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# Farm Soil is an Existential Threat to the US Food Supply!

## Natural Plant & Soil Regenerative Fungicides, and Pesticides with Pheromonal Replication Farming Technology

### Introduction

The agricultural industry is undergoing a significant transformation as natural pesticides, fungicides, and plant health promoters gain traction over traditional chemical-based products. Regulatory changes in the US drive this shift, as does growing consumer awareness of health risks associated with synthetic agrochemicals and an increasing demand for sustainable farming practices.

“We’re also destroying our soil because some of the chemicals that farmers use destroy the microbiome, and that causes the erosion of the soil that you can’t get water infiltration,” said Kennedy. “Agronomists now estimate that we only have—if we continue doing these processes—only 60 harvests left before our soil is gone. So, farmers are using seeds and chemicals that, over the long term, are costing them and us.” ~ R.F.K. Jr. Nominee Secretary of Health and Human Services

As research continues linking chemical fertilizers and pesticides to health issues, terminal illnesses, and environmental damage, farmers and consumers are seeking safer, eco-friendly alternatives. This analysis explores how these factors reshape agriculture, impacting costs, regulations, and long-term economic viability.



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## 1. The Regulatory Shift in the US: Restrictions on Synthetic Pesticides & Fertilizers

### A. Increasing Bans & Restrictions on Harmful Chemicals

The US government and regulatory bodies like the EPA (Environmental Protection Agency) and USDA have been tightening restrictions on synthetic pesticides and fertilizers linked to health concerns.

#### **Neonicotinoids (linked to bee population decline):**

They are banned or restricted in several states due to their impact on pollinators and ecosystems.

#### **Glyphosate (Roundup):**

Facing lawsuits over links to cancer (non-Hodgkin's lymphoma), prompting restrictions in multiple states.

#### **Chlorpyrifos (organophosphate insecticide):**

Banned in 2021 for food crops due to its neurological risks, especially in children.

#### **Paraquat (herbicide):**

Linked to Parkinson's disease and facing increasing legal and regulatory scrutiny.

These restrictions have forced farmers and agribusinesses to look for safer, natural alternatives to comply with evolving regulations.

### B. Organic & Regenerative Agriculture Incentives

The USDA Organic Certification Program promotes natural fertilizers and pest control methods.



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The Regenerative Agriculture Movement encourages replacing chemical inputs with biological soil amendments and natural pest management.

Carbon credit programs reward farms using natural products to enhance soil health and reduce greenhouse gas emissions.

## 2. The Link Between Chemical Pesticides & Health Risks: Rising Consumer Awareness

### A. Cancer, Neurological Disorders & Chronic Illness

A growing body of research has linked synthetic pesticides and fertilizers to severe health conditions, including:

- Cancer: Glyphosate (herbicide) and chlorpyrifos (insecticide) have been connected to increased cancer risks.
- Parkinson's Disease: Paraquat exposure is strongly correlated with neurodegenerative diseases.
- Endocrine Disruption & Birth Defects: Many synthetic pesticides interfere with hormones, impacting reproductive health.

These findings have led to:

- More lawsuits against agrochemical companies (e.g., Monsanto/Bayer, Syngenta).
- Increased public scrutiny and advocacy for safer agricultural practices.
- Higher demand for organic, non-toxic food, prompting farmers to adopt natural solutions.

And:

- Consumer Shift Toward Organic & Clean-Label Foods
- Organic food sales in the US topped \$60 billion in 2023, a steady increase as consumers avoid pesticide residues.
- Large retailers like Whole Foods, Costco, and Walmart prioritize sourcing from farms using biological or organic pest control.

- The rise of “clean-label” products (free from synthetic pesticides and additives) is reshaping the food supply chain.

### 3. Economic Benefits of Natural Pesticides & Plant Health Promoters

#### A. Market Growth & Investment in Natural Ag-Tech

As demand surges, the global biopesticides market is projected to exceed \$10 billion by 2030. Investment in biological solutions (microbial inoculants, biofertilizers, and plant-derived pesticides) is accelerating, with major agricultural companies expanding their natural product portfolios.

Large-scale farms are adopting integrated pest management (IPM) strategies that use a mix of natural and targeted synthetic solutions to achieve cost-efficiency and sustainability.

#### B. Cost Savings from Soil Health & Reduced Chemical Dependency

While natural pesticides and fertilizers may have higher upfront costs, they provide long-term economic benefits:

- Healthier soil reduces dependency on synthetic fertilizers.
- Less pesticide resistance, lowering the need for more substantial (and costlier) chemicals.
- Fewer regulatory compliance costs and legal liabilities from harmful chemicals.
- Farmers transitioning to natural products often see higher profits due to premium pricing for organic or regenerative crops.

### 4. Environmental Benefits Driving Policy & Industry Adoption

#### A. Reduction of Soil & Water Contamination



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Natural fertilizers (compost, biofertilizers, mycorrhizal fungi) improve soil structure and nutrient retention.

Unlike synthetic fertilizers, they do not cause nitrate runoff, preventing dead zones in oceans and rivers.

The use of biological pest control (e.g., beneficial insects and microbial sprays) protects ecosystems from chemical pollution.

## B. Pollinator & Biodiversity Conservation

Natural pest control methods protect pollinators like bees and butterflies, which are essential for food production.

The move away from chemical pesticides prevents biodiversity loss, helping maintain ecological balance.

## 5. Challenges & Barriers to Adoption

### A. Higher Initial Costs & Education Gap

Natural products often require specialized knowledge for proper application, making training essential.

Transitioning away from chemical-based farming may involve temporary yield reductions before soil health improves.

### B. Scaling Challenges for Large Farms

Some natural pesticides have shorter shelf lives and require frequent application, making them less convenient for industrial-scale farming.

Ongoing research is needed to develop longer-lasting, more potent natural solutions.

Despite these challenges, policy changes, market incentives, and technological advancements make natural solutions more accessible and viable.

## **Conclusion: The Future of Agriculture is Natural**



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US regulations, consumer demand for safer food, and the need for sustainable farming are accelerating the shift toward natural pesticides, fungicides, and plant health promoters. While chemical-based solutions still dominate industrial agriculture, their long-term risks—both economic and environmental—are pushing farmers, corporations, and policymakers to prioritize biological alternatives.

Regulatory bans and restrictions are reducing chemical pesticide availability. Health concerns and lawsuits are driving public and corporate action. Market growth in biological solutions is making natural products more cost-effective and scalable.

Farmers benefit from healthier soil, long-term cost savings, and premium market positioning.

As more research and investments are made into natural and regenerative agriculture, chemical-based farming will become less viable, paving the way for a safer, more sustainable food system.

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