



2019

PESTICIDES IN THE PANTRY:

TRANSPARENCY & RISK IN FOOD SUPPLY CHAINS



AS YOU SOW®

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EXECUTIVE SUMMARY

Over one billion pounds of conventional pesticides¹ are used in the United States each year.² In the most recent year of data, Americans spent \$9 billion on pesticides for use in agriculture.³ The Centers for Disease Control and Prevention's biomonitoring has found pesticide residues in the bodies of 90% of Americans studied.⁴

Farming has not always required the intensive use of chemicals that constrains our farmers today. Humans have been growing food for over 10,000 years; it is only over the past 60 years that we have become dependent on a complicated and costly system of pesticide use. Following World War II, industrialization of agriculture and the introduction of pesticides (derived from chemicals invented as weapons), contributed to major growth in productivity and farm efficiency. But this shortcut has come with tremendous consequences. Science is now beginning to catch up with the myriad ways in which pesticides are harming humans, animals, and the environment. As new information exposes these growing risks, companies that rely on conventional agricultural supply chains are increasingly tied to these risks.

Pesticides in the Pantry: Transparency & Risk in Food Supply Chains is a report designed to examine the growing risks posed by the use of synthetic pesticides in agricultural supply chains to food manufacturers, and to provide benchmarks for improved management and transparency. Consumers, regulators, courts, and the media are paying increased attention to the human health and environmental harms caused by the intensive use of pesticides in agriculture. As a result, investors are calling on major food companies to reduce supply chain use of these chemicals to mitigate risk.

Pesticides in the Pantry scores 14 major U.S. food manufacturers on 30 performance indicators designed to measure how effectively companies are managing risk and advancing the interests of their stakeholders. Effective corporate management includes disclosure of robust strategies for the reduction of toxic pesticides and meaningful metrics for tracking performance and progress. The report also identifies alternative solutions to support supply chain producers in transitioning away from chemical-dependent farming systems.

RESULTS: In this inaugural year of benchmarking and reporting, companies' average scores were relatively low, with two top scoring companies leading by significant margins. The total possible score for any company was 30. Scores ranged from 18 to 0, and companies averaged a score of 6.1. The top scoring companies – and the only two to score above 10 – were General Mills (18) and PepsiCo (14); the laggards were Post and B&G Foods (0 each) followed by Kraft Heinz, Conagra, and J.M. Smucker (2 each).

While the majority of the companies have some form of sustainable sourcing program in place for their supply chains, most lack clear criteria and almost none include pesticide use as an indicator within those programs. The majority of companies scored for the report do not currently provide goals, strategies, or targets for the reduction of pesticide use; however, some companies have noteworthy practices, which the report outlines. Almost half of companies have some type of Integrated Pest Management (IPM) program, but only one IPM program explicitly aims to reduce synthetic pesticides. The majority of companies belong to an industry sustainability collaborative, and most have a sustainable sourcing program in place for one or more specific (often specialty) crops, which provides interesting insight into the potential for this sector to engage in effective sustainable sourcing initiatives.

2019 Scorecard

Company	Score
General Mills	18
PepsiCo	14
Del Monte	8
Lamb Weston	8
Kellogg's	8
Nestle	7
Mondelez	6
Campbell's	6
Hain Celestial	5
Kraft Heinz	2
ConAgra	2
J.M. Smucker	2
Post	0
B & G Foods	0

1. "Pesticides" includes all chemical products engineered to destroy any kind of agricultural pest (i.e. insecticides, herbicides, rodenticides, fungicides) and excludes natural or biological agents.

BACKGROUND

In 2017, *As You Sow* produced *Roundup Revealed*, a report on glyphosate, the active chemical in the common weed killer ‘Roundup,’ and the most ubiquitous pesticide on the market. That report examined glyphosate’s impacts on our food system and environment along with the pesticide’s complex history, politics, and human health consequences. This report picks up where *Roundup Revealed* left off, with the goal of understanding how the broad range of pesticides in use today impact the food system, human health, the environment, investors, and corporations. It also provides benchmarks by which food manufacturers can be compared on their efforts to mitigate these risks in their supply chains. Readers are encouraged to reference the *Roundup Revealed* report for further information on the history of Roundup and a deeper review of the concerns regarding this specific pesticide.

GLYPHOSATE: A CASE STUDY

Since 2017, a number of developments have made the pesticide Roundup a cautionary tale for both the agricultural industry and for shareholders invested in companies that promote or allow industrial-scale pesticide use in farming.

- A new study demonstrates a connection between glyphosate in pregnant women’s urine and shorter-term pregnancies.⁵
- A report found deficiencies in EPA’s process for reviewing glyphosate’s safety (notably, that it relied heavily on industry-sponsored research rather than independent, peer-reviewed studies).⁶
- In June 2018, German Pharmaceutical company Bayer acquired Monsanto – the company that manufactured Roundup – for \$63 billion.
- Thousands of individuals have filed lawsuits claiming that Roundup caused their cancers. The first three cases ended in judgments against Bayer,⁷ awarding billions of dollars in damages to plaintiffs.
- Since the acquisition of Monsanto, Bayer’s share price has plummeted over 40%, and the Company’s market capitalization is nearly equal to what it paid to acquire Monsanto.
- Consumer advocates have called out food companies for residues of glyphosate in common food products, especially those marketed to children.⁴⁸
- Regulatory attention is growing.⁹ Jurisdictions in over 30 countries have now adopted policies to ban or restrict glyphosate use, or are considering such action.¹⁰ In the past two years, the following countries have established or announced new plans to ban or significantly restrict glyphosate nationally:
 - Austria – ban effective January 2020
 - Czech Republic – significant limits effective 2019
 - Denmark – new restrictions implemented July 2018
 - France – ban expected by 2021 with limited exceptions
 - Germany – ban effective by 2023
 - Thailand – expected to ban by end of 2019

As of the writing of this report, over 100 cities in the U.S. have announced local bans or restricted use of the chemical.¹¹

- In the U.S., a group of major non-governmental organizations and food companies petitioned the EPA to sharply reduce the federal allowable amount of residual glyphosate on oats, and to prohibit the use of glyphosate as a pre-harvest drying agent.¹² A coalition submitted 150,000 public comments in response to the EPA’s proposed interim registration review for glyphosate urging the administration to ban the pesticide.¹³ A U.S. Congresswoman introduced legislation to require the EPA to take up these measures.¹⁴

Risks of Pesticide Use

Human Health Harms

Pesticides are intrinsically toxic. Engineered to kill unwanted species of plants and insects, it should be no surprise that these chemicals can also be harmful to humans. A growing body of scientific research connects pesticide exposures to many harmful human health effects including cancer, cardiovascular disease, birth and developmental defects, liver and kidney disease, and obesity.^{15,16,17} Specifically, scientists have reported connections between pesticides and increased risk of leukemia, lymphoma, brain, kidney, breast, prostate, pancreas, liver, lung, and skin cancers.¹⁸ Pesticides are also connected to endocrine disruption¹⁹ (which impacts the body's regulation of hormones²⁰ and can cause complications for reproduction and fertility, including low birthweight) and neurodevelopmental damage in infants and children.^{21,22} Pesticide exposure is not limited to direct contact. Pesticide residues have been found in drinking water, soil, rainwater, and a wide range of food products, making human exposure to these chemicals almost unavoidable. Increasingly of concern to consumers, food products that contain pesticide residues can be found across the supermarket; they include many produce items from spinach to cherries,²³ cereal and oatmeal, grains, beans,²⁴ and even flours and cooking oils.²⁵

The agricultural workers and individuals who live, work, or play in areas of heavy pesticide use face even greater risk. Due to regular exposure to pesticides and acute poisonings, farmworkers face the most chemical-



related illnesses of any occupation in the U.S., and suffer between 10,000 and 20,000 pesticide poisonings per year.^{26,27} The children and families of farmworkers also face higher exposure when pesticides are carried home on workers' clothes, hair, or skin.²⁸ Outside of the U.S., risks can be even higher. Developing countries only use 25% of the world's pesticides yet experience 99% of deaths related to pesticides.²⁹

Children are particularly susceptible to the health risks of exposure to

pesticides. Exposure during certain vulnerable periods of development can be particularly harmful, causing damage such as reduced psychomotor development and increased risk of behavioral disorders.³⁰ Children's exposure to pesticides through food, air, or water, also amounts to a higher dose relative to their size.³¹

Due to the wide use of so many different pesticides throughout the agricultural system, science has just begun to understand the health implications of combined exposures, including interactions between chemicals and long-term impacts of small dose exposures over the course of a lifetime.

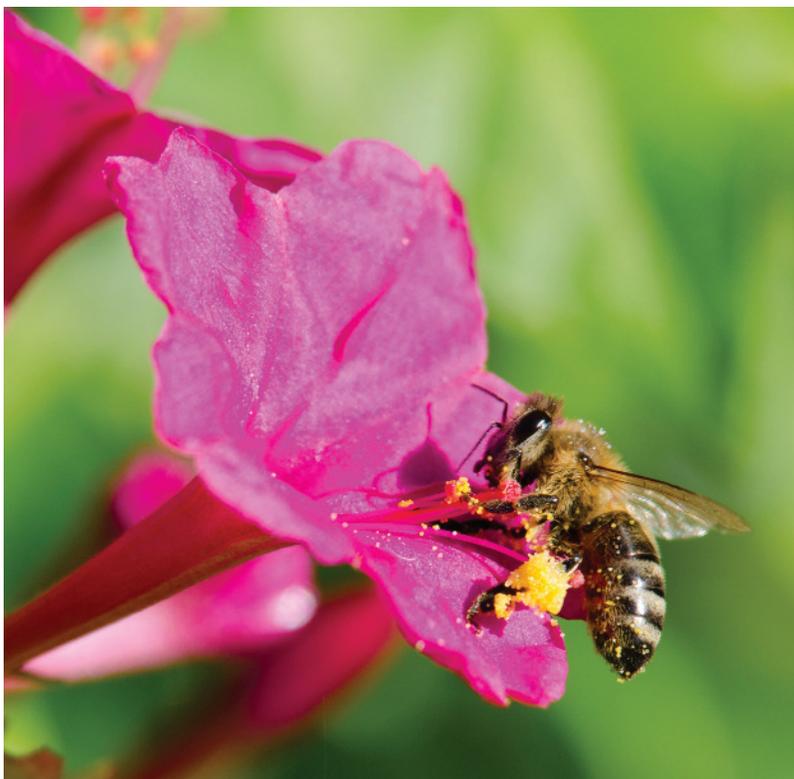
Recent litigation against Bayer, manufacturer of the controversial pesticide Roundup, has demonstrated how the risks of pesticide use can impact investors financially. Three separate juries have found that glyphosate was responsible for causing individual plaintiffs' cancers, and only a year after Bayer acquired the original maker of Roundup (Monsanto), its stock has plummeted more than 40%.^{32,33} Effectively, Bayer acquired not only toxic products but also a toxic brand. The company still faces over 18,000 lawsuits. While the risky business of pesticide production is several steps removed from food, consumer facing food businesses may face reputational risks from affiliation with this narrative. In fact, consumer advocacy groups are continually testing for pesticide residues and have called out major brands for trace amounts of Roundup present in common products.³⁴

Environmental Harms

The pervasive use of pesticides in agriculture also poses significant consequences for the environment, harming unintended plant and animal species, and threatening the long-term sustainability of food production. Studies have found connections between pesticides in the environment, reduced biodiversity and impacts on endangered species.^{35,36} Specifically, common pesticides are tied to the devastating loss of pollinator species, which are essential to agricultural production.^{37,38,39}

Conventional agricultural practices, typically dependent on heavy application of pesticides, have created a range of negative impacts on soil health — from undermining the health of biotic communities and creating a potentially catastrophic loss of topsoil,⁴⁰ to reducing the economic viability of farmers. Pesticides also damage soil's ability to retain water and its potential for capturing carbon, two major components of climate resiliency.⁴¹

The consequences of synthetic pesticide use represent significant and growing costs, not only to society, but to the farmers themselves. These risks provide limited return as the benefits associated with any one pesticide are often short-lived. Weeds and insects develop resistance to pesticides used repeatedly to protect crops. Over time, as resistance develops, more intense and more frequent applications of the pesticide are required to eliminate the pest, until eventually the pesticide provides little or no effective pest control,⁴² and a new, potentially more potent chemical must take its place.⁴³ Farmers facing glyphosate-resistant weeds have already begun to turn to



2,4-Dichlorophenoxyacetic acid, or 2,4-D, as a replacement; this herbicide is one of the active ingredients in Agent Orange. Agent Orange is widely known for causing significant harm to veterans exposed during the Vietnam war.⁴⁴ According to research estimates, crop losses caused by pesticide resistance cost \$1.4 billion each year.⁴⁵ Pesticide applications can also harm neighbors' crops. When farmers apply dicamba, for example, to crops engineered to withstand it (e.g. genetically engineered soy), it is known to drift and cause significant damage to nearby crops that are not genetically modified. Dicamba drift damaged over one million acres of crops in just the first half of 2018.⁴⁶

The environmental damage caused by pesticides creates significant operational risk to food companies. Crop supply chains reliant on heavy use of pesticides may be damaged by loss of pollinator species, degraded soil, and pesticide resistance. To ensure long-term supply reliability, especially in the face of climate-change related impacts that make growing food more difficult, it is imperative that food companies mitigate these risks now by moving supplier farms toward sustainable pest management practices which reduce chemical inputs.

The seemingly never-ending cycle created by the adaptation of pests to chemical controls has been referred to as the “pesticide treadmill,” in which farmers are beholden to agrochemical companies to continuously develop new, more toxic pesticides to maintain the same yields.

Economic Costs

The use of pesticides is also costly financially. U.S. producers spent \$9 billion on pesticides in 2012 (the most recent year for which data is available).⁴⁷ Researchers have found evidence that despite drastic and costly increases in pesticide use, crop losses due to pests have continued to rise.⁴⁸

Consolidation in the seed and pesticide industry threatens even greater cost increases to farmers, while commodity prices continue to stagnate, causing shrinking profit margins for farmers.⁴⁹

“History shows us that seed industry consolidation leads to less choice and higher prices for farmers. [Chemical companies] also aggressively protect their IP rights, which means less innovation and more restrictions on how seed is used and exchanged, including for seed saving and research purposes. These restrictions affect conventional and organic agriculture alike by making a large pool of plant genetics inaccessible to public researchers, farmers, and independent breeders, which in turn limits the diversity of seed in our landscapes and marketplace and weakens our food security.”⁵⁰

Farm loan delinquencies and bankruptcies are on the rise in the U.S., and farmers are in need of a more financially stable and sustainable way to do business.⁵¹ Reduced pesticide use is one important way to improve business stability, while providing concomitant health and environmental benefits. In many cases, researchers have found farmers are able to reduce pesticide use significantly, without sacrificing productivity.⁵² One study found that farmers of pesticide-free regenerative operations had 78% higher profits than their conventional counterparts, and reduced insect pest populations tenfold.⁵³ The ability to raise food profitably, without massive pesticide dependence, is underscored by a United Nations' human rights report that outwardly denounces the “myth” that pesticides are necessary to feed the world's growing population.⁵⁴

Another significant and growing cost is the loss of pollinators associated with pesticide use. Healthy pollinator species are necessary for the production of 87 of the top 115 global food crops, an estimated 35% of all global food production. Losing pollinators could mean losing their contribution of more than \$24 billion to the U.S. economy.⁵⁵

The total costs to human health and the environment from pesticides, coupled with the financial costs to farmers of maintaining a system with high input needs, suggest that food companies can benefit from supporting farmers in shifting away from conventional methods of pesticide-dependent farming.

Concerns Regarding Pesticide Regulation in the U.S.

Approximately 900 active ingredients and 20,000 pesticides are currently registered with the U.S. Environmental Protection Agency (EPA).⁵⁶ The EPA is charged with allowing the registration of pesticides only after determining that they will not pose unreasonable risks to human health or the environment. While this process is designed to safeguard Americans from harmful chemicals in agriculture, critics have raised a number of serious concerns about the level of protection the agency provides. Outside reviewers have argued that the EPA's consideration of the safety of a pesticide is frequently skewed by its process of accepting and relying primarily on research provided by the submitting companies;⁵⁷ such studies are frequently funded by, and draw conclusions favorable to, the industry itself. Critics argue that use of peer-reviewed, independent research would control bias more effectively than the current system.

Further, many pesticides avoid the formal registration requirements through a 'conditional registration' process. Conditional registrations are meant to allow for the use of pesticides without requiring thorough toxicity testing in the case of a public health emergency. However, many pesticides are being approved through this process even when they are not necessary to address an emergent crisis. Such conditionally registered pesticides, which may cause harm to the environment and public health, can be used for years while they are being reviewed for safety.⁵⁸ As many as 65% of more than 16,000 pesticides were first approved for the market using this mechanism.⁵⁹

The EPA is also responsible for establishing limits for pesticide residues in, or on, food, while the Food and Drug Administration (FDA) is charged with enforcing these limits. Independent scientists and public health advocates have at times argued that the established limits are too high to truly protect consumer health, especially for children. As discussed in *Roundup Revealed*,⁶⁰ in the case of glyphosate, the EPA's Allowable Daily Intake (ADI) for glyphosate is 1.75 mg/kg of bodyweight/day – significantly higher than the European Union's ADI, which is 0.3 mg/kg/day. And even the EU's ADI level is considered too high by scientists.⁶¹

The United States, one of the world's four top producers and users of pesticides, lags other developed nations in regulating pesticide use. A recent report found that the United States allows the use of dozens of pesticides that have been banned in the other three top pesticide-producing markets (the EU, China, and Brazil). This gap results from differences in pesticide approval criteria, which in other markets emphasize a higher burden of proof that substances will not pose harm to humans, animals, or the environment.⁶⁵ In the

As with many powerful industries, agribusiness has significant lobbying power to influence the very regulations that govern it. In 2018, producers of agricultural products spent over \$37 million on lobbying – far more than any other food-related sector. The money that industry spends far outweighs that of consumer protection interests. For example, when California legislators reviewed regulation of the pesticide Chlorpyrifos, consumer health advocates spent \$21,000 on lobbying, while Dow Chemical spent \$1.2 million.⁶² In the current federal administration, individuals with close industry connections have risen to powerful agency positions, contributing to significant efforts in deregulation.⁶³ Despite the outmatched resources in the regulatory arena, consumers continue to seek healthier food choices, including reduced pesticide use.⁶⁴

U.S., states and local jurisdictions have enacted measures that go beyond the federal regulations to address this shortcoming. In the case of Chlorpyrifos – a pesticide tied to neurodevelopmental harm in infants and children – several states have enacted bans, and several others are considering such action, while the federal government continues to allow use of the chemical.⁶⁶ As consumer awareness grows, and the public demands better government oversight, the agricultural sector faces the potential for more stringent health and safety regulation of pesticides. Those companies whose suppliers are not prepared will face difficulties.



Sustainability & Pesticide Reduction

A tenant of modern commerce is that companies thrive when they consider all of their stakeholders in decision-making. When a company invests in its people, the communities it impacts, and the environment, everyone benefits. Food manufacturers have begun addressing sustainability in their supply chains in a variety of ways including preventing deforestation, reducing greenhouse gas emissions, and reducing water and energy use. Pesticide reduction, however, has been nearly absent from company sustainability policies and their reporting to investors. This oversight opens up significant avenues for liability and regulatory risk, and is inconsistent with consumer trends and investor concerns. According to Consumer Reports, 89% of people think it is critical to protect the environment from chemicals, and 86% think it is critical to reduce pesticide exposure and support fair working conditions.⁶⁷ Food manufacturers have been under fire in the media after consumer advocacy organizations began testing and reporting on pesticide residues found in consumer products, especially those marketed to children.^{68,69} This attention has led to increased reputational and legal risks for these companies. Addressing pesticide use answers these calls to action while also improving soil health, creating resiliency in the face of climate change, and protecting communities and the environment.

Sustainable Solutions

‘Sustainable sourcing’ and ‘sustainable agriculture’ are terms commonly used by food companies to describe the production practices employed in the sourcing of their agricultural products. The word “sustainable,” however, does not clearly convey what standards are expected of suppliers and producers implementing sustainability measures, what goals are sought, and whether progress is being measured and achieved.

Sustainability may run the gambit from reducing greenhouse gas emissions to limiting the use of energy, water, or pesticides in operations, to reducing biodiversity loss and water pollution, among others. Meaningful corporate sustainability commitments should clearly and fully define expectations and how progress is evaluated and measured.

Organic

Certified organic farming is the most well-known and well-established system for growing food without the use of synthetic pesticides. The U.S. Department of Agriculture (USDA) governs the definitions and rules for certification of organic practices, including listing substances that are prohibited. In organic practices, natural substances are permitted, while synthetic substances are prohibited (including pesticides) in most instances.⁷⁰ Instead of relying on synthetic chemicals, organic farmers use ecological practices such as rotating crops, increasing crop diversity, fostering natural predators of pests, and building soil health to improve plant immunity in order to control pests naturally. Organic farms protect farmworkers and consumers from the health harms of pesticides and support pollinator health. Research has shown that these goals can be met without sacrificing productivity and profitability.

Food companies can invest in organic agriculture to promote sustainability by choosing to source organic ingredients, or by supporting farmers in transitioning land to organic practices. Organic offers an advantage to companies because it is both certifiable through existing federally recognized methods, and has name recognition with consumers. In fact, consumer demand for organic products has seen double-digit growth during most years since the 1990s. Currently, organic products account for over 4% of total U.S. food sales and a higher share in some categories.⁷¹

Integrated Pest Management

Integrated Pest Management (“IPM”) is increasingly touted by food companies as a strategy for improving sustainability in supply chains. However, the term is ambiguous in its meaning and can cause confusion as to what the term means to companies or their suppliers. There is neither an industry-wide, accepted definition of IPM, nor a regulatory framework governing claims regarding IPM adoption. The EPA provides the following description:

Integrated Pest Management (IPM) is an effective and environmentally sensitive approach to pest management that relies on a combination of common-sense practices. IPM programs use current, comprehensive information on the life cycles of pests and their interaction with the environment. This information, in combination with available pest control methods, is used to manage pest damage by the most economical means, and with the least possible hazard to people, property, and the environment.⁷²

Such a definition leaves significant room for interpretation. “Most economical” and “least possible hazard,” for example, might be defined differently depending upon whether accounting for short-term and/or long-term costs (both financial and social) and whether including externalities (such as harms to public health). This lack of clarity allows for wide variation in how IPM treats pesticides. As an example, an advocacy organization might claim that an IPM program should eliminate or drastically reduce the use of chemical pesticides,⁷³ while an agrochemical company might emphasize the importance of the use of pesticides as a vital part of IPM.⁷⁴ When food companies ask or require suppliers to implement IPM programs as a means of addressing pesticide risks, it is vital that clear goals, standards, and metrics are provided, especially as to whether suppliers must reduce pesticide use.

Regenerative Agriculture

Regenerative agriculture, a framework which is becoming more commonly adopted, seeks to reverse the environmental harms of conventional farming, replenishing soil health, improving biodiversity, and increasing farmer profitability. While there is currently no industry-wide definition of 'regenerative agriculture,' common methods include cover cropping, minimizing or avoiding tilling of the soil, integrated livestock, and crop diversification. Regenerative systems are touted as a way to reduce topsoil loss and degradation and to pull carbon from the air into the soil, reversing some of agriculture's contribution to climate change. As of this report, there is a lack of clarity or consensus on whether regenerative agriculture can be successful in tandem with the use of chemical pesticides.⁷⁵ Some proponents argue that strategies like no-till or cover cropping can be useful while continuing pesticide use; others argue that the use of pesticides nullifies the positive benefits of increased biodiversity and healthier soil ecosystems.⁷⁶



Regenerative strategies undertaken without the use of pesticides have been shown to be more effective at controlling pests than chemical-intensive conventional farming.⁷⁷ Given the variations in regenerative practices, it is critical that any company investing in such practices clearly define and disclose which strategies will be adopted, including explicitly stating whether pesticides will be reduced or eliminated, and how success will be measured.

There is growing recognition that the current system of pesticide-dependent farming practices must be replaced with healthier, less harmful methods to ensure the success and future viability of food companies. The problems of pesticide use raise risks from litigation on health and environmental damages, to changing consumer demands for healthy foods and reputational loss, to increasingly less effective crop production, especially in the face of climate change. Shareholders recognize there are a wide variety of ways to successfully approach the problems associated with pesticide-dependent farming methods. A clear set of disclosures on actions taken and successes achieved will assist shareholders in understanding how well these important issues are being managed by food companies.

SCORES AND BENCHMARKS

Overview

This report benchmarks major food manufacturers on the adoption of practices to measure and mitigate risks related to the use of synthetic pesticides in agricultural supply chains. By scoring a consistent set of questions related to company strategies and disclosure, the report provides a picture of overall industry performance, distinguishes industry leaders from laggards, and provides examples of notable practices. This report also aims to highlight risks and create a pathway for improved performance to support investors in advocating for long-term value.

14 companies were scored on a total of 30 indicators. Scores are based on a thorough review of publicly available content, including companies' published reports, press statements, and website text. In the case of international companies, U.S. specific information was used where available; if the company did not clearly differentiate between U.S. and global policies, the latter were reported.

Methods

The following 14 companies are included in this review (listed alphabetically): B&G Foods, Campbell's Soup Company, Conagra Brands, Del Monte Foods, General Mills, The Hain Celestial Group, The Kellogg Company, Kraft Heinz Company, Lamb Weston, Mondelez International, Nestlé, PepsiCo, Post Holdings, Inc., and The J.M. Smucker Company. Each company was given the opportunity to review the information compiled in this report and to provide additional information or clarification.

Questions were written to elicit key information about supply chain pesticide use. First, we determine whether companies have a policy to reduce the use of pesticides in their supply chain. This deliberate recognition of pesticide use as an issue to be addressed is a critical first step on a company's path toward identifying solutions.

Public statements demonstrate an important level of accountability, but must be followed by strategies for achieving and measuring progress. For this reason, we also ask each company to describe how it will reduce pesticide use, and if it measures the effectiveness of its actions through identified targets and goals. General statements of intent, without measurement, provide an inadequate means of assessing progress.

Investors recognize the reputational risk posed to a company by promoting its policies as 'sustainable' without meaningful disclosure of the practices that ensure sustainability. Collecting and reporting quantitative data allows companies to demonstrate actual progress. We include several questions regarding data collection to identify those companies that have mechanisms in place for tracking pesticide use on supplier farms. Additional criteria address whether a company collects data through a third party verified method to better ensure reporting accuracy.

Certain companies have adopted programs that may reduce synthetic pesticide use, including sustainable sourcing, regenerative agriculture, or IPM. In each case, companies earned more points for programs that clearly and publicly delineate the elements of the program and provide metrics by which progress on pesticide reduction from such programs is measured. Other important components include whether companies require supplier farms to participate in the program, or have set targets for supplier participation.

The full list of questions can be found in Appendix A.

RESULTS

Question

	B&G Foods	Campbell's	ConAgra	Del Monte	General Mills	Hain Celestial	Kellogg's	Kraft Heinz	Lamb Weston	Mondelez International	Nestlé	PepsiCo	Post	Smuckers
Theme: Pesticide Reduction Policy														
1. Do you have a stated policy to reduce the use of synthetic pesticides in your agricultural supply chains?				●	●							●		
a. Do you publicly describe the methods used to achieve the goals of your policy?				●	●							●		
b. Does your commitment encompass all suppliers?					●							●		
c. Do you measure the effectiveness of your program in achieving the goal of reduced pesticide use?				●	●									
Theme: Goals and Targets														
2. Do you have a specific commitment, target, or goal to reduce synthetic pesticides?									●					
a. Is the policy time-bound?									●					
b. Does your policy include prioritization of chemicals for reduction?														
Theme: Pesticide Use Tracking														
3. Do you track pesticide use in your agricultural supply chains?					●	●	●			●				
a. Do you require suppliers to provide quantitative data about their pesticide use?					●					●				
b. Is supplier pesticide use data audited by a third party?										●				
b. Do you disclose data to investors and/or the public?				●	●	●								
Theme: Glyphosate Policy														
4. Do you have a supplier standard regarding the use of glyphosate-based herbicides?														
a. Does your standard include reduction of glyphosate use pre-harvest?														
b. Do you track suppliers' use of glyphosate?							●							
Theme: Integrated Pest Management Program														
5. Do you have an Integrated Pest Management (IPM) program applicable to suppliers?	●		●	●	●	●	●					●		
a. Are the definitions and guidelines of your IPM program public?					●							●		
b. Does the program's guidelines include reduction of synthetic pesticides?			●											
c. Is adoption of IPM required of suppliers?												●		
d. Do you have outlined targets for IPM adoption?												●		
e. Do you report on supplier implementation of IPM?					●							●		
Theme: Sustainable Sourcing Program														
6. Do you have a sustainable sourcing program for agricultural supply chains?	●	●	●	●	●	●	●	●	●	●	●	●	●	●
a. Are the definitions and guidelines of your sustainable sourcing program public?	●		●	●	●	●	●		●	●	●	●		
b. Is your sustainable sourcing program required of all suppliers?											●	●		
c. Do you have outlined targets for the adoption of the program?	●			●			●		●		●	●		
d. Does your sustainable sourcing program include targets or goals for the reduction of synthetic pesticide use?											●			
e. Do you collect information to measure the effectiveness of your program?	●			●			●	●	●	●	●	●		
Theme: Crop-specific Sustainable Sourcing														
7. Do you have a sustainable sourcing program for one particular crop (e.g. Palm Oil)?														
a. Do you use third party certification related to this program?														
Theme: Industry Sustainability Collaborative Membership														
8. Are you a member of an industry agricultural sustainability collaborative?	●	●		●			●		●		●	●		●
Theme: Regenerative Agriculture Program														
9. Do you have a regenerative agriculture program?					●									
a. Are the definitions and guidelines of your regenerative agriculture program public?					●									
b. Do you have targets for supplier adoption of regenerative agricultural practices?					●									
TOTALS	0	6	2	8	18	5	8	2	8	6	7	14	0	2

Discussion:

While no company currently has a specifically measurable commitment or target for pesticide use reduction, one company is notable for having a general, time-bound commitment to reduce pesticide use.

- **Lamb Weston:** aims to achieve a “downward trend” in pesticide use by 2030.⁸⁴

In this case, however, the lack of specificity of the goal in terms of outcomes may be insufficient to motivate significant progress since any reduction over time, no matter how small, could be understood to satisfy the goal. It is also important to note the company reports this goal only on the website for its Europe market, and it is not clear whether the same effort is being made across the full supply chain.

Notable Practices:

While the food industry lacks specific pesticide reduction standards, one company outside the scope of this report provides a positive example of clear metrics for its supply chain. **Unilever’s**⁸⁵ Global Guidelines on Use of Pesticides in Sustainable Tea Sourcing (“Guidelines”) provides targets for the phase out of certain classes of pesticides (as determined by the World Health Organization), with time limits:

- “By the end of 2014 the use of pesticides listed under WHO1a, WHO1b, POP or PIC will not be permitted in tea production for Unilever.
- Within three years [of publication of the Guidelines], suppliers must provide evidence of tangible progress in reduction of use (or elimination where possible) of any pesticides included in WHO Class II or III. By 2020 at the latest, Unilever will only source tea which is traceable to sustainable sources”⁸⁶

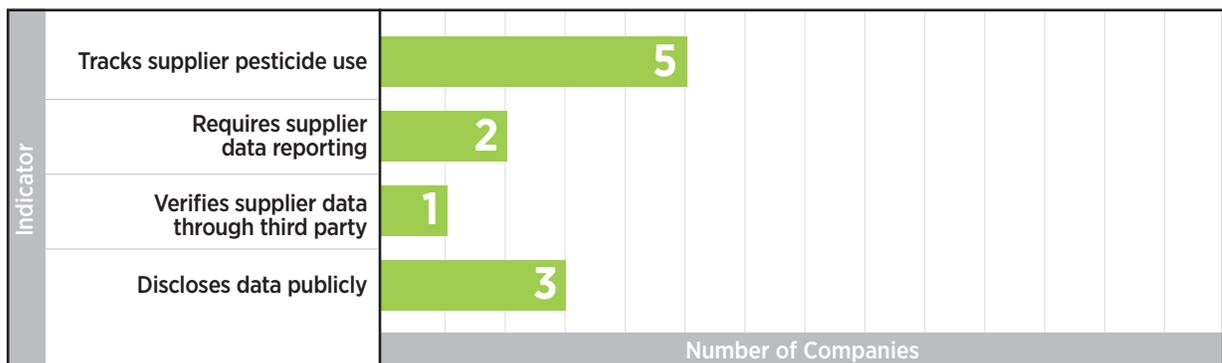
3. Tracking Pesticide Use Data in Supply Chains

What gets measured gets managed. For companies to successfully demonstrate to investors that they are reducing the risks of pesticide use in the growing of their food products, it is essential companies create clear channels for receiving and recording data from their growers.

Questions:

This question asks whether companies are tracking pesticide use data in agricultural supply chains. If so, do companies disclose whether their suppliers are required to provide quantitative data about pesticide use; whether that data is audited by an independent third-party to ensure accuracy; and whether such data is disclosed by companies to shareholders and the public.

Aggregate Company Scores: Pesticide Use Tracking



Discussion:

Five companies have reported some kind of protocol for collecting farm-level data regarding pesticide use, though each reported program is limited in scope (i.e. none apply to the company's full supply chain)

- **General Mills:** As part of its regenerative agriculture initiative, the company produced the "Regenerative Agriculture Measurement Protocol." Applied to 51 farms in the first year, measurements include pesticide application data (i.e. type of pesticide used, amount and method used, cost and date of application, pest/disease being controlled, and reason for application).⁸⁷
- **Mondelez International:** The company reported quantitative reductions in pesticide use for participants in the Harmony Wheat program (which focuses on sustainable agriculture specific to European wheat farmers). The company does not explain how data is collected, but the report of aggregate results was enough to demonstrate that the company is collecting data.
 - "To date, Harmony farmers in Europe have achieved a 20 percent reduction in pesticide use, and in 2016, 21 million bees and 27 species of butterflies were observed in Harmony fields."⁸⁸
- **Kellogg:** The company asks one general question of farmers in its annual grower survey regarding pesticides.
 - "What type of pesticides do you use?" (response options include "I apply organic pesticides," "I apply synthetic pesticides," "I apply organic and synthetic pesticides," or "I do not apply pesticides")⁸⁹
- **Lamb Weston:** The company collects data on pesticides (which it refers to as "plant protection products" or PPPs) through its Sustainable Agriculture Plan. This action is reported on the company's website for its European market and may only apply to those crops sourced in Europe.
 - "Plant Protection products (PPPs): We are measuring the use of PPPs in quantity (amount of active ingredients used), as well as their environmental impact."⁹⁰
- **Hain Celestial:** The company reported data on its rice initiative in India demonstrating a reduction in pesticides. This must have required tracking for comparison.
 - "In the crop year 2017, the project participants realized an approximate 80% reduction in pesticides use."

Notable Practices:

The measurements being collected by **General Mills** represents the most comprehensive set of metrics of pesticide use data disclosed by any company in the group of food manufacturers assessed in this report. General Mills:

- Outlines the specific measurements that will be taken and their frequency
- Commits to reporting annually to demonstrate results, and
- Provides technical support and tools to farmers for implementing data collection

4. Glyphosate

Glyphosate is the most widely used herbicide in agriculture, and has been the source of significant controversy over recent years. As *You Sow* reported on the history of this chemical's use, the scientific debate regarding its safety, and implications for investors in the 2017 report, *Roundup Revealed*. As an issue of consumer and public concern, it is important for shareholders to receive information as to whether companies have chosen to implement policies or practices to reduce exposure to and use of glyphosate.

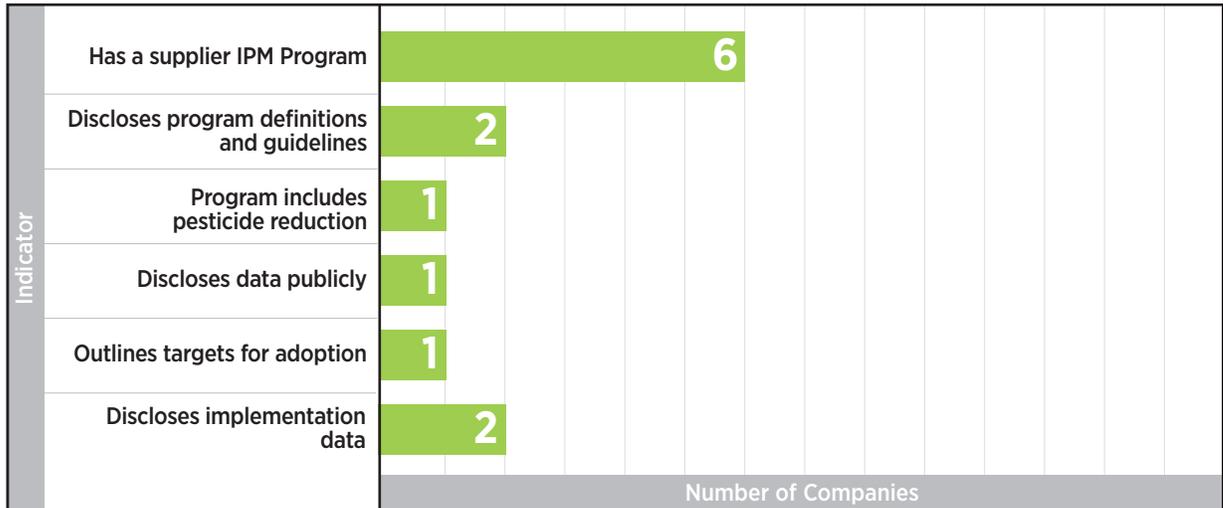
5. Integrated Pest Management

Integrated Pest Management (IPM) is a component of many sustainable agriculture policies in the food industry. However, there is no industry-accepted standard or definition for what IPM entails, or what its goals are. Given how commonly IPM is used in agricultural supply chains, it is important that shareholders receive sufficient information to understand whether a company’s IPM program seeks to reduce pesticides, or is focused primarily on encouraging farmers to maximize efficiency and reduce costs of pesticide management. Given the variety of definitions of IPM, it is incumbent upon companies to be clear about the purpose, goals, and metrics of their IPM programs.

Questions:

This question asks whether companies have an IPM program in place. If so, do companies disclose whether that program is required of suppliers (as opposed to voluntary or suggested); are guidelines of the program specified; and what percentage of suppliers participate in the program.

Aggregate Company Scores: Integrated Pest Management Program



Discussion:

Six companies named IPM as a strategy used in their supply chains. The majority of these companies encourage or suggest that suppliers use IPM, while only one (PepsiCo) requires that its suppliers adopt the program. Even then, the company offers no mechanism to ensure compliance.

- **PepsiCo:** The company describes a program requiring implementation of IPM from all suppliers, though the company reports it has not achieved full compliance. The company does not appear to have set goals associated with IPM, nor does it disclose specific guidelines, or explicitly comment on whether IPM should include reduced reliance on chemical pesticides. Importantly, the company does not outline any specific mechanisms for enforcement of the requirement, including whether contracts will be impacted.
 - “Farmers’ compliance with our IPM requirement has improved from 55% to 66% globally, including nearly 100% compliance in the U.S.”⁹²
- **General Mills:** The company notes that it supports IPM practices and provides examples of IPM methods, including reduced need for pesticides, but it does not specifically describe or require implementation of these strategies (instead encouraging them through research and education).

- “Integrated pest management (IPM) strategies – such as biological control, changing farmer behavior, and the use of resistant varieties – minimize the threat of pests and the need to use pesticides on crops. General Mills has been a leader in supporting IPM practices for decades. We fund IPM research, share results and work with our suppliers and conservation organizations to drive progress.”⁹³
- **Kellogg:** The company mentions that it is engaging farmers in adopting IPM, but does not disclose that it requires any specific implementation, nor does it disclose defined goals, targets, or guidelines to its suppliers.
 - “Specifically, we’re engaging farmers to adopt practices that promote pollinator health like integrated pest management and creating pollinator strips along field edges.”⁹⁴
- **Del Monte:** The company states that it helps growers adopt IPM, but does not require implementation, nor define specific goals or guidelines of such a program. It does, however, state that minimization of pesticides is a goal of IPM practices.
 - “We help growers apply the principles of Integrated Pest Management (IPM) to minimise the amount of pesticides used to control insects, other pests and crop diseases.”⁹⁵
- **Campbell’s:** The company asks its suppliers to try to use IPM strategies. No goals, targets, or guidelines are disclosed.
 - “Suppliers shall try to use advanced integrated pest management techniques, such as regular crop scouting by a certified scout, pest prevention techniques, and biological control.”⁹⁶
- **Hain Celestial:** The company reports that it works with suppliers to adopt IPM.
 - “We continue to work closely with many of our long-term vendors to ensure compliance to our rigorous pesticide standards. This includes ensuring GAP (Good Agricultural Practices), including implementation of IMP (Integrated Pest Management) programs that rely on mechanical methods of intervention as an initial method to control pests.”

Notable Practices:

None of the companies surveyed provide a robust example of successfully using Integrated Pest Management to reduce supply chain pesticide use.

A meaningful IPM program would include the following:

1. A definition of what IPM means in the context of the company and its suppliers, including a goal of reducing the use of synthetic pesticides
2. Guidelines that include voluntary and mandatory practices for suppliers to adopt to achieve the program goals
3. Targets for supplier participation which aim to reach the full supply chain
4. Mechanisms for monitoring and enforcing the program requirements
5. Metrics for demonstrating progress

An example from another sector is useful to demonstrate the elements of a robust IPM program. **Sysco**, a food service provider, worked with the IPM Institute to develop and implement an IPM program for its supply chain. The program includes clear goals, guidelines, and expectations for implementation, and the company is able to report on the program’s impact on pesticide use:

“Participating suppliers must track their pesticide use, with the goal of limiting the quantity applied or using lower-toxicity-level products when possible. In the 2017 growing season, our suppliers reported avoiding 5.1 million pounds of pesticides by utilizing IPM principles.”⁹⁷

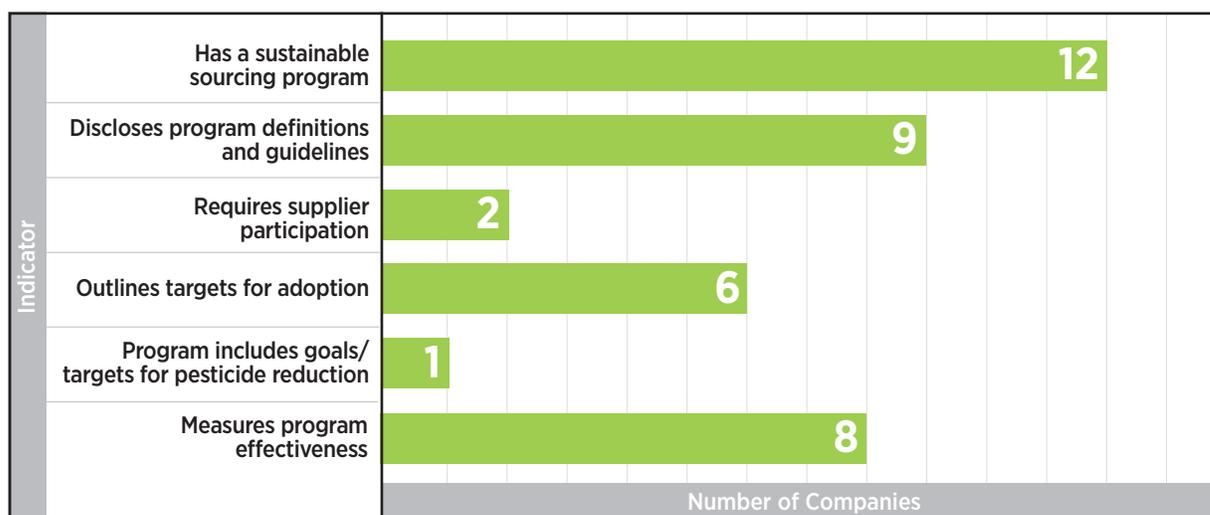
6. Sustainable Sourcing Programs

A number of food companies publicly state they currently source certain percentages (even up to 100%) of individual crops “responsibly” or “sustainably.” While these claims seem impressive, the companies’ reporting generally lacks clear requirements that a supplier must meet to be deemed sustainable. In the few cases where some level of sustainability metrics is provided, the issue of pesticides is not addressed. This question attempts to better define the term “sustainable” sourcing to understand how companies are interpreting and measuring sustainable sourcing.

Questions:

Companies are asked whether they have a “sustainable sourcing” program (by any name); are definitions and guidelines of the program specified; if every supplier is required to comply with the program; does the program include targets for supplier adoption; does the program include targets for reduction of synthetic pesticides; is data gathered to measure the effectiveness of the program.

Aggregate Company Scores: Sustainable Sourcing Program



Discussion:

Almost all companies surveyed had some type of sustainable agriculture program for their agricultural supply chains. Only two companies – Post and B&G Foods – do not. Of the companies with programs, there is significant variation in whether the program is required to be followed by suppliers, what guidelines exist, and whether there are metrics for measuring progress.

Three companies, Conagra, Kraft Heinz, and J.M. Smucker mention a sustainable agriculture program, but lack detailed information regarding how each defines sustainable agriculture or what guidelines, principles, and/or goals are used in the program. These disclosures are particularly problematic as they tout responsibility in agricultural sourcing without evidence of what supplier actions are required or encouraged and what degree of uptake the company has achieved. A company’s “sustainability program” might include a wide range of standards, but mere compliance with current laws does not qualify as a meaningful sustainability program. Laws and regulations governing conventional agricultural

practices have failed to ensure health or environmental sustainability. Where sustainability programs require efforts beyond current laws, it is important for companies to describe the elements of those programs. Similarly, identification of issue areas, without clarity as to the programs and metrics used to address them, provide insufficient information for investors to conclude that company programs are effectively increasing the sustainability of practices on the ground. This uncertainty around the term “sustainability” underscores the need for companies to disclose what the term means.

- **Conagra:** The company describes internal processes to pursue responsible sourcing, but the company’s supplier code of conduct only has this to say about sustainability:
 - “Conagra Brands expects that its suppliers will act in an environmentally responsible manner. At a minimum, this means suppliers who are in compliance with applicable environmental laws and regulations, and who have the commitment as well as the ability to remediate any environmental problems they may cause.”^{98,99}
- **Kraft Heinz:** In its 2017 Corporate Social Responsibility report the company notes it has an agricultural program, but does not provide links or details of the program.
 - “The Kraft Heinz Global Agriculture Program ensures key crops used in Kraft Heinz products are safe for consumers and helps suppliers and their farmers increase productivity.”¹⁰⁰

Since the term “safe for consumers” can be interpreted in many ways, it is important to be clear about the term. For example, does the company define “safe” as compliance with existing regulatory requirements, or with more protective standards? Ben and Jerry’s (a Unilever brand) 2017 announcement that it will not purchase ingredients from suppliers who use glyphosate as a pre-harvest drying agent, even though this practice is allowed by the EPA,¹⁰¹ provides an example of a company safety standard that goes beyond current law (although, it is unclear whether the company has yet to fulfill this commitment). The goal of “increasing productivity” is also unclear. Increasing productivity can sometimes be at odds with safety. Information about how increased productivity is achieved would be useful to shareholders in assessing the ability of the program to reduce risks.

- **J.M. Smucker:** The company announced in its 2018 Corporate Responsibility Report that it would roll out a responsible sourcing program by the end of the year. As of the writing of this report, the program has not yet been publicly announced.
 - “Smucker is taking a further step in its commitment to corporate responsibility with the creation of the Responsible Sourcing function in order to consolidate and enhance our responsible sourcing activities. We will roll out our global Responsible Sourcing Program by the end of calendar year 2018.”¹⁰²

Pesticide reduction goals were seldom mentioned as a component of sustainable agriculture. Only one company (Nestlé) included goals for reducing pesticides as part of its sustainability program.

Two companies disclosed that a certain percentage of their priority ingredients are sustainably or responsibly sourced, but do not appear to account for pesticide use. This is an oversight as pesticide use can undermine other common sustainability goals (for example, harming biodiversity).

- **Kellogg:** The company states that the following ingredients are responsibly sourced at given percentages of the supply chain.¹⁰³ However, the metrics used to determine these levels are not outlined in this reporting. Without disclosure of these metrics, it is impossible to know whether a reduction in synthetic pesticide use is part of the criteria for a crop to be responsibly sourced. Clarity on this issue is important.
 - Corn: 96%
 - Potatoes: 90%

- Rice: 92%
- Wheat: 89%
- **General Mills:** The company also claims that the following ingredients are responsibly sourced at given percentages of the supply chain¹⁰⁴ without providing clarity on pesticide use. The company has recently committed to report pesticide use data for a percentage of its oats supply chain through its regenerative agriculture program, but it does not appear that this commitment has any relation to the company's responsible sourcing claims.
 - Corn: 82%
 - U.S. Wheat: 74%
 - Oats: 90%

Notable Practices:

Nestlé's Responsible Sourcing Standard for suppliers stands out for its comprehensiveness and level of detail. Its standard includes several important components:

1. Requirement that all suppliers demonstrate either full compliance with all guidelines, or continuous improvement toward full compliance.
2. Guidelines for the use of agrochemicals which goes above and beyond current regulatory requirements.
 - a. Requirement that suppliers do not use chemicals of concern, including those listed on Stockholm POP or Rotterdam PIC lists, or categorized as WHO class 1a or 1b
 - b. Disallows prophylactic use of pesticides

Nestlé does not provide metrics for measuring or reporting supplier pesticide use, which would strengthen this requirement.

7. Crop-specific Sourcing Programs

Rather than addressing supplier standards as a whole, some companies have responded to pressure from consumers, investors, and public interest organizations by implementing sustainability programs for specific high-risk crop supply chains such as palm oil, coffee, and cocoa. Such programs can provide a baseline for future action, providing experience in defining, implementing, and measuring supplier standards and compliance. In most instances, the ability to implement a sustainability program for palm oil, for example, may better position a company to implement a program for more common commodity crops like wheat, oats, or corn. Such programs often have third-party certification systems. Knowing whether a company uses such systems, and why or why not, can clarify its evaluation and management process for suppliers.

Question:

This question asks whether companies have a sustainable/responsible sourcing program for one or more specific crop(s) and whether such program(s) include third party auditing or certification.

Discussion:

After reviewing results for all companies, no points were awarded for this question. While it is useful to know whether companies have sustainable sourcing programs in place for specialty crops, these programs do not appear to be tied to broader supply chains, and do not shed light on whether companies are taking action to reduce pesticide use.

All companies surveyed except one (**B&G Foods**) have at least one such program in place.

Palm oil is the most common crop for which companies have established sourcing guidelines. All companies with a commodity-specific program have a process in place for sustainable sourcing of palm oil. Some companies have an additional program(s) for other important or high-risk crops.

The Roundtable on Sustainable Palm Oil (RSPO) has been engaged by most major food manufacturers to provide certification, making the program of implementation and oversight easier for companies. Historically the RSPO's standards have been criticized as too weak,¹⁰⁵ the organization strengthened its standards in 2018. However, problems remain and the organization has been called out¹⁰⁶ for failure to suspend a member company that continually violates RSPO's policies and the law. These challenges demonstrate that improving sustainability is an ongoing process that requires consistent attention and improvements.

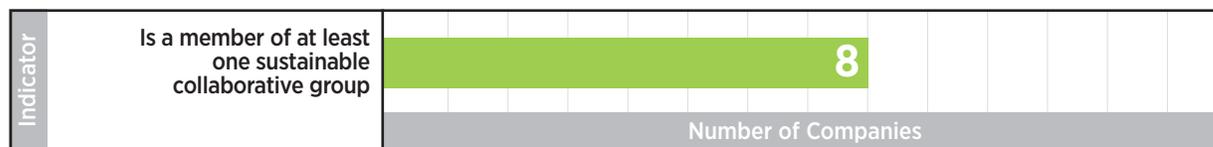
8. Membership in Industry Sustainability Collaborative Groups

Industry collaborative groups can provide support and information for companies when they are working to implement sustainability initiatives. One prominent group is *Field to Market*. *Field to Market* defines itself as “a diverse collaboration working to create productive and profitable opportunities across the agricultural value chain for continuous improvements in environmental outcomes.”¹⁰⁷ The group, comprised of corporations, business associations, agrochemical producers, and civil society, provides a framework for measuring continuous improvement in sustainable agriculture. However, that framework does not explicitly measure pesticide use.¹⁰⁸ If companies rely only on the *Field to Market* tools to define how they pursue progress toward sustainable supply chains, they are likely missing this significant component. Understanding whether a company belongs to an industry collaborative provides information to shareholders about a company's intent to reduce the impact of its agricultural supply chains, and improve its reputation and standing, as well as the potential limitations it may exhibit along its journey.

Questions:

This question asks whether the company is a member of a sustainable agriculture collaborative, and if so, which one(s).

Aggregate Company Scores: Industry Sustainability Collaborative Membership



Discussion:

Eight of the 14 companies surveyed disclose membership in at least one sustainable agriculture collaborative. From the companies surveyed, *Field to Market* was the group with the most members, with four companies describing themselves as members. *SAI Platform* had nearly as many with three member companies. Other groups mentioned include *Sustainability Consortium*, *Midwest Row Crop Collaborative*, and *Canadian Field Print*. Groups like these are an important part of advancing sustainability in agricultural supply chains, but readily available information indicates that no collaborative incorporates pesticides into its work.

Kellogg: “We’re also looking at the bigger picture, finding ways to conserve natural resources in the cereal-making process. By 2020, Kellogg aims to reduce energy and greenhouse gas emissions by 15%, and implement water reuse projects in 25% of plants.”

While these commitments are important for reducing impacts to resources, they do not clearly contribute to improving the health of farmland for the future.

PepsiCo: “Our aim is to ensure PepsiCo has continued access to the key agricultural raw materials necessary to supply growing consumer needs while respecting the environment and communities involved in producing those raw materials.”¹¹¹

While this statement acknowledges the importance of considering environmental and community impacts, it does not clearly address the importance of enhancing soil and other critical components of the farm system currently damaged by pesticide, water, and land-intensive practices.

Notable Practices:

General Mills’ regenerative agriculture initiative is commendable for several reasons.

1. It clearly outlines the program’s goals, principles, and the guidelines that participating suppliers are expected to follow.
2. It includes a target for participating suppliers (by acreage) and a timeline: one million acres by 2030.
3. It offers support to farmers to help them transition, in the form of educational trainings and one-on-one technical support.
4. It includes specific quantitative metrics through which the company will be able to report annual data and demonstrate trends.

RECOMMENDATIONS

Investors

Investors have the power to push corporations to promote sustainable business practices that consider all stakeholders and encourage long-term value. In the case of pesticides, investors can encourage corporations to invest in robust strategies to reduce the use of chemical pesticides in agricultural supply chains. Establishing benchmarks for measuring performance and progress is an important step; the benchmarks outlined in this report can be used for this means.

Corporations

Major food corporations will be well served by responding to the rapidly changing business environment where they are valued not only for their financial returns, but how they impact communities, consumers, workers, and the environment. Pesticides have negative impacts on a wide range of stakeholders. Food companies must assess the full range of risks related to the pesticide use in supply chains – from reputational to health and environmental risks -- and take meaningful steps to reduce them. These steps should include the following:

1. Publicly commit to reducing pesticide use in agricultural supply chains. Prioritizing core ingredient crops is a logical first step.
2. Outline strategies for pesticide use reduction, including targets, timelines, and metrics for measuring progress year-over-year.
 - a. If these strategies include Integrated Pest Management, Regenerative Agriculture or other common terms, it is particularly important to establish clear definitions and outline specific supplier goals, or requirements, to differentiate from other uses of the same terms.
 - b. We recommend using a tiered approach that prioritizes the reduction or elimination of highest risk chemicals with the most urgency. The Chemical Footprint Project provides an example of a procedure for prioritizing chemicals (which the Project refers to as Chemicals of High Concern) by checking against national and international authorities.
3. Clarify sustainable sourcing goals to incorporate pesticide use reduction. Avoid making sustainable sourcing claims that do not account for pesticide use.
4. Invest in agricultural methods that not only limit or eliminate chemical pesticide use, but improve the health of soil and provide alternative solutions to pest management, such as regenerative agriculture.

In addition to these methods, companies can use their membership in industry sustainability collaboratives to advocate for technical assistance providers to establish methods for tracking and reporting pesticide use. By working in partnership with academics, non-governmental organizations, and other industry members, companies can work to develop solutions to the current challenges in reducing supply chain pesticide use.

Policy

Policymakers are charged with ensuring that regulatory decisions are made with public health as the first priority. As such they should ensure the widest sourcing of studies on health and environmental impacts, including studies beyond those offered by applicants when considering approval or continued use of pesticides. As new agrochemicals are constantly being produced and introduced to the market, it is difficult to assess their long-term effects. The precautionary principle provides a sounder approach to risk management. Utilized by other developed nations, this principle states that in the case of uncertain outcomes, it is important to protect against negative risks. In doing so, regulators consider a new chemical potentially harmful until scientists have proven its safety.

Consumers

Consumers have the power to “vote with their wallets.” Consumers can let food companies know their values and preferences with regard to reduced pesticide use that is safer for consumers, farmworkers, and the environment. Consumers can choose brands that support transparency in food production and pesticide-free ingredient sourcing. When consumers are faced with package claims about sustainability, it is important to consider whether the company producing that product has clearly demarcated the meaning of its claims. Where possible, consumers can also purchase products that are certified organic, which disallows the use of synthetic pesticides.

CONCLUSION

Given the myriad risks the use of pesticides creates for the environment, public health, consumers, and corporations, it is time for investors to amplify solutions that promote long-term sustainability. Agricultural supply chains will face increasing challenges as the impacts of climate change continue to unfold; it is critical that companies that rely on these supply chains take action now to prepare for these challenges and mitigate risk. This scorecard provides suggestions for meaningful corporate action to reduce pesticide use in agricultural supply chains. By taking steps to shift the food system away from toxic chemicals and towards practices which promote healthy soil, biodiversity, and farmer resilience, corporations have an opportunity to live up to their responsibility to all stakeholders, protect themselves from litigation and regulatory risk, and gain the trust of consumers and the public.

APPENDIX A

Scorecard Survey Questions

Note: 1 point awarded for each question, except questions 7 and 7a (for which no points were given)

1. **Do you have a stated policy to reduce the use of synthetic pesticides in your agricultural supply chains?**
 - a. Do you publicly describe the methods used to achieve the goals of your policy?
 - b. Does your commitment encompass all suppliers?
 - c. Do you measure the effectiveness of your program in achieving the goal of reduced pesticide use?
2. **Do you have a specific commitment, target, or goal to reduce synthetic pesticides?**
 - a. Is the policy time-bound?
 - b. Does your policy include prioritization of chemicals for reduction?
3. **Do you track pesticide use in your agricultural supply chains?**
 - a. Do you require suppliers to provide quantitative data about their pesticide use?
 - b. Is supplier pesticide use data audited by a third party?
 - c. Do you disclose data to investors and/or the public?
4. **Do you have a supplier standard regarding the use of glyphosate-based herbicides?**
 - a. Does your standard include reduction of glyphosate use pre-harvest?
 - b. Do you track suppliers' use of glyphosate?
5. **Do you have an Integrated Pest Management (IPM) program applicable to suppliers?**
 - a. Are the definitions and guidelines of your IPM program public?
 - b. Do the program's guidelines include reduction of synthetic pesticides?
 - c. Is adoption of IPM required of suppliers?
 - d. Do you have outlined targets for IPM adoption?
 - e. Do you report on supplier implementation of IPM?
6. **Do you have a sustainable sourcing program for agricultural supply chains?**
 - a. Are the definitions and guidelines of your sustainable sourcing program public?
 - b. Is your sustainable sourcing program required of all suppliers?
 - c. Do you have outlined targets for the adoption of the program?
 - d. Does your sustainable sourcing program include targets or goals for the reduction of synthetic pesticide use?
 - e. Do you collect information to measure the effectiveness of your program?
7. **Do you have a sustainable sourcing program for one particular crop (e.g. palm oil, coffee)?**
 - a. Do you use third party certification related to this program?
8. **Are you a member of an industry agricultural sustainability collective?**
9. **Do you have a regenerative agriculture program?**
 - a. Are the definitions and guidelines of your regenerative agriculture program public?
 - b. Do you have targets for supplier adoption of regenerative agriculture practices?

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