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**Leading Harvest
Farmland Management Standard
Est. 2020 Guidebook**

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SECTION 1

INTRODUCTION



Introduction

The Leading Harvest Farmland Management Standard Est. 2020 (LH Standard Est. 2020) Guidebook is intended to help Program Users and Certification Bodies understand, interpret, and implement the LH Standard Est. 2020. **It does not replace any portion of the LH Standard Est. 2020 and is for guidance purposes only to support the use of LH Standard Est. 2020 by Program Users.** It explains why the LH Standard Est. 2020 was created and then provides detailed information for implementing the LH Standard Est. 2020. The guidebook also provides additional information that may help Program Users make management decisions to meet LH Standard Est. 2020 and systematically identify gaps in their management system that might lead to non-conformance with the LH Standard Est. 2020. It is not a list of tasks, another management system, or an official interpretation of LH Standard Est. 2020. It may be used by Program Users to help to them improve their existing system of management.

¹ All terms in italics are defined in the glossary.



SECTION 2

BACKGROUND



Background

What is Driving the Demand for Farmland Sustainability Assurance?

The LH Standard Est. 2020 was created in response to the overlapping demands of key stakeholders, such as supply chains, retailers, farmland investors, and consumers. Stakeholder interest in sustainable agriculture is growing rapidly with increasing attention to how agricultural systems affect and interact with the environment and society.¹ Agriculture plays a global economic, social, and environmental role: it employs over one billion people, produces over \$1.3 trillion of food each year, and it occupies 50 percent of the world's habitable land, impacting climate, biodiversity, and water supplies.² As a result, businesses in the agricultural sector are taking action:

Farm and agricultural businesses are increasingly applying sustainability strategies to advance resiliency and efficiency, better retain talent, and reduce regulatory burdens³ while addressing growing demands for assurance from supply chains.

Supply chains and retailers are responding to the growing interest of consumers in sustainable, healthy food by increasingly sourcing products, which provide the assurance of sustainability.

Investors and capital providers increasingly expect assurance that their capital will not only generate sustainable financial returns, but also contribute to a more sustainable society.⁴

The LH Standard Est. 2020 addresses these diverse needs for assurance by providing a framework to help family farmers and farm managers methodically tackle agricultural sustainability and make verifiable claims to the market while strengthening credibility, reputation, and social license of businesses and investors across the value chain.⁵ Use of the LH Standard Est. 2020 may help Program Users address requirements of other agricultural sustainability programs such as OECD-FAO Guidance for Responsible Agricultural Supply Chains⁶ and UN Principles for Responsible Investment for Farmland.⁷

¹ Levin, J., and M. Stevenson. 2012. The 2050 criteria: Guide to responsible investment in agricultural, forest, and seafood commodities. Published by World Wildlife Fund, Washington, DC. Power, A. 2010. Ecosystem services and agriculture: tradeoffs and synergies. *Phil. Trans. R. Soc. B* 365: 2959-2971.

² World Bank. 2017. *Agriculture and Food*. World Bank, Washington, DC.

³ Whelan, T. and C. Fink. 2016. The Comprehensive Business Case for Sustainability. *Harvard Business Review*, 21.

⁴ Fink, L. A. 2020. *Fundamental Reshaping of Finance*. BlackRock, Inc.

⁵ Moore, S., Cabbage, F., Eicheldinger, C. 2012. Impacts of Forest Stewardship Council (FSC) and Sustainable Forestry Initiative (SFI) Forest Certification in North America. *Journal of Forestry* 110(2): 79-88. Levin, J., and M. Stevenson. 2012. The 2050 criteria: Guide to responsible investment in agricultural, forest, and seafood commodities. WWF, Washington, DC; Molenaar, J. and J. Kessler. 2017. The business benefits of using sustainability standards: A meta-review. Commissioned by ISEAL Alliance. Aidenvironment, Amsterdam, The Netherlands.

⁶ OECD/FAO. 2018. OECD-FAO Pilot project on the implementation of the OECD-FAO Guidance for Responsible Agricultural Supply Chains : Baseline Report, OECD Publishing, Paris. OECD/FAO. 2016. OECD-FAO Guidance for Responsible Agricultural Supply Chains, OECD Publishing, Paris.

⁷ UNEP Finance Initiative and UN Global Compact. 2016. *Responsible Investment In Farmland Report 2014-2015*. UNEP Finance Initiative.

Why a New Agricultural Sustainability Program?

The LH Standard Est. 2020 was created because a scalable, sector-wide response to the demand for sustainability assurance in agriculture did not exist. Although there are globally over 400 other farm sustainability standards, most are either: 1) limited in scope to specific crops and regions; or 2) required specific practices that were not always adaptable to the broad diversity of agricultural systems in the U.S.⁸

The LH Standard Est. 2020 has been designed to be universally applied across all crops and regions of the U.S. and address the full spectrum of environmental, social, and economic concerns. Furthermore, it is ‘outcomes-based’, which allows Program Users, family farmers and farm managers to flexibly apply the LH Standard Est. 2020 to their particular operating context while still achieving widely desired, long-term sustainability outcomes. Independent, third-party auditing plays a key role by verifying and assuring that those outcomes are being met across a great diversity of farms.

How was LH Standard Est. 2020 developed?

The LH Standard Est. 2020 was drafted by a team of farm managers, environmental organizations, asset managers, and agricultural sustainability experts, and was modeled after widely adopted sustainable forestry certification standards. Other leading agricultural standards and programs were also consulted to prepare the draft LH Standard Est. 2020, including (but not limited to): FAO Sustainability Assessment of Food and Agricultural Systems Guidelines, GLOBALG.A.P., National Sustainable Agriculture Standard – LEO-4000, Rainforest Alliance Sustainable Agriculture Network, Round Table on Responsible Soy, Sustainable Agriculture Initiative Platform, Unilever Sustainable Agriculture Code, and UN Principles for Responsible Investment.

The draft LH Standard Est. 2020 was then field tested and reviewed by stakeholders, representing farmers, environmental groups, farm labor, agricultural scientists, rural communities, and agricultural services. The field test occurred in major agricultural areas of the U.S. on 22,000 acres to assess practicality and scalability of the Standard. The draft LH Standard Est. 2020 was also shared in three workshops in major agricultural regions (California, Iowa, and Georgia) with key stakeholders who suggested over 400 improvements, most of which were incorporated into the final LH Standard Est. 2020. Results of the field test and stakeholder feedback were used to revise the draft LH Standard 2020 so that it would be scalable and practical, responsive to stakeholders’ concerns and interests, and credible.

⁸ International Trade Centre. 2017. Standard Map: Your roadmap to a sustainable future. Geneva, Switzerland.



SECTION 3

SCOPE OF THE LH STANDARD
EST. 2020



SCOPE OF THE LH STANDARD EST. 2020

What is the LH Standard Est. 2020?

The LH Standard Est. 2020 is a third-party audited certification standard for providing assurance for the sustainability of farmland management. Farmland managers and owners can use LH Standard Est. 2020 to become certified and certify farmland under their management and then to make verifiable sustainability claims to the market regarding their management.

The LH Standard Est. 2020 is outcome-based using qualitative indicators that serve as farm management unit goals. **It does not prescribe activities necessary to achieve conformance with the LH Standard 2020 but allows farmers and farm managers the flexibility to apply practices best suited for their operation to achieve sustainable outcomes.** This approach allows for adaptation across crops and agricultural regions, recognizing that even a single crop can require unique management strategies in different regions. This approach is possible because it includes a credible system to ensure that desired outcomes are being met. Third-party auditing by independent and accredited certification bodies credibly assess whether the practices applied are sufficient to conform to an outcome described by an indicator.

Finally, the LH Standard Est. 2020 requires farmers to continually improve their operations, year over year, following improvement in regional agricultural best management practices. The Standard itself is revised on a regular basis through a public process to ensure it reflects the latest insights regarding agricultural sustainability. Collectively these processes are part of the continuous improvement of the LH Standard Est. 2020 and farmland management by Program Users.

What types of land does the LH Standard Est. 2020 address?

The LH Standard Est. 2020 applies to all *farmland* across all crops and regions of the U.S. Farmland includes *agricultural land*, *cropland*, rangeland, grassland, pasture land, incidental forest land and wetlands that are part of a farm or farm management unit. This can include land that is not used to grow *crops* or support agriculture directly. *Agricultural land* is land that is used directly or indirectly in the production of *agricultural products*, including cropland, grassland, rangeland, pasture, roads, crop buffer areas, farm building areas, and other land on, which agricultural products or livestock are produced and resource concerns may be addressed. *Agricultural land* is a sub-set of *farmland*. It is a *area of farmland* where a Program User focuses their attention on crop production. *Cropland* includes land primarily for the direct production of agricultural products for harvest, including, but not limited to, land in row *crops* or close-grown *crops*, forage *crops*, permanent hay land, horticultural *crops*, orchards, vineyards, cropped woodland, marshes, cranberry bogs and other lands used to produce *crops*. Hence, *farmland* includes *cropland*, *agricultural land*, and incidental land not used in production that is part of a farm or farm management unit participating in the LH Standard Est. 2020.

Animal agriculture management cannot be assessed using the LH Standard Est. 2020 except for land that is *cropland*, grassland, rangeland, pasture and other land on, which agricultural products or livestock are produced. Forest and wood-fiber management on land such as natural forests, plantation forests, short rotation woody crops, and/or agro-forestry cannot be assessed using the LH Standard Est. 2020.

¹ A public claim is one that is made to the general public such as in a publicly posted sustainability report, press release, blog post, company letterhead, business cards, vehicle signage, etc.

What topics does the LH Standard Est. 2020 address?

The LH Standard Est. 2020 addresses thirteen topics that are core to farmland sustainability. These were selected resulting from a review of many other agricultural standards and because they reflect major stakeholder concerns and address major risk and materiality issues:

1. Sustainable Agriculture Management
2. Soil Health and Conservation
3. Water Resources
4. Crop Protection
5. Energy Use, Air Quality, and Climate Change
6. Waste and Material Management
7. Conservation of Biodiversity
8. Protection of Special Sites
9. Local Communities
10. Personnel and Farm Labor
11. Legal and Regulatory Compliance
12. Management Review and Continual Improvement
13. Tenant Operations

Who can implement the LH Standard Est. 2020?

Program Users of the LH Standard Est. 2020 can be enterprises such as:

- family farmers including small and large family farms;
- organizations that own or have management authority for farmland including farmland asset managers and contract farm managers;
- agricultural product processors with farmer suppliers who elect to participate as a group;
- or farmers' cooperative where co-op members elect to participate as a group.

Are large and small farms held to the same requirements by third-party auditors?

The LH Standard Est. 2020 can be applied to farm management units of any size. All Program Users are held to the same LH Standard Est. 2020, but expectation of conformance evidence may vary with the scope and scale of the Program User as the size of their farm management unit influences the risk level of adverse impacts it may pose to society and the environment. Large operations, whether they are defined by size of operation, number of employees, or annual revenue, have both the potential for greater adverse impact and potentially greater resources to act proactively to achieve positive impacts and mitigate potential adverse impacts than small operations.⁹ Hence large operations may be expected to exhibit more activity (e.g., practices, training, documentation, monitoring) under the LH Standard Est. 2020 to demonstrate effective management of greater risk of adverse impacts than small operations.

⁹ OECD/FAO (2016), OECD-FAO Guidance for Responsible Agricultural Supply Chains, OECD Publishing, Paris.



SECTION 4

IMPLEMENTATION OF THE
LH STANDARD EST. 2020 —
GENERAL INFORMATION



This section identifies general information about the LH Standard Est. 2020, which is useful for understanding the LH Standard Est. 2020.

LH Standard Est. 2020 Structure

The LH Standard Est. 2020 is hierarchically structured, starting with Principles at the highest level and ending with Indicators at the finest level (Table 1). The Principles provide the overall vision for the LH Standard 2020. Program Users are assessed by certification bodies for conformance with the Objectives, Performance Measures, and Indicators.

The order of Objectives, Performance Measures, and Indicators provide increasing directive detail about conformance to the LH Standard Est. 2020. At the finest level, conformance to Indicators can provide evidence that the Objectives are being achieved by the Program User. Indicators are contextual—that is, they only apply to farms where relevant. For example, Indicator 3.1.3 (Water Conservation) would not apply if water is not being extracted for agricultural operation such as irrigation. To determine conformance of a farmland unit to the standard, a certification body will review the conformance evidence for each indicator and assess whether the conformance evidence is sufficient to address the requirements described by the indicator with consideration of local conditions and guided by regional agricultural best management practices.

Table 1. The hierarchical format of the LH Standard 2020, including definitions and examples of Principles, Objectives, Performance Measures, Indicators, and conformance evidence.

DEFINITIONS	LH STANDARD EST. 2020 EXAMPLES
A Principle is a statement that expresses the vision and direction for sustainable agriculture with respect to one or more environmental, social, and economic topics.	Principle 2. Soil Productivity and Health To maintain or enhance long-term soil health and productivity and to protect soil from degradation.
An Objective is a fundamental goal of sustainable agriculture with respect to one or more of the Principles .	Objective 2. Soil Health and Conservation To maintain or enhance soil health to optimize crop yield and protect long-term agricultural soil productivity.
A Performance Measure is a statement that identifies key criterion or criteria for assessing performance and compliance of a farm operation with an Objective .	Performance Measure 2.1 Soil Health: Apply agricultural practices and nutrients to achieve crop yield and maintain or enhance agricultural soil health.
An Indicator is a specific metric that provides qualitative or quantitative information about performance of a farm operation that is integral to assessing conformance to a standard's Performance Measures .	Indicator 2.1.1 Soil Fertility: Implement agricultural practices (e.g., tillage systems, cover cropping, addition of soil amendments) to maintain or enhance soil fertility and physical and biological characteristics and minimize nutrient loss to water and air.
Conformance evidence is specific information used to assess whether farm operations have met Indicator requirements, including activities, documents, statements, measurements, other verifiable information, and/or observations of behavior, practices, technology, and conditions.	Some examples of optional conformance evidence: A description of tillage systems and cover cropping practices, including goals; observations from field visits; invoices for cover cropping and/or soil amendment spreading contracts; soil sampling results; nutrient management plans; records of workshop attendance or trainings related to soil health and fertility

Conformance versus Compliance

The LH Standard Est. 2020 is a conformance-based standard. Each Indicator specifies outcomes to which Program Users must conform. This means Program Users have the freedom to achieve Indicator outcomes by any means consistent with the norms established by the LH Standard Est. 2020.

Conformance Evidence

Certification bodies review conformance evidence during a verification audit to evaluate whether a Program User is in conformance with an Indicator. Program Users have the discretion to manage their operations however they choose as long as their activities produce the conformance evidence necessary to demonstrate conformance with an Indicator. A certification body takes into account local conditions to determine whether a farm management unit is in conformance with the LH Standard Est. 2020.

There are five common types of activities that serve as conformance evidence: *policies and practices*, *communication and training*, *documentation*, *monitoring*, and *key performance indicators (KPIs)*. They often overlap. For example, a nutrient management plan is *documentation* evidence that may describe field practices, which are *policy/practice* evidence and may be shared among employees and service providers, which is *communication* evidence. Program users present their choice of conformance evidence. Some indicators may indicate a type of evidence to be included (e.g., evidence in the form of written documentation, broadly agricultural practices, training exercises, or monitoring practices). Collectively a farm management system may include a selection of these five types of evidence to convey to a certification body that an effective farm management system is in place to achieve conformance with the LH Standard Est. 2020.

1. **Policies/Practices** are farm management and agricultural policies and practices (including evidence of the establishment of roles and responsibilities) that provide information about a Program User's stewardship activities and performance.¹⁰ Evidence typically may include a description by a Program User, their staff, and/or tenants; field activities observed in the field or demonstrated (e.g., presence of cover crop stubble in the spring indicates over-winter cover cropping practices); or documentation of activities (e.g., vendor invoices for fertilizer or pesticide applications or CAPEX activities).
2. **Communication/Training** are internal and/or external communication activities (including emails and memos) and materials addressing farm stewardship and employee training to enhance stewardship activities. Evidence typically may include a description by a Program User or their staff and/or tenant(s), electronic or printed documents, and signage, employee training sign-in sheets.

Training evidence can also include resumes and C.V.s, training certificates, professional licenses and certificates, and post-secondary training culminating in diplomas (e.g., in Associate, B.A./B.S., M.S., and Ph.D. programs), and/or other information, which demonstrates Program User staff and/or contractors have the expertise to achieve the outcome described in an Indicator.

Other training evidence includes important professional programs that are widely recognized in agriculture in the U.S., including Accredited Agricultural Consultant,¹¹ Accredited Farm Manager,¹² Accredited Rural Appraiser,¹³ Certified Crop

¹⁰ The LH Standard Est. 2020 Objectives and Performance Measures can serve in effect as organizational policies for Program Users who have adopted the LH Standard Est. 2020.

¹¹ Administered by the American Society of Farm Managers and Rural Appraisers (ASFMRA). It requires a college education, four years of experience, ASFMRA training credits, acceptance of consulting report, and testing.

¹² Administered by ASFMRA. It requires a college education, four years of experience, ASFMRA training credits, acceptance of consulting report, and testing.

¹³ Administered by ASFMRA. It requires four years of experience, ASFMRA training credits, acceptance of consulting report, and testing.

Advisor,¹⁴ Certified Professional Agronomist,¹⁵ Certified Professional Crop Consultant,¹⁶ Certified Professional Soil Scientist,¹⁷ NRCS Certified Technical Service Provider,¹⁸ and Pest Management applicator license.¹⁹

3. **Documentation** is relevant printed and/or electronic documents describing farm stewardship activities. Evidence typically may include formal written policies, emails, standard operating procedures (SOPs), vendor proposals and invoices for installation, goods, and/or other services, monitoring and key performance indicator data, documentation of key stewardship activities, plans (e.g., CAPEX proposals, nutrient management plans), permitting documents (e.g., permits and permit applications submitted to local, state, and/or federal agencies required for farm management activities), lease or other agreements, GIS data layers, and documents establishing participation in other voluntary sustainability programs and certifications,²⁰ training documents, job descriptions describing responsibilities and roles, and corrective actions (including memos) to remedy non-conformance with organizational or LH Standard Est. 2020 objectives.
4. **Monitoring** includes audits or routine reviews of practices and procedures, training, input use, and resource use (e.g., water, fertilizers, crop protectants) and impacts. Evidence may include printed or electronic data forms or data, field or property survey forms, performance reviews, vendor invoices, and crop and input records.
5. **Key Performance Indicators (KPIs)** are quantitative and qualitative indicators of resource use and activity impacts used to evaluate progress toward a goal or objective. They may include proxy KPIs. For example, annual energy costs might be reviewed annually as a proxy for tracking annual energy use.

Enrollment in Other Regulatory and Voluntary Programs as Conformance Evidence

Program Users may use activities used to meet their existing reporting requirements as evidence to achieve conformance with the LH Standard Est. 2020. This may include reporting requirements for legal compliance (e.g., USDA NRCS program participation, state permits, etc.) and for relevant voluntary sustainability programs (e.g., research, local conservation programs, supply chain surveys, industry programs, etc.) Enrollment paperwork, activities, reviews, trainings, and checklists are useful conformance evidence.

Understanding Indicators Interpreting Indicators

Understanding key terms and phrases can help Program Users interpret each Indicator. Most indicators for Objectives 2 through 8 apply to field operations and may be directed at one of three land types *farmland*, (e.g., agricultural land and cropland), *agricultural land* (e.g., land that is used directly or indirectly in the production of *agricultural products*), and *cropland* (e.g., land used primarily for the direct production of agricultural products for harvest). Understanding the relevant land types of an Indicator will help a Program User understand whether an Indicator applies only to *cropland*, *agricultural lands*, or to the entire farm unit.

Key phrases can also help a Program User apply the LH Standard Est. 2020. Table 2 identifies the key phrases that a Program Users can use to identify the type of evidence needed to achieve conformance

²⁰ This can include enrollment in USDA NRCS, other federal, state, and local voluntary programs, participation in supply chain programs aimed at improving agricultural stewardship, partnerships with co-ops and other organizations, including local and regional conservation organizations, and crop certification programs (e.g., GLOBALG.A.P., national or regional crop certification programs).

Table 2. Key phrases for interpreting the LH Standard Est. 2020 Indicators.

INDICATOR WORDING STARTS WITH...	A DESCRIPTION OF CONFORMANCE EVIDENCE NEEDED
A process for...	A process is a <i>purposeful series of practices or routines (formal or informal)</i> . Having a process requires thoughtfulness that exceeds ad hoc application of activities. Program Users will have to demonstrate that they have a process with a routine and purpose. The order and application of specific activities can vary from year to year or from application to application. Conformance does not require a SOP document or a policy document.
A program to/for...	A program is an <i>organized system or set of activities</i> . A program requires a systematic level of activity and requires being more methodical and more conformance evidence than a <i>process</i> . Written plans often can be used to describe an organized system or program for nutrient or water management. Program Users will have to present evidence that describes an organized system or set of activities.
A written...	Program Users will have to present written policies, statements, or agreements often with evidence of supporting actions to ensure staff understand and are able to implement written policy or agreements. These Indicators may include requirements unique to the LH Standard Est. 2020.
Application of regional agricultural best management practices to...	Program Users will have to present evidence for application of practices. <i>Regional agricultural best management practices are practices or a combination of practices developed by land grant agricultural universities in a region considered to be an effective means (including technological, financial, environmental, social, and institutional considerations) of achieving a sustainable agriculture goal.</i> A region is a homogenous area with respect to crops produced, soil type, climatic conditions, crop association, and generally accepted farming practices. Evidence of practices may be visually seen directly or indirectly (e.g., completed practices) in the field, described by field staff, and/or supported by documentation or evidence of training and/or communication. Indicators with this language are easier to address than Indicators requiring a <i>process</i> .
Demonstration...	Program Users demonstrate how they have achieved the outcome described by the Indicator, which may include a commitment or action showing due diligence.
Application of...	Program Users provide evidence of application of practices and/or technologies. These may be described by field staff, supported by invoices or CAPEX documents for equipment, or seen in the field.
Management of...	Program Users must demonstrate sufficient management of topics described in the indicator to achieve the outcome specified by the Indicator. Program Users may be asked to demonstrate consistency with <i>regional agricultural best management practices</i> .
Monitoring of...	Program Users must show evidence of monitoring activities sufficient to achieve the outcome described in the Indicator. These activities might include monitoring training and documentation and printed or electronic monitoring data.
Participation individually or collaboratively...	Program Users must show evidence of participation or membership in external efforts and awareness and understanding among appropriate staff.

Training...	Program Users must demonstrate evidence of specific training identified by the Indicator. Evidence might include a description of training events, attendance records, and training content (printed and/or electronic materials and documents).
Use of...	Program Users must demonstrate evidence of activities or equipment described in the indicator. Program Users may define the scope and what is sufficient to achieve outcome described in the Indicator, but it must be credible to the certification body.

More on Regional Agricultural Best Management Practices

Regional agricultural best management practices (regional agricultural BMPs) are a common reference point for Objectives 2 through 5. All regions of the U.S. have land grant agricultural universities which have developed *regional agricultural BMPs* for managing soil health, water conservation, crop protection, energy use and air impacts, and climate change impacts. Most regions have at least one land grant university that has developed guidance information useful for addressing Objective 6 (Waste and Material Management), Objective 7 (Conservation of Biodiversity) and Objective 10 (Personnel and Farm Labor). Program Users must only demonstrate the application of applicable agricultural BMPs from the region of the operation and those relevant to the crop(s) under consideration.



SECTION 5

IMPLEMENTATION OF THE
LH STANDARD EST. 2020
INDICATOR CONFORMANCE



This section provides information about each Objective and guidance regarding conformance evidence for each Indicator. **It does not replace any portion of the LH Standard Est. 2020 and is for guidance purposes only to support the use of LH Standard Est. 2020 by Program Users.** Key words are italicized and defined in the glossary.

An Indicator may have one of three scopes: the management system of the *Program User*, *farmland* enrolled by the *Program User*, and *farmland tenants* (where applicable) on *farmland* enrolled by the *Program User*. Objectives 1 and 7 through 13 **apply to the management system** of the *Program User* that is used to manage enrolled *farmland*, except for Indicators 7.2.3, 7.3.1 and 9.4.1. Objectives 2 through 6 and Indicators 7.2.3, 7.3.1 and 9.4.1 **apply to the management of all farmland** enrolled under the LH Standard Est. 2020. Indicator 13.1.4 **applies to all farmland tenants** of leased *farmland* enrolled under the LH Standard Est. 2020. The activities of farmland tenants may contribute to the performance of the *Program User* for Objectives 2 through 6 and Indicators 7.2.3, 7.3.1 and 9.4.1, but the *Program User* is responsible for conformance to these Objectives, Performance Measures and Indicators.

This section provides **guidance** for conforming with each Indicator so that *Program Users* can better understand and interpret each Indicator. It identifies key sustainability consideration that help define each Indicator and the conformance evidence necessary to achieve conformance to each Indicator. It also provides **conformance evidence examples** for each Indicator to illustrate a broad range of relevant and discretionary conformance evidence.

Objective 1. Sustainable Agriculture Management:

To practice sustainable agricultural stewardship to improve *crop* production and ensure long-term agricultural sustainability.

Background: Sustainable agriculture requires taking a long-term and large-scale management view of agricultural sustainability and consider the sustainability of an operation in the context of its region and crop sector. This includes careful consideration and planning for financial, market, social, and environmental conditions on and off the farm. The purpose of this Objective is to ensure *Program Users* apply a long-term and large-scale management view to help ensure the sustainability of their operation(s).

Performance Measure 1.1 Sustainable Agricultural

Stewardship: *Program Users* shall demonstrate their commitment to sustainable agricultural stewardship of *farmland*.

Indicator 1.1.1 Farmland Stewardship Commitment:

A written commitment statement and list of goals that describes the sustainable agricultural stewardship of *farmland*.

Guidance: A written sustainability commitment statement and list of stewardship goals helps *Program Users* achieve agricultural sustainability by communicating their purpose and direction to their employees, customers, vendors, and other stakeholders and ensuring consistent strategic direction and operations. It also provides a clear vision to employees necessary to jointly achieve stewardship goals.

Conformance Evidence Examples: A written commitment statement and list of goals, which may be supported by conformance evidence such as: a description of how statement and goals are used to guide agricultural stewardship; demonstration that staff understand and

implement the commitment statement and stewardship goals; onboard training about commitment statement and goals; and a description of policies and/or practices used to achieve goals.

Indicator 1.1.2 Farmland Stewardship: Demonstration of the management of major synergies and tradeoffs between the economic, social, and environmental dimensions of sustainable agricultural stewardship of *farmland* while ensuring long-term profitability and sustainability.

Guidance: Sustainable agriculture requires managing for the triple bottom-line (e.g., the economic, social and environmental dimensions which are elaborated by the Indicators in the LH Standard Est. 2020) and their complex synergies and tradeoffs. Successful management of triple bottom-line leads to long-term profitability and sustainability. This Indicator requires *Program Users* to describe the integrated management of all Indicators. The conformance evidence for Indicator 1.2.1 (Critical External Factors) may also be applicable to this Indicator, especially for *Program Users* with a one farm.

Conformance Evidence Examples: A description of relevant economic, social and environmental factors in area(s) of operation, how synergies and tradeoffs are managed, and long-term profitability and sustainability are achieved which may be supported by: related planning documents (e.g., business plans, loan documents, cost share agreements, or acquisition due diligence documents); employee sustainability training; and use of LH Standard Est. 2020 program.

Indicator 1.1.3 Farmland Conservation: Conservation of *prime farmland* to avoid its conversion to nonagricultural uses when conversion would adversely impact regional

agriculture.

Guidance: *Prime farmland* has the best combination of physical and chemical characteristics for producing *agricultural products*. Its conservation can help sustain regional agriculture. Conversion of *farmland* may be acceptable when: it is not prime farmland; in areas where agriculture is insignificant or would not be impacted by *farmland* loss; or small areas are converted to support agriculture (e.g., building of equipment sheds and silos). Indicator 1.1.3 ensures Program Users support the sustainability of regional agriculture by avoiding impactful *prime farmland* conversion and manage reputation.

Conformance Evidence Examples: A description of activities and criteria used to avoid conversion of *prime farmland*; a description of *farmland* conversion practices; knowledge of regional status of *prime farmland*, regional agriculture, and its *conservation* by Program User; a *farmland* conversion policy; employees knowledge of Program User's conversion policy; and mapping of ownership and *prime farmland*.

Performance Measure 1.2 Critical External Factors: Program Users shall manage for potential impacts of *critical external factors* to help ensure long-term profitability and sustainability of each farm or farm management unit by the Program User.

Indicator 1.2.1 Adapting to Critical External Factors: A process for periodically identifying *critical external factors* and adapting to their impacts to ensure the long-term profitability and sustainability of agricultural production of a farm or farm management unit.

Guidance: *Critical external factors* are any off-farm factors that are materially and substantively relevant to the viability, long-term profitability, and sustainability of agricultural production of a management unit or farm. They may include economic factors (e.g., regional market demand and opportunities and regulatory changes), environmental factors (e.g., regional availability of water and other inputs), and social factors (e.g., social license). They can pose business risk or lost strategic opportunities if ignored. Indicator 1.2.1 ensures that *Program Users* have considered and adapted to *critical external factors* for each farm.

The conformance evidence of three other Indicators may be used as evidence for this Indicator. Indicator 1.1.2 (*Farmland Stewardship*) may have a broader spatial scope (e.g., apply across farm management units for multi-farm *Program Users*) and management scope (e.g., all aspects of sustainability and their synergies and tradeoffs), but can include consideration of *critical external factors*. Indicator 12.1.3 (Agricultural Innovation) requires identification of innovative strategic opportunities, which might also be *critical external factors*. Indicator 12.1.1 (Performance Re

view) requires annual reviews in, which *critical external factors* might incidentally be identified.

Conformance Evidence Examples: A description of a purposeful, formal or informal set of practices for periodically identifying *critical external factors* and adapting to their impacts, which may be supported by: a description of how *critical external factors* are identified and adapted to for each operational unit while ensuring long-term profitability and sustainability; a description of *critical external factors*; and documents that identify and plan adaptations or adjustments to *critical external factors* (e.g., due diligence acquisition documents, loan agreements, CAPEX plans, marketing plans, and business plans).

Objective 2. Soil Health and Conservation

To maintain or enhance *soil health* to optimize crop yield and protect long-term *soil productivity* on *agricultural lands*.

Background: *Soil health* is the capacity of soil to function as a vital living ecosystem that sustains crops, soil organisms, and humans. Healthy soils are the foundation of sustainable agriculture. Their maintenance includes consideration of the physical, chemical, and biological characteristics of soil. They sustain optimal crop yields for people and animals and protect water quality and environmental health.

Performance Measure 2.1 Soil Health: *Program Users* manage nutrients and apply practices to achieve *crop yield* and maintain or enhance *soil health of cropland*.

Indicator 2.1.1 Soil Quality: Application of *regional agricultural best management practices* (e.g., tillage systems, cover cropping, addition of soil amendments) to maintain or enhance *soil fertility* and physical and biological characteristics of soil.

Guidance: Maintaining or enhancing *soil health* includes maintaining or enhancing its chemical, physical, and biological characteristics and is the foundation to sustainable agriculture. It starts with the application of *regional agricultural best management practices (regional agricultural BMPs)* as needed to maintain or enhance soil health.

Conformance Evidence Examples: A description and/or infield demonstration of the application of *regional agricultural BMPs* that maintain or enhance soil fertility and physical and biological characteristics of soil, which may be supported by conformance evidence such as: annual planning documents and vendor invoices; soil testing data for chemical, physical, and/or biological characteristics of the soil; soil maps; and relevant credentials of farmer(s), farm manager(s), and/or vendors.

Indicator 2.1.2 Soil Health Monitoring: Monitoring of *soil health* characteristics, including nutrients from different

sources necessary to maintain or enhance *appropriate* nutrient balance and *soil health*.

Guidance: *Soil health* monitoring ensures that *soil health* is routinely assessed so that a farmer can take action to ensure its maintenance if necessary. Monitoring *soil health* includes tracking nutrients from different sources necessary to maintain or enhance appropriate nutrient balance and soil health. The monitoring system should consider monitoring of other *soil health* characteristics, but these will vary depending on the cropping system, soil type, and guidance from regional land grant universities.

Conformance Evidence Examples: A description of *soil health* monitoring system, which may be supported by conformance evidence such as: soil test data for nutrients and other chemical, physical, and/or biological characteristics of the soil; nutrient inputs and losses, and annual crop nutrient requirements; crop consultant nutrient recommendations; soil maps; credentials of farmer(s), farm manager(s), and/or vendors.

Indicator 2.1.3 Nutrient Management Program: An up-to-date *nutrient management program* that efficiently uses nutrient inputs and nutrients in the soil and *crops* to create optimum conditions for crop production and nutrient utilization and avoids nutrient loss to water and air.

Guidance: A *nutrient management program* is a necessary, organized system or set of activities to help ensure that nutrients are efficiently applied and optimally managed to achieve desired crop productivity and avoid nutrient loss to the air and water. For some farms, it may be well described by a nutrient management plan. The conformance evidence for Indicators 2.1.1 (Soil Quality), 2.1.2 (Soil Monitoring), and 2.1.4 (Crop Residues) provide the base evidence for this Indicator.

Conformance Evidence Examples: A description and/or infield demonstration of a nutrient management program that efficiently use nutrients to create optimum conditions for crop production and minimize nutrient loss to air and water, which may be supported by: a nutrient management plan; plant tissue data; soil test records; crop consultant nutrient recommendations; credentials of farmer(s), farm manager(s), crop consultant(s), and/or vendor nutrient applicators.

Indicator 2.1.4 Crop Residues: Application of *regional agricultural best management practices* to use *crop residues* to maintain or improve *soil health* and long-term *soil productivity* where *appropriate*.

Guidance: *Crop residues* are materials from growing crops left on the soil surface or partially incorporated into the soil. They may include: stalks, stubble, leaves, chipped branches and vines, woody biomass from orchard and

vineyard redevelopment, and seed pods. They contribute to *soil health* and *soil productivity* by: increasing soil organic matter and nutrients; controlling soil erosion; improving soil moisture retention, structure, and biodiversity; and improving water filtration. *Crop residue* retention may not be *appropriate* when it is expensive, supports pests, or reduces crop productivity. The conformance evidence of infield practices for Indicator 6.2.2 (Resource Recovery of Agricultural Waste) may also be applicable to this Indicator.

Conformance Evidence Examples: A description and/or demonstration of infield application of *regional agricultural BMPs* used to manage *crop residues*, which may include: evidence in the field of *crop residues*; crop consultant nutrient recommendations, which address nutrients in crop residues; credentials of farmer(s), farm manager(s), crop consultant(s); cover crop invoices.

Performance Measure 2.2 Soil Conservation: *Program Users* shall implement *agricultural practices* to *minimize soil erosion* and avoid degradation of *agricultural lands*.

Indicator 2.2.1 Cropland Soil Management:

Application of *regional agricultural best management practices* to *minimize soil erosion* and physical damage (e.g., compaction) of *cropland* and restore *soil health* where *appropriate*.

Guidance: Soil conservation is the prevention of the loss of topsoil from erosion and of fertility from over usage or accumulation of adverse compounds. Soil erosion and damage can reduce crop yields by 50%. Hence *regional agricultural* soil conservation *BMPs*, which minimize soil erosion, maintain fertility, and restore soil can be applied to *cropland* as needed to ensure long-term crop productivity and sustainability. This Indicator focuses on cropland at the field level while Indicator 2.2.2 focuses on all *agricultural lands* on a farm. The conformance evidence for Indicators 2.1.1 (Soil Quality) and 2.1.4 (*Crop Residues*) may also be applicable to this Indicator.

Conformance Evidence Examples: A description and/or infield demonstration of *regional agricultural BMPs* used to minimize soil erosion and damage to cropland and practices used to restore soil health, which may be supported by: crop consultant recommendations for cropping and infield structural practices, which control soil erosion; credentials of farmer(s), farm manager(s), crop consultant(s); vendor invoices used for sub-soiling and other practices to alleviate soil compaction and damage; NRCS-approved conservation plan or system for all highly erodible land (HEL).

Indicator 2.2.2 Degradation of Agricultural Lands:

A *process* to avoid the widespread loss of *agricultural*

lands to soil mismanagement (e.g., failure to prevent extensive soil erosion, acidification, salinization and accumulation of other adverse compounds).

Guidance: Systematic application of soil conservation principles across a farm operation(s) can prevent loss of agricultural lands from widespread soil degradation. This Indicator focuses on all *agricultural lands across the farm* while Indicator 2.2.1 focuses *on cropland at the field level*. The conformance evidence for Indicator 2.2.1 (Cropland Soil Management) may also be applicable to this Indicator.

Conformance Evidence Examples: A description and/or infield demonstration of formal or informal set of routines used to avoid soil mismanagement (e.g., extensive soil erosion, acidification, salinization and accumulation of other adverse compounds), which could be supported by: management and field practices to prevent soil mismanagement; field observations that suggests a lack of soil mismanagement; crop consultant recommendations for practices, which mitigate soil mismanagement; credentials of farmer(s), farm manager(s), crop consultant(s); NRCS-approved conservation plan or system for all highly erodible land (HEL); soil erosion plans; soil test data for pH, salinization and/or other adverse compounds.

Objective 3. Water Resources

To protect water resources and manage water for efficient *agricultural productivity*.

Background: Agriculture withdraws more *groundwater* than any sector in the United States and is associated with *groundwater depletion* in some regions. In some areas, it competes residential and other commercial uses of water use. Agriculture can also be an important source of sediment, nutrients, pesticides, salts, and pathogens in *surface water* and *groundwater*. Water use and impacts can pose strategic and reputational risk for agriculture in many regions. Hence, conservation of water resources is a key issue in agricultural sustainability.

Performance Measure 3.1. Water Use: Program Users shall conserve water resources and manage water use to avoid long-term depletion and maintain *crop productivity*.

Indicator 3.1.1 Agricultural Water Withdrawal: A process for avoiding the depletion of available *groundwater* resources beyond the recharge capacity of the watershed or catchment and by direct withdrawal where *groundwater depletion* is an issue as determined by a *groundwater regulatory agency*.

Guidance: Groundwater depletion has become a critical risk to regional agricultural and municipal sustainability in some areas. *Groundwater regulatory*

agencies have been established in some areas to remedy this issue. A *groundwater regulatory agency* is a public authority or government agency with statutory authority to exercise regulatory or supervisory oversight in the extraction of groundwater. Well-established irrigation practices can be used by farmers to avoid contributing to *groundwater depletion*. **This Indicator only applies when Program Users use groundwater to irrigate crops AND where a groundwater regulatory agency has determined groundwater depletion is occurring.** Conformance evidence for Indicators 3.1.2 (Regional Water Conservation) and 3.1.3 (Water Conservation) may be applicable to this Indicator 3.1.1 when it addresses *groundwater* withdrawal and conservation.

Conformance Evidence Examples: A description of a set of informal or formal practices or routines for avoiding the depletion of *groundwater* resources beyond the recharge capacity where *groundwater depletion* is an issue as determined by a *groundwater regulatory agency*, which may be supported by: documentation for *groundwater* removals; acquisition due diligence reports on water resources; *groundwater* removal permits and reports; participation in *groundwater regulatory agency* workshops.

Indicator 3.1.2 Regional Water Conservation:

Participation individually or collaboratively in regional water *conservation* programs where *appropriate* to help foster responsible use and *conservation* of *groundwater* and *surface water* used for agriculture.

Guidance: Regional water *conservation* programs help conserve *groundwater* and *surface water* used for agriculture and ensure its availability and reduce costs. Regional efforts can pool resources, which can scale up water use *conservation* and help achieve water *conservation* goals. **This Indicator only applies where Program Users use surface water and/or groundwater to irrigate cropland.**

Conformance Evidence Examples: A description of individual or collaborative participation in regional water use *conservation* programs (e.g., water district water boards, advisory committees) in agriculture, which may be supported by: communications with regional water *conservation* programs; meeting attendance records; board membership of regional water use *conservation* programs; evidence of how participation has helped foster responsible use and *conservation* of *groundwater* and *surface water*.

Indicator 3.1.3. Water Conservation: A water management *program* that uses *appropriate* technology (including crop/irrigation system design) and applies *regional agricultural best management practices* to utilize

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water efficiently; to provide water tailored to crop needs; and to control pests, pathogens, salinization and accumulation of other adverse compounds.

Guidance: The greatest water conservation gains have been achieved by systematically improving *crop/irrigation* systems and applying *regional agricultural BMPs*, which also have reduced costs and increased productivity.

This Indicator **only applies where Program Users use surface water and/or groundwater to irrigate cropland.** Conformance evidence for Indicator 3.1.2 (Regional Water Conservation) may also be applicable to this Indicator.

Conformance Evidence Examples: A description of an organized process to conserve water and manage pests, salinization, and other adverse impacts to *cropland* that may include improvements to the irrigation technology and/or *regional agricultural* irrigation BMPs, which may be supported by: documents regarding water conservation (e.g., irrigation management plans, and agricultural water management plans [California]); water use permits and reports; participation in regional or state water *conservation* efforts; use of soil- or plant-moisture sensing technologies or commercial irrigation scheduling services.

Performance Measure 3.2. Water Quality: Program Users shall apply a *program* to properly manage the use of *fertilizers* and other *soil amendments*, *crop protectants*, and other inputs and avoid release of sediment and nutrients from *agricultural lands* into *groundwater* and *surface water*.

Indicator 3.2.1 Input Application on Agricultural Lands: Application of *regional agricultural best management practices* when applying *fertilizers* and other *soil amendments*, *crop protectants* and other *agricultural inputs* to avoid and control infiltration of nutrients, *crop protectants* and pathogens into *groundwater*.

Guidance: Nutrients, pesticides, and salts from agriculture can enter *groundwater* and pose a risk to human and environmental health. *Groundwater* contamination can be minimized by applying *regional agricultural BMPs* to control infiltration of *agricultural inputs*. In contrast to Indicator 3.2.2 (Water Quality Protection), this Indicator focuses on infield application of *agricultural input* practices to avoid infiltration of all *agricultural inputs* into *groundwater*. Conformance evidence for three other Indicators, which address management of agricultural inputs may be applicable to this Indicator: Indicator 2.1.3 (Nutrient Management Program), which addresses nutrient loss to water; and Indicators 4.1.3 (Pest Control Practices) and 4.2.1 (Application and Storage of *Crop Protectants*), which address application and storage of *crop protectants* to avoid their release into *groundwater*.

Conformance Evidence Examples: A description and/

or infield demonstration of *regional agricultural BMPs* used to protect *groundwater* from *agricultural inputs*, which may be supported by: nutrient management plans; tillage practices (conservation tillage, no-till tillage) that reduce input infiltration; chemical use practices (reduce chemical use, use chemicals with short half-lives) that reduce infiltration.

Indicator 3.2.2 Water Quality Protection: Application of *regional agricultural best management practices* to manage water *runoff* from *cropland* into *surface water* and protect *wetlands*, *riparian areas* and water quality of *groundwater* and *surface water*.

Guidance: Agriculture is associated with water quality impairment of 22 percent of the total assessed river miles in the U.S. *Water pollution* from agricultural *runoff* can be measurably reduced by applying *regional agricultural BMPs*. *Regional agricultural BMPs* may include structural practices, which physically control water *runoff* and protect wetlands and water resources. This Indicator focuses on applying *regional agricultural BMPs* to manage surface *runoff* leaving *cropland* while Indicator 3.2.1 (Input Application on Agricultural Lands) focuses on infield practices for managing agricultural inputs. Conformance evidence for three other Indicators may be applicable to this Indicator: Indicator 2.1.3 (Nutrient Management Program) addresses nutrient loss to water; and Indicators 4.1.3 (Pest Control Practices) and 4.2.1 (Application and Storage of *Crop Protectants*) address application and storage of *crop protectants* to avoid their release to *groundwater* and *surface water*.

Conformance Evidence Examples: A description and/or infield demonstration of structural *regional agricultural BMPs* used to protect wetlands and water resources from runoff, which may include: drain practices (e.g., biofilters, flow controls); trapping practices (e.g., terraces, grassed waterways, buffer/filter strips, cover crops); tillage practices (conservation tillage, no-till tillage); chemical use practices (reduce chemical use, use chemicals with short environmental half-lives); and CRP areas.

Objective 4. Crop Protection

To achieve crop protection objectives while protecting people and the environment.

Background: Appropriately used, crop protection and the use of *crop protectants* can enhance productivity and reduce *crop* losses. *Crop protectants* may have deleterious impacts to the humans and wildlife when poorly managed. *Integrated Pest Management (IPM)* has been shown to reduce *crop protectant* risk to humans and environment and enhance *crop productivity* while reducing costs.

Performance Measure 4.1. Integrated Pest Management:

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Program Users shall protect *crops* against *pests* by implementing an *Integrated Pest Management program* that uses *regional agricultural best management practices* to achieve crop protection objectives.

Indicator 4.1.1 Pest Monitoring: Monitoring of *pests* to prevent excessive crop loss and economic injury to *crop* plants.

Guidance: Pest monitoring is essential for detecting and applying timely controls when pests are at low densities. It can significantly reduce the use of *crop protectants* and their cost and avoid major *crop* losses. It is also a core part of any *IPM program*.

Conformance Evidence Examples: A description of pest monitoring efforts and its contribution to reducing *crop* loss and *crop* plant injury, which may be supported by: identification of threshold effects resulting in excessive *crop* loss and *crop* plant injury; pest scouting records; service provider invoices for monitoring; and pest scouting credentials of farmer(s), farm manager(s), and/or vendors.

Indicator 4.1.2. Crop Protection: A *process* for preventing excessive *crop* loss from pests, *crop* protectant resistance, and buildup and spread of pests.

Guidance: Pests can be responsible for crop losses of 50% for some crops. *IPM* reduces crop losses by applying a set of *regional agricultural BMPs* to prevent excessive crop loss from pests, *crop* protectant resistance and buildup, and spread of pests. It often includes the prudent application of *crop protectants*. Conformance evidence for two other Indicators may be also applicable to this Indicator: Indicators 4.1.1 (Pest Monitoring), which focuses on pest monitoring and 4.1.3 (Pest Control Practices), which focuses on applying lowest risk, selective treatments when *appropriate*.

Conformance Evidence Examples: A description and/or documentation of the set of informal or formal practices used to achieve crop protection, including the prevention of excessive *crop* loss, *crop* protectant resistance and buildup and spread of pests, which may be supported by: pest scouting records; vendor invoices for monitoring and application; and pest applicators licenses of farmer(s), farm manager(s), and/or applicators.

Indicator 4.1.3 Pest Control Practices: Prioritization of the use of lowest risk, most selective treatment options to achieve *crop* protection goals whenever *appropriate*.

Guidance: A key *IPM* practice is to prioritize low risk, selective treatments, which also can help maintain natural enemies of pests and other beneficial invertebrates such as pollinators and reduce human health and environmental risks from *crop* protectants. Low risk, selective treatments can also reduce costs. Conformance evidence for

Indicator 4.1.2 (Crop Protection) may be applicable to this Indicator.

Conformance Evidence Examples: A description of how lowest risk, most selective *crop* protection treatment options were selected and applied, which may be supported by: *crop* protectant recommendation reports; staff knowledge of pest control options; infield observations of physical (e.g., dust management to control almond spider mites), genetic (e.g., pest resistant and GMO varieties), cultural (e.g., crop rotation, cover crops, mulching), and/or biological controls (e.g., owl nesting boxes, bio-pesticides, matting disruptor materials); vendor invoices for pest control treatments; and pesticide applicators licenses of farmer(s), farm manager(s), and/or applicators.

Performance Measure 4.2. Crop Protectant Management:

Program Users shall select, use and store *crop* protectants in accordance with label instructions and regulatory requirements.

Indicator 4.2.1. Application and Storage of Crop Protectants: Application and storage of *crop protectants* according to label instructions and regulatory requirements and application of practices to protect employees, farm workers, public health, and the environment and avoid drift of *crop protectants* offsite.

Guidance: *Crop* protectant label instructions and regulatory requirements provide instructions for safe and effective use of *crop* protectants, and help achieve maximum benefits and compliance with regulatory requirements. They also provide guidance regulatory compliance in the application and storage of *crop* protectants which helps human and environment health. This includes consideration of *crop* protectant application practices, storage practices, and facilities. Conformance evidence for Indicators 4.1.2 (Crop Protection) and 4.1.3 (Pest Control Practices) may be applicable to this Indicator where it addresses application practices for *crop* protectants. Conformance evidence for Indicator 6.1.1 (Waste Disposal) and Indicator 6.1.3 (Management of Agricultural Chemicals and Other Materials) may be applicable to this Indicator where it addresses appropriate disposal of agricultural inputs, including *crop* protectants. Conformance evidence for Indicator 10.2.1 (Personnel and Contract Worker Training) may be applicable to this Indicator where it addresses employee training for storage and application of *crop* protectants.

Conformance Evidence Examples: A description of how *crop* protectants are stored and applied according to regulatory requirements, which may be supported by: visual evidence in the field of appropriate *crop* protectant storage; SDS sheets available to employees; *crop* protectant recommendation documents; staff and/or

vendor knowledge of label restriction; vendor invoices for selective treatments; and pest applicator licenses of farmer(s), farm manager(s), and/or applicators.

Objective 5. Energy Use, Air Quality and Climate Change

To conserve energy used by agricultural operations and *minimize* adverse impacts to the atmosphere and the global climate.

Background: Agriculture consumes less than 2% of energy used in the U.S., with direct energy costs (electricity and fuels) accounting for 10% of farm costs and indirect energy costs (*crop protectants*, fertilizers, and other inputs) accounting for 10-35% of farm costs. Agriculture contributes about 10% of U.S. greenhouse gas (GHG) emissions, including CO₂ from equipment and NO₂ from emission from soils. This objective recognizes how agriculture has a unique opportunity to help both reduce energy use and air emissions, which may affect climate and human health and increase resilience to climate change.

Performance Measure 5.1 Agricultural Energy Use and Conservation: *Program Users* shall conserve energy resources, especially fossil fuels, used by agricultural operations.

Indicator 5.1.1 Energy Conservation: Use of technologies and application of *regional agricultural best management practices* to conserve energy where *appropriate*.

Guidance: *Energy conservation* is the decrease in energy use. It can be achieved in farming by using technologies and practices, which reduce direct energy use (e.g., use of electricity and fuels) or indirect energy use (e.g., reduction in energy consuming agricultural inputs such as fertilizer, crop protectants, and/or water). It leads to increased efficiency and reduced costs and emissions that are harmful to human and environmental health. *Regional agricultural BMPs* for energy conservation may not always be available or cost effective for all crops and so may not be *appropriate* for all operations. Conformance evidence for Indicators 2.1.3 (Nutrient Management Program), 3.1.3. (Water Conservation), and 4.1.3 (Pest Control Practices) may be applicable to this Indicator when they include practices or technologies, which reduce

direct

and indirect energy use.

Conformance Evidence Examples: A description and/or infield demonstration of energy *conservation* technologies and practices, which may be supported by: tracking of annual energy costs; use of software to track energy use of individual equipment; power units and tractor upgrades to more efficient equipment, including variable speed drives; energy conserving cropping, tillage, and irrigation practices; lighting upgrades, including LEDs;

and examples of CAPEX proposals for energy conservation technologies.

Indicator 5.1.2 Renewable Energy: Use of *renewable energy* technologies and application of *regional agricultural best management practices* where **appropriate**.

Guidance: *Renewable energy* includes energy from sources that are naturally replenishing and virtually inexhaustible such as wood, waste, geothermal, wind, photovoltaic, tides and waves, hydropower, and solar thermal energy. Their use can help reduce fossil fuel use and air emissions that are costly and harmful to humans and the environment. *Renewable energy* and *regional agricultural BMPs* and technologies may not be available, practical, and/or cost effective and hence appropriate for all operations.

Conformance Evidence Examples: A description and/or Pro Forma documents indicating analysis and consideration of *renewable energy* technologies and practices, which may be supported by evidence such as a description and/or infield demonstration of *renewable energy* use, including wind turbines, geothermal, and/or solar panels.

Performance Measure 5.2 Air Quality: *Program Users* shall *minimize* adverse impacts to air quality from agricultural operations.

Indicator 5.2.1 Air Emissions: Use of *low-emission technologies* when compatible with *regional agricultural best management practices*.

Guidance: Use of fertilizers, pesticides, and fuels in farming can be significant sources of air emissions, which are detrimental to human and environmental health. Technologies and practices, which reduce direct energy use (e.g., use of electricity and fuels) or indirect energy use (e.g., reduction in energy consuming agricultural inputs such as fertilizer, crop protectants, and/or water) may also reduce air emissions. Conformance evidence for Indicators 5.1.1 (Energy Conservation) and 5.1.2 (Renewable Energy) may be applicable to this Indicator when it reduces air emissions.

Conformance Evidence Examples: A description of *low-emissions technology* upgrades, which may be supported by: a description of and/or documentation of CAPEX proposals indicating attention to *low emissions technologies*; a description and/or infield demonstration of *low emissions technology*, such as replacement of fuel driven pumps with electrical and/or VSD pumps; reducing field passes; chipping instead of burning wood waste; and installation of renewable energy; upgrading tractor engines to Tier 3.

Indicator 5.2.2 Airborne Dust Control: Application of *regional agricultural best management practices* to minimize airborne dust where and when it adversely affects human health and/or the environment.

Guidance: In some areas and time of year, dust from agricultural operations can be a human health hazard.

This indicator applies only when and where airborne dust adversely affects humans and/or the environment.

The need for dust control measures may vary seasonally and across cropping systems.

Conformance Evidence Examples: A description and/or infield demonstration of dust control measures applied when necessary to avoid human health and/or environmental adverse impacts, which may be supported by evidence such as vendor invoices for road dust control and/or equipment upgrades to reduce dust emissions (e.g., almond harvesters). Conformance evidence to Indicator 9.4.1 (Public Health and Safety) may be applicable to this Indicator when it addresses dust emissions to be managed to protect public health.

Performance Measure 5.3 Climate-Smart Agriculture:

Program Users shall apply the principles of *climate-smart agriculture* to reduce adverse impacts to the global climate and adapt to *climate change*.

Indicator 5.3.1 Greenhouse Gas Emissions: Application of climate-smart *regional agricultural best management practices* that minimize greenhouse gas emissions from agricultural operations and *farmland* and/or sequester greenhouse gases that contribute to *climate change* where appropriate. Examples could include, but are not limited to, application of *low-emission technologies* and practices that reduce use of agricultural inputs or their volatilization, increase carbon sequestration using *farmland*, and reduce volatilization of *greenhouse gases*.

Guidance: Agricultural sector contributes about 9% U.S. GHG emissions, which impact climate. Climate change poses a significant threat to the global environment and agriculture. All sectors need to reduce GHG emissions to address this challenge. Many farms apply *regional agricultural BMPs*, which reduce and/or sequester GHG emissions as they aim to cut costs, reduce energy or fertilizer use, and/or improve soil health. Conformance evidence for four other Indicators may be applicable to yield conformance evidence for this Indicator: Indicators 2.1.3 (Nutrient Management Program), 5.1.1 (Energy Conservation) and 5.1.2 (Renewable Energy), which may reduce fossil fuel use or NOx emissions and hence GHG emissions, and Indicators 2.1.4 (Crop Residues) and 6.2.2 (Resource Recovery of Agricultural Waste), which may increase soil organic matter and hence carbon

sequestered on soil.

Conformance Evidence Examples: A description and/or infield demonstration of *regional agricultural BMPs* that minimize GHG emissions and/or sequester GHGs, which may be supported by evidence such as: crop consultant recommendations; no-till, conservation tillage, or other cropping practices; soil conservation practices; precision agriculture practices; crop rotation; and efficient management and application of nutrients and agricultural chemicals.

Indicator 5.3.2 Climate Change Adaptation and Resilience:

Application of *climate-smart regional agricultural best management practices* to adapt to *climate change* impacts and enhance farm or management unit resilience where appropriate. Examples could include, but are not limited to, use of heat-resistant *crop* varieties, new *crop* species, practices that improve soil moisture retention and soil drainage, and training on management of new *crop* pests.

Guidance: *Climate-smart agricultural practices* promote sustainable increases in crop productivity (including sustainable intensification) while adapting to climate change. Crop productivity is greatly impacted by weather and is vulnerable to climate change. Key solutions focus building resilience by improving soil health and management of water going on and coming off *cropland*. Conformance evidence for four other Indicators may be applicable to this Indicator: Indicator 2.1.1 (Soil Quality) may enhance soil health and weather-resilience; Indicator 3.1.3 (Water Conservation) may enhance irrigation in drought years; and Indicators 2.2.1 (Cropland Soil Management) and 3.2.2 (Water Quality Protection) aim to control soil erosion and runoff, which could impact soil health and water quality.

Conformance Evidence Examples: A description and/or infield demonstration of *climate-smart regional agricultural BMPs*, which may be supported by evidence such as: soil health and water management practices; employee awareness about potential climate change impacts to regional agriculture; and crop insurance.

Objective 6. Waste and Material Management

To manage waste, *agricultural chemicals*, and other materials from agricultural operations to minimize their adverse impacts to agriculture and the environment.

Background: Waste and material management is one of the most minor sustainability issues on most farms because farmers primarily generate agricultural products and try to minimize its waste. Nevertheless, waste management on farms has an important sustainability role because it can reduce farming and waste disposal costs, improve crop productivity, threats

to human and environmental health, and reduce the environmental footprint of agricultural products, which is important to supply chains.

Performance Measure 6.1 Management of Waste and Other

Materials: *Program Users* shall *minimize solid waste and hazardous waste* from agricultural operations and manage *waste and agricultural chemicals* in compliance with applicable laws, statutes and regulations.

Indicator 6.1.1 Waste Disposal: *A process for properly handling and disposing of universal, hazardous, and solid waste.*

Guidance: Only about 10% of U.S waste is hazardous. *Hazardous waste*, which can be liquid, solid, gas or sludge, is waste that is dangerous or potentially harmful to human and environmental health. It may include large volumes of discarded products, like unused *crop protectants*. Its improper disposal can make cropland unsafe for growing feed or food. *Universal waste* includes *hazardous waste* that is limited to common *hazardous waste* such as batteries, *crop protectants*, mercury-containing equipment, and lamps. *Solid waste* is any solid, semi-solid, liquid, or that contains gaseous materials such as garbage, construction debris, and commercial refuse. Proper waste handling by *Program Users* can prevent costly regulatory actions and negative effects to social license to operate and human and environment health.

This indicator requires that *Program Users* have a set of informal or formal routines for properly handling and dispose of *universal, hazardous and solid waste*. Else where in the LH Standard Est. 2020, *Program Users* are also expected to achieve legal compliance concerning the handling and disposal of *universal, hazardous and solid waste*. Conformance evidence for other Indicators may be applicable to this Indicator: Indicator 4.2.1. (Application and Storage of Crop Protectants) and Indicator 6.1.3 (Management of Agricultural Chemicals and Other Materials), and 9.4.1 (Public Health and Safety) also address safe handling of certain waste categories; Indicators 10.3.3 (Employee Sustainability Training) also addresses relevant safety and handling training; and Indicators 11.1.2 (Program User Compliance Program) and 11.2.1 (Written Compliance Policy) also address legal compliance assurance, which includes compliance for waste laws and regulations.

Conformance Evidence Examples: A description and/or written documentation of formal or informal routines for properly handling and disposing of *universal, hazardous and solid waste*, which may be supported by evidence such as: infield demonstration of appropriate waste management and storage of waste; vendor agreements and field practices for waste management; crop consultant

recommendations for managing left over pesticide; farm employee training; and credentials of farmer(s), farm manager(s), and/or crop consultant(s).

Indicator 6.1.2 Resource Recovery: *A process for properly handling waste to be reused, repurposed or recycled, or converted to energy, where appropriate.*

Guidance: Resource recovery is using waste as material to create valuable products and reduce waste. About two-thirds of U.S. waste is repurposed, reused, or recycled. In agriculture, this can include plastic films and containers; metal from equipment, old buildings, and trellises; and wood from old buildings and trellises. Resource recovery can reduce costs and the environmental footprint of materials used in farming. It may not always be cost effective or *appropriate* in regions lacking waste recovery facilities.

Conformance Evidence Examples: A description and/or infield demonstration of a set of informal or formal practices or routines to reuse, repurpose or recycle, waste or convert it to energy, which may be supported by evidence such as: vendor contractual agreements and field practices for properly storing waste for reuse, repurpose or recycling, or conversion to energy; vendor recommendations for resource recovery.

Indicator 6.1.3 Management of Agricultural Chemicals and Other Materials: Management, use and storage of *agricultural chemicals* and equipment gases, fluids and fuels according to regulatory requirements and application of practices to manage spills and protect employees, farm labor and the environment.

Guidance: *Agricultural chemicals* and equipment gases, fluids and fuels are the most common hazardous materials in agriculture. *Agricultural chemicals* include fertilizers, liming and acidifying agents, road dust stabilizers, crop protectants (including insecticides, herbicides, fungicides and nematicides) and other agricultural inputs used to support agriculture. Their prop-

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management can help prevent costly regulatory actions and impacts to people and environment. Conformance evidence for other Indicators may be applicable to this Indicator: Indicator 4.2.1. (Application and Storage of Crop Protectants) and Indicator 6.1.3 (Management of Agricultural Chemicals and Other Materials), and 9.4.1 (Public Health and Safety) address safe handling of *agricultural chemicals*; Indicators 10.2.1 (Personnel and Contract Worker Training) and 10.3.3 (Employee Sustainability Training) address relevant safety and handling training for *agricultural chemicals*; and Indicators 11.1.2 (Program User Compliance Program) and 11.2.1 (Written Compliance Policy) address legal compliance

assurance, which may include compliance with regulations for *agricultural chemicals*.

Conformance Evidence Examples: The infield demonstration and/or a description of management, use, and storage of *agricultural chemicals* and equipment gases, fluids, and fuels, which may be supported by evidence such as: a knowledge of regulatory requirements;

a description of standard operating procedures (SOPs) and employee knowledge of SOPs for managing spills; infield demonstration of appropriate spill kits for managing spills; licensed pesticide applicators recommendations for using of crop protectants; pesticide applicators' license held by farmer(s), farm manager(s), and consultant(s); and safety data sheets (SDS) for crop protectants available to employees.

Performance Measure 6.2 Food and Agricultural Waste

Resource Recovery: *Program Users* shall ensure efficient handling and recovery of *agricultural products* and *agricultural waste*.

Indicator 6.2.1 Food and Agricultural Product Waste:

Prevention of excessive loss of food *crops* and other *agricultural products* during harvest and on-farm storage.

Guidance: About 20% of food in North America is lost on the farm. Lost agricultural products also increase environmental impacts per unit of product, which increase the product's environmental footprint. Supply chains view food waste as a significant contributor to the environmental footprint of crop. Farmers can reduce the environmental footprint of agricultural products and costs by preventing food waste and crop loss on the farm and address supply chain concerns.

Conformance Evidence Examples: A description efforts to prevent excessive loss of food crops and other agricultural products during harvest and on-farm storage, which may be supported by evidence such as: an annual review of harvest records; informal or formal SOPs for crop harvesting and storage; routine calibration of harvest equipment to minimize crop loss; sanitation of harvest and storage equipment to avoid mold and vermin; effective harvest logistics; crop loss monitoring; harvest equipment loss checks when starting a new field or block; and weather review and crop inspection to ensure optimal timing of harvest to minimize losses.

Indicator 6.2.2 Resource Recovery of Agricultural Waste:

Reuse, repurpose, and/or recycle product or *crop residues*, manure, other *agricultural wastes* and/or agricultural inputs (e.g., tailwater recovery) where *appropriate*.

Guidance: *Agricultural Waste* is solid waste that is

generated by the rearing of animals (e.g., manure) or the production and harvest of *agricultural products* (e.g., *crop residues*). It can be used to improve *soil health* and *soil productivity* by increasing soil organic matter and nutrients;

control soil erosion; and improve soil moisture retention, structure, biodiversity, water filtration, and water retention. Recovery of these materials can also reduce fertilizer expenses, but may not be cost effective for all cropping systems. The conformance evidence for Indicator 2.1.4 (*Crop Residues*) may be applicable to this Indicator.

Conformance Evidence Examples: A description and/or infield demonstration of reuse, repurposing, and/or recycling of product or *crop residues*, manure, other *agricultural wastes*, and/or agricultural inputs, which may be supported by evidence such as: crop consultant recommendations that consider reuse, repurposing, and/or recycling of *agricultural wastes* and/or agricultural inputs; nutrient management plans; nutrient test results for applied *agricultural waste*; and vendor invoices for application of *agricultural waste*.

Objective 7. Conservation of Biodiversity

To manage farmland in a manner that maintains agricultural production while conserving biodiversity where appropriate or legally required.

Background: Globally, agriculture is considered the largest threat to biodiversity. Hence many supply chains seek agricultural trading partners who conserve biodiversity. Although this Objective prioritizes agricultural production over biodiversity, it looks to Program Users to conserve biodiversity where appropriate or legally required. Conservation of biodiversity in agricultural landscapes focuses on conservation of rare and at-risk species, conservation of both natural and managed (e.g. farmed) habitats, avoiding habitat conversion to agriculture, and conserving genetic diversity of crops.

Performance Measure 7.1 Species Protection: Program Users shall protect threatened and endangered species and viable occurrences of at-risk species.

Indicator 7.1.1 Threatened and Endangered Species:

Protection of threatened and endangered species when they occur on enrolled farmland and management of agricultural operations with consideration of threatened and endangered species in the local watersheds and landscapes of operation.

Guidance: Threatened and Endangered (T&E) species are one essential part of conserving biodiversity. They are species with a T&E status designated by the U.S. Department of Interior through a long process that includes public comment. They very rarely occur on

agricultural landscapes. Their conservation helps maintain biodiversity and avoid risk of regulatory actions. Nature Serve and state wildlife agencies can provide databases of occurrences of T&E species on farmland and advise how best to protect T&E species present. Conformance evidence for Indicators 7.2.1 (Native Habitats and Natural Communities) and 7.2.2 (Ecologically Important Sites) may include protection of habitat of T&E species and so be applicable to this Indicator.

Conformance Evidence Examples: An analysis for presence of T&E species using NatureServe or state wildlife agency databases; a description of an assessment of T&E species to determine if any T&E species are present; a description of policies and practices for managing T&E species when present; a T&E species assessment, which can be based on a due diligence assessment before farmland acquisition; materials for field staff for identifying and managing for T&E species; and employee training on T&E species identification and management.

Indicator 7.1.2 At-Risk Species: Program to locate and protect known *viable occurrences* of at-risk species on enrolled farmland. A protection program may be developed independently or collaboratively and may use easements, conservation land sales, exchanges, or other conservation strategies.

Guidance: Conservation of at-risk species can prevent local extirpation and future designation as T&E species. At-risk species are species with an at-risk designation by state wildlife conservation agencies or NatureServe. Their designation is carefully reviewed by scientists.

Most at-risk species do not occur in landscapes or watersheds dominated by agriculture. Program Users only need to protect known viable occurrences of at-risk species. Viable occurrences are species occurrences with good or excellent viability according to NatureServe, including occurrences that exhibit favorable characteristics with respect to population size and/or quality and quantity of occupied habitat, and, if current conditions prevail, the occurrence is likely to persist for the foreseeable future (i.e., at least 20-30 years) in its current condition or better. NatureServe and state wildlife agencies

can identify whether *viable occurrences* of at-risk species

occur on *farmland* and advise how to best protect viable occurrences of at-risk species. Conformance evidence for Indicators 7.2.1 (Native Habitats and Natural Communities) and 7.2.2 (Ecologically Important Sites) may include protection of habitat of viable occurrences of at-risk species and so be applicable to this Indicator.

Conformance Evidence Examples: An analysis for presence of populations of at-risk species and their viability using NatureServe or state wildlife agency databases; policies and management practices for managing at-risk species when viable occurrences are present; an at-risk species assessment, which may be found in due diligence documents created before farmland acquisition; materials for field staff for identifying and managing for at-risk species; and employee training on at-risk species identification and management.

Performance Measure 7.2 Wildlife Habitat Conservation: Program Users shall conserve native habitats, wildlife habitat, natural communities, and Ecologically Important Sites on enrolled farmland.

Indicator 7.2.1 Native Habitats and Natural Communities: Maintenance or conservation of *native habitats* and *natural communities* in areas not used for agricultural production.

Guidance: Loss of *native habitats* and *natural communities* is the chief global threat to biodiversity. *Native habitats* are areas where a native species naturally occurs and that have the living and nonliving environmental conditions necessary for survival, including areas for feeding, shelter, protection and/or reproduction. *Natural communities* are an assemblage of interacting plant species and animal species and their common environment, recurring across the landscape, in which the effects of human intervention are minimal. Both can serve as essential habitat for common and rare wildlife and plant species, including T&E and at-risk species, and allow species to disperse across landscapes. Conformance evidence for 7.2.2 (Ecologically Important Sites) and 7.3.1 (Habitat Conversion) may be applicable to this Indicator.

Conformance Evidence Examples: An assessment of *native habitats* and *natural communities* to determine their presence (this may have occurred during due diligence conducted before *farmland* acquisition); a description of policies and practices for managing *native habitats* and *natural communities*; and materials and training for field staff for identifying and managing for *native habitats* and *natural communities*.

Indicator 7.2.2 Ecologically Important Sites: Participation individually or collaboratively in plans or *programs* that manage *Ecologically Important Sites* in a manner that takes into account their unique qualities.

Guidance: *Ecologically Important Sites* are sites of exceptional ecological importance including areas with *critically imperiled* or *imperiled* species or *natural communities* (species or natural communities with

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NatureServe conservation status ranks of G1 or G2), rare *natural communities* or unique ecological landscape features. Conserving these sites can prevent the loss of rare species and biodiversity. Program Users may develop their own plans or programs or collaborate with others. Managing *Ecologically Important Sites* appropriate to their unique qualities does not require protection of these sites. Conformance evidence for Indicators 7.2.1 (*Native Habitats* and *Natural Communities*) and 7.3.1 (Habitat Conversion) may be applicable to this Indicator.

Conformance Evidence Examples: A description of plans or *programs* for managing *Ecologically Important Sites*, including management practices, which may be supported by evidence such as: plans for managing *Ecologically Important Sites*; materials and training for field staff for identifying and managing *Ecologically Important Sites*; certifications or degrees of contractors who developed plans or programs.

Indicator 7.2.3 Cropland for Wildlife Habitat: Application of *regional agricultural best management practices* on *cropland* to create temporary wildlife habitat where *appropriate*. Examples could include, but are not limited to, no-till practices, cover cropping, adding soil amendments made up of organic matter, bird boxes, soil erosion control structures (e.g., grassed waterways), delayed mowing, intercropping, seeding areas with native grassland seed mixes, tailwater recovery ponds managed as wetlands, and water level management of rice fields for waterbirds.

Guidance: Agriculture has most widespread impact on wildlife habitat of any activity in the U.S. Many *regional agricultural best management practices* for *cropland* (e.g., no-till, structural practices to control soil erosion) can be used create temporary habitat for mammals, birds, and soil organisms and protect aquatic habitats. These practices can contribute to conserving biodiversity in agricultural landscapes. Conformance evidence for Indicators 2.1.1 (Soil Quality), 2.1.4 (Crop Residues), and 3.2.2 (Water Quality) may be applicable to this Indicator when it creates temporary wildlife habitat.

Conformance Evidence Examples: A description or infield demonstration of application of *regional agricultural BMPs* on *cropland* used to create temporary wildlife habitat, which may be supported by evidence such as: reports and/or SOPs describing the application of *regional agricultural BMPs* on *cropland* used to create temporary wildlife habitat; and vendor invoices for applying specific practices (e.g., cover cropping).

Performance Measure 7.3 Avoided Conversion: Program Users shall avoid conversion of natural forests, other natural communities and Ecologically Important Sites.

Indicator 7.3.1 Habitat Conversion: Demonstration of commitment to avoid the land use conversion and fragmentation of *natural communities* and *Ecologically Important Sites* on enrolled *farmland*.

Guidance: Habitat loss through conversion is the greatest threat to biodiversity in the U.S. Grasslands are the chief habitat converted to crops in the U.S., a change that can be detrimental for many rare grassland pollinator, bird, and plant species. Avoiding land use conversation helps maintain regional biodiversity.

Conformance Evidence Examples: A description of commitment to avoid the land use conversion and fragmentation of *natural communities* and *Ecologically Important Sites*, which may be supported by evidence such as: infield demonstration of conserved *natural communities* and *Ecologically Important Sites*; employee training about habitat conversion commitment; a habitat conversion policy; management plans for conserved *natural communities* and *Ecologically Important Sites*; and conserved *natural communities* and *Ecologically Important Sites* identified on maps and/or GIS layers.

Indicator 7.3.2 Deforestation: Demonstration of commitment to prevent *deforestation* of *natural forest* when farming where biome-specific or geography-specific *deforestation protocol(s)* are in place, by:

Indicator 7.3.2a Deforestation Policy: A written policy to demonstrate the Program User's commitment to a *zero deforestation policy* that identifies the regions of application, relevant *natural forest* types, and appropriate deforestation cut-off date(s) in areas with biome-specific or geography-specific deforestation protocols, and (see continuation with Indicator 7.3.2b).

Guidance: Globally, deforestation to create cropland is a huge threat to climate and biodiversity. The U.S. lacks deforestation protocols. Hence it lacks a cutoff date though Canada has the Boreal Forest Conservation Framework with cutoff year of 2003. A written *zero deforestation policy* should identify the regions of application, relevant *natural forest* types, and appropriate deforestation cut-off date(s) in areas with deforestation protocols. **Program Users may elect to have simple zero deforestation policy without a cutoff date, but which identifies the application region and relevant natural forest types because the U.S. lacks a deforestation protocol.**

Conformance Evidence Examples: A written policy to demonstrate the Program User's commitment to a *zero deforestation policy* that addresses the regions of application, relevant *natural forest* types, and appropriate deforestation cut-off date(s) in areas with biome-specific or geography-specific deforestation protocols; and training

to ensure appropriate employees understand written *zero deforestation* policy.

Indicator 7.3.2b Avoid Purchase of Deforested Land: Demonstration of due diligence to prevent the acquisition of farmland that was converted from *natural forest* after an appropriate deforestation cutoff date(s) identified by the Program User in areas with biome-specific or geography-specific deforestation protocols.

Guidance: This indicator ensures that Program Users avoid purchasing farmland that was converted from natural forest after an appropriate deforestation cutoff date. A cutoff date is to greatly reduce the incentive for current landowners to participate in deforestation to create cropland. The U.S. lacks biome-specific or geography-specific deforestation protocols and so has not identified a cutoff date though nearby Canada has the Boreal Forest Conservation Framework with cutoff year of 2003.

Conformance Evidence Examples: A description of due diligence to prevent acquisition of *farmland* converted from *natural forest* after a cutoff date; due diligence standard operating procedure (SOP) to prevent acquisition of *farmland* converted from *natural forest* after a cutoff date; and examples of due diligence before acquisition reports.

Performance Measure 7.4 Crop Diversity: Support crop diversity on cropland.

Indicator 7.4.1 Crop and Genetic Diversity: Use of a variety of crop species, crop varieties, companion crops (e.g., cover crops, cross-pollination donors) and/or crop rotation where appropriate.

Guidance: Crop and genetic diversity can help control weeds and pests, improve soil health, and improve crop yields. It may be achieved by rotating crops, planting different varieties or hybrids in adjacent blocks or over time, cover cropping, and using cross pollination donors. Loss of crop and genetic diversity can increase regional crop susceptibility to infectious pests and diseases. By incorporating crop and genetic diversity into farming, Program Users contribute to the sustainability of regional agriculture.

Conformance Evidence Examples: A description of variety of crop species, crop varieties, companion crops (e.g., cover crops, cross-pollination donors), and/or crop rotation; maps, GIS layers, and/or annual reports of crops and varieties planted; and a description of management and selection of crop species, crop varieties, companion crops (e.g., cover crops, cross-pollination donors), and/or

crop rotation in row crops or orchard or marsh/bog replanting.

Objective 8. Protection of Special Sites

To manage *Special Sites* on *farmland* that are geologically or culturally important in a manner that recognizes and respects their unique qualities.

Background: *Special Sites* include unique geological or culturally important features that are recognized regionally or nationally or by Indigenous Peoples. They are filled with valuable information about geology or culture and history that explain human history. Their loss can mean the destruction of irreplaceable information and of areas of cultural significance and undermine the social dimension of sustainability. Conservation of *Special Sites* helps build local support and social license to operate.

Performance Measure 8.1 Special Site Management:

Program Users shall manage *Special Sites* in a manner appropriate for their unique qualities.

Indicator 8.1.1 Special Site Identification: Use of information such as existing natural heritage data or expert advice in identifying or selecting *Special Sites*.

Guidance: *Special Sites* are typically cemeteries, Native American sites, archeological sites (post-European settlement sites), and unusual geological features (e.g., remarkable waterfalls, cliffs). They occur very infrequently on farmland in the U.S. This indicator helps ensure the use of appropriate information when identifying *Special Sites*.

Conformance Evidence Examples: Examples where information from existing natural heritage data or recognized experts has been used to identify *Special Sites*; communications with experts regarding information for identifying *Special Sites*; *Special Sites* identification policy; and due diligence title search information, which identifies whether *Special Sites* occur on Program User's farmland.

Indicator 8.1.2 Special Site Management: *Appropriate* mapping, cataloging and management of identified *Special Sites* in a manner that recognizes their unique qualities.

Guidance: *Special Sites* are sites filled with valuable information about geology or culture and history that explain human history. Damage or destruction of these sites can mean the loss of irreplaceable information. It can also lead to the loss of areas of cultural significance to all people, including *Indigenous Peoples*. This indicator helps ensure use of appropriate mapping, cataloging, and management of identified *Special Sites* so the unique qualities of *Special Sites* are maintained.

Conformance Evidence Examples: Map and catalogue of *Special Sites*; a description of how *Special Sites* are managed; communications with experts regarding management of *Special Sites*; *Special Sites* management

policy; employee training regarding management of *Special Sites*; and GIS data layers identifying *Special Sites* and their management practices.

Objective 9. Local Communities

To operate safely and responsibly; contribute to the economic well-being, social networks and health of local communities; and to recognize and respect the rights of local communities and *Indigenous Peoples* in regions of agricultural operations.

Background: Societal considerations for agriculture include its impacts to social and economic well-being, public health, and social law legal obligations to local communities and *Indigenous Peoples*. Agriculture has key positive impacts in many rural areas of the U.S. contributing to economic and social well-being of local communities, especially where agriculture is a large part of the rural economy. Local communities and *Indigenous Peoples* also may have legal or treaty rights in many rural areas. *Indigenous Peoples* are defined in the United States as members of federally recognized tribes. This Objective recognizes that rural communities are the mainstay to U.S. agriculture. It helps ensure that Program Users contribute to the well-being of local communities in rural agricultural landscapes and operate with social responsibility.

Performance Measure 9.1 Economic Well-Being: *Program Users* shall foster the economic vitality of local communities through business practices that support sustainable agriculture and the local economy.

Indicator 9.1.1 Economic Contributions: Payment of federal, state, and local taxes and, as *appropriate*, employment of staff from local communities and local procurement of supplies and services.

Guidance: Farming is the fourth largest employer in rural counties accounting for about 10% of rural jobs. It has a greater economic multiplier effect on rural economies than other sectors because of its contributions to local employment, tax payments, and local procurement. Farming helps sustain rural economies and fosters local support for agriculture. Program Users may employ non-local workers and purchase non-local services and materials when *appropriate*.

Conformance Evidence Examples: A description of payment of taxes; copies of tax invoices, records, or forms; a description and/or documents indicating local employment and procurement; employment records; local vendor invoices; and employment of summer interns from regional agricultural universities.

Performance Measure 9.2 Community Relations: *Program Users* shall engage local communities to increase community awareness and support for the practice of sustainable agriculture and maintain or enhance *Program User* reputation.

Indicator 9.2.1 Community Engagement: Engagement in positive relationships with neighbors and local communities thus raising the awareness of sustainable agriculture.

Guidance: Neighbor and community engagement can be essential to generate local support for sustainable agriculture and maintain relationships and reduce conflicts. Neighbors and local communities can also be engaged to help maintain local support for sustainable agriculture and a social license to operate. Program Users can apply engagement activities best suited for each operation. Conformance evidence for Indicator 9.3.3 (Local Communities' and Indigenous Peoples' Inquiries) may be applicable to this Indicator (e.g., annual newsletters with contact information).

Conformance Evidence Examples: A description and/or in-field demonstration of engagement activities with local communities, which maybe supported by: leadership roles filled by farmer(s), farm manager(s), and/or employee(s) in local agriculture-related organizations and local government; farm signage; hosting of agriculture meetings, workshops, and/or presentations for neighboring farm managers, and/or community members; in-kind or financial support for agricultural fairs, secondary vocational programs, agricultural scholarships Future Farmers of American, 4-H, etc.; participation in regional planning efforts related to agriculture; phone lists of key local community contacts; and newsletter for neighbors.

Performance Measure 9.3 Rights of Local Communities and Indigenous Peoples: Program Users shall recognize and respect rights of local communities and the treaty rights of Indigenous Peoples.

Indicator 9.3.1 Local Community and Indigenous Peoples Policy: A written *policy* demonstrating a commitment to recognize and respect the rights of local communities and *treaty rights of Indigenous Peoples*.

Guidance: Respect for local community and *treaty rights* is an essential for supporting the social dimension of agricultural sustainability and achieving legal compliance. These rights vary among state and/or county jurisdictions. Local communities may have rights concerning public health and safety, land use, water quality, soil erosion, invasive species, and wildlife. *Treaty rights of Indigenous Peoples* also vary depending on *Indigenous Peoples* local group(s) and are often identified during due diligence of title searches when land is purchased. Treaty rights may include access to *Special Sites*, and water, hunting, fishing, wild food procurement, and other land access rights. A written policy can be a simple statement making a commitment to respect the rights of local communities and *Indigenous Peoples*. It can be

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shared with employees and stakeholders. Conformance evidence for Indicators 9.4.1 (Public Health and Safety) and 9.3.2 (Land Tenure Rights of Local Communities and Indigenous Peoples) may be applicable to this Indicator when it addresses local public health and safety requirements and reveals community and *treaty rights* during acquisition due diligence.

Conformance Evidence Examples: A written policy demonstrating a commitment to recognize and respect the rights of local communities and *treaty rights* of *Indigenous Peoples*, which may be supported by evidence such as: a way to ensure staff understand the written policy and are able to implement the written policy of the Program User; on-board training regarding written policy on rights of local communities and *Indigenous Peoples*; employee training attendance sheet; a description of informal and formal supporting policies and/or practices used by *Program User* to conform to written policy; and internal communications.

Indicator 9.3.2 Land Tenure Rights of Local

Communities and *Indigenous Peoples*: Demonstration of due diligence to prevent infringing on the land tenure rights of local communities and *Indigenous Peoples* when purchasing and managing land.

Guidance: Respect for land tenure rights of local communities and *Indigenous Peoples* begins by first understanding existing rights. *Indigenous Peoples* are defined in the U.S. as members of federally recognized tribes and may have treaty rights that vary depending on the jurisdiction and *Indigenous Peoples* local group(s). These rights are often revealed in due diligence during *farmland* acquisition. *Treaty rights* may include access to *Special Sites*, and water, hunting, fishing, wild food procurement, and other land access rights. Respect for the land tenure rights of local communities and *Indigenous Peoples* supports the right to self-determination and legal compliance and helps maintain social license to operate. **This Indicator principally applies when a Program User is purchasing farmland, but it also applies to management of farmland that was acquired before participation in the LH Standard Est. 2020.** Conformance evidence to Indicator 9.3.1 (Local Community and Indigenous Peoples Policy) may be applicable to this Indicator.

Conformance Evidence Examples: A description and/or documentation of due diligence regarding tenure rights of local communities and *Indigenous Peoples* when purchasing and managing land; on-board training regarding land tenure rights of local communities and *Indigenous Peoples*; and due diligence guidelines or SOP for reviewing land tenure rights of local communities and

Indigenous Peoples.

Indicator 9.3.3 Local Communities' and *Indigenous Peoples*' Inquiries: Demonstration of commitment to be receptive to local communities' and *Indigenous Peoples*' inquiries and concerns.

Guidance: Being receptive to inquiries and concerns is important to ensuring effective communication and relationships with key stakeholders and is necessary for maintaining a social license to operate. Responses need not include remedies that satisfy every inquiry or concern. Conformance evidence for Indicator 9.2.1 (Community Engagement) may be applicable to this Indicator when it describes community engagement activities that demonstrate receptivity to local concerns. Conformance evidence for Indicators 9.2.1 (Community Engagement), Indicator 9.3.1 (Local Community and Indigenous Peoples Policy), and Indicator 9.3.2 (Land Tenure Rights of Local Communities and Indigenous Peoples) may be applicable to this Indicator when it demonstrates receptivity to inquiries and concerns.

Conformance Evidence Examples: Farm signage with contact information; periodic listening sessions with stakeholders from local community and *Indigenous Peoples*; online anonymous suggestion box; records of inquiries from local community or *Indigenous Peoples* and Program User's response; submission of news articles in local newspapers about sustainable agriculture and contact information for inquires; providing contact information to neighbors and leaders in local communities and *Indigenous Peoples* communities; employee training for managing inquires; and public inquiry policy.

Performance Measure 9.4 Public Health: *Program Users* shall apply measures to protect public health from adverse impacts of *enrolled farmland*.

Indicator 9.4.1 Public Health and Safety: Application of health and safety *regional agricultural best management practices* that protect public health from adverse impacts of *agricultural chemicals*, excessive nutrients, equipment gases and fluids, fuels, and air pollution and that train employees to operate equipment safely.

Guidance: The largest concern of local communities for agriculture is health and safety impacts. Protecting the public health and safety helps protect human and environmental health, and maintain a social license to operate and public support for agriculture. Conformance evidence for four other Indicators may yield conformance evidence for this Indicator: Indicators 4.2.1 (Application and Storage of Crop Protectants) and 6.1.3 (Management of Agricultural Chemicals and Other Materials) may provide relevant evidence where *regional agriculture BMPs* are applied to protect human and environmental health from

crop protectants and other agricultural chemicals; Indicators 10.2.1 (Personnel and Contract Worker Training) and 10.3.3 (Employee Sustainability Training) may provide evidence of employee safety BMP training for this Indicator. Program Users are expected to comply with applicable laws, statutes, and regulations concerning the handling and use of agricultural chemicals and equipment gases, fluids, fuels, and wastes.

Conformance Evidence Examples: A description and/or infield demonstration of the application of health and safety regional agricultural BMPs, which may be support-

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by evidence such as: employees training to operate equipment safely; farm public health policy; licensed pesticide applicators recommendations for applying crop protectants; pesticide applicators' license held by farmer(s), farm manager(s), pesticide consultant(s); safety data sheets (SDS) for crop protectants available to employees and where materials are stored; a description of management, use, and storage of agricultural chemicals and equipment gases, fluids and fuels; a description of knowledge of regulatory requirements; a description of standard operating procedures (SOPs) and employee knowledge of SOPs for managing spills and protecting employees, farm labor and the environment; and infield demonstration of appropriate materials and supplies necessary to manage spills and protect employees and the environment.

Objective 10. Personnel and Farm Labor

To provide a safe and healthy working environment, fair compensation and training for *Program User* personnel, *contract management* company employees and *contract farm labor* necessary to improve the practice of sustainable agriculture.

Background: Agriculture presents a challenging work environment because it relies on employees to work independently and in teams in a dynamic yet casual environment with unique human health risks. It requires that farmers and farm managers always work toward creating a safe and respectful working environment, and provide quality supervision and training to foster the routines, talent, and teamwork necessary to achieve business objectives and long-term viability and sustainability.

Performance Measure 10.1 Safe and Respectful Working Environment: *Program Users* shall foster a culture of safety and respect among *Program User* personnel and *contract management company* employees to *minimize* injuries, help establish safe routines and enhance employee productivity.

Indicator 10.1.1 Equal Opportunity Employment:

Provision for equal opportunity employee recruitment and occupations.

Guidance: Equal opportunity environments can help attract the qualified talent, comply with state and federal laws, and have a fair and effective workplace culture. Workplace fairness is essential to ensuring that talented employees advance and contribute to business performance and sustainability. Women and non-Hispanic minority field employees are greatly under-represented in U.S. agriculture though the ratio of female to male agricultural college students is now nearly balanced. Barriers include discrimination, lack of training opportunities, pipeline barrier in the sciences, and lack of child care. Conformance evidence for Indicator 10.1.2 (Respectful Work Environment) may be applicable to this Indicator.

Conformance Evidence Example: A description of equal-opportunity, informal or informal policies and activities to achieve equal opportunity employee recruitment and occupations; confidential employee inter views; employee recruitment programs targeting women and minorities; hiring of women and minority interns; equal opportunity training for hiring staff; and development of a respectful work culture.

Indicator 10.1.2 Respectful Work Environment:

Maintain a safe, *gender equitable* and *professional work environment*.

Guidance: Working in the dynamic and casual environment of agriculture can make it challenging to establish an effective professional environment without being rigid. Women and non-Hispanic minority employees are greatly under-represented in US agriculture. A gender equitable, professional working environment fosters high morale, consideration of diverse perspectives, promotes collaboration, and business and professional growth for everyone, and contributes to greater productivity and sustainability. Conformance with four Indicators may yield conformance evidence for this Indicator: Indicator 10.1.1 (Equal Opportunity Employment) may yield evidence, which addresses recruitment and hiring employees to help achieve gender equity; Indicator 10.2.1 (Personnel and Contract Worker Training) may yield evidence such as employee training to help achieve a safe, gender equitable and professional work environment; Indicators 11.1.1 (Access to Compliance Information), 11.1.2 (Program User Compliance Program), and 11.1.3 (Compliance Commitment) may yield evidence, which could include Federal, state, and/or local workplace equity compliance information; and Indicator 12.1.1 (Performance Review) may yield evidence such as employee coaching or responsiveness to workplace concern of employees.

Conformance Evidence Example: A description and/or infield demonstration of application of health and

safety *regional agricultural BMPs*; confidential employee interviews regarding workplace professionalism; signage as required by law to inform employees of labor rights; on-board training of new employees about safe, respectful, and gender-equitable work place requirements; leadership, managerial, and other professional development training opportunities for employees; employee handbook that indicates expectations for workplace behavior; attendance records for professional meetings; safety reports; safety KPIs; and performance reviews that review work safety expectations and outcomes.

Performance Measure 10.2 Occupational Training: *Program Users* shall provide training for Program User personnel and ensure adequate training for *contract management company* employees necessary to improve the knowledge and practice of sustainable agriculture.

Indicator 10.2.1 Personnel and Contract Worker Training: Health, safety, and occupational education and training for *Program User* personnel and *contract management company* employees.

Guidance: Farming is one of the most dangerous occupations in the U.S. leading to a workplace setting, which is highly regulated by Federal laws. Health, safety, and occupational employee training plays a key role in avoiding costly workplace injuries and cost regulatory actions and improving employee knowledge to advance sustainable agriculture. This Indicator focuses on employee health, safety and occupational training, but overlaps and potentially shares conformance evidence with Indicator 10.3.3 (Employee Sustainability Training), which focuses on agricultural sustainability training sufficient to fulfill their roles and responsibilities under the LH Standard Est. 2020.

Conformance Evidence Example: A description of health, safety and occupational education and training of employees, which may be supported by: confidential employee interviews; infield observations of employees applying health, safety, and occupational education and training; examples of in-house training materials; and training certificates and/or diplomas.

Performance Measure 10.3 Supporting Capacity for Sustainability: *Program Users* shall require *appropriate* training of *Program User* personnel and *contract management company* employees so that they are competent to fulfill their responsibilities under the *Leading Harvest Standard*.

Indicator 10.3.1 Sustainability Policy Commitment: *Program Users* shall provide a written policy demonstrating commitment to the *Leading Harvest Standard* that is communicated throughout the organization, particularly

to facility and farm managers.

Guidance: The commitment statement provides clear direction to employees and helps ensure consistent execution of the LH Standard Est. 2020. It also communicates to supply chains and other stakeholders how the Program User is committed to sustainability, which can also help maintain a social license to operate. Conformance evidence for Indicators 1.1.1 (Farmland Stewardship Commitment) and (where applicable) 13.1.2 (Farmland Tenant Agreements) may be applicable to this Indicator.

Conformance Evidence Example: A written policy describing the Program User's commitment to the LH Standard Est. 2020, which may be supported by evidence such as: a description of policy communication to employees; confidential employee interviews; on-board training regarding written commitment to LH Standard Est. 2020; training attendance records; and a description of policies and/or practices used to ensure staff are able to implement written policy.

Indicator 10.3.2 Employee Roles and Responsibilities for Sustainability: Assignment and understanding of roles and responsibilities for achieving the objectives of the *Leading Harvest Standard*.

Guidance: The assignment of workplace roles and responsibilities for achieving the LH Standard Est. 2020 helps ensure effective communication of expectations, understanding by employees about their roles and key work routines. It also helps ensure that employees are accountable and can work together to achieve the LH Standard Est. 2020 Objectives. Conformance evidence for two Indicators may be applicable for this Indicator: 10.3.3 (Employee Sustainability Training), which includes employee training for their roles and responsibilities and 12.1.1 (Performance Review), which provides an accountability mechanism employee regarding their LH Standard 2020 roles and responsibilities.

Conformance Evidence Examples: A description of employee roles and responsibilities and demonstration that employees understand their role and responsibilities for the LH Standard 2020, which is supported by evidence such as: confidential employee interviews; job descriptions or organization chart that identify LH Standard Est. 2020 roles and responsibilities; periodic (e.g., quarterly, annually) group and individual review of employees on LH Standard Est. 2020 roles and responsibilities; performance reviews that address employee role and responsibilities for the LH Standard Est. 2020; and demonstration of relevant professional training (e.g., college degrees, certifications) to ensure employees can carry out their roles and responsibilities.

Indicator 10.3.3 Employee Sustainability Training: Staff education and training for *Program User* personnel and *contract management company* employees sufficient to fulfill their roles and responsibilities under the *Leading Harvest Standard*. Examples could include, but are not limited to, postsecondary degrees and professional certificates, in-house training, continuing education programs for managing waste, recycling, crop protectant safety, professional development opportunities, and participation in agriculture-related professional organizations.

Guidance: Employee sustainability training is essential to them being able to fulfill their roles and responsibilities under the LH Standard Est. 2020. This Indicator focuses on sustainability training as it relates to implementation of the LH Standard Est. 2020 while Indicator 10.2.1 (Personnel and Contract Worker Training) focuses on employee safety, health, and occupational training, which may overlap with this Indicator. Hence, conformance evidence for Indicator 10.2.1 (Personnel and Contract Worker Training) may be applicable to this Indicator.

Conformance Evidence Examples: A demonstration of relevant professional training (e.g., college degrees, professional certifications) to ensure employees can carry out their roles and responsibilities, which may be supported by evidence such as: attendance records for training workshops and certifications; policy to provide reimbursement and/or time-off to attend training workshops; performance reviews with professional development objectives; and attendance at meetings of professional organizations.

Performance Measure 10.4 Compensation: *Program Users* shall ensure adequate livelihood for employees and *contract management company* employees to attract and retain a stable workforce.

Indicator 10.4.1 Wages and Pay: Compensation to ensure a *living wage* for *Program User* personnel and *contract management company* employees.

Guidance: Agricultural wages are modest for entry-level workers and only average 60 percent of the nonfarm wages. Hence, they are a significant concern for supply chains. A *living wage* is estimated from the cost of living in a region based on typical expenses and supports a minimum standard of living. Realistic wages are necessary to attract skilled employees and ensure a long-term labor supply. The wages of the lowest paid employee can often serve as a key reference point for assessing whether wages meet the criteria for a *living wage*.

Conformance Evidence Examples: A description of wages

and/or salaries that demonstrates that employees are receiving a *living wage*, pay stubs, and wage scale documents for low-wage positions.

Performance Measure 10.5 Farm Labor: *Program Users* shall monitor *contract management companies* or *farm labor contractors* to help ensure farm labor working conditions consistent with the *Principles* and *Objectives* of *Leading Harvest Standard*.

Indicator 10.5.1 Farm Labor Monitoring Program: A program to monitor farm labor contractors employed by *Program Users* or *Contract Management Companies* to ensure compliance with applicable federal, state, and local labor laws, statutes, and regulations by reviewing policies, practices, and training addressing workplace environment, equal opportunity, worker health, safety, and compensation, including *living wage* and, where appropriate, housing and transportation.

Guidance: *Farm Labor Contractors* provide critical services to agriculture. Farm employers are legally required to take reasonable steps to ensure that their *farm labor contractors* have valid registration certificates. Many contracted farm workers are immigrants who don't know their legal rights and this makes them economically and socially vulnerable. Moreover, labor rights are a key component of the social aspect of sustainable agriculture.

This Indicator is not applicable to Program Users who do not contract for labor with contract management companies or farm labor contractors. Conformance evidence for Indicator 11.1.2 (Program User Compliance Program) may be applicable to this Indicator.

Conformance Evidence Examples: A description and/or infield demonstration of a monitoring program composed of an organized set of activities to address the workplace environment, equal opportunity, worker health, safety, and compensation, including *living wage* and, where appropriate, housing, and transportation, which may be supported by evidence such as: farm labor contractor contracts; communications about farm labor contractor monitoring; and annual or more frequent reviews of farm labor contractors.

Objective 11. Legal and Regulatory Compliance

To comply with applicable federal, state and local laws, / statutes, and regulations.

Background: Agriculture works in a diverse regulatory environment. Legal compliance is fundamental to the credibility of agricultural sustainability and managing legal risk. Farmer and farm managers encounter social, labor, and environmental legal requirements, which are complex and make legal compliance challenging. By meeting their legal obligations, they can protect

the human well-being and the environment, avoid regulatory actions, and achieve efficient operations and safety, positive public relations, and greater employee retention.

Performance Measure 11.1 Legal Compliance: Program Users shall comply with applicable federal, state and local agricultural and related social and environmental laws, statutes, and regulations.

Indicator 11.1.1 Access to Compliance Information:

A *process* by, which personnel have access to information of relevant laws, statutes, and regulations in appropriate locations.

Guidance: Knowledge of legal compliance issues is critical to ensuring employees comply with statutes and avoid costly regulatory action. Conformance evidence for two other Indicators may be applicable to this Indicator: Indicator 10.2.1 (Personnel and Contract Worker Training), which may include training to help ensure employees understand relevant legal information; and Indicator 11.2.1 (Written Compliance Policy), which may signal the importance of legal compliance to employees.

Conformance Evidence Examples: A description of a purposeful set of formal or informal practices or routines for providing employee access to appropriate legal information, which may be supported by evidence such as: confidential employee interviews to assess their awareness of relevant workplace laws, statutes, and regulations; signage as required by law to inform employees of labor rights, workplace requirements, and safety and environmental regulations; an employee handbook; SDS binders in office and pesticide storage areas; voluntary signage to inform employees about relevant legal requirements; and employee training regarding applicable laws, statutes, and regulations.

Indicator 11.1.2 Program User Compliance Program:

A *program* to achieve compliance with applicable federal, state or local laws, statutes, and regulations.

Guidance: Regulatory compliance of a company is necessary to manage regulatory risk and achieve a basic level of sustainability. It helps ensure that a farmer or farm manager meet their legal obligations, avoid costly regulatory actions, and focus on efficient operations, safety, public relations, and employee retention. Conformance evidence for Indicators 11.1.1 (Access to Compliance Information Indicator), 11.1.3 (Compliance Commitment), and 11.2.1 (Written Compliance Policy) may be applicable to this Indicator when it supports a legal compliance program.

Conformance Evidence Examples: A description of a legal compliance program that helps achieve compliance with applicable federal, state or local laws,

statutes,

and regulations, which may be supported by evidence such as: an employee handbook addressing policies regarding ethical and legal compliance issues and obligations; confidential employee interviews; signage as required by law to inform employees of labor rights, workplace requirements, and safety and environmental regulations; employee training to ensure consistent legal compliance; and professional licenses necessary for regulatory compliance.

Indicator 11.1.3 Compliance Commitment:

Demonstration of commitment to legal compliance through available *regulatory action information*.

Guidance: *Regulatory action information* is information related to compliance with government regulations such as permits, reports and documentation of corrective actions, which may be required by a regulatory agency or court. It helps demonstrate a farmer or farm manager's commitment to legal compliance, which is essential to sustainability.

Conformance Evidence Examples: A description of regulatory action information (permitting applications and reports, permits, and licenses) that demonstrates commitment to legal compliance, which may be supported by evidence such as: regulatory permit applications (e.g., USDA Highly Erodible Land HEL Conservation and Wetland Conservation Certification) and reports, permits, and licenses (company or individual [e.g., pesticide applicator license]); corrective action documents demonstrating required and voluntary efforts to remedy legal compliance issues; and signage to inform employees of labor rights, workplace requirements, and safety regulations.

Performance Measure 11.2 Legal Compliance Polices:

Program User shall take appropriate steps to comply with all applicable social laws at the federal, state, and local levels in the jurisdictions where the Program User operates.

Indicator 11.2.1 Written Compliance Policy: A written policy demonstrating commitment to comply with social laws, such as those addressing civil rights, equal employment opportunities, anti-discrimination and anti-harassment measures, workers' compensation and living wage, Indigenous Peoples' rights, workers' and communities' right to know, prevailing wages, workers' right to organize, and occupational health and safety.

Guidance: A written commitment communicates the importance of legal compliance to employees and a commitment to meet legal obligations and protect the health, safety, and welfare of others and the environment. It can help employees understand farming legal obligations so that they can help avoid costly regulatory

enforcement actions. It can also contribute to efficient operations and safety, public relations, and employee retention. A written commitment statement helps ensure that farmers are committed to compliance with social laws and the social domain of sustainability.

Conformance Evidence Examples: A written policy demonstrating a compliance commitment to social laws, which may be supported by evidence such as: communication to ensure staff understand and implement the written policy; on-board training regarding written policy; an employee handbook; training attendance records; and a description of informal and formal supporting policies and/or practices used to conform to written policy.

Indicator 11.2.2 Consistency with International Labor Organization (ILO) Conventions: Demonstration of commitment to respect the principles concerning fundamental rights set out in the ILO Declaration on Fundamental Principles and Rights at Work.

Guidance: ILO Principles are an international set of principles aimed at protecting freedom of association of employees and right to collective bargaining, the elimination of forced labor and workplace discrimination, and the abolition of child labor. Many standards require a commitment to ILO Principles. A commitment demonstrates respect for labor rights, a key social attribute of agriculture, and can bolster credibility and social license with supply chains and other key stakeholders.

This Indicator applies only to the core conventions not fully covered by existing U.S. law, that include: No. 87 (Right to Organize), No. 98 (Right to Organize and Collective Bargaining), and No. 111 (Discrimination), which is addressed by Indicator 10.1.1. No. 87 states “Workers and employers...shall have the right to establish, and, subject only to the rules of the organization concerned, to join organizations of their own choosing without authorization.” No. 98 references federal government obligations to supply the right to organize and collective bargaining. This Indicator helps ensure that Program Users respect widely respected principles concerning key labor rights set out in the ILO Declaration on Fundamental Principles and Rights at Work. Conformance evidence for Indicator 10.1.1 (Equal Opportunity Employment) may be applicable to this Indicator.

Conformance Evidence Examples: The demonstration of commitment to respect principles concerning fundamental rights set out in the ILO Declaration on Fundamental Principles and Rights at Work, which may be supported by evidence such as: an employee handbook, which addresses relevant ILO Principles; and employee training on ILO Principles and general labor law

as it pertains to their responsibilities.

Indicator 11.2.3 Consistency with Farmland Tenant

Law: Demonstration of commitment to respect the rights of *farmland tenants* of leased lands with respect to the covenant of quiet enjoyment as determined by national, state and/or local laws, statutes, and regulations.

Guidance: The covenant of quiet enjoyment means that a farmland tenant has the right to enjoy his or her leased farmland without “substantial interference” from the farm land owner. It ensures that farmland tenants benefit from the full use and enjoyment of their leased farmland. This Indicator only applies to Program Users who lease land to farmland tenants. Conformance evidence of Indicators in Objective 13 may be applicable to this Indicator.

Conformance Evidence Examples: A description of activities that demonstrates commitment to respect rights of farmland tenants of leased lands with respect to the covenant of quiet enjoyment as determined by national, state and/or local laws, statutes, and regulations, which may be supported by evidence such as: leases or lease templates that include language addressing right to quiet enjoyment; confidential employee interviews; communications with tenants; and employee training on tenant oversight and lease management.

Objective 12. Management Review and Continual Improvement

To promote *continual improvement* in the practice of sustainable agriculture by conducting management reviews and monitoring performance.

Background: *Continual improvement* is ongoing improvement of performance, products, services, or processes through incremental and breakthrough improvements. It applies a quality assurance method (e.g., the plan-do-check-act cycle). It leads to an agricultural system that adapts to a changing environment, improves performance and revenue, and reduces impacts. *Continual improvement* of agricultural practice requires management reviews and performance monitoring.

Performance Measure 12.1 Farm Review and Continual Improvement: *Program Users* shall establish a management review system to examine findings and progress in implementing the *Leading Harvest Standard*, improve resource-use efficiency of agricultural production, make *appropriate* improvements in *programs*, and inform their employees of changes.

Indicator 12.1.1 Performance Review: A system to review commitments, *programs*, procedures and measures of progress; evaluate their effectiveness; and review progress toward achieving goals for employees, contractors, use of agricultural inputs, management of adverse and positive environmental impacts, and agricultural production,

including greater resource-use efficiency.

Guidance: A performance review system can improve communication and working relationships and provide useful feedback about job and operational performance, ultimately leading to improved farm performance and long-term viability. It also helps farmers and farm managers select timely financial, social, and environmental objectives that reduce cost and increase revenue and efficiency. Conformance evidence from Indicators 1.2.1 (Adapting to Critical External Factors), 12.1.2 (Monitoring Performance), and 12.1.3 (Agricultural Innovation), and 12.1.4 (Annual Review and Improvement) may be applicable to this Indicator where it involves review of operations. If a Program User had *farmland tenants*, then Indicators 13.2.1 (Verifiable Monitoring System) and 13.2.2 (Improvement of the Verifiable Monitoring System) could contribute conformance evidence for this Indicator.

Conformance Evidence Examples: A description of performance review system and how it: reviews commitments, operations, and progress; reviews progress toward achieving goals for employees, contractors, use of agricultural inputs, management of adverse and positive environmental impacts, and agricultural production, including greater resource-use efficiency; and evaluates effectiveness. This may be supported by evidence such as performance documents, communications, and confidential employee interviews,

Indicator 12.1.2 Monitoring Performance: A program for collecting, reviewing and reporting information to management regarding progress in achieving *Leading Harvest Standard objectives and performance measures*.

Guidance: This Indicator focuses on the process of monitoring progress toward achieving the LH Standard Est. 2020. This helps prepare Program Users for the assurance assessment process by a certification body. This also helps ensure that Program Users apply an organized system, process, or set of activities that helps a Program User monitor performance toward achieving LH Standard Est. 2020 Objectives and Performance Measures. Performance Measure 4.1 (Integrated Pest Management) and Indicator 2.1.3 (Nutrient Management Program) include monitoring to improve performance regarding crop loss and use of agricultural inputs and so may provide conformance evidence to this Indicator. Over time, conformance evidence for Indicator 12.1.1 (Performance Review) may serve as a performance monitoring *program*, which may be applicable to this Indicator.

Conformance Evidence Examples: A description of monitoring performance program for collecting, reviewing and reporting information to management

regarding progress in achieving *Leading Harvest Standard objectives and performance measures*, which may be supported by evidence such as: documents, SOPs, manuals, employee interviews, vendor invoices, and relevant farming metrics.

Indicator 12.1.3 Agricultural Innovation: A *process* for identifying and considering opportunities for achieving improved farming efficiency, deploying improved technologies, and using new markets for underutilized *agricultural products*, new *crops* and low-grade agricultural materials (e.g., bioenergy markets).

Guidance: Innovation entails improving business operations and processes to become more efficient and less impactful and increasing product value, profitability, and financial viability. Farmers and farm managers who routinely apply a purposeful series of formal or informal practices to identify innovative opportunities will discover practices and technologies for improving farming efficiency and new markets. Indicator 12.2.1 (Support for Agricultural Research) addresses the research aspect of R&D whereas this Indicator addresses the development part of R&D and implementation.

Conformance Evidence Examples: A description of a purposeful series of formal or informal practices or routines used to identify and consider opportunities for improving farming efficiency, applying improved technologies, and using new markets, which may be supported by evidence such as: employee attendance records for professional meetings; internal review of new technology and market opportunities; and CAPEX project development documents.

Indicator 12.1.4 Annual Review and Improvement:

An annual review of progress by management and determination of changes and improvements necessary to continually improve agricultural efficiency and farm conformance to the *Leading Harvest Standard*.

Guidance: Periodic reviews are a key step in continual improvement, improving agricultural efficiency, and achieving the objectives of the LH Standard Est. 2020. Two other Indicators may yield relevant conformance evidence: Indicator 13.2.1b (Verifiable Monitoring System) focuses on improving the tenant performance with respect to application of regional agriculture BMPs; Indicator 12.1.2 (Monitoring Performance Indicator) may provide information useful for annual reviews.

Conformance Evidence Examples: A description of an annual review of progress and the determination of changes to improve agricultural efficiency and conformance to the LH Standard Est. 2020, which may be supported by evidence such as: annual reviews, business

plan documents, and/or CAPEX evaluations.

Performance Measure 12.2 Support for Sustainable

Agriculture: *Program Users* shall individually and/or through cooperative efforts support science-based agricultural research programs or partnerships or other efforts by associations to improve *soil health*, agricultural productivity and sustainable agriculture.

Indicator 12.2.1 Support for Agricultural Research:

Participation individually or collaboratively in agricultural research or other science-based programs that improve the knowledge and practice of sustainable agriculture. Examples could include, but are not limited to, test plots for seed or crop trials or new practices; citizen science projects; demonstration days; research or partnerships to address agricultural productivity, water quality, community issues or similar topics that broaden the understanding of the benefits and impacts of sustainable agriculture.

Guidance: Support for agricultural research can help generate information that leads to improvements in agricultural technologies, practices, and efficiencies and reductions in adverse impacts. Farmers and farm managers who support agricultural research often find it useful for discovering improved practices, technologies, and other new business opportunities and for advancing sustainable agriculture. This Indicator addresses the research aspect of R&D whereas Indicator 12.1.3 (Agricultural Innovation) addresses the development part of R&D.

Conformance Evidence Examples: A description of individual or collaborative participation in agricultural research or other science-based programs that improve the knowledge and practice of sustainable agriculture, including test plots for crop trials or new practices, which may be supported by evidence of participation in: citizen science projects; demonstration days; research to address agricultural productivity, water quality, and community issues; and other research or science-based programs that improve the knowledge and practice of sustainable agriculture.

Objective 13. Tenant-Operated Operations

To promote the use of *regional agricultural best management practices* on farmland leased by *farmland tenants* to broaden the practice of sustainable agriculture and to promote the efficient use of agricultural inputs and the management of adverse environmental impacts.

Background: **Objective 13 only applies to Program Users with management responsibilities for leased farmland.** Farmland leasing is widespread with leased lands composing

about 40 percent of U.S. farmland. Almost all *farmland tenants* also operate their own *farmland*. Most *farmland tenants* lease from landowners for longer than 3 years, though most operate using annual agreements. Long-term lease agreements allow *farmland tenants* to have greater interest in soil conservation and landlords to have greater interest in soil health and other long-term values. Thus, leasing arrangement can foster sustainable agriculture practices among tenants and create opportunities to influence tenant farming practices their lands. The activities of farmland tenants may contribute to the performance of the Program User for Objectives 2 through 6 and Indicators 7.2.3, 7.3.1 and 9.4.1, but the Program User is responsible for conformance to these Objectives, Performance Measures, and Indicators. This Indicator helps ensure Program Users promote *regional agricultural BMPs* on farmland leased to *farmland tenants* and improve the practice of sustainable agriculture.

Performance Measure 13.1 Leased-Land Management:

Program Users shall clearly define and implement strategies to ensure that *farmland tenant* activities adhere to the principles of sustainable agriculture.

Indicator 13.1.1 Leased-Land Program: A program to help ensure that *farmland* management complies with the *regional agricultural best management practices* and the *Principles* and *Objectives* of the *Leading Harvest Standard* as determined by a *Program User* and *farmland tenants*.

Guidance: This Indicator helps ensure that Program Users apply an organized system or set of activities to help ensure management of *farmland tenants* conforms to the *regional agricultural BMPs* and the *Principles* and *Objectives* of the LH Standard Est. 2020. Conformance to *regional agricultural BMPs* is determined jointly by the Program User and *farmland tenants*. Conformance evidence for other Indicators may be applicable to this Indicator: Indicators (13.1.2 Farmland Tenant Agreements), 13.1.3 (Communicating Leased-Land Objectives), 13.1.4 (Farmland Tenant Social Responsibility Commitment), 13.2.1 (Verifiable Monitoring System), and 13.2.2 (Improvement of the Verifiable Monitoring System).

Conformance Evidence Examples: A description of an organized system or set of activities used to help ensure farmland management by tenants conforms to the *regional agricultural BMPs* and the *Principles* and *Objectives* of the LH Standard Est. 2020, which may be supported by evidence such as: standard operating procedures (SOPs) for lease-land oversight, evaluation, and communication; communications with *farmland tenants*; and annual review materials shared with *farmland tenants*.

Indicator 13.1.2 Farmland Tenant Agreements: Written agreements with *farmland tenants* demonstrating their

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INDICATOR CONFORMANCE

commitment to applying *agricultural practices* consistent with *regional agricultural best management practices*.

Guidance: This indicator helps ensure that Program Users clearly communicate their commitment to having *farmland tenants* apply *agricultural practices* consistent with *regional agricultural BMPs* and foster *farmland tenant* commitment. Written agreements can be included in the lease agreement or other types of agreements (e.g., Memorandum of Understanding, Letters of Intent, Memorandum of Agreement). Indicator 13.1.4 (Farmland Tenant Social Responsibility Commitment) is limited to fostering responsible operations, safe working environment, and legal compliance of *farmland tenants* whereas this Indicator is limited to fostering the *farmland tenant* application of *agricultural practices* consistent with *regional agricultural BMPs*.

Conformance Evidence Examples: Written agreements with *farmland tenants* demonstrating farmland tenant commitment to apply *agricultural practices* consistent with *regional agricultural BMPs*, which may be supported by evidence such as: a description of how written agreements are communicated to *farmland tenant* oversight staff; and employee training regarding *farmland tenant* agreements including Program User's commitment to the application of *agricultural practices* consistent with *regional agricultural BMPs*.

Indicator 13.1.3 Communicating Leased-Land

Objectives: A written statement clearly defining sustainable agriculture goals of the *Program User* for leased *farmland* that is shared with *farmland tenants* and made available to *appropriate* stakeholders upon request.

Guidance: Clear communication with farmland tenants is essential to achieving mutual goals. This Indicator helps ensure that Program Users communicate their sustainable agriculture goals for leased *farmland* to *farmland tenants*. Goals listed for Indicator 1.1.1 (Farmland Stewardship Commitment) should be consistent with goals listed for this Indicator.

Conformance Evidence Examples: A written statement clearly defining sustainable agriculture goals of the *Program User* for leased *farmland*, which may be supported by evidence such as: indication that a written statement has been shared with tenants (e.g., shared in meetings with prospective and existing *farmland tenants*

or

in routine communications to *farmland tenants*); farm manager training regarding sustainable agriculture goals of the *Program User* for leased *farmland*; and SOPs for sharing sustainable agriculture goals of the *Program User* for leased *farmland* with prospective or existing *farmland tenants* and stakeholders.

Indicator 13.1.4 Farmland Tenant Social Responsibility

Commitment: A written statement by *farmland tenants* demonstrating their commitment to operate safely and responsibly; provide a safe working environment; and comply with applicable federal, state and local laws, statutes, and regulations.

Guidance: This Indicator helps ensure that farmland tenants clearly communicate their commitment to operate safely and responsibly; provide a safe working environment; and comply with applicable federal, state

and

local laws, statutes, and regulations. A written statement by farmland tenants can be included in the lease agreement or be a simple written statement. Indicator 13.1.2 (*Farmland Tenant Agreements*) intends to foster the application by *farmland tenants* of *regional agricultural BMPs* whereas this Indicator intends to foster safe and responsible operations, safe working environment, and legal compliance.

Conformance Evidence Examples: Written Social Responsibility Commitment statement by *farmland tenants* regarding safe and responsible operations, safe working environment, and legal compliance, which may be supported by evidence such as: farm manager training for supporting *farmland tenants* and their preparation of a Social Responsibility Commitment statement; and educational materials for *farmland tenants* about Social Responsibility Commitment statement.

Performance Measure 13.2 Leased-Land Monitoring:

Program Users shall monitor *agricultural practices* used by *farmland tenants* to ensure their consistency with *regional agricultural best management practices*.

Indicator 13.2.1 Verifiable Monitoring System: Use of a *verifiable monitoring system* with:

Indicator 13.2.1a A *process* for monitoring the *agricultural practices* used by *farmland tenants*; and

Guidance: This part of the Indicator helps ensure that Program Users apply a purposeful series of practices or routines (formal or informal) for monitoring the *agricultural practices* used by *farmland tenants*. The monitoring process can be simple and monitor the *agricultural practices* used by *farmland tenants* (see Objectives 2-6).

Conformance Evidence Examples: A description of a purposeful series of practices or routines (formal or informal) for monitoring the *agricultural practices* used by *farmland tenants*, which may be supported by evidence such as: indications of leased-land visits, written monitoring SOPs, and monitoring forms and records.

Indicator 13.2.1b A *process* for evaluating application of *agricultural practices* by *farmland tenants* and identifying

and communicating areas where *farmland tenants* can improve their performance and achieve greater consistency with the *regional agricultural best management practices* and the *Principles and Objectives* of the *Leading Harvest Standard*.

Guidance: This Indicator uses information from Indicator 13.2.1a to ensure that the Program User actively influences the farmland tenant's practices. It prompts Program Users to apply a purposeful series of practices or routines (formal or informal) (i.e., a *process*) to evaluate the *agricultural practices* of the *farmland tenant* and then identify and communicate areas of improvement to the *farmland tenant*. The key reference points for evaluating *farmland tenant* practices are *regional agricultural BMPs* and the *Principles and Objectives* of the LH Standard Est. 2020.

Conformance Evidence Examples: A description of a purposeful series of practices or routines (formal or informal) used for evaluating the *agricultural practices* of the *farmland tenant*, identifying and communicating areas of improvement to the *farmland tenant*, which may be supported by evidence such as: annual performance reviews of farmland tenants; annual face-to-face meetings; communications with farmland tenants regarding performance; and annual or quarterly leased land review forms and records.

Indicator 13.2.2 Improvement of the Verifiable

Monitoring System: A *process* for using information from the *verifiable monitoring system* to identify areas of performance improvement for the *verifiable monitoring system*.

Guidance: The purpose of this indicator is to ensure that Program Users have a process to evaluate the *verifiable monitoring system* for tenant-operated farmland and identify areas of improvement. This could lead to improvements that make the *system* more effective or provide better tenant oversight. Updates to the *verifiable monitoring system* is a key part of *continual improvement*.

Conformance Evidence Examples: A description of the series of practices or routines (formal or informal) for using information from the *verifiable monitoring system* to identify areas of performance improvement for the *verifiable monitoring system*, which may be supported by evidence such as: updates on using *regional agricultural BMPs* as an evaluation reference point; review of *farmland tenant* performance goals; communications describing periodic performance review of the *verifiable monitoring system*; and a description of changes in the *verifiable monitoring system* (e.g., data collection, monitoring standard operating procedures, and standardized monitoring forms).



SECTION 6

GLOSSARY



Agricultural chemicals: Substances such as *fertilizers*, liming and acidifying agents, road dust stabilizers, *crop protectants* (including insecticides, herbicides, fungicides and nematicides) and other agricultural inputs used to enhance or support agriculture production.

Agricultural land: Land that is used directly or indirectly in the production of *agricultural products* including *cropland*, *grassland*, *rangeland*, *pasture* and other land on which agricultural products or livestock are produced and resource concerns may be addressed. It may include cropped woodland, marshes, incidental areas included in the agricultural operation, and other types of land used for production of livestock (USDA NRCS).

Agricultural practices: Specific methods including tillage system, planting, application practices for *fertilizers* and *crop protectants*, harvesting and other cropping practices that are applied to grow and harvest annual or perennial *crops* for food, animal feed, forage, fiber, oilseed and other *agricultural products*.

Agricultural products: *Crops* for food, animal feed, forage, fiber, oilseed, medicine, cultural practices, fermentation products, or fuel, livestock and livestock products, including, but not limited to, field *crops*, fruits, vegetables, nuts, grains, horticultural specialties, cattle, sheep, hogs, goats, horses, poultry, furbearing animals, milk, eggs and furs (USDA).

Agricultural waste: Refers to *solid waste* that is generated by the rearing of animals or the production and harvest of *agricultural products*. This may include, but is not limited to, poultry and livestock manure and residual materials in liquid or solid form generated from the production and marketing of poultry, livestock, furbearing animals, other livestock products and *crop residues* from row *crops* and permanent *crops* (US EPA).

Appropriate: Suitable or proper in the circumstances for a particular purpose. Considerations may include whether an activity will achieve the goal of an *indicator* or *performance measure* in a specific setting, is practical and reasonable and contributes to achieving regulatory compliance or obtaining social license.

Appropriate deforestation cutoff date: A date (day, month and year) specified by the most relevant biome- or geography-specific *deforestation* protocol(s) after which farmed land cannot have been deforested. An example of a relevant *deforestation* protocol could include, but is not limited to, Canadian Boreal Forest Conservation Framework.

At-risk species: Species that have been highlighted by NatureServe as *critically imperiled* (G1) or *imperiled* (G2).

Biodiversity: The variety and abundance of life forms, processes, functions and structures of plants, animals and other living organisms, including the relative complexity of species, communities, gene pools and ecosystems at spatial scales that range from local to regional to global (SFI). This includes soil organisms, pollinators, beneficial organisms, agricultural and *grassland* plants and *wildlife*.

Certification body: An independent third party that is accredited and competent to conduct certifications to the *Leading Harvest Standard*.

Climate change: Change in the state of the climate that can be identified (e.g., by using statistical tests) by changes in the mean and/or the variability of its properties and that persists for an extended period, typically decades or longer. It may be due to natural internal processes or external forcings or to persistent anthropogenic changes in the composition of the atmosphere or in land use (Intergovernmental Panel on Climate Change).

Climate-smart agriculture (practices): Practices and principles that promote sustainable increases in agricultural productivity (including sustainable intensification) while adapting to *climate change* and reducing *greenhouse gas* emissions (Food and Agriculture Organization of the United Nations).

Conservation: 1. *Protection* of plant and animal *habitat*. 2. Management of a renewable natural resource with the *objective* of sustaining its productivity in perpetuity while providing for human use compatible with sustainability of the resource.

Contract management company: A third-party company used by a *Standard user* to directly operate *enrolled farmland*.

Covenant of quiet enjoyment: A covenant that promises that the grantee or tenant of an estate in real property will be able to possess the premises in peace, without disturbance by hostile claimants. Quiet enjoyment is a right to the undisturbed use and enjoyment of real property by a tenant.

Cover cropping: Close-growing *crops* that provide soil *protection*, seeding protection and soil improvement between periods of normal crop production or between trees in orchards and vines in vineyards. This may include, but is not limited to, grasses, legumes and forbs for seasonal cover, soil improvement, and other *conservation* purposes (USDA).

Critically imperiled: A plant species, animal species or *natural community*, often referred to as G1, that is globally extremely rare or, because of some factor(s), especially vulnerable to extinction. Typically, five or fewer occurrences or populations remain, or very few individuals (less than 1,000), acres (less than 2,000 acres or 809 hectares) or linear miles (less than 10 miles or 16 kilometers) exist (NatureServe).

Critical external factor: Any off-farm attribute or factor that is materially and substantially relevant to the viability, long-term profitability, and sustainability of agricultural production of a management unit or farm. These may include economic factors (e.g., labor availability, regional market demand and opportunities, regulatory changes, *farmland tenant* availability, supplier availability and technological advancements), environmental factors (e.g., *climate change*, regional availability of water, and other inputs), and social factors (e.g., social license).

Crop: Plant species that are purposefully grown and/or harvested to satisfy human and livestock needs. They can include plants grown for food, feed, forage, fiber, decorative purposes, oilseed, medicine, cultural practices, fermentation products or fuel, including, but not limited to, field crops, hay or forage, fruits, vegetables, nuts, grains and horticultural specialties. *Cover crops* and *companion crops* may be considered *crops* if purposefully grown.

Cropland: Land used primarily for the direct production of *agricultural products* for harvest, including, but not limited to, land in row crops or close-grown *crops*, forage crops that are in a rotation with row or close-grown *crops*, permanent hay land, horticultural *crops*, orchards, vineyards, cropped woodland, marshes, cranberry bogs and other lands used to produce *crops* (USDA NRCS).

Crop productivity: The inherent capacity of a particular site to produce a *crop*, often measured in volume or weight.

Crop protectants: Substances used to control weeds and unwanted or harmful *pests*, such as insects and mites, or pathogens on *agricultural lands*. They are divided into categories according to the target organisms they are designed to control (NRCS USDA). This includes herbicides (to control weeds and other plants), insecticides (to control insects), fungicides (to control fungi or other plant pathogens), nematicides (to control parasitic worms) and rodenticides (to control rodents). They also encompass soil fumigants, plant growth regulators, defoliants and desiccants. They can be synthetic (developed in laboratories and manufactured) or natural.

Crop residues: Materials from growing *crops* left on the soil surface or partially incorporated into the surface layer of *cropland* to reduce soil erosion, conserve soil moisture and improve soil tilth (USDA). These materials may include, but are not limited to, stalks, stubble, leaves, chipped branches and vines, woody biomass from orchard and vineyard redevelopment and seed pods.

Crop genetic diversity: Variation in genetic and phenotypic characteristics of plants used in agriculture. Its two components are the genetic diversity within each *crop* (within-*crop* diversity, including different *crop* varieties or hybrids of the same species) and the number of *crop* species commonly grown (between-*crop* diversity).

Deforestation: The conversion of *forest* to another land use or the long-term reduction of the tree canopy cover below the minimum 10 percent threshold. It includes areas of *forest* converted to agriculture, *pasture*, water reservoirs, residential and industrial areas, and urban areas (Food and Agriculture Organization of the United Nations).

Ecologically Important Sites: Sites of exceptional ecological importance including areas with *critically imperiled* or *imperiled* species or *natural communities* (species or *natural communities* with NatureServe global conservation status ranks of G1 or G2), rare *natural communities* or unique ecological landscape features.

Energy-efficient agricultural practices: Practices that deliver more services for the same energy input or the same services for less energy input (modified from International Energy Agency definition of energy efficiency).

Enrolled lands: Lands managed by the *Standard user* and enrolled under the *Leading Harvest Standard* and subject to third-party audit to the *Leading Harvest Standard*.

Equal Opportunity Employment: To provide employment where an employer agrees not to discriminate against any employee or job applicant because of race, color, religion, national origin, sex, physical or mental disability, or age.

Farmland: Land that includes *cropland*, *rangeland*, *grassland*, *pasture* land, incidental *forest* land and *wetlands* that are part of an agricultural operation (USDA NRCS).

Farmland tenant: A lessee of *farmland* where the lease is managed by a *Standard user*.

Farm labor contractor: A person or business who charges a fee to recruit, transport, supply or hire seasonal farmworkers to work for or under the direction, supervision or control of *Standard user* or a *contract management company* under the oversight of a *Standard user* (US DOL).

Fertilizer: Any organic or inorganic material of natural or synthetic origin (other than liming materials) that is added to a soil to supply one or more nutrients essential to the growth of plants (USDA NRCS).

Forest: Land with tree crown cover (or equivalent stocking level) of more than 10 percent and area of more than 1.2 acres (0.5 hectares) with tree species largely of indigenous origin. The trees should be able to reach a minimum height of 16.4 feet (5 meters) at maturity in situ. It may consist either of closed *forest* formations where trees of various heights and undergrowth cover a high proportion of the ground or open *forest* formations with a continuous vegetation cover in which tree crown cover exceeds 10 percent. It does not include land that is predominantly under agricultural or urban land use (Food and Agriculture Organization of the United Nations).

Gender equitable: The fair treatment for men and women according to their respective needs. This may include equal treatment or treatment that is different, but which is considered equivalent in terms of rights, benefits, obligations and opportunities (UNESCO). Equivalency between men and women does not mean that women and men have to become the same, but that their rights, responsibilities and opportunities will not depend on whether they were born male or female.

Grasslands: Natural or semi-natural land defined by the following characteristics: (1) a non-wetland formation; (2) vascular vegetation has at least 10 percent cover; (3) graminoids have at least 25 percent cover (but if less than 25 percent cover, graminoids exceed that of other herbaceous and shrub cover); (4) broad-leaved herbs (forbs) may have variable levels of cover and dominance; (5) shrubs have less than 25 percent canopy cover; (6) and trees: (i) in temperate zones, typically have less than 10 percent canopy cover, are less than 5 meters tall and single-layered or (ii) in tropical regions, typically have less than 40 percent canopy cover, are less than 8 meters tall and are single layered (Dixon et al. 2014).

Greenhouse gases: Gases in the atmosphere that can absorb infrared radiation from the sun, trapping outgoing energy in the form of heat in the atmosphere. Key *greenhouse gases* include carbon dioxide (CO₂), nitrous oxide (N₂O), methane (CH₄), sulfur hexafluoride (SF₆), perfluorocarbons (PFCs) and hydrofluorocarbons (HFCs) (U.S. EPA).

Groundwater: Water that exists underground in saturated zones beneath the land surface. The upper surface of the saturated zone is called the water table (USGS).

Groundwater depletion: A long-term decline in levels of *groundwater* caused by sustained *groundwater* pumping within a watershed or catchment (USGS).

Groundwater regulatory agency: A local, regional, state or federal public authority or government agency with statutory authority to exercise regulatory or supervisory oversight in the use and/or extraction of *groundwater*.

Habitat: A place, natural or otherwise (including climate, food, cover and water), where an individual or population of animal species or plant species naturally or normally lives and develops.

Hazardous waste: Waste that is dangerous or potentially harmful to human health or the environment, which can be liquid, solid, gas or sludge. It can be discarded commercial products, like leftover cleaning fluids or *crop protectants*, or the byproducts of manufacturing processes (U.S. EPA).

Imperiled: A plant species, animal species or *natural community*, often referred to as G2, which is, is globally rare or, because of some factor(s), is very vulnerable to extinction or elimination. Typically, six to 20 occurrences, or few remaining individuals (1,000 to 3,000), or acres (2,000 to 10,000 acres or 809 to 4,047 hectares), or linear miles (10 to 50 miles or 16 to 80.5 kilometers) exist.

Indicator: A specific metric that provides information about an organization's agricultural and environmental performance and that is integral to assessing conformance to the *Leading Harvest Standard*.

Indigenous Peoples: People defined in international or national legislation as having a set of specific rights based on their historical ties to a particular territory and their cultural or historical distinctiveness from other populations that are often politically dominant. More specifically, they are defined in the United States as members of federally recognized tribes and in Canada as those peoples that are defined by section 35(2) of the Constitution Act, 1982 (SFI).

Integrated Pest Management: The control of pests, including insects, at tolerable levels below economic thresholds, by the planned use of a variety of preventive, suppressive or regulatory tactics and strategies that are ecologically and economically efficient and socially acceptable (USDA, U.S. EPA). *Appropriate* techniques may include, but are not limited to, enhancement of natural enemies, planting pest-resistant crops, adaptation of cultural management and judicious use of *crop protectants*.

Land use conversion: A change in the extent or composition of an ecosystem or *habitat* where there is a shift from one land use to another that is considered significant or irreversible.

Living wage: The minimum income necessary for an employee or contract worker to meet their basic needs, which can include minimum food, child care, health insurance, housing, transportation and costs of other basic necessities (e.g., clothing, personal care items, etc.), such that public assistance is not necessary to meet basic needs. It does not address other needs such as entertainment, recreation or income for unpaid vacation (MIT).

Low-emission technologies: Advanced technologies used to significantly reduce *greenhouse gas* emissions levels, airborne pollutants and other adverse environmental impacts. This can include high-efficiency equipment and technology using *renewable energy* (e.g., hybrid vehicles, solar energy).

Lowest risk, most selective treatment options: A treatment used to control site-specific *pests* that *minimizes* impact to non-target organisms and people and has the least overall impact while meeting management *objectives*. Considerations may include the target pest, the degree of control needed,

cost, the season and timing of application, rates and methods, terrain, crop conditions and the presence or absence of water bodies.

Minimize: To do only that which is necessary and *appropriate* to accomplish the task or *objective* described.

Native habitats: Areas where a native species naturally occurs and that have the living and nonliving environmental conditions necessary for survival, including areas for feeding, shelter, protection and/or reproduction.

Natural communities: An assemblage of interacting plant species and animal species and their common environment, recurring across the landscape, in which the effects of human intervention are minimal. The vegetation is largely indigenous origin defined by a characteristic range of species composition, diagnostic species occurrence, *habitat* conditions and physiognomy. They reflect sub-regional to local topo-edaphic factors of substrates, hydrology, disturbance regimes and climate (NatureServe). Three characteristics distinguish *natural communities*: 1) plant species composition, 2) vegetation structure (e.g., *forest*, shrubland or marsh) and 3) a specific combination of physical conditions (e.g., water, light, nutrient levels and climate). *Grassland* and shrub areas that have been plowed or otherwise have had extensive soil disturbance and removal of the vegetation in the past are typically not *natural communities*. *Forests* on sites that have been converted to other land uses (e.g., agriculture) in the past and subsequently allowed to regrow trees are typically not *natural communities*. Human-made *wetlands* from wetland mitigation projects on sites that have been converted in the past from other land uses (e.g., agriculture) or cleared *forest* and graminoid and/or shrub *wetlands* occupying sites once plowed or having extensive soil disturbance in the past are typically not considered to be natural *wetlands*.

Natural forest: *Forest* composed of indigenous trees and not classified as a planted *forest*.

Nutrient management: To manage the amount, source, placement, form and timing of the application of nutrients and *soil amendments* to ensure adequate *soil fertility* for plant production and to *minimize* the potential for environmental degradation, particularly *water quality* impairment (USDA NRCS) and unnecessary air emissions.

Objective: A fundamental goal.

Pasture: (1) Grazing lands comprised of introduced or domesticated native forage species that are used primarily for the production of livestock. They receive periodic renovation and/or cultural treatments such as tillage, fertilization, mowing and weed control, and may be irrigated. They are not in rotation with *crops*. (2) A grazing area enclosed and separated from other areas by fencing or other barriers; the management unit

for grazing land. (3) Forage plants used as food for grazing animals. (4) Any area devoted to the production of forage, native or introduced, and harvested by grazing (USDA).

Performance measure: A means of judging whether an *objective* has been fulfilled.

Pests: Organisms that interfere with the production and utilization of crops and livestock used for food, fiber and other *agricultural products*; these include insects, mites, nematodes, plant pathogens, weeds and vertebrates (USDA).

Policy: A written statement of commitment to meet an *objective* or to implement a defined *program* or plan to achieve an *objective* or outcome.

Prime farmland: Land that has the best combination of physical and chemical characteristics for producing *agricultural products* and is available for these uses. It could be *cropland*, *pasture*, *forest* or other land, but it is not urban or built-up land or water areas. The soil quality, growing season and moisture supply are those needed for the soil to economically produce sustained high yields of *crops* when proper management, including water management, and acceptable farming methods are applied. In general, *prime farmland* has an adequate and dependable supply of moisture from precipitation or irrigation, a favorable temperature and growing season, acceptable acidity or alkalinity, an acceptable salt and sodium content, and few or no rocks. The water supply is dependable and of adequate quality. *Prime farmland* is permeable to water and air. It is not excessively erodible or saturated with water for long periods, and it either is not frequently flooded during the growing season or is protected from flooding. Slope ranges mainly from 0 to 6 percent (USDA NRCS).

Process: A series of purposeful actions or operations that leads to a sought-after end or outcome. This can include a set or sequence of informal or formal practices, procedures or routines.

Professional work environment: A nondiscriminatory workplace environment free from harassment and composed of competent, respectful, mature and accountable employees working toward a common goal.

Program: An organized system, *process*, or set of activities to achieve an *objective*, *performance measure* or *indicator*.

Protection: Maintenance of the status or integrity, over the long term, of identified attributes or values including management where *appropriate*, giving consideration to past disturbance, land use, and *pest* risk when determining *appropriate* conservation strategies.

Rangeland: Land on which the climax or potential plant cover is composed principally of native grasses, grass-like plants, forbs or shrubs suitable for grazing and browsing, and intro-

duced forage species that are managed like rangeland. This would include areas where introduced hardy and persistent grasses, such as crested wheatgrass, are planted, and practices, such as deferred grazing, burning, chaining and rotational grazing are used with little or no chemicals or *fertilizer* being applied. It includes *grassland*, savannas, many *wetlands*, some deserts, tundra and certain low forb shrub communities, such as mesquite, chaparral, mountain shrub and pinyon-juniper. (NRCS USDA).

Regional agricultural best management practices: A practice or combination of practices developed by land grant agricultural universities in a region considered to be an effective means (including technological, financial, environmental, social and institutional considerations) of achieving a sustainable agriculture goal (modified from US EPA definition). A region is a homogenous area with respect to crops produced, soil type, climatic conditions, crop association and generally accepted farming practices.

Regulatory action information: Information related to compliance with government regulations such as permits, reports and corrective action documentation.

Renewable energy: Energy from sources that are naturally replenishing but flow-limited. It is virtually inexhaustible in duration but limited in the amount of energy that is available per unit of time (US EIA), including wood, waste, geothermal, wind, photovoltaic, tidal and wave, hydropower and solar thermal energy.

Riparian area: A transition zone characterized by vegetation or geomorphology adjacent to rivers, streams, lakes, *wetlands* and other water bodies (USGS).

Runoff: Water from precipitation or irrigation on an area that does not infiltrate, but instead is discharged from the area. The water that flows off the surface of the land without sinking into the soil is called surface *runoff*. Water that enters the soil before reaching *surface water* is called *groundwater runoff* or seepage flow from *groundwater* (USDA).

Soil amendments: Materials that typically are added to soil, plants or the plant-growth environment to enhance plant growth. These include *fertilizers*, compost, sludge, manure, microbes, additives, materials improving soil condition (i.e., adjusting the pH of the soil, improving soil structure and texture, aeration adjustment and moisture conservation among others), materials controlling or suppressing *crop pests*, and others or combinations thereof. Inorganic *soil amendments* are composed of synthetic chemicals and/or minerals, while organic *soil amendments* are often composed of organic matter from plant/animal sources and/or microbes, and may include materials such as manure, earthworm castings, soil, sphagnum

peat, grass clippings, straw, wood chips, various composts, seaweed, guano, or naturally occurring mineral deposits (e.g., saltpeter), and living microorganisms, among others (USDA).

Soil erosion: A *process* by which soil and rock are removed by water and wind and then transported and deposited in other locations (USDA).

Soil fertility: The quality that enables a soil to provide plant nutrients, in adequate amounts and in proper balance, for the growth of specified plants when light, moisture, temperature, tillage and other growth factors are favorable.

Soil health: The capacity of soil to function as a vital living ecosystem that sustains *crops*, soil organisms and humans. Its maintenance includes consideration of the physical, chemical and biological characteristics of soil (USDA).

Soil loss: *Soil erosion* where the removal of topsoil occurs faster than the soil-forming processes can replace it due to natural, animal and human activity.

Soil mismanagement: Agricultural operations, practices and/or treatments that result in the decline of *soil health* and *soil productivity*, including *soil loss*.

Soil productivity: The capability of a soil for producing a specified plant or sequence of plants under specific management (USDA NRCS).

Solid waste: Any solid, semisolid, liquid or contained gaseous materials discarded from agricultural operations. It includes garbage, construction debris, commercial refuse, sludge from water supply or waste treatment plants and other discarded materials (RCRA US EPA).

Special sites: Sites that include *unique geological features* or *unique culturally important features* that are recognized regionally or nationally or by *Indigenous Peoples*.

Standard user: An organization certified or committed to being certified by an accredited *certification body* to be in conformance with the *Leading Harvest Standard*.

Surface water: Water that is on the Earth's surface, such as in a stream, river, lake or reservoir (USGS).

Treaty rights: Rights specified in treaties between *Indigenous Peoples* and the U.S. government. These rights are based on the legal foundations of tribal sovereignty, treaty provisions, and the "reserved rights" doctrine, which holds that *Indigenous Peoples* retain all rights not explicitly abrogated in treaties or other legislation (U.S. DOI). Typically this is expressed in terms of reserved rights aimed at permitted hunting, fishing and gathering in areas near *Indigenous Peoples* reservations.

Threatened and endangered species: Species listed under the U.S. Endangered Species Act or listed under applicable

state laws requiring *protection*.

Unique culturally important features: Features having significance for or being representative of human activities or beliefs. Examples could include, but are not limited to, documented areas such as archaeological sites, unusual historical sites, cemeteries and sacred sites. Typically these sites have been documented in databases established by state governments or the federal government and have been significant historically.

Unique geological features: Naturally occurring physical features on Earth's surface, which are unique or locally rare, typically limited in extent (0.1 to 100 acres), often less than 10 acres. Examples could include, but are not limited to, exceptional waterfalls, stream or river gorges, canyons, arches, caves or mine entrances, outcrops of fossil beds or rare mineral deposits, bluffs, buttes and cliffs.

Universal waste: A category of waste materials designated as *hazardous waste* but containing materials that are very common. It includes batteries, *crop protectants*, mercury-containing equipment and lamps (U.S. EPA).

Verifiable monitoring system: A system capable of being audited by a third party that includes: 1. a means to characterize *farmland* under the authority of a *Standard user*, 2. a *process* to identify and use sources of available data regarding the use of *regional agricultural best management practices*, and 3. a method to assess *farmland tenant* performance.

Viable occurrences: Occurrences of species with good or excellent viability according to NatureServe, including occurrences that exhibit favorable characteristics with respect to population size and/or quality and quantity of occupied *habitat*, and, if current conditions prevail, the occurrence is likely to persist for the foreseeable future (i.e., at least 20-30 years) in its current condition or better (NatureServe).

Water quality: The chemical, physical and biological characteristics of water, with respect to its suitability for a particular purpose (e.g., drinking water for humans or livestock, commercial and industrial use, aquatic species *habitat* and crop irrigation [USGS]).

Wetlands: A transitional area between aquatic and terrestrial ecosystems that is inundated or saturated for periods long enough to produce hydric soils and support hydrophytic vegetation largely of native origin. Examples can include, but are not limited to, (1) seasonally or permanently water-logged areas characterized by vegetation adapted for life in saturated/flooded conditions; (2) areas that are forested, shrubby or open, including bogs, fens, swamps, marshes and shallow open water areas; and (3) stagnant systems (e.g., bogs), slow flowing (e.g., fens, swamps), or have fluctuating water levels (e.g., marshes, shallow open water; CWA U.S. EPA).

Wildlife: Aquatic (freshwater), marine and terrestrial fauna.



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