified Regenerative by A Greener World**. These programs establish detailed standards for housing, outdoor access, pasture-based systems, humane handling, and slaughter, and apply these requirements across species. Their standards are clear, enforceable, and consistent with high-welfare, ecologically aligned livestock management.

One program provides partial animal welfare standards. **Certified Regenerative by Regeneration International** includes some requirements for living conditions and ecological management of livestock, but it does not include provisions for humane transport or slaughter.

Regenified has a particularly narrow scope and relies primarily on non-binding language and therefore does not meet this bar. The standard includes limited animal welfare provisions applicable to all livestock, but these are framed using advisory language ("should" rather than "must"). More detailed guidance—also non-binding—is provided only for poultry, addressing elements such as shade, access points, and daily outdoor activity. The standard does not establish animal welfare requirements for other species and includes no requirements for transport or slaughter. As a result, Regenified provides minimal assurance with respect to animal welfare.

We did not include **Rainforest Alliance Regenerative** because their standard currently does not apply to livestock, only coffee.

Social Fairness

We evaluated whether each labeling program includes comprehensive social fairness standards, with attention to labor rights, fair wages, and safe working conditions—areas that are foundational to any labeling program claiming to support truly regenerative food systems that support ecological and human wellbeing.

Five programs include meaningful social fairness requirements: **Regenerative Organic Certified (ROC)**, **Certified Regenerative by A Greener World**, **Rainforest Alliance Regenerative**, **Demeter Biodynamic**, and **Regenagri**. These programs address multiple dimensions of social fairness, including worker safety, fair labor conditions, freedom of association, and protections for vulnerable or marginalized groups. Their requirements are clear and enforceable, and they apply across the farm operation, offering meaningful assurance regarding labor conditions.

The other five programs do not include comprehensive or enforceable social fairness standards. **Certified Regenerative by Regeneration International** contains only two short sections, one on fair wages and one on gender equity, both written in non-binding language. For example, wages *should* be sufficient for workers to have a reasonable standard of living. The use of the term *should*, rather than *must* denotes a non-binding guidance rather than a requirement, and the standard does not include verification mechanisms or protections beyond these limited statements. Social fairness provisions are entirely absent from **USDA Organic**, **Real Organic Project**, **Soil & Climate Health Initiative Verified**, and **Regenified**.

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