



PepsiCo Positive Ag *Supplier Playbook*

Version: June 2023



Table of Contents

- ❑ **Page 03 – 13:** Introduction, Goals and Definitions
- ❑ **Page 14 – 17:** Step 1. Establish your goals
- ❑ **Page 18 – 28:** Step 2. Prepare an action plan
- ❑ **Page 29 – 33:** Step 3. Determine how to measure progress
- ❑ **Page 34 – 35:** Step 4. Activate your plan
- ❑ **Page 36 – 39:** Step 5. Monitor progress
- ❑ **Page 40 – 47:** Quick Start Guides Workbook
- ❑ **Page 48 – 72:** Appendix

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Introduction

Welcome to the **PepsiCo Positive Ag Supplier Playbook**. We invite you to join us on this journey and are excited to work with you to implement regenerative farming in our shared supply chain.



Each organization is at a different place in its sustainability journey, and we want to make it as easy as possible for you to help us on ours. This playbook will walk you through the suggested steps of implementing and measuring the impact of regenerative farming in your value chain and provide resources to help you along the way.

We created this Playbook to:

- Talk you through PepsiCo's goals
- Explain what we need from you
- Help you set, achieve, and report your own regenerative farming goals

This playbook is NOT meant to:

- Set specific goals for your business
- Dictate specific farming practices

Introduction – Understanding PepsiCo’s Positive Agriculture Goals

PepsiCo’s impact-driven Positive Agriculture initiative is founded on three major goals – sustainable sourcing, regenerative agriculture, and improved livelihoods.

We need all our suppliers working with us to achieve these goals. This Playbook will be focusing on the regenerative agricultural goal.



2030 Goals

Scope

KPIs

Including grower-sourced crops (potatoes, whole corn, oats), and supplier-sourced key ingredients from third parties (vegetable oils, sweeteners, fruits, grains, etc.).

Percentage Sustainably Sourced –
Volume of key ingredients grown using sustainable practices over total volume of ingredients purchased

Approximately equal to 100 percent of the land used globally to grow priority crops and ingredients for the company’s products.

Number of Acres Engaged and Regenerative –
Engaged: practicing at least 2 locally appropriate regenerative agriculture practices
Regenerative: demonstrate measured improvement in at least 2 of the four environmental impact areas

Focusing on the most vulnerable farming communities linked to the global value chain, including smallholder farmers and farm workers, women and minority farmers.

Number of People Engaged and Impacted –
Count of people across the value chain that are positively impacted

Introduction – *Five dimensions of Regenerative Agriculture*

RegenAg encourages best practices for farming and grazing that mitigate climate change by rebuilding soil organic matter and restoring degraded soil biodiversity—resulting in carbon drawdown and improvements to the water cycle and soil quality, while enhancing the wider ecosystem.



Carbon emission reduction and sequestration

Reduce absolute GHG emissions across the PepsiCo value chain by 40% by 2030 (vs 2015 baseline), sequester carbon, and reaching net-zero by 2040.



Soil Health

Preserve and improve soil health, minimize soil loss through erosion, and avoid soil damage due to disease, compaction, and contamination.



Enhanced biodiversity

Improve and restore ecosystems with a focus on building soil health and fertility, reducing carbon emissions, enhancing watershed management, improving farmer livelihoods, and increasing biodiversity.



Watershed Health

By 2030, replenish more than 100% of the water that we use back into the local watershed in high water-risk areas, and achieve “best-in-class” ⁽¹⁾ water use efficiency in high-water-risk manufacturing sites.



Improved livelihoods

Improve the livelihoods of more than 250,000 people in our agricultural supply chain and sustainably source priority-supplier-sourced raw materials, particularly for the most vulnerable farming communities by 2030.

⁽¹⁾ 1.2 liters /liter of beverage production 0.4 liters/kg of food production

PepsiCo's 2022 Key Ingredients

*While all sourced ingredients contribute to our Climate goals, PepsiCo will focus on key ingredients to achieve **Sustainably-Sourced** and **RegenAg** goals by 2030.*

100%
sustainably sourced key ingredients by 2030

7 million
acres of land farmed with regenerative farming practices by 2030

Grower Sourced	Supplier Sourced
Potatoes	Potatoes
Whole corn	Grains: Whole corns, whole oats, wheat, cornmeal, rice
Oats	Vegetable Oils
	Sweeteners: Cane sugar, beet sugar, HFCS
	Fruits: Orange juice, banana
	Raw milk
	Cocoa / chocolate
	Dairy Seasoning ⁽¹⁾

Note: This list does not capture all sourced ingredients, but the key ones for PepsiCo Positive Agriculture goals. The list is subject to change on a yearly basis.

⁽¹⁾ Not in scope for sustainably sourced goal, but the acres related to feed value chain are in scope for Regen Ag goals

Introduction – *What PepsiCo Needs from Suppliers?*

We need your help in achieving scaling of regenerative acres while impacting more than 250,000 livelihoods in our agricultural supply chain. No matter where you are in your Regen Ag journey, here's what we need from you:



What we need from you

1

Transition to Regenerative Agriculture:

Spreading the adoption of regenerative farming practices across supply chains approximately equal to its entire agricultural footprint around the world used to grow key crops and ingredients for the company's products. With these efforts, work to maximize the reduction and sequestration of greenhouse gases (GHG).

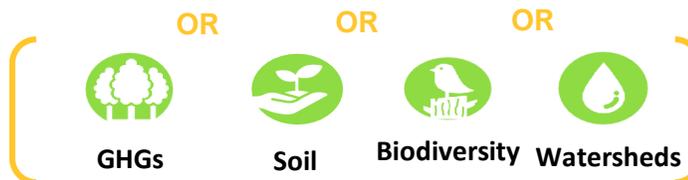
2

Impact Area: All suppliers must select and report on at least 2 impact areas. It is preferred that Carbon be one impact area. Impact areas are interconnected; most RegenAg initiatives will generate positive impacts on multiple impact areas.

3

Report:

Report your progress annually at the end of your crop cycle, or each year by Q1 (calendar year).



Introduction – *What is Regenerative Agriculture?*

PepsiCo's new commitment to Positive Agriculture is a commitment to promote Regenerative Agriculture and Farmer Livelihoods to address long-term challenges and risks to planet, people, and PepsiCo.
But what is Regenerative Agriculture?



Regenerative agriculture (Regen Ag) practices focus on improving soil health and better water management, promoting biodiversity and improving livelihoods of farming communities. Regenerative practices help to restore natural ecosystems by rebuilding organic matter, restoring biodiversity and sequestering carbon below the soil surface, which reduces overall CO2 emissions and increases water holding capacity.

Regen Ag looks different for each region, crop, supplier, and farmer. Common regenerative practices that farmers use in their farming operations include:

Planting **cover crops** to simply cover the soil providing additional nutrients in non-harvest seasons.



Allowing **roaming livestock** in farming fields during off-season to provide the soil with nutrients from the grass' roots.



Managing the **water usage** in growing seasons to reduce water waste and allow crops to grow most efficiently.



Introduction –

Understanding the difference between Regen Ag and Sustainable Sourcing

You may already be helping PepsiCo in our 100% sustainably sourced initiative. We thank you for helping us achieve that goal! This Playbook will be primarily focused on the Regenerative Agriculture goal. **But what's the difference?**

Sustainable Sourcing

Sustainable Sourcing is focused on embedding integrity, fairness, and stewardship into the PepsiCo Agro Supply Chain...

Sustainable Sourcing views success as adhering to and providing assurances for the social, environmental, and economic principles in PepsiCo's Supplier Code of Conduct & their Sustainable Farming Program (SFP)...

Sustainable Sourcing validates success through independent 3rd party audits, compliance to the SFP guidelines, or a continuous improvement model...

Regenerative Agriculture

...while **Regenerative Agriculture is focused on** implementing farming practices that will improve and restore farmland ecosystems

...while **Regenerative Agriculture views success as** continually improving carbon reduction and removal, soil health, watershed health, biodiversity, and livelihoods

...and **Regenerative Agriculture validates success through** an annual reporting on the impacts attained on and around the-farms in our supply chain

Rotation and edge of field and landscape table, accounting for acres

	Regen Ag Acre	Eligible for climate reduction target	Eligible for climate removal target	Minimum Level of validation/ verification required*
Impacts measured on production area producing ingredients PepsiCo uses in our supply shed	X	X	X	Self-assessment or 2 nd party assessment on field, data validation
Impact measured on rotational areas of farms on land that supplies ingredients in other years and within our supply shed (rotational acre)*	X		X	Self-assessment or 2 nd party assessment on field, data validation
Impact measured on adjacent to production area (e.g., riparian zones, edge of field) of farms producing PepsiCo ingredients in our supply shed	X		X	Self or second party reported, potential for 3 rd party data validation or verification
Landscape restoration (same region as our product and our product contributed to degradation)		X	X	3 rd party verification

For the Public Regenerative Agriculture Scheme Rules, [click here](#).

Introduction – *Creating Value through Regenerative Agriculture*

Regenerative farming only works when it makes economic sense and creates value in the short, medium, or long term across the entire agricultural supply chain.



Where is the value in Regen Ag?

Regen Ag focuses soil health, which in the long run, increases farm productivity by producing higher yields using less inputs. It improves water holding capacity, making farms/communities more resilient to drought and floods while also reducing erosion and polluted runoff.

Case study: Potato farmers in Northern India traditionally use flood irrigation which results in low water use efficiency. To evaluate the potential of alternative technologies they implemented gravity drip irrigation systems. Farmers noted improved yields (by 13%), 50% reduction in water usage and 60% water use efficiency improvement, among other benefits.



Are there economic benefits of Regen Ag?

Yes – many! Cost savings from reduced use of synthetic fertilizers, herbicides, and insecticides can have a positive impact on profitability. **We encourage you to check your local NGOs / Academic Institutions to learn more about the evidence for economic value of RegenAg in your region.**

Case study: Labor conditions and common environmental risks have been identified as common problems for the cane sugar industry in Mexico. Working with RegenAg practices like capacity building and taking a certification approach led them to a better outcome with better savings and an increase in the yields by 10%.

Introduction – *Creating Value through Regenerative Agriculture*

Implementing [RegenAg practices](#) creates value across the entire supply chain:



Cost Control

- Increase Yield & Farm Income
- Improve Quality
- Offset Inflation & Volatility



Supply Risk Management

- Assure Supply
- Improve Farm Resilience
- Adapt to Emerging Risk



License to Grow

- Enhance Corporate Reputation
- Address Regulatory Pressure
- Enable Business Growth & Investment

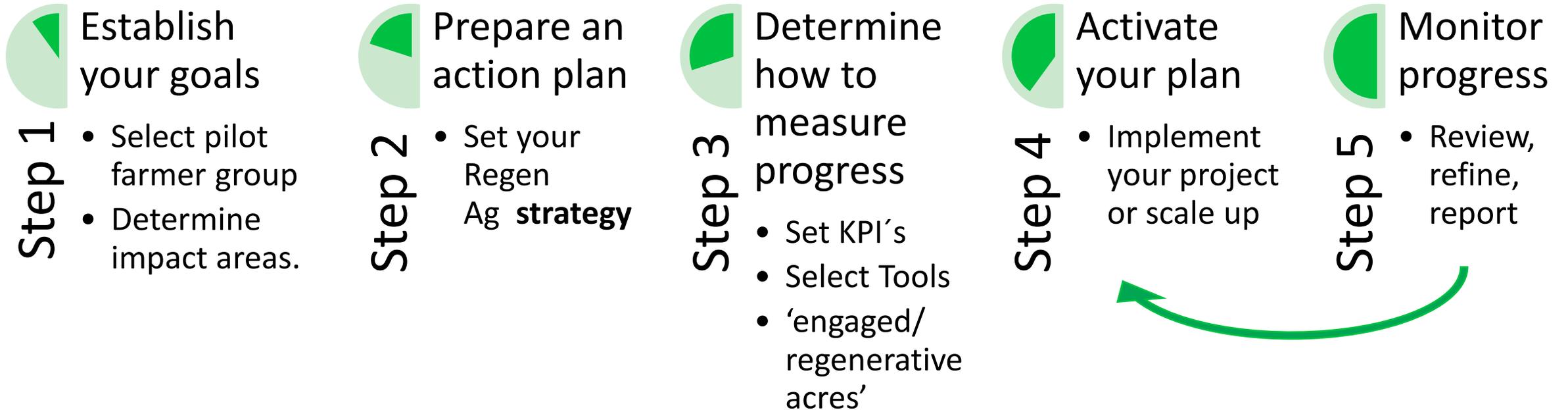


Other considerations

- You may not see improvements in the short term as benefits will take time to materialize.
- Practices and changes should be introduced with relevant expertise so as not to introduce excessive risk (e.g. If done incorrectly, decreased agrochemical usage may harm crops in the short term).
- Improved crop health depends on multiple factors, like breeding of good varieties.
- Savings will range depending on farm constraints (social and agronomic) and Regen Ag strategies chosen
- Starting the Regen Ag journey will probably require an initial investment.
- For companies that have not started with a sustainable agriculture program the process will be different and will require additional training.
- For more information, please see [Appendix 3.8](#).

How can suppliers transition to Regenerative Agriculture?

The next slides will explain each of the steps and action points below in more detail.



How to Use This Document

1 **Blue Banner** pages are core Playbook slides. These contain basic guidance about implementing RegenAg.

Step 1: Establish your goals
Determine Impact Areas

As you establish your own regenerative farming goals, consider both your customers' needs and the context of your own business. Different impact areas may be appropriate depending on your crop, geography, or customer base.

Considerations:

- Find out what goals your customers (like PepsiCo) have set for themselves.
- Identify how RegenAg practices may provide solutions to the issues farmers are facing. (Hint: common certifications used in your region/crop may provide clues to what these issues are.)
- Think about what is achievable for you and farmers in your supply chain and what may be achievable with external partners - this may be different for varying supply sheds and markets and a customized RegenAg may be necessary.
- Determine targeted impact areas.

What we need from you

Choose 2 or more of the following impact areas: It is preferred that first goal be carbon-related and the other be selected from the three below.

- Sequestering carbon & reducing emissions
- Building soil health & fertility
- Enriching watershed health
- Protecting & enhancing biodiversity

Encouraged, but not required:
Want to go one step further? Help us measure improved farmer livelihoods. This will not count toward the 2+ impact areas required above.

In the yellow boxes, we highlight specifically **What we need from you**, to make our request as clear as possible.

2 **Green Banner** pages in the middle of the document are our Quick Start Guides (QSG's) which show you how to apply what you learned in the Playbook for your organization.

Quick Start Guide #1 – Get Started

You may source from multiple supply sheds, and they may not all have the same set of needs or circumstances. Use this quick start guide to think about where to begin. Please note, this list is not exhaustive or mutually exclusive.

Which farm or supply shed should you start with? Consider one where you have...

Strong relationships with farmers	An opportunity to make the greatest impact	A high-risk environmental situation	Relevant industry or multi-stakeholder initiatives	Other
Benefit: The trust you have previously established will encourage cooperation from farmers.	Benefit: The opportunity may allow for a 'quick win' or bigger 'bang for your buck'.	Benefit: Addressing the situation will relieve negative pressure on the environment, and likely farmers.	Benefit: You have built-in partners to support your RegenAg initiative.	<i>The list of starting points is not exhaustive; you are encouraged to consider additional situations specific to your business</i>

Fill out the "Get Started" template.

Light green **Activity** sections at the bottom of each Quick Start Guide point you to additional templates to help you engage with the material.

3 **Yellow Banner** pages at the end of the document are our Appendices. The Appendices provide additional detail and resources about the Playbook content.

Appendix 3.4 Tracking tools

PepsiCo accepts data collected using the tools below to track the progress toward your selected goals. These tools include widely accepted KPIs and measurement techniques that will help PepsiCo gather accurate information from all suppliers.

Building soil health and fertility	Sequestering carbon and reducing emissions	Enriching watershed health	Protecting and enhancing biodiversity	Improving Farmer Livelihoods*
Measured improvement in indicators of soil health, including tools such as: <ul style="list-style-type: none">Direct measurementCool Farm Tool sequestrationField to Market Platform soil carbon & conservation	Measured improvement in greenhouse gas emissions reductions and sequestration, using tools such as: <ul style="list-style-type: none">Cool Farm ToolFieldprint CalculatorISCC Greenhouse Gas Module	Measured improvement in indicators of watershed quantity and quality, using tools such as: <ul style="list-style-type: none">Cool Farm Tool WaterFieldprint CalculatorPepsiCo Water Use Efficacy (WUE) Tool (see pg. 4)	Measured improvement in indicators of enhanced biodiversity, using tools such as: <ul style="list-style-type: none">Cool Farm Tool BiodiversityFieldprint CalculatorHabitat Potential Index (HPI)Increase in genetically unique species	Economic Prosperity: <ul style="list-style-type: none">ProfitabilityRelative Poverty Level Farmer and Farm Worker Security: <ul style="list-style-type: none">Food SecurityLand TenureWagesLabor Practices Women's Economic Empowerment: <ul style="list-style-type: none">Women's decision makingWomen's resource access and control

*PepsiCo Livelihoods Measurement Framework & Biodiversity discussed in following slides

Step 1: Establish your goals

Which farm or supply shed should you start with?

Establish your own Regen Ag goals

Find the appropriate impact areas



Step 1

Establish your goals

- Select pilot farmer group
- Determine impact areas

What do we need from you?



Register your project. Tell us:

- Your impact areas



Step 1: Establish your goals

Select a pilot farmer group



You may source from multiple supply sheds, and they may not all have the same set of needs or circumstances. Use this quick start guide to think about where to begin. Please note, this list is not exhaustive or mutually exclusive.

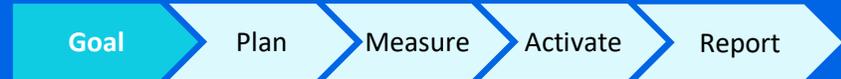
Which farm or supply shed should you start with? Consider one where you have...

Strong relationships with farmers	OR	An opportunity to make the greatest impact	OR	A high-risk environmental situation	OR	Relevant industry or multi-stakeholder initiatives	OR	Farms already certified under Social Standards	OR	Other
<p>Benefit: The trust you have previously established will encourage cooperation from farmers.</p>		<p>Benefit: The opportunity may allow for a 'quick win' or bigger return on the investment.</p>		<p>Benefit: Addressing the situation will relieve negative pressure on the environment, and likely farmers.</p>		<p>Benefit: You have built-in partners to support your RegenAg initiative.</p>		<p>Benefit: Growers are certified under a recognized standard, which provides an opportunity to claim 'engaged acres' (once certified).</p>		<p><i>The list of starting points is not exhaustive; you are encouraged to consider additional situations specific to your business</i></p>

Fill out the ["Get Started"](#) template.

Step 1: Establish your goals

Determine Impact Areas



As you establish your own regenerative farming goals, consider both your customers' needs and the context of your own business. Different impact areas may be appropriate depending on your crop, geography, or customer base.

Considerations:

- Find out what goals your customers ([like PepsiCo](#)) have set for themselves.
- Identify how Regen Ag practices may provide solutions to the issues farmers are facing. (*Hint: common [certifications](#) used in your region/crop may provide clues to what these issues are.*)
- Think about what is achievable for you and farmers in your supply chain and what may be achievable with [external partners](#) - this may be different for varying supply sheds and markets and a customized Regen Ag may be necessary.
- Determine targeted impact areas.

pep+ What we need from you

Choose 2 or more of the following impact areas: It is preferred that first goal be **carbon-related** and the other be selected from the other three below.



Sequestering carbon & reducing emissions

OR



Building soil health & fertility

OR



Enriching watershed health

OR



Protecting & enhancing biodiversity

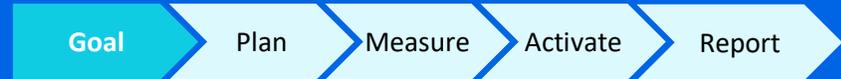
Encouraged, but not required:



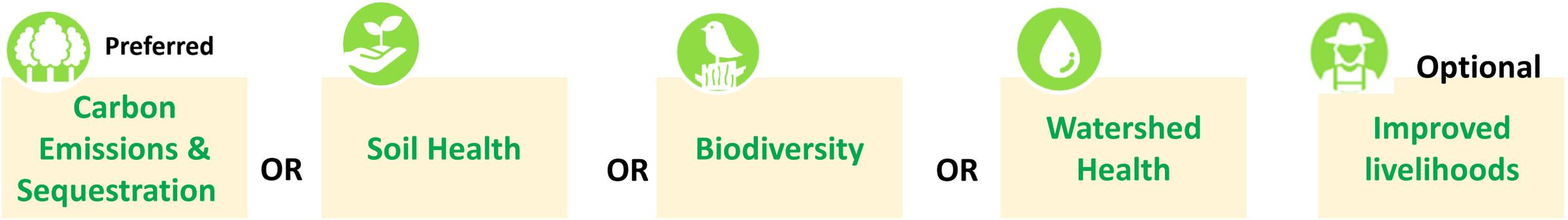
Want to go one step further? Help us measure [improved farmer livelihoods](#). This will not count toward the 2+ impact areas required above.

Step 1: Establish your goals

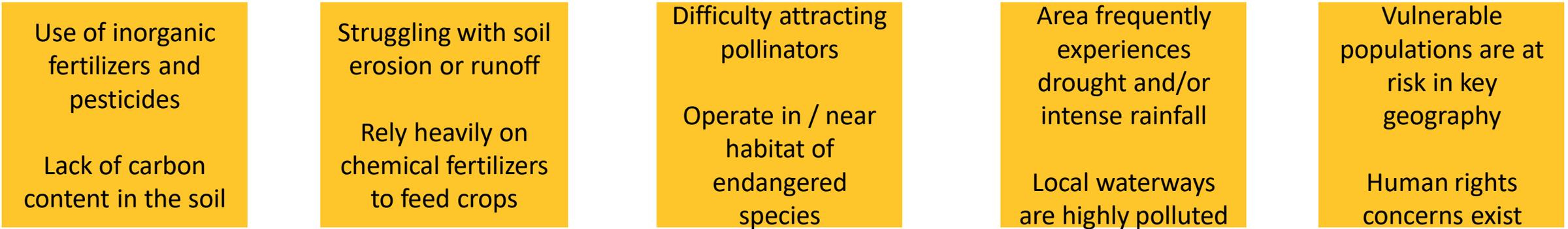
Determine Impact Areas



To select at least **two impact areas**, focus on the issues that farmers in your supply chain face:



Examples of issues that may lead to picking an impact area:



Note: The reason we encourage suppliers to focus on sequestering carbon and reducing on-farm emissions is because PepsiCo has set rigorous Science-Based and Net Zero greenhouse gas goals that require us to decrease our Scope 3 (or supplier) emissions, and agriculture is one of the greatest contributors to greenhouse gas emission in our scope 3 footprint.

Step 2: Prepare an action plan

Choose your RegenAg practices

ESA (Economic, Social, Agronomic) incentives

Set your certification strategy

Identify the resources, capabilities, and expertise needed



Prepare an action plan

- Set your Regen Ag strategy

What do we need from you?



Register your project. Tell us:

- Your Regen Ag practices

Step 2



Step 2: Prepare an action plan

Set Your Strategy

Goal

Plan

Measure

Activate

Report

Now that you have identified which impact areas you will focus on and with which pilot group, it's time to set your strategy.

Choose your regenerative practices!

The good news is, regenerative practices tend to positively impact multiple impact areas. Take a look at the [Practice Bank](#) to identify which combination of practices you should employ to work toward your impact areas.



Carbon



Soil



Watersheds



Biodiversity

What practices can you find in the Practice Bank?

Crop rotation

Grassland restoration

Irrigation efficiency

Step 2: Prepare an action plan

Choosing regenerative practices



You may already feel comfortable to identify which regenerative practices will work best in your supply chain. You can use the RegenAg Practice Bank to support you if required.

Example Scenario: My organization's priorities (per the Supplier Playbook) are soil health, reducing emissions, and improving biodiversity. We considered practices that have direct and indirect impacts across at least 1 of my impact areas. We also considered practices that are relevant to our farmers.

Practice	Practice Implementation	Practice Classification	SOIL	WATER	BIODIVERSITY	GREENHOUSE GAS	
			Building Soil Health and Fertility	Improving watershed health	Protecting and enhancing biodiversity	Sequestering carbon	Reducing emissions
Soil Cover	Cover crops (incl. nutrient-fixing cover crops)	In Field	Direct	Direct	Direct	Direct	Indirect
Land management	Conservation tillage (reduced, strip, no-till)	In Field	Direct	Indirect	Indirect	Direct	Direct
Land management	Use Bio Fertilizers	In Field	Direct	Direct	Direct	No Impact	Direct

The four environmental areas we chose (protecting soil health and fertility, protecting and enhancing biodiversity, watershed health, reducing emissions & sequestering carbon) are positively impacted by focusing on the three practices shown (Cover Crops, Conservation Tillage, Use Bio Fertilizers).

Step 2: Prepare an action plan

Goal

Plan

Measure

Activate

Report

Choosing your regenerative practices – A real life example in the US Midwest

In 2018, PepsiCo met with experts in the US farming system including farmers, suppliers, and peers, to understand what barriers to Regen Ag the region faced, and how they could work together to address those barriers. They learned many farmers were not convinced that Regen Ag was worth the risk, and they were hesitant to experiment with changing practices. PepsiCo worked with Practical Farmers of Iowa (PFI) to work with US farmers on nutrient management, reduced tillage, cover crops, water use efficiency, and diverse crop rotation, and show them how to implement these practices on their own farms. They also offered to share costs to incentivize farmers to try these practices on their own.

Results:

Practices

- Cover crop, conservation tillage and nutrient management adoption across 254K acres

Carbon & Soil Health

- 33% net carbon improvement
- 254 acres showed improvement in Field to Market Soil Carbon Score
- Which have led to healthier, more nutritious soil and carbon retained in ground rather than released into atmosphere

Water & Biodiversity

- 254K acres with watershed health and biodiversity improvements measured by the Field to Market Platform
- Improved water retention, less runoff into local watersheds
- Protects biodiversity and creates habitats

Step 2: Prepare an action plan

Set Your Strategy



Create a strategy to engage farmers and empower them to implement regenerative farming practices. This will likely require a multi-pronged approach that includes economic, social, and agronomic tactics.

Considerations:

- Understand what agricultural challenges farmers may be facing and select the Regen
- Ag practices that might help address them.
- Research existing, relevant initiatives that may help you achieve your goals. These may be led by:
 - NGOs
 - Academic institutions
 - Governments
 - Industry groups
 - Pre-competitive corporate collaborations
- Consider what [certification](#) schemes may be available to support your progress towards Regen Ag.
- If program design is needed to accomplish your goals, design programs with the farmer in mind
- Identify [potential locations & participants](#) to pilot programs.

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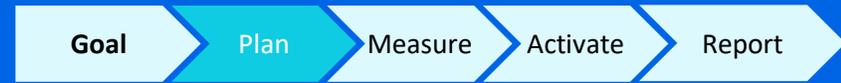
Practices can influence multiple areas



Only the most impactful strategies include all three prongs; however, if it feels more approachable to start with one and build up over time, that's fine too.

Step 2: Prepare an action plan

Economic incentives of Regen



Regenerative agriculture must make economic sense for farmers, or they may be hesitant (or simply unable) to make the financial investment to implement these practices. Clarifying the economic value and providing financial risk mitigation support will help the farmers maintain a sense of security and show that you are committed to their transformation.

Recommendations

- Implement a **cost-sharing model** to help farmers cover the cost of implementing a specific regenerative practice.
- Help farmers apply for **loans or grants** available to those who implement regenerative farming practices.
- Identify local **tax incentives** for farmers who use Regen Ag.
- Clearly articulate the **return-on-investment** farmers should expect to see by implementing regenerative farming through [region-specific](#) and/or comparable farm examples.

Pitfalls

- Merely increasing price or providing direct incentives to implement Regen Ag may not produce the results you are looking for. Economic programs should be more targeted and paired with agronomic and social initiatives wherever possible.

Step 2: Prepare an action plan

Social incentives of Regen Ag



Each farming community is unique. Understanding the culture and social atmosphere of farmers in your supply chain is a key component in motivating them to implement regenerative agriculture and connecting the whole community on the journey together.

Recommendations

- Identify existing leaders or experts that farmers turn to for **agricultural support** and feedback to understand their challenges and needs.
- Tap into **existing networks** or groups, or create new ones, to encourage collaboration.
- Acknowledge and encourage **skeptical farmers**, show them the benefits of Regen Ag practices and the value it creates.
- **Recognize leaders** within broader communities who have the influence to encourage farmers to implement Regen Ag.
- Help farmers **understand the relevance** of regenerative farming to them.

Pitfalls

- Be cognizant of the local political, governmental and other groups that local leaders are subject to. They likely have other people and organizations influencing their priorities.

Step 2: Prepare an action plan

Agronomic incentives of Regen Ag



Empower farmers to implement regenerative farming by providing access to training on the practices they need to employ and the benefits they can expect to achieve.

Recommendations

- Understand what **existing mechanisms** farmers use to measure their soil health and other farm KPIs.
- Work with the partners to provide **locally-relevant** training to farmers on how to implement RegenAg practices.
 - Identify specific practices for farmers to implement that will improve your selected impact areas.
 - Engage local universities or trade schools to share in economic / agronomic research.
- Provide **educational opportunities** to the farmers to encourage community growth and RegenAg adoption.
- Host **demonstration farms** to train farmers on implementing RegenAg and show them firsthand benefits.

Pitfalls

- Farmers may have varying capabilities, knowledge levels, and motives. Be sure to create a strategy inclusive of the entire targeted group or consider segmenting the growers based on knowledge levels and tailor the approach as needed.

Step 2: Prepare an action plan

Certification Strategy

Goal

Plan

Measure

Activate

Report

Achieving a certification as part of your strategy can help you identify the critical issues farmers are facing and work towards your Regen Ag goals.

Considerations:

- When getting to know growers in your supply chain, ask if certifications are in use currently.
- PepsiCo recognizes several [certifications](#) that meet the “Engaged” acres requirement, and some additional certifications that may be recognized based on certain conditions. This certification will help in measuring the progress of the journey.
- By achieving a certification, you can achieve sustainability procurement goals and build partnerships to tackle sustainability issues together.
- Certifications offer a way for you to discuss common issues and collaborate on overcoming challenges.
- There are no certifications that meet the PepsiCo requirements for “impacted” (reported) Regen Ag acres

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A supplier of sugarcane to PepsiCo achieved the Bonsucro certification and this standard is recognized by PepsiCo



In 2017, PepsiCo partnered with Peterson and Proforest to implement a RegenAg program, which led to the certification of the supplier's mill. Through a train-the-trainer model, the program has enabled engagement and continuous improvement of smallholder growers within the mill's supply base.

Step 2: Prepare an action plan

Identify capabilities and resources needed



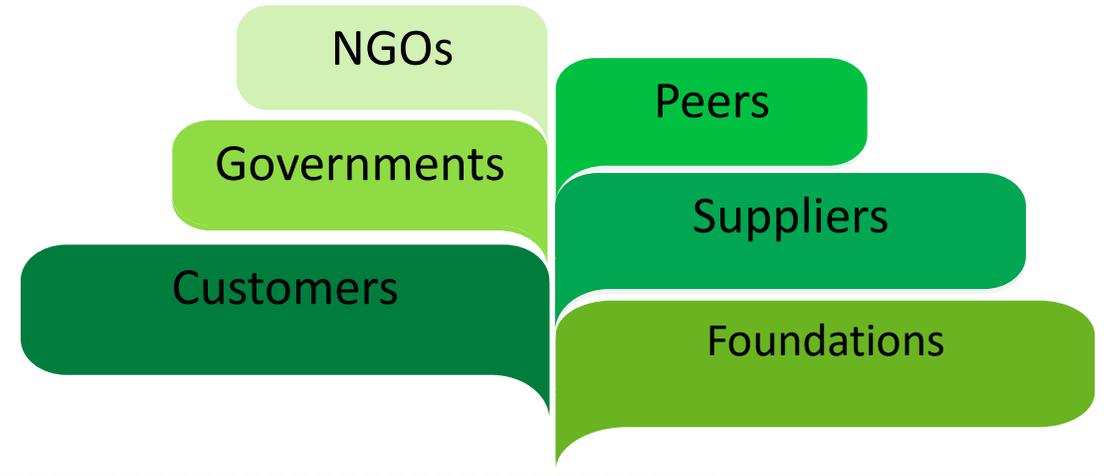
Identify what resources, capabilities, and expertise you need to achieve your goals. Then, determine whether you have those items internally or need to source them externally.

Considerations:

- Determine what farming or other expertise you need to achieve your goals, and whether you have that internally.
- [Identify funding](#) such as internal budget or external grants to support your efforts.
- [Identify potential partners](#) with the expertise, funding, and/or the available support you need to develop/scale your efforts.
- Learn about [available tools and technology](#) to track, report, and accomplish your goals.
- Keep farmers in *your* supply chain in mind and think creatively to determine the capabilities and expertise needed to achieve your goals.

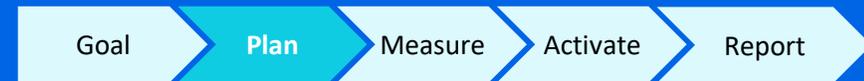


The capabilities, expertise, and resources you need to implement your programs will impact the partners you engage. PepsiCo works with a variety of partner groups:



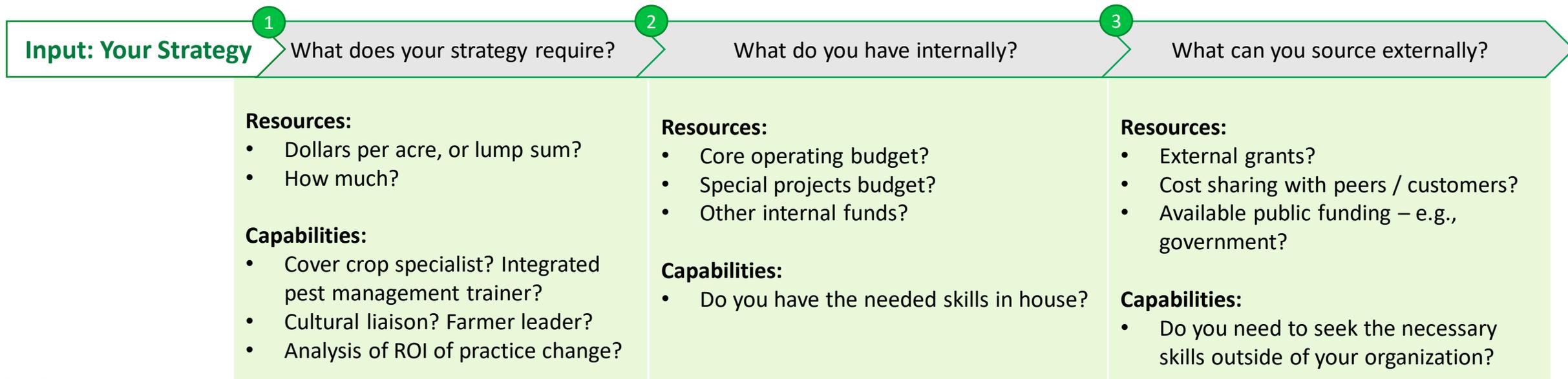
Step 2: Prepare an action plan

Identify capabilities and resources needed



Your strategy comes alive when you identify the capabilities and resources needed to activate your program.

As you identify the capabilities and resources you need, consider the following:



Work through the [“Identify Capabilities & Resources”](#) worksheet.

Step 3: Determine how to measure progress

Track and measure your progress

Choose the right tool for your goals and your team

Choose KPIs that allow consistent measurement



Measure Progress

- Set KPI's
- Select Tools
- 'engaged / regenerative acres'

Step 3

What do we need from you?



Register your project. Tell us:

- Your KPIs and tools



Step 3: Measure

Select Tools to Measure progress

Goal

Plan

Measure

Activate

Report

Establish clear and consistent processes to track and measure your progress against a timeline. Choose the right tool for your goals and your team.

Considerations:

- Review the [available tools](#) that will help you track your progress and outcomes. Choose the one(s) [best suited to your goals](#).
- Review PepsiCo [sampling guidance](#) for on-farm GHG measurement to ensure alignment.
- Establish monitoring processes that are easy to maintain consistently, so your results are comparable over time.
- Train your employees or partners on how to capture and report the appropriate metrics.

pep+ What we need from you

Select one of the **tools** pre-approved by PepsiCo, according to which goals you've developed to pursue.

Examples:



To nominate a new tracking tool for approval, please fill out the [Nomination Form](#).

Step 3: Measure

Determine your Key Performance Indicators (KPIs)

Goal

Plan

Measure

Activate

Report

KPIs will help you track progress toward your impact areas and measure the outcomes of your new farming techniques. Use available tools (discussed on the previous page) to choose KPIs that allow for consistent measurement and easy comparison.

Considerations:

- Use KPI's that capture both your:
 - **Outcome** - achievement of your impact area goals; and
 - **Progress** - behaviors and practices that help you reach your impact area goals

PepsiCo's Goals:

- PepsiCo measures progress and outcomes of Positive Agriculture goals through **3 primary KPI's**:
 - Percentage of Volumes Sustainably Sourced
 - Number of Acres Engaged / Regenerative
 - Number of People Engaged / Impacted

pep+
What we need from you

Read and understand PepsiCo's [Engaged v. Regenerative Acres](#) guidance.

Choose relevant [KPIs](#) to track based on the tools you've selected and the impact areas you have set.

Step 3: Measure

PepsiCo's Primary KPI for Regen Ag



Note: Regen Acres is the goal and engaged is not necessary as a precursor. Workstreams that are mature may directly work on regenerative agriculture ie: impact results rather than counting practices.

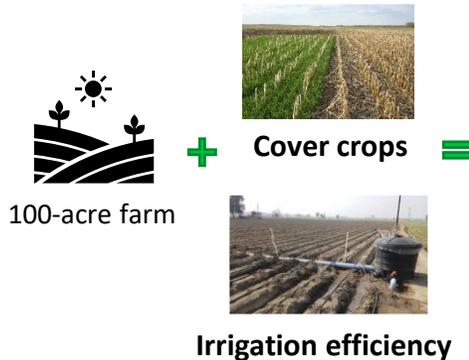
Engaged Acres

Once a farmer incorporates **2 or more Regen Ag practices** into their agricultural process, their acres would be considered 'engaged' in regenerative farming.

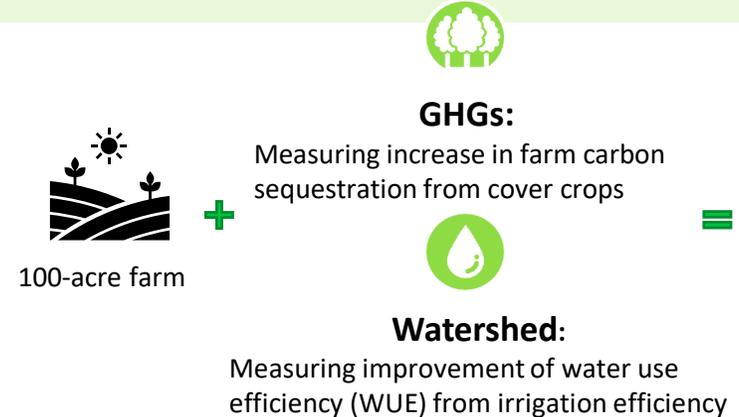
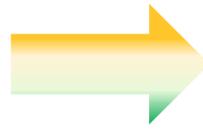
Regenerative Acres

We will count acres as regenerative acres when farmers demonstrate **measured improvement in 2 or more** of the regenerative agriculture **impact areas**:

Example:



100 Engaged Acres



100 Regenerative Acres

Step 3: Measure

Approved Certifications for “Engaged Acres”



PepsiCo recognizes several certifications that meet the “Engaged” acres requirement, and some additional certifications that may be recognized based on certain conditions. Impact measurement is needed to recognize acres under any certification as “Regenerative” as no certification today meets the PepsiCo Regen Ag impacted definition

Ongoing Certification Analysis:

- PepsiCo sustainable agriculture team is continuing to evaluate certifications
- New certifications may be added to the list and current versions will continue to be evaluated to ensure the most up to date certification is recognized
- Work with your PepsiCo buyers to understand which certifications and versions are currently recognized



The following certifications may meet the “Engaged” acres requirement, with full or conditional recognition:

FULL RECOGNITION:

Version 4.0

CONDITIONAL RECOGNITION:

3.0 – Silver or Bronze

Step 4: Activate your plan

Get pilot farmers started on their RegenAg journey

Obtain feedback

Be aware of any barriers



Activate your Plan

- Implement your project or scale up

What do we need from you?



Register your project. Tell us:

- Your Regen Ag plan



Step 4

Step 4: Activate your plan

Goal

Plan

Measure

Activate

Report

Activate your plan and get pilot farmers started on their Regen Ag journey! Be flexible and comprehensive to feedback. Remember to learn from your pilot experience so that you can continuously improve on future programs.

Considerations:

- Be receptive to feedback and learning during the pilot process and keep track of things that could be improved during the next iteration.
- Be especially aware of any barriers that farmers are facing to the adoption of Regen Ag and try to address those barriers in the next phase.

pep+
perspective

PepsiCo encourages our suppliers to host learning activities with farmers.



Female farmers in India, growing potatoes as part of PepsiCo's supply chain. Farmer networks are especially key in empowering female farmers around the globe

Step 5: Monitor progress

Register your RegenAg program

Scale program to other farms

Learn and iterate on your previous program



Monitor Progress

- Review, refine, report

Step 5

What do we need from you?

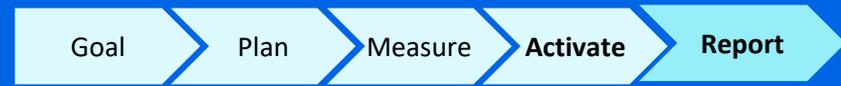


Report your progress annually



Step 5: Monitor progress

Reporting Tool



Be recognized for your success by sharing your news with both farmers and PepsiCo! Continue improving your programs based on farmer feedback to progress to the next milestone in your Regen Ag journey.

Considerations:

- Consider engaging a third party to conduct aggregate data analysis to enhance the credibility of your results.
- Review your results regularly to see the positive impact.
- Check in with farmers to ensure they are seeing the benefits, both economic and environmental. Collect and share stories with others.
- Report progress to customers (like PepsiCo) and employees.

pep+
What we need from you

Report your progress annually at the end of your crop cycle, or each year by Q1.

Step 5: Monitor progress

Scale program to other farms

Goal

Plan

Measure

Activate

Report

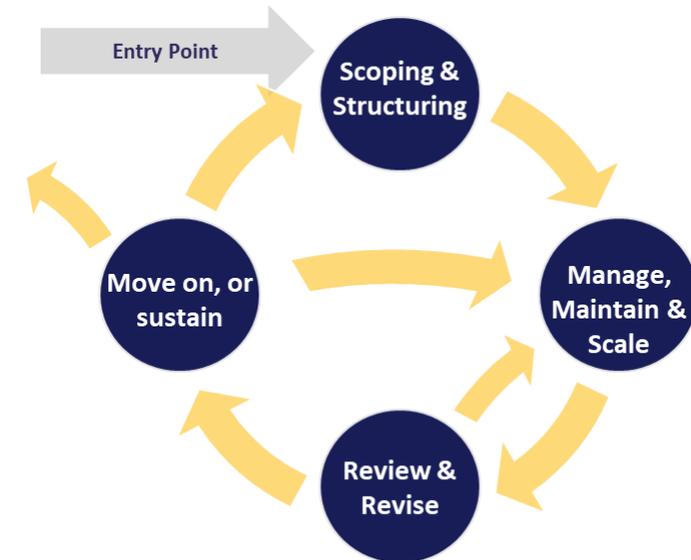
After finding success with a pilot location(s), determine a plan of action to begin rolling out your regenerative agriculture program(s) to more locations and/or developing additional programs while keeping in mind farmer needs, geography, and crops.

Considerations:

- Learn and iterate on your previous program experiences by completing a [gap assessment](#).
- Create a [roadmap](#) to expand to other locations by taking a similar approach to [“getting started”](#) to determine which farm to tackle next and who to get involved.
 - Which farms might benefit most from RegenAg?
 - Which farmers seem eager to get involved?
 - Which will take the most time to get onboard?
 - Which crops are the easiest/hardest to tackle?
 - What areas will depend on peers or downstream players in order to expand/scale?

pep+
perspective

An iterative, continuous learning approach will help you scale to other locations.



Step 5: Monitor progress

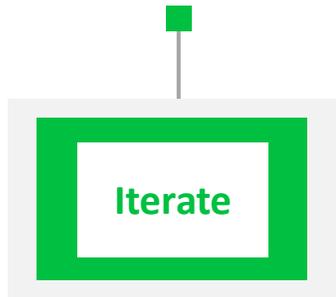
Learning from and growing your RegenAg programs



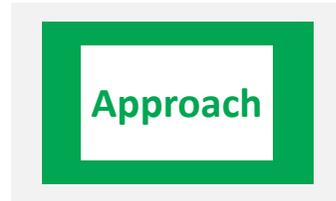
Learn from your pilot programs and determine your plan of action to transform the remaining farming operations within your supply chain.

Gap Assessment

Reflect on your program(s) and determine whether adjustments are needed to address any unmet needs identified during pilot.



Approach



Prioritize Focus Areas

Identify the next supply shed / location to focus on and determine what agricultural challenges it may face.

Expanded Farmer Pool

Confirm the next supply shed / location of your program expansion and begin getting farmers and other leaders onboard.



Roadmap



100% RegenAg

Create a plan to manage the logistics, timing, and scaling required to activate RegenAg programs throughout your entire network.

Document your plans in the “Iterate & Approach” and “Target & Roadmap” worksheets.

Quick Start Guides Workbook

TIP: The templates in this section are not designed for every blank space to be filled in. Use these pages to brainstorm as you see fit.



Quick Start Guide #1 – Get Started

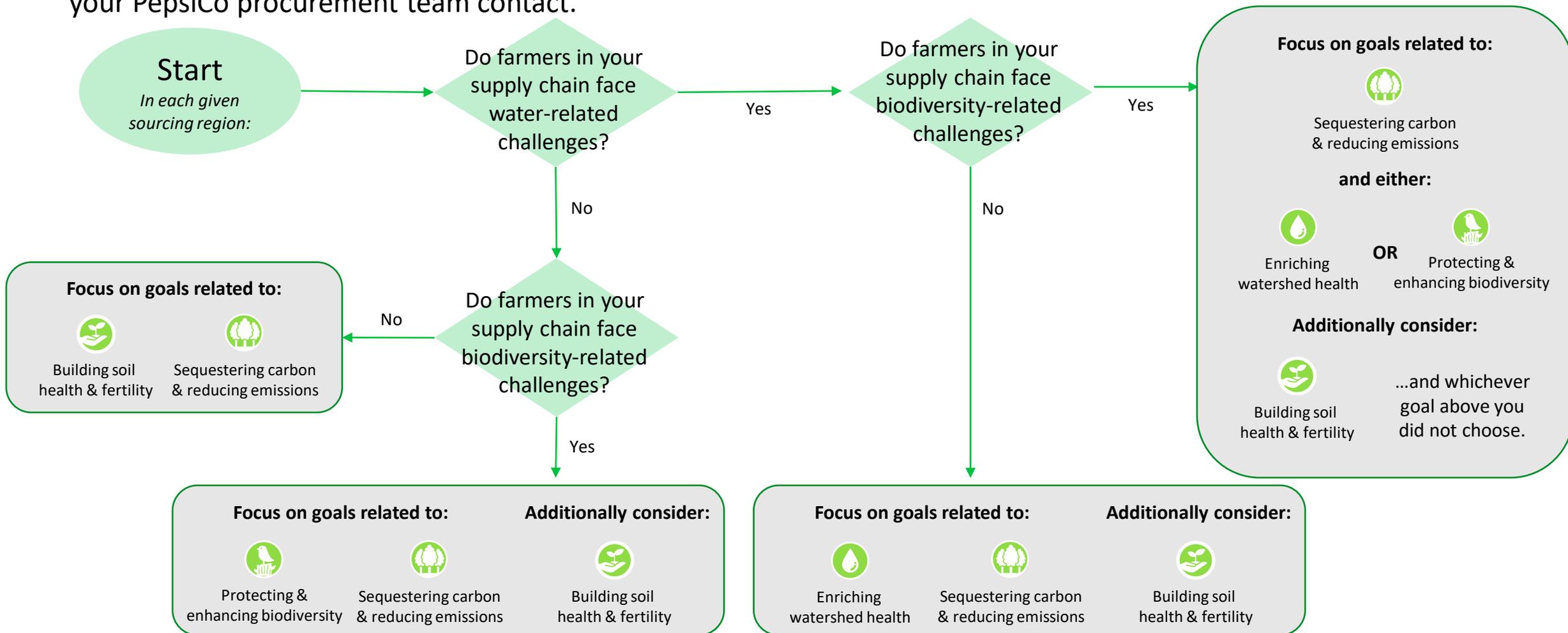
Guiding questions

- Do you have visibility into the supply sheds that you currently procure crops from?
- Which farms might benefit most from RegenAg?
- Which farmers seem eager to get involved, or which ones will take the most time to get onboard?
- What areas will depend on peers or downstream players in order to start?
- Are you currently preparing for certification/verification or are you already certified/verified? If yes see [PepsiCo approved certifications](#)
- Does it make sense for you to start in supply sheds where the following situations exist **(to right)**?:

	OR	OR	OR	OR	OR	
	Strong relationships with farmers	Opportunity to make the greatest impact	High-risk environmental situation	Relevant industry or multi-stakeholder initiatives	Farms already certified under Social Studies Standards	*Others
Benefit	You are starting somewhere that you already have trust and a relationship established.	You are taking on a challenge somewhere that you expect to see the greatest outcome.	You are tackling a situation that is high-priority and needs the most attention.	You have potential partners in this region/supply shed that may provide support and/or have begun similar work	Growers are certified under a recognized standard, which provides an opportunity to claim 'engaged acres' (once certified).	
Identifying factors	Supply shed with a longstanding relationship with farmers	There are relevant industry or multi-stakeholder initiatives in the region/supply shed	Notable challenges such as: drought, flooding, erosion, temp extremes, etc.	You know of work that has been done in this region/supply shed or players who are focused in	Proven model for engaging with growers, solid partners, clear path for scaling engaged acres	
Examples	1.) _____ 2.) _____ 3.) _____	1.) _____ 2.) _____ 3.) _____	1.) _____ 2.) _____ 3.) _____	1.) _____ 2.) _____ 3.) _____	1.) _____ 2.) _____ 3.) _____	1.) _____ 2.) _____ 3.) _____

Quick Start Guide #2 – Set Your Priorities

The below guide is an opportunity to understand where you should prioritize your RegenAg efforts. If you're unsure which impact areas are best, consider using [a tool](#) to determine your impact areas or discussing your options with your PepsiCo procurement team contact.



Quick Start Guide #3 – Set Your Strategy

Now that you have learned how to focus on your priorities, let's apply that knowledge to set your strategy. Please follow the below guide to determine what strategy segment best fits the focus area goals you would like to achieve.

Please select RegenAg practices **for each priority** your team set.

1	Input: Impact Areas	 Soil Health	 Carbon Emissions & Sequestration	 Watershed Health	 Biodiversity	 Livelihoods
2	What RegenAg practices will help you achieve your impact area goals?	Please see the Regen Ag Practice Bank to identify the practices that will help you achieve each impact area goal. Consider how different practices may interact with one another and create a system of practices to impact multiple impact areas.				Consider Livelihood's as an indirect impact to the practices chosen for the other four impact areas.
What Regen Ag practices will help you achieve your impact area goals? What is the degree of impact – direct (D) or indirect (ID)?	1.) Ex*: <i>Cover Crops</i> D /ID 2.) _____ D/ID 3.) _____ D/ID 4.) _____ D/ID	1.) Ex*: <i>Cover Crops</i> D /ID 2.) _____ D/ID 3.) _____ D/ID 4.) _____ D/ID	1.) Ex*: <i>N/A for my farmers</i> 2.) _____ D/ID 3.) _____ D/ID 4.) _____ D/ID	1.) Ex*: <i>N/A for my farmers</i> 2.) _____ D/ID 3.) _____ D/ID 4.) _____ D/ID	1.) Ex*: <i>Cover Crops</i> D /ID 2.) _____ D/ID 3.) _____ D/ID 4.) _____ D/ID	

*The first line is an **example** with the following assumptions: supplier chose to focus on soil health and carbon and to implement cover crops.

Quick Start Guide #3 – Set Your Strategy

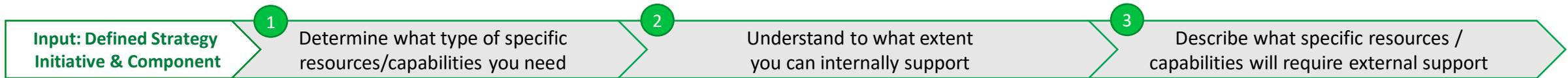
Based on the RegenAg practices you chose for each impact area on the previous page, write down the varying strategy initiatives defined in the [economic](#), [social](#), and [agronomic](#) pages that you and your team will be using.

Please select strategy initiatives and strategy components for each priority your team set.

Input: Impact Areas		 Soil Health	 Carbon Emissions & Sequestration	 Watershed Health	 Biodiversity	 Livelihoods
<p>3</p> <p>Based on your selected RegenAg practices, which strategy initiative(s) and component(s) will help you to implement the practices?</p> <p>What are the barriers your farmers may face?</p>	Initiatives & Barriers					
	Economic: Initiatives	Ex. <i>Cost Sharing</i>				
	Barriers	Ex. <i>Unable to meet cost portion</i>				
	Social: Initiatives	Ex. <i>Farmer Leaders</i>				
	Barriers	Ex. <i>No leaders in region</i>				
	Agronomic: Initiatives	Ex. <i>Best Practices Demonstrations</i>				
Barriers	Ex. <i>Unable to leave home field for demos</i>					

Quick Start Guide #4 – *Identify Capabilities & Resources*

Your strategy comes alive when you identify the capabilities and resources needed to activate your program.



	What specific resource/capability do you need? Ex: \$x/acre, \$x/program, etc.	To what extent are you able to internally support these needs?	What resources/capabilities will require external support?
<i>Funding</i>			
<i>Expertise</i>	Ex: Cover crop specialist, agronomic trainer, etc.		
<i>Technology</i>	Ex: Cool Farm Tool, irrigation system, low-till equipment		

Please use all boxes that apply for the initiative/component that you are evaluating

Quick Start Guide #5 – Iterate & Approach

Learn from your pilot programs and determine your plan of action to transform the remaining farming operations within your supply chain.

Gap Assessment

Prioritized Focus Areas

Guiding Question	Response
What practices/topics were not received well by farmers?	
What were the unaccounted barriers for the farmers?	
What are the ways to improve how you are delivering your program?	
What are the additional capabilities you need that weren't obvious before?	
<i>Additional gap assessment questions...</i>	

Guiding Question	Response
What type of opportunity will you target next – easy-to-implement practices, long-term strategic initiatives, etc.?	
Do you plan to focus on target suppliers with established relationships, areas that will have the greatest impact, or the area is in danger?	
What crop or geographic location best suites what you want to prioritize?	
<i>Additional prioritized focus area questions...</i>	

Quick Start Guide #6 – Target & Roadmap

Learn from your pilot programs and determine your plan of action to transform the remaining farming operations within your supply chain.

Expanded Farmer Pool

100% RegenAg

Guiding Question	Response
What other farmers and/or suppliers could you expand your programs to?	
What farmers are facing challenges in your focused areas? What are their challenges?	
What farmers need the capabilities/programs you have?	
<i>Additional Expanded Farmer Pool questions...</i>	

Guiding Question	Response
Which farmers would be best to implement programs later in the journey (waves 3+)?	
What is the length of time your pilot program lasted and how does that apply to your timeline for implementation?	
How quick are these new farmer groups likely to adapt RegenAg practices?	
Where are your capabilities/resources located in relation to the supplier groups?	
<i>Additional RegenAg questions...</i>	

Appendix

1. Establish Your Goals
 - 1.1 Additional Guidance for RegenAg Priority Setting
2. Prepare an Action Plan
 - 2.1 Watershed Health
 - 2.2 Biodiversity
 - 2.3 External Funding and Grants
 - 2.4 Partner Mapping: Who Can Help Us Succeed?
 - 2.5 Regenerative Practices Bank
 - 2.6 Regen Ag Practice Definitions
3. Determine How You Will Measure
 - 3.1 Difference Between Engaged and Regenerative Acres
 - 3.2 Detailed Description of Regenerative Acres Measurement
 - 3.3 Tracking Tools
 - 3.4 Selecting Your Tracking Tool(s)
 - 3.5 Sampling Guidance for on-farm GHG Measurement
 - 3.6 Livelihoods Framework
 - 3.7 How to Demonstrate Improved Livelihoods
 - 3.8 Regenerative Agriculture Benefits
4. Case studies
 - 4.1 Case study: US row crop
 - 4.2 Case study: Mexico Cane Sugar
 - 4.3 Case study: Mexico Wheat
 - 4.4 Case study: Indonesian Palm
 - 4.5 Case study: Australia Maize



Appendix 1.1 Additional Guidance for RegenAg Priority Setting



PepsiCo asks suppliers to **select 2 or more impact areas** to work on report and progress back to PepsiCo. With the need to reduce greenhouse gases across the entire food supply chain, **one of the 2+ impact areas is encouraged to be “Sequestering carbon and reducing emissions”**.

When determining which category to choose from, **evaluate farmers’ geographical location, crops, and challenges**. Choose goals that may not be the simplest to act on but that will have the greatest impact overall.

Aim to positively impact these impact areas:

- **Soil Health** – building a healthier and more fertile soil to support a productive and resilient ecosystem
- **Carbon Emissions & Sequestration** – reducing carbon dioxide (through sequestration) and emissions
- **Watershed Health** – reducing nutrient runoff and the quantity of water from farms to water banks
- **Biodiversity** – protecting and creating needed habitats to increase diversity in plants/trees
- **Livelihoods** – improving the lives of farmers and workers in the most vulnerable farming communities

The strategy for measuring and documenting this performance area is in the iteration phases

Appendix 2.1 Watershed Health

Watershed health examples:

Water Challenge	Description	Severe Water Challenges 	Moderate Water Challenges 	No Water Challenges 
Water quality	Quality of surface and groundwater in the catchment (bacteria, nutrients, harmful substances such as chemicals, turbidity, and temperature).	Water bodies are not meeting their intended uses (swimmable, fishable, drinkable) due to serious water concerns. Regular violations of applicable water quality permits.	Growing concerns about the safety of the water bodies for their intended uses (swimming, fishing, drinking) with one or more water quality parameters worsening over time. Some violations of applicable water quality permits	No concerns about water quality in the catchment's surface and groundwater. No violations of applicable quality permits.
Water quantity	Sustainable withdrawals and supply of surface and groundwater.	High or extremely high levels of surface and/or groundwater scarcity.	Medium to high levels of surface and or groundwater scarcity.	Water withdrawals are in line with renewable supplies of surface and groundwater.
Important water-related ecosystems	Health of important water-related areas	High value water area(s) significantly impaired. No appropriate management interventions defined or being implemented.	High value water area(s) somewhat impaired or threatened, management practices defined to improve or manage its condition, although implementation is inconsistent.	High value water area(s) in good condition with management measures in place to protect its status.
Access to Water, Sanitation, and Hygiene (WASH)	Community access to: <ul style="list-style-type: none"> • Safe and affordable drinking water. • Adequate sanitation and hygiene. 	Significant portion of the local population without access to drinking water and/or sanitation hygiene.	Portion of the local population without access to drinking water and/or sanitation and hygiene.	All the local population has access to drinking water and/or sanitation and hygiene.

Watershed health interactive maps:

EnviroAtlas:



EnviroAtlas identifies various water metrics (water use, water run-off, species index, impaired waters, etc.) **within the US**. Suppliers can use [EnviroAtlas Interactive Map](#) to identify local bodies of water that may be a candidate for improved watershed health.

Aqueduct Atlas:  AQUEDUCT

[Aqueduct Water Risk Atlas](#) allows you to map and analyze current water risks, such as water stress and water depletion, **across the world**.

Appendix 2.2 Biodiversity

Potential Local Requirements

Country level agricultural policies are increasingly introducing biodiversity conservation requirements in the legal framework.

How to find whether there are protected areas nearby the farm:

- Go to <https://protectedplanet.net>
 - ✓ Type in the country of scope
 - ✓ Identify protected areas close to where the farm operates
 - ✓ Consult relevant information: number of protected areas, graphs, pictures, relevant legislations and other info you deem necessary
- Consider taking an [HCV ^{\(1\)} assessment](#) for a more customized approach

Protected areas include national parks, wildlife refuges, biological corridors, forestry reserves, buffer zones or other public or private biological conservation areas.

If the farm is located near to protected areas, it is recommended to establish and maintain buffer zones, which consist of permanent native vegetation with trees, bushes or other types of plants, in order to promote biodiversity, minimize any negative visual impacts and reduce the drift of agrochemicals, dust and other substances coming from agricultural or processing activities.

Biodiversity Assessment

Best practice: assess the current biodiversity and identify priority actions to preserve / improve biodiversity on the farm

Biodiversity assessment

Identification of on farm rare and endangered species (plant and animal)	Location	Priority actions that promote biodiversity



⁽¹⁾ High Conservation Values

Appendix 2.3 External Funding and Grants

External funding can come from many sources. It's important to have a clear sense of what the money will be used for and what return you are trying to achieve when applying for funding.

Grants/Loans/Project Funding Sites

Grants and loans typically have defined attributes for the projects each will support. Most require an application process with questions on how your team plans on using the money given. While you'll eventually pay back RegenAg loans, look for loans specific to your programs as those may have lower interest rates and longer payment terms.

Project Funding Sites may be available for your team and/or farmer to submit a funding request to a broader audience (i.e., the broader internet) for a specific program and/or funding amount of yours.

For more information and to begin your search, visit [Regeneration International](#) (*funders priorities may change, this is not an endorsement from PepsiCo*).

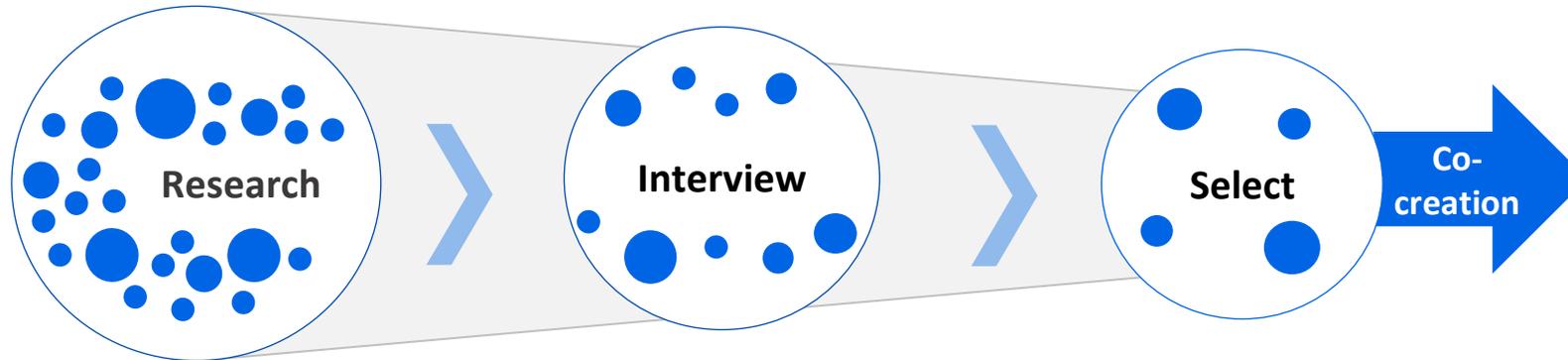


When looking for external sources of funding, consider the following:

- You may be able to get funding from many different organizations, including NGOs, peers, customers, industry organizations, foundations, among others.
- When applying for funding, you'll need to clearly document your specific project needs and how you plan to use the money.
- Look for funders specific to your location, crop, or priorities. This can often decrease the competition pool for the same funding and provide a more tailored investment impact.
- Have a conversation with your funders about their continued investment year over year. Funder priorities and investment amount may change over time.

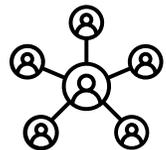
Appendix 2.4 Partner Mapping: Who Can Help Us Succeed?

Once you have identified your desired strategy and have determined whether you could benefit from a partnership, start looking for organizations, projects, and alliances you could work with to help you meet your goals.



Start by creating a comprehensive list of options and then narrowing down based on best-fit for your needs.

Guide your research by asking:



- What type of partner might help me fill the gaps I identified in my internal assessment?
- Who is already working on this issue? What are their priorities?
- What type of partners have (or could have) an influence on the issue?
- Has anyone within my org already addressed a similar issue or worked with similar partners?
- What are our peers doing about this issue? Who are they working with?

Once you've developed a short-list of potential partners, reach out to them to learn more about their operations and whether they might be interested in working together.

Appendix 2.5 Regenerative Practices Bank

Learn more about the RegenAg practices listed below by reading the RegenAg Practice Bank.

Soil Cover	<ul style="list-style-type: none">• Cover crops (incl. nutrient-fixing cover crops)• Maintain roots left below soil (no post harvest tillage)	Integrated Livestock	<ul style="list-style-type: none">• Application of livestock manure directly and/or post composting• Integrate grazing animals
Crop Diversity	<ul style="list-style-type: none">• Crop rotation• Intercropping• Hedgerow plantings• Agroforestry	Water	<ul style="list-style-type: none">• Irrigation efficiency• Non-cultivated waterways / riparian corridors / buffer zones• Constructed wetlands / wetland restoration• Drainage water management
Land Management	<ul style="list-style-type: none">• Silvopasture• Conservation tillage• Crop residue management• Retiring marginal acres• Perennialization• 4R Nutrient management• Grassland restoration• Use organic fertilizers	Biodiversity	<ul style="list-style-type: none">• Integrated pest management• Pollinator habitat development• Natural habitat retention / restoration

Appendix 2.6 RegenAg Practice Definitions

Practice	Concept
Cover crop	Close-growing non-commodity crop that provides a surface cover of main crops during fallow periods. It provides soil protection, seeding protection, and soil improvement during this periods. After termination, residues from cover crops continue to protect the soil from erosion (e.g., legumes, grasses, turnips, and radishes).
Intercropping	Practice of growing two or more crops on the same field at the same time (e.g., wheat, green gram, peas, and sunflower).
Crop rotation	System of growing different kinds of crops on the same land in which two or more crops are grown one after the other. This technique can break disease cycles, reduce crop protection agents use and promote soil biodiversity.
Conservation tillage	A tillage system that potentially conserves soil, water and energy resources mainly through the reduction in the intensity of tillage, and retention of plant residues. It can include no till, low/reduced tillage (tilling to a max. depth of 10-12cm) and strip tillage.
Agroforestry	System of practices where woody perennial plants are deliberately used on the same land-management area as agricultural crops and/or animals.
Silvopasture	Farming systems that combines forestry and grazing of domesticated animals on pastures, rangelands or on-farm.

Appendix 3.1 Difference Between Engaged and Regenerative Acres

Engaged Acres: Progress toward our Goal

- We will count acres as **engaged** in regenerative agriculture when **two or more locally appropriate regenerative farming practices** are implemented on a farm supplying PepsiCo crops (mass balance, within our supply shed).
 - At least one practice must be implemented in-field as this will be required to deliver measurable impact
- All acres managed by the farmer, including rotational acres, can be considered engaged.



Our Goal: land approximately equal to PepsiCo's entire agricultural footprint

- We will count acres as **regenerative** acres when they demonstrate **measured improvement in two or more of the following regenerative agriculture impact areas:**



Sequestering carbon & reducing emissions

OR



Building soil health & fertility

OR



Enriching watershed health

OR



Protecting & enhancing biodiversity

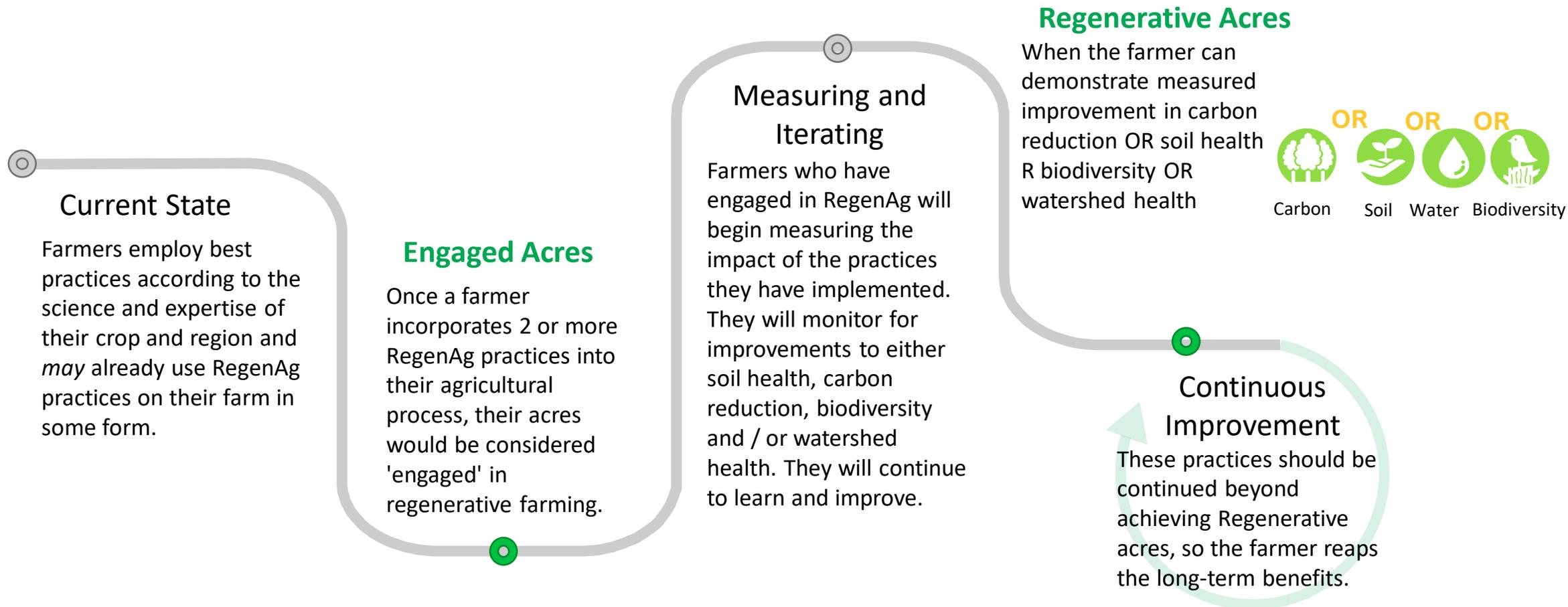
Encouraged, but not required:



Help us measure [improved farmer livelihoods](#). This will not count toward the 2+ impact areas required above.

Appendix 3.1 Difference Between Engaged and Regenerative Acres

To understand the difference between “Engaged” and “Regenerative” acres, think about where you are on your RegenAg journey. **You may find that your starting point is closer to the desired state than you think.**



Appendix 3.2 Regenerative Acres Measurement

Regenerative Acres

If two or more of the following environmental KPIs (**to right**) are measured on a farm supplying PepsiCo crops (mass balance, within our supply shed), and the KPIs are showing improvement, all acres that fall under that measurement methodology are considered regenerative acres. This can include rotational acres and edge of field (except for GHG reductions).

If you have identified a potential new tool to use for tracking purposes, please fill out the [Tracking Tool Nomination Form](#) and your PepsiCo contact will notify you of approval status. You are encouraged to use an alternative tool in the meantime.

REGENERATIVE ACRES

1. Building Soil Health and Fertility

Measured improvement in indicators of soil health, including metrics / tools such as:

- Measured improvement in soil organic matter, soil carbon macro and micro-nutrients
- Cornell Comprehensive Assessment of Soil Health (CASH)
- Haney Test
- ASDA Soil Health Assessment Tool
- Global Certification Schemes – Bonsucro, Roundtable on Sustainable Palm Oil (RSPO), etc.
- Field to Market Platform soil carbon & conservation
- Cool Farm Tool carbon sequestration
- Other locally relevant tool to measure key soil health impact pending central evaluation¹

¹Where direct measurement is available, that can replace modeling

2. Improving watershed health

Measured improvement in indicators of watershed health, including one or more of²:

Water quantity:

- Freshwater consumption efficiency (e.g., water use efficiency (WUE))

Water quality:

- Reduced agrochemical pollution (e.g., more efficient use of pesticides/herbicides)
- N/P loading (e.g., more efficient use of nitrogen and phosphorous)
- Freshwater biodiversity (e.g. Increase in indigenous freshwater plant/animal population)

² If water quantity and/or quality are known risks positive outcomes to address that risk should be prioritized. A methodology for setting Science-Based Targets (SBT) for farmer groups in high-risk watersheds is under development. These targets may require activities within the landscape of the watershed in addition to what can be achieved through regenerative agriculture practice implementation.

Appendix 3.2 Regenerative Acres Measurement

Regenerative Acres

If two or more of the following environmental KPIs (**to right**) are measured on a farm supplying PepsiCo crops (mass balance, within our supply shed), and the KPIs are showing improvement, all acres that fall under that measurement methodology are considered regenerative acres. This can include rotational acres and edge of field (except for GHG reductions).

If you have identified a potential new tool to use for tracking purposes, please fill out the [Tracking Tool Nomination Form](#) and your PepsiCo contact will notify you of approval status. You are encouraged to use an alternative tool in the meantime.

REGENERATIVE ACRES

3. Protecting and enhancing biodiversity

Measured improvement in indicators of enhanced biodiversity, including metrics / tools such as:¹

- High Conservation Value Assessment
- Land Use Change Analysis
- Cool Farm Tool Biodiversity Metric
- Fieldprint Calculator Habitat Potential Index (HPI)
- Increase in genetically unique species
- Other locally relevant tool to measure key biodiversity impact pending evaluation
- Biodiversity metrics may be updated with SBT recommendations as they become available

¹Where direct measurement is available, that can replace modeling

4. Sequestering carbon and reducing emissions

Measured improvement in greenhouse gas emissions reductions and sequestration, per bushel, acre, or hectare measured following central sampling and verification guidance, using tools such as:

- Cool Farm Tool
- Fieldprint Calculator
- COMET-Farm
- ISCC Greenhouse Gas Module (ISCC: International Sustainability and Carbon Certification)
- Tools leveraging the DNDC model (DeNitrification-DeComposition)
- Other tools / methodologies can be evaluated upon request

Appendix 3.2 Regenerative Acres Measurement

Regenerative Acres

If two or more of the following environmental KPIs (**to right**) are measured on a farm supplying PepsiCo crops (mass balance, within our supply shed), and the KPIs are showing improvement, all acres that fall under that measurement methodology are considered regenerative acres. This can include rotational acres and edge of field (except for GHG reductions).

If you have identified a potential new tool to use for tracking purposes, please fill out the [Tracking Tool Nomination Form](#) and your PepsiCo contact will notify you of approval status. You are encouraged to use an alternative tool in the meantime.

5. Improving farmer livelihoods

REGENERATIVE ACRES

See [Livelihoods Measurement Framework](#) for complete details on metrics and data collection methodology requirements

Economic Prosperity:

- Profitability
- Relative Poverty Level

Farmer and Farm Worker Security:

- Food Security
- Land Rights
- Wages
- Labor Practices

Women's Economic Empowerment:

- Women's decision making
- Women's resource access and control

Appendix 3.3 Tracking Tools

PepsiCo accepts data collected using the tools below to track the progress toward your selected goals. These tools include widely accepted KPIs and measurement techniques that will help PepsiCo gather accurate information from all suppliers.

 <p>Building soil health and fertility</p>	 <p>Sequestering carbon and reducing emissions</p>	 <p>Enriching watershed health</p>	 <p>Protecting and enhancing biodiversity</p>	 <p>Improving Farmer livelihoods*</p>
<p>Measured improvement in indicators of soil health, including tools such as:</p> <ul style="list-style-type: none"> • Direct measurement • Cool Farm Tool sequestration • Field to Market Platform soil carbon & conservation 	<p>Measured improvement in greenhouse gas emissions reductions and sequestration, using tools such as:</p> <ul style="list-style-type: none"> • Cool Farm Tool • Fieldprint Calculator • ISCC Greenhouse Gas Module 	<p>Measured improvement in indicators of watershed quantity and quality, using tools such as:</p> <ul style="list-style-type: none"> • Cool Farm Tool Water • Fieldprint Calculator • PepsiCo Water Use Efficiency (WUE) Tool pg. 4. 	<p>Measured improvement in indicators of enhanced biodiversity, using tools such as:</p> <ul style="list-style-type: none"> • Cool Farm Tool Biodiversity • Fieldprint Calculator Habitat Potential Index (HPI) • HCV Assessment • Land Use Change Analysis • Increase in genetically unique species 	<p>Economic Prosperity:</p> <ul style="list-style-type: none"> • Profitability • Relative Poverty Level <p>Farmer and Farm Worker Security:</p> <ul style="list-style-type: none"> • Food Security • Land Rights • Wages • Labor Practices <p>Women’s Economic Empowerment:</p> <ul style="list-style-type: none"> • Decision Making • Resource Access and Control

If you have identified a potential new tool to use for tracking purposes, please fill out the [Tracking Tool Nomination Form](#) and your PepsiCo contact will notify you of approval status. You are encouraged to use an alternative tool in the meantime.

**PepsiCo Livelihoods Measurement Framework & Guidance discussed in following slides*

Appendix 3.4 Selecting Your Tracking Tool(s)

Use the tool matrix combined with your impact areas/resource capabilities to determine which tool(s) is/are best for your farmers. This is a living, non-exhaustive list that requires a two-way dialogue to keep the tools up-to-date with the ever-changing market maturity.

	Cool Farm Tool	Fieldprint Platform	ISCC GHG Module	COMET-Farm	SimaPro	Cornell Assessment of Soil Health	Haney Test	ASDA Soil Health Assessment
<i>Annual Fee</i>	~0-15,000 €	~0-50,000 USD	~50-3,000 €	0 USD	3-License Structures	0-25 USD	~50 USD	0 USD
<i>Membership</i>	Not required	Not Required	N/A	Not Required	License Required	N/A	N/A	N/A
<i>Regions</i>	Global with limitations	US	Global	US	Global	Global	US - Midwest	Global
<i>Crops</i>	All	All	All	All	TBC	All	All	All
<i>Impact Areas</i>								
<i>Carbon</i>	✓	✓	✓	✓	✓			
<i>Soil</i>	✓	✓				✓	✓	✓
<i>Watershed</i>	✓	✓			✓			
<i>Biodiversity</i>	✓	✓						

Please Note: there may be specific certification for your region/crop/organization. Please discuss tool selection with your procurement team member if this is the case.

Appendix 3.5 Sampling Guidance for on-farm GHG Measurement

This guidance has been developed to enable PepsiCo partners and suppliers to report on-farm greenhouse gas emissions reductions and sequestration to PepsiCo. The guidance may be updated as science-based industry norms and guidance become widely available.

a. The farmer population to be sampled should be grouped to create homogeneity among the sample population, accounting for elements such as similar farm size, soil type, geographic location, and baseline practices.

b. Intervention groups can either sample the entire population or a representative sample of the population. For the Agriculture Initiative Platform:

Number of participating farmers	0-30	31-200	201-300	301-400	401-500	501-1,000	1,001-4,000	4,001-30,000	30,000+
GHG measurement sample size	Every farmer	30	33	34	35	37	39	40	41

c. In the first year of measurement, farmers selected for sampling must represent a random selection of participating farmers.

d. Preference for the same or similar farms should provide data annually (best efforts, as some attrition is expected) to enable year on year comparison.

e. A single baseline must be established for each grower group, and the methodology for establishing the baseline must be documented and sampling follow the guidance above. The baseline should be created through project-based modelling (see f. below on project-based modelling), or if it is determined that project-based modelling using control fields will not be representative of historical scenario for the location (1) historical data from the sample group can be used to generate a baseline from the same model used for intervention data or (2) an industry specific figure may be used if developed by a credible source for that specific region and crop.

f. If the baseline will be calculated through project-based modelling, data must be collected on at least one control field that is representative of "conventional" practices among each of the selected farmers in the growing region. Baseline data must be collected for the first three years of reporting. Baseline can also be constructed based on three years of historical data if available and accurate. Reconstruction of a baseline based on modelled impact of practices implemented is allowed and must be thoroughly documented on what actual data was used and what assumptions were used. When assumptions are made, they must be on the conservative side and not try to maximize reductions over time. This means that if continuous impacts are being delivered even though the practices were implemented before 2015 (our GHG baseline year), those count towards our goals. Example - a farmer could have implemented soil health practices in 2010 and still be getting additional improvements in soil health in 2023. If modelled or measured impact shows continuous improvement, those acres count as regenerative.

g. Modelled regen ag outcomes can be achieved through implementation of regenerative practices and impact must be calculated using information from at least one representative field per farm selected for sampling. The land area included in the sample must represent 10% of the acres under regenerative practices and management on the farm. For example, if a 500-acre farm is selected for sampling and it implements cover crops on 100 acres, data from at least one field of at least 10 acres planted in cover crops should be used to complete the tools to measure each of the outcome areas.

This guidance can be used in the absence of a standard sampling methodology required by the tool or program leveraged to measure on-farm greenhouse gas emissions.

For example, if a program leverages the ISCC+ greenhouse gas module, the sampling methodology defined by that protocol should be followed.

Appendix 3.6 Livelihoods Draft Framework (1)

Economic Prosperity	Profitability (Income)
	Relative Poverty Level
	Productivity (Yield)
	Soil Health
	Climate Change Mitigation/Adaptation
	Watershed Health
	Forest & Ecosystem Protection
	Diversity & Inclusion
Farm & Farm Worker Security	Food Security
	Land Rights
	Wages
	Labor Practices
	Training & Practice Adoption
	Access to Credit & Other Financial Services
	Crop Diversification
	Occupational Health & Safety
	Next Generation
Women's Economic Empowerment	Decision Making
	Resource Access & Control
	Capacity Building & Participation
	Time Availability

KEY CONCEPTS

- The framework is a **guide**; it is **not required** to track all indicators in the framework
- Indicators are classified into **“Primary”** and **“Secondary”** based on the level of correlation they provide to improved livelihoods

 **Primary indicators** have the most direct correlation with improved livelihoods; *positive progress on a primary indicator can be counted toward the livelihoods goal*

 **Secondary indicators** demonstrate progress toward improved livelihoods, but *cannot be used without a primary indicator to demonstrate progress toward the livelihoods goal*

(1) The framework is being piloted in 2022 with the intent to publish the final framework by 2022 year-end.

Appendix 3.7 How to Demonstrate Improved Livelihoods

Measure progress against at least one Livelihood Improvement Metric from list below based on the relevancy to your farmers, crops, and region. Please reach out to your Procurement contact for more details.

Economic Prosperity	Profitability (Income)	Number of producers with improved target commodity income (could also include total farm and/or household income if measured) compared to the baseline or initial assessment.
	Relative Poverty Level	Number of producers that have met or exceed the living income benchmark (for the particular project location) or that have experienced a reduction in the living income gap compared to the baseline or initial assessment.
Farm & Farm Worker Security	Food Security	Number of producers (and the number of associated household members, if known) that have either become food secure (0 days of food insecurity during the last production year) or have reduced their amount of food insecurity (have had less days of food insecurity) compared to the baseline or initial assessment Number of producers that have improved their dietary diversity scores compared to the baseline or initial assessment.
	Land Rights	Number of producers that have improved their land tenure situation by achieving full and unencumbered title to the land or who have recognized documentation that formalizes their land rights compared to the baseline or initial assessment.
	Wages	Number of farm workers that have met or exceed the living wage benchmark (for the particular project location) or that have experienced a reduction in the living wage gap compared to the baseline or initial assessment.
	Labor Practices*	Where this indicator is permitted to count towards the livelihood goal (i.e., on those program farms addressing labor practice improvements in vulnerable or at-risk supply chains), this refers to the number of workers (can be estimated) on program farms that benefit from the farm's full compliance to all listed good labor practices.
Women's Economic Empowerment	Decision Making	Number of women with increasing decision-making participation regarding target crop production, income or the household compared to the baseline or initial assessment.
	Resource Access & Control	Number of women who have improving perceptions of their access to and control over productive assets and resources compared to the baseline or initial assessment.

*Can only be used to count Livelihoods improved in contexts where labor practice improvements are a main focus of a program to address known risks in the supply chain or region

Appendix 3.8 Regenerative Agriculture Benefits

Studies in the US ⁽¹⁾ have found compelling evidence of improved financials and overall efficiencies from regenerative agriculture practices. Suppliers and growers should weigh both the potential risks and benefits when deciding which regenerative practices to implement on their farm.

Studies and surveys show that investing in soil health can increase yield by up to 22% annually

Cost reductions typically outweigh cost increases (typically from labor or seed costs) and often come from reduced tillage (machinery use, fuel, and labor), fertilizer and pesticide usage. Savings will range depending on farm constraints (social and agronomic) and RegenAg strategies chosen

The Environmental Defense Fund studied farmers that adopted a suite of conservation practices. Farmers in this study reported anywhere from 3-5 fewer trips across the field, which helped reduce their total number of trips overall.

Many studies have found increases in revenue per acre due to adding additional crops (new revenue streams) improving their potential annual yield.



⁽¹⁾ Multiple sources including but not limited to <https://www.edf.org/sites/default/files/documents/farm-finance-report.pdf>; <https://farmland.org/project/quantifying-economic-and-environmental-benefits-of-soil-health/>.

Appendix 4.1 Case Study: US Row Crop

Region

USA

Crop

Row Crops

Primary Goals

Soil Health
Carbon

Tools

Cool Farm
Tool & Field To
Market

Commodity

The US Row Crop case study represents corn (the largest commodity), wheat, soy and other dairy feed inputs, oats, oils, and sugar beet in the US.

Problems with Traditional Ag

Many farmers in the US face soil health challenges caused by tilling and over-fertilization and have significant opportunities to improve resilience to climate shocks. Poor soil health leads to soil erosion, which contributes to greenhouse gas emissions, water pollution, and destruction of local biodiversity.

Barriers to RegenAg

While regenerative agriculture could provide a solution to these issues, there are a number of barriers to its widespread adoption in the US: lack of knowledge around what RegenAg is and how to implement it, social stigma around implementation, financial limitations, federal and state policy that subsidizes traditional modes of agriculture, and difficulty in collecting data.

Pilot

In 2017, PepsiCo met with experts in the US farming system including farmers, suppliers, and peers, to understand what barriers to RegenAg the region faced, and how they (the Coalition) could work together to address those barriers. PepsiCo began partnering with suppliers and peers in 2017 to share the cost and effort of implementing a RegenAg program in the row crop sector. Practical Farmers of Iowa (PFI) works with US farmers about nutrient management, reduced tillage, cover crops, water use efficiency, and diverse crop rotation. The Coalition provided hands-on training and coaching to the farmers, hosted farmer networks for discussion and collaboration, and provided financial incentives (in the form of cost-sharing) for the implementation of certain practices. The Coalition continues to advocate for changes in state and federal policy to incentivize the implementation of RegenAg practices.

Scaling

After the launch of the pilot among 90 farmers and tremendous success in increasing the water health, biodiversity, soil health, and climate outcomes, the Coalition met again to reflect on key learnings and determine the best way to scale the program to a wider audience of farmers. They noted that certain crops within their farmers' rotations were not represented in the Coalition. As such, they decided to invite buyers of those different crops to join the Coalition and invest in RegenAg as well. Further, they identified additional organizations to provide ongoing, on-the-ground farmer support and create localized interventions based on local needs. In this way, the program expanded its footprint, but also became more tailored to the needs of individual farmers in smaller communities.

Learnings & Recommendations

- Make sure to align with key program players in the field before initiating work. It's important that all voices are heard and everyone is on the same page.
- Build a formal feedback mechanism so the project players can learn and evolve through implementation.
- Emphasize the benefits of RegenAg to the farmers: supply assurance, resiliency, loyalty, meeting sustainability goals, and making their customers happier.

Results

Tracked multiple KPIs over many different sourcing locations and developed a monthly/annual reporting system. Activation at a landscape level across multiple supply chains now spans much of the US row cropping system. Results include up to 38% reduction and removal of GHGs, increased resilience in the face of climate threats and improved soil health, biodiversity and watershed health.

Appendix 4.2 Case Study: Mexico Cane Sugar

Region
Latin
America

Crop
Cane Sugar

Primary
Goals
Livelihoods
Carbon

Tools
Bonsucro
Calculator

Commodity

This case study represents cane sugar in Mexico and the mills' owned plantations and engagement with smallholders in the mills' supply base.

Problems with Traditional Ag

Labor conditions, such as lack of protective gear and proper hydration, poor shelter conditions, and forced labor have been identified as common risks in the cane sugar industry and thus leave opportunities for improvement. Common environmental risks include burning of cane which releases carbon into the atmosphere and limited water access.

Barriers to RegenAg

Highly complex supply chains require a high level of engagement and coordination to disseminate information, generate local buy-in, and build capacities on regenerative practices.

Pilot

In 2015, PepsiCo met with their primary supplier in Mexico to determine strategic alignment and prioritization for Mexican cane sugar production. PepsiCo and their supplier embarked on a sustainability partnership and aligned on taking a certification approach to address systemic challenges identified across the sector. In 2017, PepsiCo partnered with One Peterson and Proforest to begin implementing their RegenAg program, targeting engagement with one of their supplier's mills and their own plantations. These two partners provided capacity building to the mill, who then passed the training down to smallholder farmers, completing a "train the trainer" model. Through a continuous improvement program, the Tala mill reached Bonsucro certification in 2019. The next phase of the program focused on smallholder engagement, kicking off a workshop with over 400 smallholder growers in 2019 and piloting the Bonsucro Smallholder Standard, which was successful in the certification in 2022.

Scaling

The smallholder certification program plans to scale smallholder engagement in 2022 and beyond. Through the Alliance on Sustainability of the Cane Sugar Agroindustry in Mexico (ASACAM) platform, PepsiCo engages pre-competitively with peers, such as Nestle, Mars, Kelloggs, Barry Callebaut and Coca-Cola to share learnings and drive sector-wide progress on systemic challenges.

Learnings & Recommendations

- A step-wise approach can be particularly useful when the task seems daunting. In this case, independent and smallholder production represents a significant proportion of the supplier's supply base. Aligning on a meaningful, but phased approach was important.
- To overcome cultural resistance, supplier commitment to smallholder inclusion and dedicated engagement with smallholders was fundamental to demonstrate the shared benefits of certification.
- Partners should be realistic about the agronomic, cultural, and economic barriers that farmers face and jointly identify the best way to address them.

Results

Through better soil treatment, more effective use of water and application of agrochemical inputs in an orderly manner, on average, there was a 10% increase in yields. Producers recognize savings by applying inputs and agrochemicals at the right time and in the appropriate doses.

The work on this program led to PepsiCo winning the Bonsucro Inspire Award in 2020. The judges were excited by the level of engagement and partnerships with multiple organizations and these organizations' commitment to the SDGs. One judge described the project as a "Great example of stakeholder engagement and partnership for sustainable development."

Appendix 4.3 Case Study: Mexico Wheat

Region
Latin
America

Crop
Wheat

Primary
Goals
Watershed
Soil Health

Tools
Cool Farm
Tool

Commodity

The Mexico Wheat case study represents wheat in central Mexico, reaching 200 farmers covering ~1,400 hectares.

Problems with Traditional Ag

Many farmers in Mexico struggle with water scarcity and operate in water stressed environments, coupled with inefficient watering systems (drenching of fields). Excess carbon is released into the atmosphere due to inefficient tilling and burning of wheat for disposal (instead of decomposing into the ground). Soil health is damaged by using excess herbicides and inefficiently using nitrogen and fertilizers.

Barriers to RegenAg

The Bajío region of Mexico suffers from high poverty, cartel violence, and is significantly impacted by the COVID-19 pandemic.

Pilot

PepsiCo and Grupo Trimex (wheat milling company and PepsiCo supplier) came together to talk about shared objectives (improving farmer livelihoods, increasing environmental sustainability) as they planned for the Agriba Sustentable program. From the beginning, the partners thought about ways to incorporate economic, agronomic, and cultural elements into their strategy. CIMMYT (an International organization) was identified as a natural partner who has cultural relevance in the region. For the economic strategy, the partners made sure to promote things that lead to an economic return for farmers (decrease input costs, increase yield, maximize land use). For agronomic strategy, the project focused on traditional agriculture practices that have room for improvement and promoted RegenAg practices (reducing soil disturbance, agroecological pest management, precision nitrogen use, irrigation design for water use efficiency). The group kicked off the pilot in August 2021 by reaching out to farmers and presenting the project plan. In September, the program began training farmers by hosting field days on demo farms, building capacity, and hosting exchange tours. Next, the group engaged

cultural stakeholders in the region to increase familiarity with the project and build trust with participants. In October, the group determined the status quo of farmers' field operations and made technical field decision recommendations. Farmers adopted conservative agriculture practices in the sowing season and program advisors will continue to offer support and follow up with farmers throughout the growing season. Performance data will be measured and shared with the partners through a digital dashboard with regular project reports.

Scaling

The group will perform gap assessments and continue to make improvements. If the program is determined to be a success, Grupo Trimex and PepsiCo will extend their 50/50 contract with CIMMYT beyond the current 1-year time frame, with the vision to reach 3,000 farmers in 6 years.

Learnings & Recommendations

- Take a localized approach to figure out what matters to farmers and stakeholders in the local area.
- Choose partners who are familiar with the area and know it well.
- Ensure impact metrics align with PepsiCo's Positive Agriculture framework.
- Incorporate economic, agronomic and cultural elements into program strategy.

Results

The program successfully educated smallholder farmers in Mexico on RegenAg practices. The program expects to see improvement to farmer livelihoods, biodiversity and water use efficiency.

Appendix 4.4 Case Study: Indonesian Palm

Region

APAC

Crop

Palm Oil

Primary Goals

Biodiversity
Livelihoods

Tools

Implementer's
proprietary
tool

Commodity

This case study represents palm for palm oil production in Indonesia and covers >20,000 acres of forest.

Problems with Traditional Ag

Palm oil production in Indonesia can harm natural biodiversity through deforestation, if oil palm trees replace natural forests. Additionally, labor issues are present throughout the region, posing risks to farmer livelihood. There is often a risk of flooding and erosion where upstream forests have been cleared for palm production, causing watershed health risks.

Barriers to RegenAg

A major barrier to RegenAg is that planting palm trees on natural forest gives the land greater value than it has as natural forest. Supply chains are typically long and opaque supply chains, making it difficult to trace the product to specific locations in order to confirm deforestation-free status. Additionally, the scale and complexity of the challenge means that PepsiCo is limited in what they can achieve in the supply chain themselves; sometimes government support is necessary.

Pilot

Landscape programs are one way in which PepsiCo is addressing these challenges. Landscape programs seek to tackle many problems in one area, such as deforestation (biodiversity) and livelihoods. In Aceh province PepsiCo partnered with IDH (NGO), local government, conservationists and peer and supplier companies to set goals at the landscape (district) level and work out the plan to get there. For example, the coalition agreed on targets for halving the rate of deforestation in the district while increasing productivity by 30%. Pilots to deliver these goals were then developed. In 2019, PepsiCo and IDH launched a pilot to support 500 farmers to increase productivity through support for best practices, restore 300 ha of illegal plantations and protect an estimated 10,000 ha (25,000 acres) of existing forest. Other parties in the coalition worked on different

projects under the wider strategy document. The local government of Aceh Tamiang District has been critical to the success of the program. The government led the efforts to set the targets and implement work on the ground.

Scaling

The Aceh Tamiang coalition understood the scale they wanted to achieve from the beginning of the project, and these were articulated in a strategy document which has guided the actions of the members. In Aceh Tamiang, the coalition plans to work with at least 2,800 smallholders, restore 1,500 ha of forest and protect a further 25,000 ha (~63,000 acres). Beyond Aceh Tamiang, PepsiCo has begun to scale the approach in 3 new districts in Indonesia to increase the impact. These are: Siak, Pelalawan, Aceh Timur.

Learnings & Recommendations

- Partnering with local government allows you to work towards common goals. In this case study, both parties are interested in improving livelihoods (through improving productivity) and improve biodiversity (through upholding legal palm licenses).
- Coalitions are slower to move and harder to operate, but necessary to deliver impact at large scale and ensure industry-level acceptance
- Many things can be done at the community level even if the supply chains lack visibility. For example, in this case study, PepsiCo encourages palm oil mills to understand where their fruit comes from even if it is not yet clear that the fruit ends up in PepsiCo supply chain.

Results

500 smallholders supported, 93 forest rangers trained, 300 ha forest restored, 2 plantations and 6 farmer groups working together.

Appendix 4.5 Case Study: Australia Maize

Region

APAC

Crop

Maize

Primary Goals

Soil Health
Carbon

Tools

Cool Farm
Tool

Commodity

This case study represents maize (corn) grown in Australia.

Problems with Traditional Ag

Nitrogen management is traditionally administered using urea as a low-cost input and farmers are concerned with the associated environmental problems such as nitrogen movement into waterways from leakage. Also, there are some regions where flood irrigation is dominant. Tillage is used to break down residues and reform beds for the next crop which releases GHGs into the atmosphere.

Barriers to RegenAg

In the two regions of this case study, Murray and Murrumbidgee Irrigation Area (MIA), there are no obvious stigmas to RegenAg. Soil health is a key focus which many farmers are eager to learn more about, as is diversity of crop rotations and inclusion of pulses. In the Australian context, the conservation approach to agriculture of the last 20-30 years is seen as the original 'RegenAg'.

Pilot

PepsiCo partnered with one of their maize suppliers who joined the Cool Soil Initiative and began their pilot program in 2020. The supplier reviewed farmer engagement structures and identified how to best connect with farmers in these regions. They participated in small group farmer sessions to discuss innovations and issues and built a communications strategy to provide clear information to growers via farmer engagement structures. Cool Soil Initiative collected farmer data, analyzed for GHG emissions, and reported back with suggested improvements or changes to the system. The RegenAg practices implemented by farmers include soil sampling for carbon and nitrogen, improved diversity of farming; example: growing legumes (clovers) in conjunction with corn; and more efficient nitrogen use through soil nitrogen analysis pre-crop. The pilot was supported by Charles Sturt University who provided research into specific topics that add value to the farmers' work. Food Agility CRC (federal funding) provided connections into food industry and related work. A connection with Sustainable Food Lab and the Cool Farm Alliance provided international perspective, including North American research and engagement programs and connection with global efforts.

Scaling

The program has expanded the number of farmers involved in the year 1 region and scaled into a second region in year 2. This has allowed 'seeding' of the project into two regions, which both have further scaling opportunities. The program continued improvement of data collection and reporting processes through the supply chain. They improved efficiency of data collection from farmers to reduce admin burden (and improve scalability). The supplier is targeting to scale to 50 farmers within next 18 months. Intentionally they captured farmers who supply to this supplier & PepsiCo with most supply coming from a small number of big production farmers (so high impact potential of project). This is a multi-crop program, looking at hard- and soft-wheat, rice and corn (at present), providing opportunity to scale across crops and growing regions. This will lead to broader exposure and scaling, likely across the number of growing regions in Australia (through supply chain connections). They intend to continue the program beyond its initial timeframe (end 2023) to provide consistent food industry support in reporting and reducing Scope 3 emissions.

Learnings & Recommendations

- They saw greater diversity of maize growing systems and agronomy programs than first expected. While this provides challenges, also provides opportunities for cross-region learning.
- High degree of tension between crop choices based on commodity pricing, volatility of supply and the ability to plan longer term soil management strategies.

Results

Measurable results include:

- Baseline and year on year GHG data
- Baseline and year on year data of crop inputs, soil C and pH (sustainability/soil health metrics), yields and nutrient use efficiency values
- Baseline records of farm rotation history
- KPI's – soil C values (Carbon), NUE (Nitrogen Use Efficiency), WUE (Water Use Efficiency), yield, tillage use (which are all significant levers to reduce crop net GHG emissions (demonstrate low C, or net zero commodity emissions))
- Improved farmer understanding of soil C, and the role of carbon credits or other options to demonstrate low emission farming, that is recognized across the supply chain – paddock to fork.

Appendix 4.6 Case Study: India Potato Irrigation

Region

AMESA

Crop

Potato

Primary Goals

Watershed
Carbon

Tools

Data comparison
against control

Commodity

This case study represents potatoes in India and covers 4ha of land.

Problems with Traditional Ag

Potato farmers in Northern India traditionally use flood irrigation which results in low water use efficiency (WUE). This region is classed as water scarce and will become extremely water stressed by 2030. Farmers who operate where there is a water shortage are at risk of interruptions to potato production.

Barriers to RegenAg

The upfront costs of implementing micro irrigation systems would deter some farmers from changing over from flood irrigation. There are additional operational costs and skills needs associated with micro irrigation that need to be considered.

Pilot

In 2020 PepsiCo partnered with N-Drip, an irrigation startup, to begin trials of the N-Drip gravity drip irrigation systems in 4 potato growing sites in India. PepsiCo's objective was to evaluate the potential of the technology in PepsiCo supply chain, mainly as alternative to flood irrigation. N-Drip technology is potentially cheaper and easier to operate than conventional drip irrigation, while delivering the same benefits. PepsiCo was particularly interested in commercial benefits (yield & quality) and water efficiency. Farmers were excited about the technology. It is simple and easily executable as growers are used to laser leveling and hence easy to meet the basic slope requirement for effective gravity dripping. Farmers noted improved yields, less weed pressure, reduced fertilizer cost, and high WUE.

Scaling

PepsiCo notes barriers to scale such as: (1) irrigation system is not qualified for government subsidy support on micro irrigation, (2) there are recurring costs of irrigation equipment

(compared to flood), and (3) the up-front investment cost is a challenge in some areas (\$1,200/ ha). PepsiCo plans to continue trials with corn grown in India. PepsiCo is exploring how to scale in India by identifying farmers who may be interested in finance options.

Learnings & Recommendations

- Farmer capability is important
 - Moving from flood irrigation to any kind of new technology requires support for farmers. Farmer capability is a main risk to project success. The N-Drip irrigation system was quite forgiving; mistakes still gave decent results. It is a best practice to have a team on the ground as much as possible. Building trust with farmers is important, as we saw at all locations, farmers didn't always follow recommendations.
- Design
 - The irrigation design layout is critical and needs to be well coordinated, which requires good information from farmers on the ground. PepsiCo encountered problems such as farmers failing to follow design principles and incorrect field information.
- Cost/return
 - Recurring equipment costs of up to \$400/acre/year may be difficult in some locations. Farmers still need convincing to take on upfront costs. Return on investment might be accelerated if the technology is applicable in rotation crops (this is being tested with corn in India currently). Recurring costs can be reduced if drip tape is well handled (no need to replace each year)

Results

The trial in India delivered the following results when compared to flood:

- 50% reduction in water usage
- 13% increase in yield
- >60% WUE improvement