U.S. SOY SUSTAINABILITY ASSURANCE PROTOCOL

VERSION 3.1

INTRODUCTION & OVERVIEW

U.S. Soy production is based on a national system of sustainability and conservation laws and regulations combined with careful implementation of best production practices by the nation's 303,191 soybean farms.[1] In addition, most U.S. Soy producers participate in certified and audited voluntary sustainability and conservation programs.

The U.S. Soy Sustainability Assurance Protocol (SSAP) is an aggregate approach audited by third parties that verifies sustainable soy production at a national scale. The U.S. approach is quantifiable and results-driven with mass balance international verification available.

The U.S. Soy Sustainability Assurance Protocol describes the regulations, processes and management practices that ensure sustainable soy production. This Sustainability Assurance Protocol is one part of the overall U.S. Soy producer sustainability program. These processes and practices of U.S. farmers contribute to the improvement of environmental, social and economic sustainability outcomes over time. These science-based outcomes for U.S. Soy production are included in Field to Market: The Alliance for Sustainable Agriculture National Indicators Report and is updated every five years. The SSAP is organized into four Directives and eleven Impact Categories. The Impact Categories align with the eight environmental indicators that Field to Market reports as critical indicators of sustainable agriculture.[2]

THE U.S. SOY SUSTAINABILITY ASSURANCE PROTOCOL	SUSTAINABLE DEVELOPMENT GOALS
1. Biodiversity and High Carbon Stock Production Control Measures and Regulations 1.1 Land Use, Sensitive Habitats, and Biodiversity	
2. Production Practices Control Measures and Regulations 2.1 Soil Health & Productivity 2.2 Crop Health & Agricultural Best Management Practices 2.3 Waste & Pollution 2.4 Greenhouse Gas Emissions, Fossil Fuel Use, & Air Quality	
3. Public and Labor Health and Welfare Control Measures and Regulations 3.1 Water Quality & Quantity 3.2 Plant Protection & Nutrient Management 3.3 Working Conditions & Labor Relations 3.4 Worker & Public Safety 3.5 Community Relations	
4. Continuous Improvement of Production Practices and Environmental Protection Control Measures and Regulations 4.1 Continuous Improvement	

The U.S. Soy Sustainability Assurance Protocol (SSAP) is one way that U.S. farmers can demonstrate their commitment to sustainability and continuous improvement.

The U.S. Soy Sustainability Assurance Protocol (SSAP) was positively benchmarked against the European Feed Manufacturers' Federation's (FEFAC) Soy Sourcing Guidelines 2021 through the independent International Trade Centre (ITC) customized benchmark tool at: standardsmap.org/fefac.

Examination of publicly available data sources on the national scale indicates that between 1980 and 2015, U.S. farmers increased soy production by 120% while decreasing energy used for production per bushel by 35%.[110]

Soy is a part of a diverse crop rotation plan produced on 28% of U.S. cropland.[111]

The United Nations 17 Sustainable Development Goals (SDGs)[3], adopted in 2015, are the heart of the 2030 Agenda for Sustainable Development and represent "a shared blueprint for peace and prosperity for people and the planet, now and into the future." The SDGs were developed as a call to action for all countries of the world as strategies to "improve health and education, reduce inequality, and spur economic growth" while addressing climate change and preserving oceans and forests. These aspirational goals provide a framework for governments, businesses, Non-Govermental Organizations (NGOs), universities and financial institutions to collaborate and support priority areas for improvement. Producer actions associated with the SSAP support many of the SDGs, but especially SDG 2.4 - Sustainable Food

In the U.S., 78 million hectares of land are protected national forests and grasslands.[112]

Production and Resilient Agricultural Practices. Appendix 1 shows that many of the SSAP Impact Category Compliance Criteria align with multiple targets in the SDGs.[4] Likewise, many of these criteria align with other international agricultural sustainability standards.

USDA will spend $71 billion from 2019-2030 on conservation.[113]

AUDIT PROCEDURES

1. Over 90% of U.S. soybean producers participate in the U.S. Farm Program and are subject to audit. For the last four years, an average of 22,000 audits[5] occurred annually.
2. Annual internal audit is conducted by producers.
3. Third-Party Independent Audits of Producers are performed to ensure the accuracy of internal audits made by producers. Third-party audits are conducted annually by the U.S. Department of Agriculture's (USDA) Natural Resources Conservation Service with technical staff in over 2,500 offices across the Nation.

NONCOMPLIANCE CONSEQUENCES

Soybean production is limited by federal law, and noncompliance leads to federal fines and lawsuits. Noncompliance with the USDA conservation compliance provisions means enrolled producers are ineligible to receive benefits for most programs administered by the USDA, and penalties ranging from temporary exemptions with time to correct the violation to a determination that the producer is ineligible for any USDA farm payment and must pay back current and prior years' benefits.

INTERNATIONAL CERTIFICATION

Soy Export Sustainability, LLC, provides shipment-specific record keeping and documentation information to ensure proper accounting of mass balance of SSAP compliant soy, up to the point of export. The SSAP verifies the sustainable production of all soy grown in the U.S., as well as U.S. Soy products for export, including GMO, non-GMO, and organic.

U.S. SOYBEAN PRODUCER SUSTAINABILITY PERFORMANCE INDICATORS

The following reports document producer performance for:

- **Environmental and Socioeconomic Indicators for Measuring Outcomes of On-Farm Agricultural Production in the United States**

  View the Report ***https://bit.ly/35M98Rg***

- **Life Cycle Impact of Soybean Production and Soy Industrial Products** (peer reviewed according to ISO 14040/44 Life Cycle Inventory)

  View the Report ***https://bit.ly/3sitUSQ***

DIRECTIVE 1

BIODIVERSITY & HIGH CARBON STOCK PRODUCTION CONTROL MEASURES & REGULATIONS

The United Nations Sustainable Development Goals

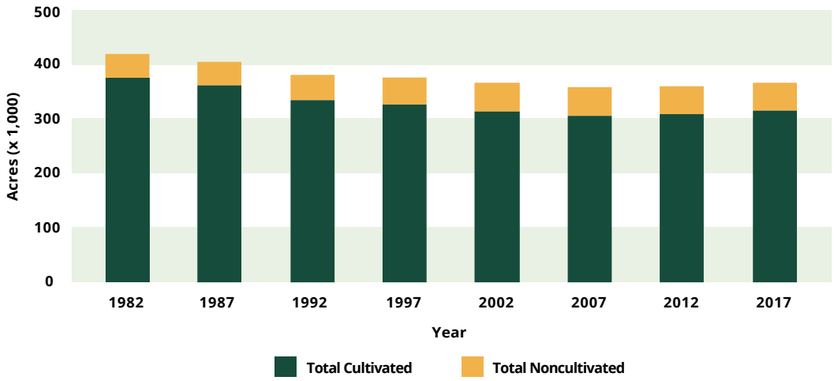
1.1 LAND USE, SENSITIVE HABITATS, & BIODIVERSITY

In the top 10 soybean-producing states (Illinois, Indiana, Iowa, Kansas, Minnesota, Missouri, Nebraska, North Dakota, Ohio and South Dakota), the amount of forest and land increased between 1980 and 2017 by 1.23 million hectares.[114]

BENCHMARK AND ASPIRATIONAL GOALS

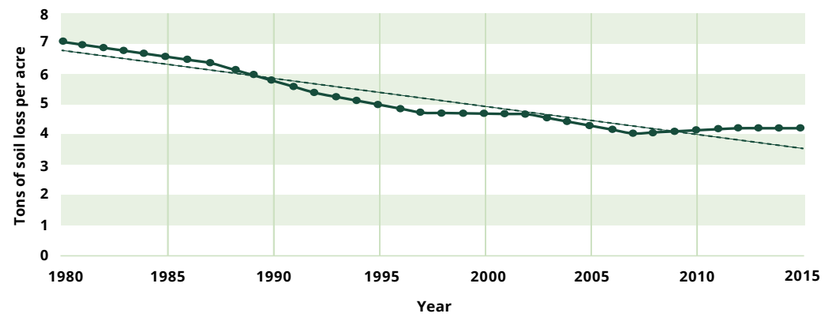
Land use efficiency and crop yield are interdependent. Maintaining higher crop yields can minimize the need to expand agricultural lands. When agricultural land expansion does occur, sensitive habitats should be avoided, and biodiversity should be maintained. The Field to Market Land Use aspirational goals are conserving native habitat and continued improvement of land use efficiency by increasing productivity.[6] The Compliance Criteria for the **Land Use, Sensitive Habitats, & Biodiversity** Impact Category aligns with the aspirational goal of habitat conservation.

CULTIVATED AND NONCULTIVATED CROPLAND



Source: https://www.nrcs.usda.gov/wps/portal/nrcs/main/national/technical/nra/nri/results/

ANNUAL SOIL EROSION PER BUSHEL OF SOYBEANS



Source: Field to Market, 2016 National Indicators Report

IMPACT CATEGORY COMPLIANCE CRITERIA

Soybean production was limited after January 1, 2008, in the following areas:

Between 1982 and 2017, the amount of cropland in the U.S. decreased by over 21.3 million hectares.[115]

1.1.1 Producers adopt conservation practices like crop rotation, cover crops, nutrient management, vegetated buffer strips, and no-till to improve wildlife habitat.

1.1.2 On-farm biodiversity is maintained and protected through the preservation of native vegetation where possible. Producers are encouraged to participate in conservation programs that provide an incentive for the preservation of native vegetation.

1.1.2.1 Soybean growers comply with U.S. Endangered Species Act[7] to protect listed animal and plant species from extinction by preserving the ecosystems in which they survive.

1.1.2.2 Producers comply with Federal Migratory Bird Treaty for the protection of shared migratory bird resources.

1.1.2.3 Producers comply with U.S. laws that prohibit altering the habitat of endangered or threatened species in such a way that disrupts essential behavioral patterns, including but not limited to breeding, feeding, and sheltering.

1.1.2.4 A Habitat Conservation Plan[8] is required as part of an application for private entities undertaking projects that might result in the destruction of an endangered or threatened species.

1.1.2.5 Soybeans are not produced on highly biodiverse grassland.

1.1.2.5.1 The USDA Conservation Reserve Program (CRP) Grasslands provides rental payments and cost-share assistance to enrolled producers to maintain and protect grassland, including rangeland and pastureland, with an emphasis on plant and animal biodiversity.

1.1.2.6 Soybeans are not produced on wetlands or on peatland.

1.1.2.6.1 Producers are in compliance with U.S. Wetlands Conservation provisions, including the prohibition of production of an agricultural commodity on peatland converted after December 23, 1985.[9]

1.1.2.6.1.1 Wetland is defined as an area that: has a predominance of hydric soils; is inundated

Soil erosion rates on all U.S. cropland decreased 35% between 1982 and 2017.[116]

or saturated by surface or groundwater at a frequency and duration sufficient to support a prevalence of water tolerant vegetation typically adapted for life in saturated soil conditions.

1.1.2.6.1.2 USDA NRCS will make and keep a record of wetland determinations, which remain in effect as long as the land is used for agricultural purposes. Producers may obtain aerial imagery of their farms and a printout of their farm and tract records from the local USDA office administering their farm.

1.1.2.6.1.3 Producers planning to make changes that could impact wetlands must notify USDA for appropriate technical determination.

1.1.2.6.1.4 Producers file Form AD-1026[10] with USDA Farm Service Agency certifying adherence to Highly Erodible Lands Conservation and Wetland Conservation provisions and must meet eligibility conditions to receive any USDA loans or other program benefits. The submission of form AD-1026 gives USDA authorization to enter and inspect all farms in which the producer has an interest.

1.1.2.6.2 Producers will maintain compliance with wetland conservation regulations by not draining or converting wetlands.

1.1.2.6.3 Producers follow applicable state laws that prohibit changing peatland without a regulated permit.

1.1.2.6.4 Producers will not plant on a converted wetland.

1.1.2.6.5 Producers will not convert a wetland to make possible production of an agricultural commodity.

1.1.2.6.6 Producers follow Section 404 of the Clean Water Act regarding agricultural impacts on wetlands.[11]

1.1.2.6.7 The USDA Farmable Wetlands Program provides rental payments to producers for restoring and establishing plant cover on wetlands and wetland buffer zones that were previously farmed.[12]

1.1.2.6.8 The NRCS Agricultural Conservation Easement Program (ACEP)[13] provides financial and technical assistance to conserve agricultural lands and wetlands. The program restores cropland to its previous natural wetland condition in either 30-year or permanent easements.[14]

While overall soil erosion from cropland in the U.S. decreased 35% between 1982 and 2017,[116] soil erosion from U.S. Soy production decreased 47%.[117]

1.1.3 Soybeans are not produced on land that was primary forest or continuously forested land.

1.1.3.1 Producers follow U.S. laws regarding conversion of primary forests to other uses. Use or occupancy of National Forest System land is prohibited without special-use authorization.[15]

1.1.3.2 Producers follow U.S. laws prohibiting the use, occupancy, or conversion of public lands in National Forests and Grasslands.

1.1.3.3 The NRCS Healthy Forests Reserve Program provides owners with 10-year restoration agreements and 30-year or permanent easements for conservation actions intended to improve biological diversity, increase carbon sequestration, or help threatened or endangered species.[16] Forestland that is part of a working farm or ranch can also be protected by permanent easements in the NRCS Agricultural Easement Program.[17]

1.1.4 Soybeans are not produced in designated protected areas.

1.1.4.1 Producers follow U.S. laws that prohibit the production of soybeans on land under federally protected status, land designated Wilderness or Research Natural Areas, protected land in National Forests and Grasslands, and land in the National Landscape Conservation System.

1.1.4.2 Producers follow U.S. laws that prohibit production of soybeans on land protected by the National Park Service.

DIRECTIVE 2

PRODUCTION PRACTICES, CONTROL MEASURES & REGULATIONS

The United Nations Sustainable Development Goals

2.1 SOIL HEALTH & PRODUCTIVITY

BENCHMARK AND ASPIRATIONAL GOALS

Soils play a critical role in crop production and are greatly affected by land management and environmental conditions. Sustaining soil health requires the conservation of soil quantity and the maintenance or improvement of soil quality by preserving soil organic carbon and avoiding nutrient depletion and salinization. The Field to Market Soil Conservation aspirational goal is continued reduction in soil erosion on all U.S. cropland.[18] The Compliance Criteria for the **Soil Health & Productivity** Impact Category align with those aspirational goals.

91% of U.S. Soy travels to export position by barge or rail.[118]

The 2017 Census of Agriculture reported that of the 282 million acres of U.S. cropland and harvested cropland for which tillage system data was reported, 37% were managed with no-till (up from 35% in 2012), 35% were managed with reduced till, excluding no-till (up from 27% in 2012), and 28% were managed with intensive till (down from 38% in 2012).[119] Some form of conservation tillage (no-till, strip-till, or mulch-till) was used on about 70% of soybean acres in 2012, with about 56% of that being no-till.[120]

IMPACT CATEGORY COMPLIANCE CRITERIA

2.1.1 Producers will utilize best management practices to maintain or improve soil quality and soil carbon and avoid erosion.

2.1.1.1 Producers will adopt conservation practices like crop rotation, cover crops, nutrient management, and no-till to improve soil health.

2.1.1.2 Producers will adopt conservation tillage methods, including no-till, as appropriate to increase soil health and organic matter, increase moisture retention, reduce soil compaction and soil erosion, and contribute to carbon sequestration.

2.1.1.3 Producers will implement best management practices like cover crops, terracing, strip cropping, contour farming, filter strips, conservation buffers, or other strategies to minimize soil erosion.

2.1.1.4 Producers will monitor and maintain or improve soil health.

2.1.1.4.1 The NRCS recommends soil testing every 3-5 years and more frequently if manure is applied or if attempting to make large nutrient or pH changes in the soil. Soil sampling is provided by most County Extension Offices and state university Cooperative Extension Services as a free or low-cost service. Soil sampling data is generally maintained by the agency.

2.1.1.4.2 Precision Farming techniques utilizing Global Positioning System (GPS) can help producers implement grid soil sampling.

2.1.1.5 Producers will comply with the USDA Highly Erodible Land Conservation program.[19]

NRCS employs over 10,000 people in conservation programs and compliance.

2.1.1.5.1 Highly erodible land is defined as soils that have an erodibility index of eight or more. The USDA will keep record of highly erodible land. Producers may obtain aerial imagery of their farms and a printout of their farm and tract records from the local USDA office administering their farm.

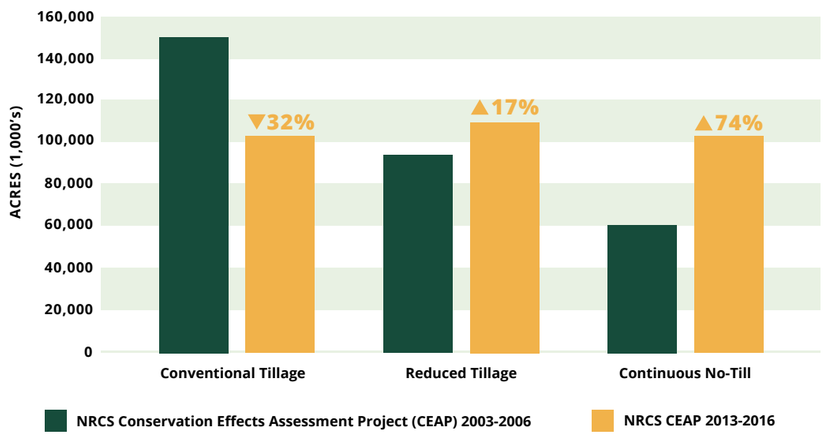
2.1.1.5.2 Producers will maintain compliance with highly erodible land regulations by creating and implementing a required conservation system plan.

2.1.1.5.3 Producers file Form AD-1026[20] with USDA Farm Service Agency certifying adherence to Highly Erodible Lands Conservation provisions. The submission of Form AD-1026 gives USDA authorization to enter and inspect all farms in which the producer has an interest.

2.1.1.5.4 Producers planning to make changes that could impact highly erodible land must notify USDA for appropriate technical determination.

2.1.1.6 Producers are in compliance with USDA Sodsaver provisions,[21] which help protect native sod.

COMPARISON OF TILLAGE PRACTICES FROM 2003-2006 TO 2013-2016



Cultivated cropland comprises land in row crops or close-grown crops and also other cultivated cropland, for example, hayland or pastureland that is in a rotation with row or close-grown crops. Noncultivated cropland includes permanent hayland and horticultural cropland. Source: United States Department of Agriculture, Natural Resources Conservation Services webinar. Structural Practices and Conservation Tillage on Cultivated Cropland: CEAP Conservation Practice Adoption Reports: 10 years of change. June 25, 2020.

2.1.1.7 Producers will follow all local regulations pertaining to burning crop residue and leaving crop residue in place to provide desirable agronomic advantages, including water storage and soil fertility.

8.4 million hectares are removed from production to protect the environment in the Conservation Reserve Program.[121]

2.1.1.8 Producers may utilize the Web Soil Survey (WSS),[22] which provides soil data and information produced by the National Cooperative Soil Survey. The WSS is operated by the USDA Natural Resources Conservation Service (NRCS) and provides access to the largest natural resource information system in the world. NRCS has soil maps and data available online for more than 95% of the Nation's counties and anticipates having 100% in the near future. The site is updated and maintained online as the single authoritative source of soil survey information.

2.1.1.9 Producers can access resources for soil carbon management and assessment like the NRCS *Soil Health* webpage and the USDA *Soil Health Across the Nation* webpage.[23]

2.1.1.10 The NRCS Rapid Carbon Assessment (RaCA)[24] provides statistically-reliable quantitative estimates of amounts and distribution of carbon stocks for U.S. soils under various land covers and to the extent possible, differing agricultural management. RaCA data also provide the following.

2.1.1.10.1 RaCA data can be used to support model simulations of soil carbon change related to land-use change, agricultural management, conservation practices, and climate change.

2.1.1.10.2 RaCA data provides a scientifically and statistically defensible inventory of soil carbon stocks for the U.S.

2.2 CROP HEALTH & AGRICULTURAL BEST MANAGEMENT PRACTICES

BENCHMARK AND ASPIRATIONAL GOALS

Crop health is closely tied to production and yield and affects land-use efficiency. The Field to Market Land Use aspirational goals include continued improvement of land use efficiency by increasing productivity.[25] The Compliance Criteria for the **Crop Health & Agricultural Best Management Practices** Impact Category aligns with the aspirational goal of improved land-zuse efficiency through increased productivity.

More than 18.2 million hectares of production land are enrolled in the Conservation Stewardship Program.[122]

The U.S. Government established conservation programs in the 1930s. In 1985, the Food Security Act greatly increased conservation efforts monitored by USDA.[123]

IMPACT CATEGORY COMPLIANCE CRITERIA

2.2.1 Producers use best management practices to protect and improve the quality of plant stocks and crops. Recommendations for Best Management Practices were developed by USDA to support coexistence across U.S. soybean production platforms.[26]

2.2.2. Soybean seed commerce complies with the Federal Seed Act[27] regarding fair trade and proper labeling.

2.2.2.1 The Federal Seed Act (FSA) protects producers against purchasing contaminated or defective seed and requires that they be informed of what they are buying and protects seed purchasers against any alteration of that seed. The FSA requires interstate shippers to keep and make available for inspection a complete record of each lot of seed shipped in interstate commerce. The complete record must include a file sample and records of receiving, variety, conditioning and blending, tests, labeling, sales, and shipping and disposition and must be kept for three years so seed may be traced from where it is officially sampled back to the grower, if necessary. Buyers of seed should keep the grower's declarations of kind, variety, or type. All records should include lot numbers to identify seed. It is a violation of the FSA for anyone to disseminate any false advertisement concerning seed. The FSA is supplemented by state seed laws which protect purchasers at the point of inspection and sale.[28]

2.2.3 Producers comply with Plant Protection Act[29] regulations regarding the use of biological control organisms and the import of plants and plant products.

2.2.4 Producers' crops will be grown under the Federal government's Coordinated Framework for Regulation of Biotechnology, which is a coordinated, risk-based system to ensure that new biotechnology products are safe for the environment and human and animal health.[30]

2.2.4.1 The USDA's Animal and Plant Health Inspection Service (APHIS)[31] is responsible for protecting agriculture from pests and diseases, including regulatory oversight over products of modern biotechnology that could pose such a risk. The APHIS Plant Protection and Quarantine (PPQ) program protects against the entry, establishment, and spread of economically and environmentally significant pests, and the Federally Recognized State Managed Phytosanitary (FRSMP) program provides consistency in actions against certain pests at point of entry and at interstate travel.

2.2.4.2 Through a registration process, the Environmental Protection Agency (EPA) regulates the sale, distribution and use of pesticides in order to protect health and the environment, regardless of how the pesticide was made or its mode of action. This includes regulation of those pesticides that are produced by an organism through techniques of modern biotechnology.

Land use decreased 40% per ton of U.S. soybean production since 1980.[124]

2.2.4.3 The Food and Drug Administration (FDA) is responsible for ensuring the safety and proper labeling of all plant-derived food and feed, including those developed through genetic engineering.

Energy use (BTUs per bushel) for U.S. soybean production has decreased 35% since 1980.[124]

2.2.5 The Plant Variety Protection Act (PPVA) provides intellectual property protection to breeders of varieties of seed propagated and asexually-reproduced plants. New varieties are certified through the USDA Agricultural Marketing Service Plant Variety Protection Office (PVPO), working with the International Union for the Protection of New Varieties of Plants (UPOV). It is a violation of the PPVA to claim that a variety is plant-variety protected when it is not.[32]

2.2.6 U.S. soybean farmers who participate in USDA programs including Agriculture Risk Coverage (ARC), Price Loss Coverage (PLC), marketing assistance loans, and loan deficiency payments are required to submit an annual Crop Acreage Report. Failure to report can result in fines and loss of program benefits. Farmers must report crop and crop type or variety, the intended use of the crop, number of acres of the crop, map with approximate boundaries for the crop, planting date(s), planting pattern when applicable, producer shares, irrigation practice(s), and acreage prevented from planting when applicable.[33] Producers must provide yield data[34] (known as the Actual Production History) for each crop year. This data is used to compute crop insurance premiums.

2.2.7 Land-grant university and county extension offices provide information and technical assistance for Best Management Practices (BMPs) to avoid disease spread in crops.

2.2.8 Producers will consider Precision Farming Techniques as appropriate utilizing Global Positioning System (GPS) and other advanced technologies for yield mapping.

2.2.9 The U.S. Internal Revenue Service (IRS) requires farmers to keep appropriate records of expenses, income, deductions, profits, and assets for tax purposes. U.S. law requires that taxes be filed annually and stresses the importance of record keeping for farmers. Resources for agriculturally-related income and self-employment tax information can

Greenhouse Gas Emissions (CO2-e per bushel) from U.S. soybean production decreased almost 38% between 1980 and 2015.[125]

be accessed at the IRS Farmer's Tax Guide (updated annually) and at ruraltax.org.[35]

2.2.10 The Federal Grain Inspection Service[36] **provides inspection services on grains, pulses, oilseeds, and processed and graded commodities. These services facilitate the efficient and effective marketing of U.S. grain and other commodities from farmers to domestic and international end users. Inspection for grade involves analyzing the sample according to the quality factors listed in the Official U.S. Standards for Grain and certifying the applicable numeric grade designation, the quality factors responsible for the grade assignment, and any other quality factors the customer requests.**[37]

2.3 WASTE & POLLUTION

BENCHMARK AND ASPIRATIONAL GOALS

In addition to plant protection and nutrients, agricultural operations utilize fossil fuels, oil, and degreasing agents for their equipment, and some management strategies incorporate the burning of crop residue. These potential pollutants should be properly recycled or disposed of to avoid adverse environmental or human impacts.

IMPACT CATEGORY COMPLIANCE CRITERIA

2.3.1 Producers will take measures to reduce and recycle waste and meet all local regulations as related to waste recycling.

2.3.2 Producers will follow all local regulations pertaining to burning crop residue.

2.3.3 Producers will comply with Clean Water Act Law 40 Parts 116–117, which regulates discharges of designated hazardous substances. Facilities must immediately notify the National Response Center and State Agencies of any unauthorized discharge of reportable quantity of a designated hazardous substance into navigable waters, the shorelines of navigable waters, and contiguous zones. Discharge of harmful quantities of oil must also be reported immediately.[38]

2.3.3.1 Watersheds with stream reaches with demonstrated water quality concerns are listed by each state government on the U.S. EPA Clean Water Act 303(d) list.

2.3.3.2 State governments may require monitoring under the Clean Water Act section 319 to ensure the implementation of best management practices and to determine how conservation measures affect water quality.

2.3.3.3 Producers will comply with National Pollutant Discharge Elimination System (NPDES) requirements on discharges of biological pesticides, and chemical pesticides that leave a residue into waters of the U.S.[39]

2.3.3.4 The use of sewage sludge in agriculture is regulated by the Clean Water Act, which establishes pollutant limits as well as monitoring, record keeping, and reporting requirements. Land-applied sewage sludge for agriculture must meet stringent requirements for pollutants, pathogens, and attractiveness to vectors like rodents, flies, or mosquitoes. The Clean Water Act defines sewer sludge as the residue generated during the treatment of domestic sewage in a treatment works. Land application of untreated sewage is not allowed for agriculture.[40]

The NRCS operates easement programs to provide financial and technical assistance to conserve agricultural lands and wetlands. The wetland easement programs restore cropland to its previous natural wetland condition in either 30-year or permanent easements. To date, some 1.8 million hectares of cropland have been enrolled in the program and restored to wetlands.[126]

2.3.4 The Oil Spill Prevention, Control, and Countermeasures (SPCC) Program of the Water Resources Reform and Development Act (WRRDA) regulates oil and oil product storage by farmers who store more than 2,500 U.S. gallons in aboveground containers and requires them to have an oil spill prevention plan (SPCC Plan).[41]

2.3.5 The Resource Conservation and Recovery Act (RCRA) requires that farmers storing more than 25 gallons of used oil in underground or aboveground tanks must ensure that tanks meet EPA underground or aboveground technical requirements.[42]

2.3.6 Underground storage tanks (USTs) with a capacity of more than 1,100 gallons of motor fuel are regulated by state and federal regulations that specify design, construction, installation, notification, monitoring, operating, release detection, reporting to regulatory agencies, owner record keeping, corrective action, closure and financial responsibility.[43]

2.4 GREENHOUSE GAS EMISSIONS, FOSSIL FUEL USE, & AIR QUALITY

BENCHMARK & ASPIRATIONAL GOALS

The Field to Market Greenhouse Gas Emissions Indicator and Energy Use Indicator for U.S. Soy (grown for grain and grown for silage) have been relatively steady over the last five years after general improved environmental performance trends when comparing 2015 data to 1980 data. Field to Market lists among its aspirational goals for U.S. crop production is continuing improvement in energy use efficiency and reduction in greenhouse gas (GHG) emissions.[44] The Compliance Criteria for the **Greenhouse Gas Emissions, Fossil Fuel Use, & Air Quality** Impact Category are aimed at helping U.S. Soy producers improve their energy use efficiency and reduce their GHG emissions.

For more than 100 years, the amount of forested land in the United States has stayed relatively constant and is currently at 309 million hectares.[127]

IMPACT CATEGORY COMPLIANCE CRITERIA

2.4.1 Producers will adopt best management practices to reduce Greenhouse Gas Emissions.

2.4.1.1 Producers will reduce energy usage by adopting conservation tillage methods as appropriate.

2.4.1.2 Producers will monitor and reduce fossil fuel use for management records and to increase enterprise viability.

2.4.1.2.1 The NRCS maintains four energy tools to increase awareness and help farmers identify energy reduction potential in their operations. The estimators can be used to estimate potential energy savings for irrigation, nitrogen fertilizer use, grain drying, and tillage systems.[45] The NRCS also maintains energy conservation tools to help farmers estimate current energy usage and calculate energy and cost savings that could be achieved through the use of high-efficiency equipment and energy conserving practices, and renewable energy tools to help farmers estimate energy production potential from solar panels, wind turbines, and biogas.[46]

2.4.1.3 Producers will utilize renewable energy resources like biofuels, biogas, wind, and solar power when possible to reduce fossil fuel use.

2.4.1.4 Producers and grain handlers should utilize transportation methods such as barge and rail when possible to reduce greenhouse gas emissions and fossil fuel use.

2.4.2 Producers comply with the Clean Air Act and its amendments to protect and enhance air resources to promote public health and welfare.[47]

2.4.3 Producers will adopt conservation tillage methods as appropriate in order to reduce energy use.

2.4.4 Producers will consider Precision Farming Techniques as appropriate utilizing Global Positioning System (GPS) and other advanced technologies to optimize fossil fuel use and fertilizer application.

2.4.5 U.S. soybean farmers will maintain equipment and machinery to ensure safety and proper, efficient functionality. Equipment loans and equipment lease or rental agreements require that machinery be maintained to proper working order.

DIRECTIVE 3

PUBLIC & LABOR HEALTH & WELFARE CONTROL MEASURES & REGULATIONS

The United Nations Sustainable Development Goals

3.1 WATER QUALITY & QUANTITY

Precision farming using GPS technology allows producers to precisely apply field inputs within millimeters.[128]

BENCHMARK AND ASPIRATIONAL GOALS

Water quality and quantity are impacted by complex environmental and land and water management practices, so numerical goals should be set on a regional basis. The Field to Market water quality and quantity aspirational goals are continued improvement in irrigation water use efficiency and conservation; and continued reductions in sediment, nutrients, and plant protection loads from agriculture in U.S. waterways.[48] The Compliance Criteria for the **Water Quality & Quantity** Impact Category align with those aspirational goals.

IMPACT CATEGORY COMPLIANCE CRITERIA

3.1.1 Producers will protect the quality and supply of surface and ground-water by utilizing best management practices and following local, state, and federal regulations.

3.1.1.1 Producers will optimize irrigation and comply with all applicable water conservation efforts in their irrigation districts to ensure effective and equitable allocation of water resources.

3.1.1.2 Producers will adopt conservation tillage methods as appropriate to reduce water runoff.

3.1.1.3 Producers will use cover crops, terracing, strip cropping, contour farming, filter strips, conservation buffers, or other strategies to minimize erosion and runoff.

3.1.1.4 Producers will comply with Clean Water Act Law 40 Parts 116–117 which regulate discharges of designated hazardous substances. Facilities must immediately notify the National Response Center and State Agencies of any unauthorized discharge of reportable quantity of designated hazardous substance into navigable waters, the shorelines of navigable waters and contiguous zones. Discharge of harmful quantities of oil must also be reported immediately.[49]

3.1.1.4.1 Watersheds with stream reaches with demonstrated water quality concerns are listed by each state government on the U.S. EPA Clean Water Act 303(d) list.

3.1.1.4.2 State governments may require monitoring under Clean Water Act section 319 to ensure the implementation of best management practices and to determine how conservation measures affect water quality.

3.1.1.4.3 Producers will comply with National Pollutant Discharge Elimination System (NPDES) requirements on discharges of biological pesticides and chemical pesticides that leave a residue into waters of the U.S.[50]

3.1.2 Producers comply with Section 404 of the Clean Water Act regarding agricultural impacts on wetlands.[51]

3.1.3 Producers comply with the Safe Drinking Water Act to protect public health by preventing contamination of surface and ground sources of drinking water.[52]

3.1.4 Producers in coastal areas comply with Coastal Zone Act Reauthorization Amendments (CZARA) Sections 6217 specifying management measures for agriculture sources for states to incorporate into their Coastal Nonpoint Pollution Control Programs. State authorities ensure the implementation of these measures. Recommended measures include preserving natural vegetation and avoiding development within sensitive habitats and erosion-prone areas.[53]

3.1.5 The U.S. Geological Survey (USGS) conducts water quality testing at 1.9 million sites throughout the United States.[54] USGS investigates the occurrence, quantity, quality, distribution, and movement of surface and underground waters and disseminates the data to the public, state and local governments, public and private utilities, and other federal agencies involved with managing our water resources.

3.1.6 Additional support to producers on water use and quality is available at the National Water Management Center (NWMC), which focuses on six key areas: environmental compliance, groundwater, hydrology and hydraulics, irrigation water management, water quality, and watershed planning and rehabilitation. The NWMC team provides direct assistance, support, and training to state and local National Resources Conservation Service offices.[55]

3.2 PLANT PROTECTION & NUTRIENT MANAGEMENT

BENCHMARK AND ASPIRATIONAL GOALS

Plant protections and nutrients can be transported from fields to surface water and groundwater, where they can create environmental impacts like the eutrophication of waterbodies and chemical toxicity to aquatic insects and fishes, as well as human impacts like high nitrate levels in drinking water. The Field to Market water quality

aspirational goals are continued reductions in sediment, nutrients, and plant protection loads from agriculture in U.S. waterways.[56] The Compliance Criteria for the **Plant Protection & Nutrient Management** Impact Category align with those aspirational goals. These Compliance Criteria also contribute to improved worker safety, reducing the potential for workplace injuries and fatalities from chemical handling.

IMPACT CATEGORY COMPLIANCE CRITERIA

3.2.1 Producers will adopt conservation tillage methods and other practices like crop rotation, cover crops, and nutrient management as appropriate to reduce nutrient and pesticide/herbicide loss and runoff.

3.2.1.1 All soybean-producing states have regulations regarding Nutrient Management Plans (NMPs) to mandate the development of written plans that manage the quantity, source, placement, and timing of fertilizers and soil amendments.[57]

3.2.1.2 Producers minimize the use of chemical crop protection products as a cost-savings strategy.

3.2.2 Producers will consider Precision Farming Techniques as appropriate utilizing Global Positioning System (GPS) and other advanced technologies like the following. Precision Farming techniques like site-specific crop management (SSM) use precise global positioning and location-specific measurements to adjust treatments to the exact needs of the crop and targeted application of pesticides.

3.2.2.1 Variable rate fertilizer and herbicide application.

3.2.2.2 Field mapping for targeted herbicide, pesticide, and fertilizer application.

3.2.3 Producers follow the U.S. Environmental Protection Agency (EPA) Worker Protection Standard (WPS) for Agriculture Pesticides[58] meeting regulations for: pesticide safety training, notification of pesticide application, use of personal protective equipment (PPE), restricted-entry intervals after pesticide application, decontamination supplies, and emergency medical assistance.

3.2.3.1 The WPS requires that employers maintain and provide access to Safety Data Sheets (SDS) and safety and emergency information for pesticides applied on the establishment.

3.2.4 Producers follow Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA),[59] maintaining compliance with agricultural chemical handling, storage, and application regulations. FIFRA regulates the distribution, sale, and use of pesticides.

3.2.4.1 All pesticides are registered with the U.S. Environmental Protection Agency (EPA) with proper labels and used in accordance with specifications including how, and under what conditions, chemicals can be applied. Pesticides must be shown to "not generally cause unreasonable adverse effects on the environment" before they can be registered. FIFRA defines the term "unreasonable adverse effects on the environment" to mean: "(1) any unreasonable risk to man or the environment, taking into account the economic, social, and environmental costs and benefits of the use of any pesticide, or (2) a human dietary risk from residues that result from a use of a pesticide in or on any food inconsistent with the standard under section 408 of the Federal Food, Drug, and Cosmetic Act."[60]

3.2.4.2 Certification and training are required for pesticide applicators using restricted-use pesticides. EPA establishes general categories of certified applicators for private and commercial applicators.

3.2.4.3 Producers adhere to EPA regulations concerning the rotation of chemical active ingredients.

3.2.4.4 Pesticides are classified for general or restricted use. Restricted category pesticides may be used only under the direct supervision of certified applicators or under such other regulatory restrictions as the EPA administrator may require.

3.2.4.5 U.S. regulations provide penalties for violations of FIFRA regulations and violation of these instructions is equivalent to violating the law; consequences can include criminal prosecution, civil remedies for damages, and loss of license.

3.2.4.6 FIFRA provides states the authority to regulate the sale or use of any federally registered pesticides in that state.

3.2.4.7 Producers adhere to all federal regulations and guidelines for farm chemical application and producers observe best management practices. Additionally, producers who apply World Health Organization (WHO) Class Ia, Ib, and II pesticides shall not apply them within 500 meters of populated areas or waterbodies.

The USDA has an Integrated Pest Management (IPM) initiative, led by the National Institute of Food and Agriculture (NIFA), partnered with the U.S. Land-Grant University System and the private sector. There are extension IPM implementation education and pesticide applicator safety programs in all 50 states and six territories. The USDA maintains an IPM Program website that provides IPM information and resources. NIFA maintains websites for the USDA Regional IPM Centers, which provide regional IPM information, technology advice, crop and pest data, crop profiles, and pesticide data and links to monthly newsletters and other information sources. The Natural Resources Conservation Service provides a conservation standard that is accessible online or at local Service Centers. NRCS also provides technical and financial assistance to producers to adopt IPM. The USEPA also maintains a website that provides IPM information and resources.[129]

3.2.5 The U.S. is a signatory to the Rotterdam Convention of the Prior Informed Consent (PIC) Procedure for Certain Hazardous Chemicals and Pesticide in International Trade, enforcing a banned list of chemicals for producer use.

3.2.6 Producers comply with the Toxic Substances Control Act[61] to regulate chemicals that pose an unreasonable risk to health or to the environment and to regulate these chemicals' distribution and use.

3.2.7 Producers follow the Resource Conservation and Recovery Act (RCRA), which controls hazardous waste, nonhazardous solid waste, and underground storage tanks.[62] RCRA requires hazardous waste to be managed in compliance with technical standards for containers, tanks, drip pads, and containment buildings, and regulates accumulation quantity and time limits. RCRA also requires personnel training, contingency planning for emergency procedures, preparedness and prevention procedures, land disposal restrictions, manifest tracking, waste minimization, and record keeping for the categories of small- and large-quantity hazardous waste generators.[63]

3.2.8 Producers follow Safe Drinking Water Act regulations to protect public health by preventing contamination of surface and ground sources of drinking water.[64]

3.2.9 The USDA has an Integrated Pest Management (IPM) initiative, led by the National Institute of Food and Agriculture (NIFA), partnered with the U.S. Land-Grant University System and the private sector. The USDA's Natural Resources Conservation Service (NRCS) provides technical and financial assistance to producers to adopt IPM.[65]

3.2.10 The Emergency Planning and Community Right-to-Know Act (EPCRA) requires planning for spills and has Threshold Planning Quantity (TPQ) standards for hazardous chemicals and many common pesticides. Anyone storing more than the TPQ must file an EPCRA report to provide state and local officials and the public with information regarding potential hazards.[66] EPA regulates the storage of pesticides in small portable containers through specific storage instructions on pesticide labels.

3.2.11 EPA's pesticide containment regulations[67] establish standards for pesticide containers, containment structures, and repackaging regulations, including standards for label instructions to ensure the safe use, reuse, disposal, and adequate cleaning of the containers.

3.2.12 The Pesticide Environmental Stewardship (PES)[68] website provides access to pesticide handling information and educational materials.

3.3 WORKING CONDITIONS & LABOR RELATIONS

BENCHMARK AND ASPIRATIONAL GOALS

The social and economic stability and well-being of agricultural communities are critical to agricultural sustainability. Field to Market has developed five socioeconomic national-scale indicators that include Labor Productivity (calculated using USDA Economic Research Service Commodities Cost and Returns data derived labor hours).[69] The Compliance Criteria for the **Working Conditions & Labor Relations** Impact Category contribute to improved worker economic and hiring protections and improved labor productivity. U.S. soybean growers comply with applicable local, state, and federal regulations to protect the health and welfare of their farmworkers.

IMPACT CATEGORY COMPLIANCE CRITERIA

3.3.1 Producers follow the Fair Labor Standards Act,[70] which prescribes standards for basic minimum wage and prohibits the employment of children under age 16 during school hours and in certain jobs deemed dangerous.

3.3.1.1 Agricultural employers are exempt from the maximum hours' provisions of the Fair Labor Standards Act (FLSA). However, the Act requires employers to pay covered employees not less than one- and one-half times their regular rate of pay for hours worked in excess of 40 in a workweek unless the employee is otherwise exempt.

3.3.1.2 The Fair Labor Standards Act (FLSA) establishes minimum wage. Employers are required to keep accurate time and payroll records for each employee for three years and provide a pay statement to each employee each pay period. Migrant and seasonal agricultural workers are protected by the Migrant and Seasonal Worker Protection Act (MSPA), which sets standards related to wages, housing, transportation, disclosures, and record keeping. Employers are required to pay employees no less often than every two weeks or semi-monthly.

3.3.1.3 The Fair Labor Standards Act (FLSA) youth employment provisions for agriculture limit the types of jobs that workers under 16 years of age can do and the periods of time they may work. Young workers aged 14 and 15 may work outside of school hours in any nonhazardous agricultural occupation. States also have their own youth employment provisions, and the more protective standard (state or federal) often applies.[71]

3.3.2 Producers are in compliance with Federal Equal Employment Opportunity Law,[72] which provides the following protections:

- **3.3.2.1** Prohibits employment discrimination based on race, color, religion, sex, or national origin.
- **3.3.2.2** Protects men and women who perform substantially equal work in the same establishment from sex-based wage discrimination.
- **3.3.2.3** Protects individuals who are 40 years of age or older.
- **3.3.2.4** Prohibits employment discrimination against qualified individuals with disabilities.
- **3.3.2.5** Prohibits employment discrimination based on genetic information.
- **3.3.2.6** Provides guidelines on employee selection procedures.
- **3.3.2.7** Protection against religious discrimination includes reasonably accommodating religious practices.

3.3.3 Producers are in compliance with the Migrant and Seasonal Agricultural Worker Protection Act,[73] which provides safeguards to migrant and seasonal agricultural workers. Farm labor contractors are required to register with the U.S. Department of Labor (DOL). The MSPA gives workers the right to file a complaint with the Wage and Hour Division, file a private lawsuit, and testify or cooperate with an investigation or lawsuit without being threatened, discharged, or discriminated against in any manner.

3.3.4 Producers are in compliance with the Abolition of Forced Labor Act[74] in that they shall not make use of any type of forced or compulsory labor, including:

- **3.3.4.1** As a means of political coercion or education or as a punishment for holding or expressing political views or views opposed to the established political, social, or economic system.
- **3.3.4.2** As a method of mobilizing and using labor for purposes of economic development.
- **3.3.4.3** As a means of labor discipline.
- **3.3.4.4** As a punishment for having participated in strikes.
- **3.3.4.5** As a means of racial, social, national, or religious discrimination.

3.3.5 Producers are in compliance with the Victims of Trafficking and Violence Protection Act,[75] providing protection and assistance for victims of trafficking regardless of immigration status.

3.3.6 Producers will recognize the Right of Association for workers, including the right to unionize or engage in collective bargaining in accordance with applicable federal and state laws.[76]

3.3.7 Producers actively support ongoing efforts to seek, recruit, and promote women in leadership positions at all levels of the industry—farm, business, community, and state and national organizations. Numerous women hold leadership positions in these organizations and often serve as public speakers on behalf of the industry.

3.3.8 U.S. federal laws protect all private and public employees in the United States from sexual harassment. Victims of sexual harassment can sue for damages per a 1991 amendment to Title VII of the Civil Rights Act. Victims of sexual harassment in the workplace can file a complaint with the Equal Employment Opportunity Commission (EEOC) or their state or local Fair Employment Practices Agency (FEPA), file a private lawsuit against harassers, or file a tort suit for personal injury damages perpetrated by harassers.

3.3.9 U.S. federal labor law requires that every agricultural employee receive information about the working terms and conditions of their job. Written contracts must be given to all workers who do not live permanently in the area and to permanent workers who ask for a written contract. Contracts must be in writing, in a language the employee understands, and must include work location, type, time period, wage and piece rates, benefits, costs, and any other working terms or conditions.[77]

3.3.10 The Affordable Care Act (ACA) requires businesses with more than 50 employees to provide health insurance coverage to full-time employees working 30 or more hours per week. Under the ACA, workers are required to have health insurance or face a tax penalty unless they qualify for an exemption. Exemptions include economic hardship, income, coverage affordability, religious conscience, incarceration, and undocumented status. Migrant seasonal workers and all lawfully present immigrants can purchase coverage in a public health insurance exchange (PHIE).

3.4 WORKER & PUBLIC SAFETY

BENCHMARK AND ASPIRATIONAL GOALS

The social and economic stability and well-being of agricultural communities are critical to agricultural sustainability. Field to Market has developed five socioeconomic national-scale indicators that include Worker Safety (measured by U.S. Bureau of Labor Statistics worker illness and injury, and fatalities).[78] Agricultural communities can also be affected and potentially harmed by improper management of agricultural activities. The Compliance Criteria for the **Worker & Public Safety** Impact Category contribute to improved worker safety and well-being, and improved public safety and well-being. U.S. soybean growers comply with applicable local, state, and federal regulations to protect the health and welfare of their farmworkers and the public.

IMPACT CATEGORY COMPLIANCE CRITERIA

3.4.1 Producers comply with the U.S. Environmental Protection Agency (EPA) Worker Protection Standard for Agriculture Pesticides[79] meeting regulations for pesticide safety training, notification of pesticide application, use of personal protective equipment, restricted-entry intervals after pesticide application, decontamination supplies, and emergency medical assistance.

3.4.1.1 An application exclusion zone of 100 feet horizontally from application equipment is required whether the pesticide is applied by air blast application, as a spray or fumigant, mist, or fog. Applicators must suspend application if they are aware of any person in the application exclusion zone per regulation in Worker Protection Standard by Environmental Protection Agency.

3.4.1.2 Pesticide handlers and agricultural workers are covered by the WPS, which offers occupational protections and training. WPS requirements include keeping workers and others out of fields and exclusion zones during application and implementing restricted-entry intervals (REIs), providing access to labeling information, providing personal protective equipment, and notifying workers through oral warnings or warning signs. Clean Water Act (CWA) permits are required for anyone who sprays pesticides on or near water. If pesticide applicators do not follow label restrictions, they may be subject to enforcement by states or the EPA.[80]

3.4.2 Producers comply with Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA)[81] maintaining compliance with agricultural chemical handling, storage, and application regulations.

3.4.3 Producers comply with Occupational Health and Safety Act (OSHA)[82] to ensure safe and healthful working conditions, including workplace violence guidelines. OSHA provides the following protections:

Over the past decade, nearly 10 million hectares have adopted IPM, of which 2.4 million (34%) came in the last three years. Sustainable Agriculture Research and Education (SARE) provides national and regional education and outreach and online resources on many sustainable agriculture topics, including IPM. The USEPA also maintains a website that provides IPM information and resources.[130]

3.4.3.1 OSHA specifies that employers should provide training about hazards, methods to prevent harm, and the OSHA standards that apply to the workplace to their employees in a language the employees understand. Employees can be terminated for noncompliance with safety regulations and employers are at risk when employees do not follow OSHA regulations.

3.4.3.2 U.S. federal laws entitle workers to a safe workplace free of health and safety hazards. Employees have the right to report hazards without fear of retaliation. They also have the right to request an Occupational Safety and Health Administration (OSHA) inspection and can speak to the inspector.

3.4.3.3 Under the Occupational Safety and Health Act (OSHA), employers must provide a safe and healthy work environment. OSHA mandates that employees receive required safety equipment, be protected from toxic chemicals, and work on machines that are safe. If employees believe working conditions are unsafe or unhealthful, they should bring them to the employer's attention. They may file a complaint with OSHA at any time. If the employer is informed of unsafe conditions but does not correct them, and a worker, with no reasonable alternative, refuses in good faith to expose themselves to a dangerous condition, the worker will be protected from subsequent retaliation.[83]

3.4.3.4 OSHA's temporary labor camp standard applies to job-related housing provided by the employer on a temporary basis for workers not at a permanent location. This standard applies to employers who provide housing to migrant agricultural workers. The site and housing must be safe and sanitary. Shelters must protect against the elements and must meet minimum requirements of a bed for each person, hot and cold running water, and windows must be operable for ventilation. In camps where common cooking facilities are used, stoves must be provided in an enclosed and screened shelter at a rate of one stove per ten persons or two families, and sanitary facilities shall be provided for storing and preparing food. In a room where workers cook, live, and sleep, a minimum of 100 square feet per person shall be provided as well as sanitary

facilities for storing and preparing food. The standard specifies the number and cleanliness of toilet facilities, laundry, handwashing, and bathing facilities, and specifies requirements for lighting, refuse disposal, insect and rodent control, and first aid facilities. Any charges for housing must be reasonable and disclosed in the work contract.[84]

3.4.3.5 Employers are required to provide drinking water to employees in the field for the entire work shift.

3.4.4 Producers follow federal and state regulations prohibiting assault and battery.

3.4.5 Producers comply with the Clean Air Act and its amendments to protect and enhance air resources to promote public health and welfare.[85]

3.4.6 Producers comply with the Resource Conservation and Recovery Act, which controls hazardous waste, nonhazardous solid waste, and underground storage tanks.[86]

3.4.7 Producers comply with the Safe Drinking Water Act to protect public health by preventing contamination of surface and ground sources of drinking water.[87]

3.5 COMMUNITY RELATIONS

BENCHMARK AND ASPIRATIONAL GOALS

The Community Relations Impact Category Compliance Criteria are aimed at promoting and maintaining good relationships between soybean producers and the communities with which they interact.

IMPACT CATEGORY COMPLIANCE CRITERIA

3.5.1 Producers shall have documentation of land ownership, leases, or other legal agreements to utilize land for the purpose of soybean production.

3.5.1.1 The Federal Land Policy Management Act protects public lands from exploitation without authorization or rental agreement.[88]

3.5.1.2 Land use contracts are governed by state statutory and U.S. common law. The U.S. court system is the mechanism for mediating land use disputes.

3.5.2 Producers have access to information about farmland protection and stewardship through the USDA Natural Resources Conservation Service (NRCS) and American Farmland Trust Farmland Information Center,[89] which provides statistics, laws, organization links, literature, and technical tools, as well as state-specific resources. Additionally, the USDA NRCS provides funds to help purchase development rights to keep productive farmland in agricultural use through the Farm and Ranch Lands Protection Program (FRPP).[90] The American Farmland Trust[91] establishes programs and policies for protecting agricultural land through conservation easement programs, planned growth with agriculture in mind, and stewardship and conservation practices.

3.5.3 Producers shall engage with local communities to ensure that communications of concerns, complaints, or other grievances between community members and producers are understood and addressed in a collaborative manner.

3.5.3.1 The Emergency Planning and Community Right-to-Know Act (EPCRA) supports community awareness and response to hazardous substances used in society.[92]

3.5.3.2 The USDA cooperative extension system office is a nationwide educational network that provides research-based information regarding standard agricultural practices.

3.5.3.3 The Environmental Protection Agency Water Data Tool *How's My Waterway*[93] provides information about potential watershed contamination.

3.5.3.4 Producers support the development of local resource planning groups composed of agricultural landowners and producers to address local conservation and environmental issues.

3.5.4 Producers support, via tax dollars, free public education for all children grades K-12.

3.5.5 Producers support agricultural-related education programs through the USDA cooperative extension system, a nationwide educational network that provides research-based information regarding agricultural practices.

3.5.6 At the local level, producers support the 4-H youth education program, whose mission is to give all youth equal access to opportunity. 4-H provides kids with community, mentors, and learning opportunities

Currently, over 1.8 million hectares are protected by easements held and enforced by the U.S. Government.[131]

to develop the skills they need to create positive change in their lives and communities, including focus STEM programs (Science, Technology, Engineering and Math), Healthy Living, and Civic Engagement. 4-H membership now exceeds 6 million with about 50,000 volunteers.[94]

3.5.7 Producers support the National FFA (Future Farmers of America) Organization (FFA). FFA is the premier youth organization preparing members for leadership and careers in the science, business, and technology of agriculture. Currently, there are over 700,000 members in 8,500 local chapters in all 50 states and Puerto Rico.[95]

The Environmental Quality Incentives Program (EQIP) provides funding to farmers to adopt conservation practices like nutrient management, conservation tillage, cover crops, and field-edge filter strips. From 2009 through 2020, more than $17.4 billion U.S. dollars have been spent in EQIP to design and implement conservation practices nationwide on over 56.2 million hectares.[132]

3.5.8 The USDA Foreign Agriculture Service (FAS)[96] administers programs that help developing countries advance their agricultural systems and trade capacity. In partnership with the U.S. Agency for International Development, FAS administers U.S. food aid programs and education programs designed to reduce hunger and improve literacy, especially for girls. Programs include the Food for Progress Program, Local and Regional Food Aid Procurement Program, McGovern-Dole Food for Education Program, and the Bill Emerson Humanitarian Trust.

3.5.9 The USDA Food and Nutrition Service administers 15 federal nutrition assistance programs to reduce hunger in the U.S. by providing food and healthful diet and nutrition education to children and low-income people. Programs include the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC), Supplemental Nutrition Assistance Program, school meals, and summer food service.

3.5.10 Producers support continued U.S. membership in the World Trade Organization (WTO) and support the authority of the WTO to arbitrate trade disputes and implement enforcement actions.

3.5.11 Federal law prohibits bribery and fraudulent practices and restricts conflicts of business interest.

DIRECTIVE 4

CONTINUOUS IMPROVEMENT OF PRACTICES AND ENVIRONMENTAL PROTECTION CONTROL MEASURES AND REGULATIONS

The United Nations Sustainable Development Goals

4.1 CONTINUOUS IMPROVEMENT

BENCHMARK AND ASPIRATIONAL GOALS

Continued improvement will require technological improvements and innovations. U.S. soybean producers can improve sustainability by continuing to adopt current best management practices and by adopting and supporting the development of new methods and technologies.

Conservation Reserve Program – To protect the most sensitive areas by providing financial assistance to set aside on a long-term basis cropland vulnerable to soil erosion or critical to wildlife habitat (8.4 million hectares enrolled as of 2019).[133]

IMPACT CATEGORY COMPLIANCE CRITERIA

4.1.1 Producers will utilize best management practices as appropriate to optimize yield, water use, agrochemical use, soil health, and water quality and to improve wildlife habitat.

4.1.1.1 NRCS will monitor conservation practice outcomes and maintain several programs to incentivize improvements in soil erosion, soil health, carbon sequestration, wildlife habitat, wetland restoration, nutrient efficiency, water quality, irrigation efficiency, groundwater protection, and reforestation.[97]

To date, more than 2,000 partners are working to implement conservation practices at a local level through the Regional Conservation Partnership Program.[134]

4.1.2 Producers continue to adopt and support the development of innovations that improve crop production.

4.1.2.1 Genetics and Biotechnology: Advances have allowed producers to reduce tillage, pesticide usage, fuel consumption, and GHG emissions while maintaining or improving yields.

4.1.2.2 Equipment: Innovations like improved no-till drills, draper heads for combining soybeans, air seeders, and Y Drops for applying fertilizer in-season have improved efficiency by increasing the speed and accuracy of planting and harvesting.

4.1.2.3 Technology and Data: Precision agriculture technology, Global Positioning System (GPS), yield monitors, and other technological improvements have improved management data and helped producers optimize costs and yields.

4.1.2.4 Weather Forecasting: More accurate weather forecasting and technological improvements provide access to forecast data in the field or remotely enables producers to improve decision-making, reduce risk, and more accurately provide what their crops need.

4.1.2.5 Expansion of grain uses: More value-added products expand the domestic and international marketing opportunities for producers.

4.1.3 Producers continue to adopt and support the development of innovations that improve crop management.

Conservation Stewardship Program – Rewards producers for overall conservation performance across entire operations.[135]

4.1.3.1 Cloud computing allows increased data storage, management, and remote access to improve crop management decisions.

4.1.3.2 Scalable sustainability software allows producers to model and compare different management options for their fields.

4.1.3.3 Robotics systems can assist with labor management, post-harvest processing, supply chain logistics, and equipment operation.

From 2009 to 2020, about 11.8 billion U.S. dollars have been spent on the Conservation Stewardship Program, which in 2021 has over 18.2 million hectares enrolled in stewardship contracts.[136]

4.1.3.4 Satellite imagery allows producers to remotely monitor crops and make management decisions in near real-time.

4.1.3.5 Improvements in Hyperspectral Imaging Spectroscopy (HIS) and the development of a Global Hyperspectral Imaging Spectral-library of Agricultural-Crops (GHISA)[98] will improve modeling, mapping, and monitoring of agricultural crops globally.

4.1.3.6 Smart drainage systems, infield sensors, subsurface irrigation, and on-farm irrigation storage and reuse allow for improved water management and irrigation.

4.1.4 Producers continue to adopt and support the development of innovations that improve the sustainable production of soybeans.

4.1.4.1 Clean energy technologies, energy storage, energy efficiency, and carbon dioxide capture measures should be adopted as possible to reduce energy use and GHG emissions.

4.1.5 Continuous improvement is supported by a variety of regulated conservation programs and technology transfer systems, available to any group or individual interested in conserving natural resources and sustaining agricultural production in the U.S., regardless of size.[99] Available programs include:

4.1.5.1 The Conservation Reserve Program (CRP) protects the most sensitive areas by providing financial assistance to set aside on a long-term basis for cropland vulnerable to soil erosion or critical to wildlife habitat (8.4 million hectares enrolled as of 2019)[100]

4.1.5.2 The Conservation Stewardship Program (CSP) rewards producers for overall conservation performance across entire operations by funding further on-farm improvements through the adoption of new conservation practices.

The Environmental Quality Incentive Program provides financial and technical assistance to increase the environmental quality of farmland still in production (19.7 million hectares enrolled in 2017, 2018, 2019, 2020).[137]

4.1.5.3 The Environmental Quality Incentive Program (EQIP) provides financial and technical assistance to increase the environmental quality of farmland still in production.

4.1.5.4 The Regional Conservation Partnership Program (RCPP) provides financial and technical assistance for locally-identified projects funded by both federal and partnering entities to solve issues at the regional and watershed level by encouraging land retirement, easements, partial-field practices, and conservation practices on working farmland.

4.1.5.5 The Conservation Effects Assessment Project quantifies the environmental effects of conservation practices and programs on the environment and develops the science base for managing the agricultural landscape for environmental quality.[101] Project findings are used to guide USDA conservation policy and program development and to help conservationists, farmers, and ranchers make more informed conservation decisions.

4.1.5.6 Landscape initiatives are used to accelerate the benefits of voluntary conservation programs, such as cleaner water and air, healthier soil, and enhanced wildlife habitat. Currently, NRCS operations 10 Landscape Initiatives across the U.S. for wildlife, water, ecosystems, pollinators, and forestry.[102]

4.1.5.7 Producers apply technology transfer of Best Management Practices available in numerous informational mechanisms such as: Certified Crop Advisors, Discovery Farms, online crop rotation data for specific geographies and soil types, plot tours, experimental field and research field days, and Tactical Agriculture Programs.

4.1.5.8 Field Office Technical Guides customized for local soil and conditions are available to enable better production and conservation measures by producers.[103] There are also Wildlife Habitat Evaluation Guides for numerous local plants and animals.

4.1.6 Producers stay informed of relevant national and local laws and regulations. Primary information resources for law and regulations include local USDA Service Centers, university agriculture extension services, and national and state soybean checkoffs and associations, all of which communicate regularly through publications, websites, and mailings. These organizations provide updates of relevant federal and local laws to U.S. soybean farmers who are expected to respect and obey federal, state, and local laws.

4.1.7 The National Association of Conservation Districts represents the United States' 3,000 conservation districts and the 17,000 men and women who voluntarily serve on their boards. Conservation districts are local units of government established under state law to carry out natural resource management programs at the state level.[104]

Regional Conservation Partnership Program provides financial and technical assistance for locally identified projects funded by both federal and partnering entities (10 million hectares benefited through 375 local projects with over 3,000 partners at the end of 2019).[138]

4.1.8 USDA Climate Hubs support farmers, ranchers, and forest landowners to develop strategies to maintain the productivity and profitability necessary to stay on the land with assessments, demonstrations, drought resources, ecosystem services, and research data.[105]

AUDIT PROCEDURES

1. Over 90% of U.S. soybean producers participate in the U.S. Farm Program and are subject to audit. For the last four years, an average of 22,000[106] audits have occurred annually.

2. Annual Internal Audit is conducted by producers.

3. Third-party Independent Audits of producers are performed to ensure the accuracy of internal audits made by producers. Third-party audits are conducted annually by the U.S. Department of Agriculture's (USDA) Natural Resources Conservation Service with technical staff in over 2,500 offices across the United States.

ANNUAL INTERNAL AUDIT BY PRODUCERS

Each producer who receives USDA Farm Program benefits is required to conduct an annual internal audit of compliance. Using Form 1026, the producer must submit documentation of this audit to the USDA Farm Service Agency (FSA), which must review and approve the documentation prior to the producer's participation in USDA programs.

THIRD-PARTY INDEPENDENT AUDIT OF PRODUCERS

To ensure nationwide compliance, third-party audits are conducted annually. Third-party audits are conducted by the USDA Natural Resource Conservation Service (NRCS) with technical field agents in over 2,500 offices throughout the U.S.

On average, the USDA randomly selects 22,000 farm fields each year for an onsite compliance review, with the number selected being sufficient to accurately assess compliance at the national level. As further described below, additional reviews are carried out if USDA questions the compliance of any producer or if the USDA is notified through the USDA Office of Inspector General's (OIG's) hotline complaint system that a producer may be out of compliance.[107]

The list of onsite farm compliance reviews is broken down by state and county. Upon receipt of the compliance review list at the local level, the NRCS District Conservationist shall review and reconcile the list with the local FSA office. FSA employees based in each county maintain the list of producers selected in their county. Tract numbers are reviewed, and if necessary, updated by local offices to account for changes in ownership or farm organizational changes. USDA NRCS employees will visit each site to assess compliance and perform audits throughout the year.

Only the producers identified on the national selection list are required to be audited. However, USDA employees at the state and county levels may spot-check any producer not identified on the national selection list if there is reason to question the producer's compliance or if NRCS or FSA receives a hotline referral from the OIG.

Information provided by NRCS over the past five years shows the following compliance review data:[108]

- **2016: 21,716 Compliance Reviews –** 2.2% noncompliance
- **2017: 23,944 Compliance Reviews –** 2.0% noncompliance
- **2018: 23,891 Compliance Reviews –** 1.3% noncompliance
- **2019: 19,322 Compliance Reviews –** 1.4% noncompliance*
- **2020: 23,381 Compliance Reviews –** 1.5% noncompliance

The regulations specifying how to carry out audits are set forth in the NRCS document, the National Food Security Act Manual, and are subject to further review and oversight as deemed necessary from the OIG and the U.S. Government Accountability Office (GAO).

*2019 Reviews were reduced due to Federal disaster declarations in some states.

THIRD-PARTY INDEPENDENT AUDITORS PROCESS AND QUALIFICATIONS

A detailed description of the process and auditors is shown in the NRCS National Food Security Act Manual, Parts 510 through 520.[109] Parts 518 and 519 outlines how compliance reviews are conducted and quality assurance maintained.

Audits will be randomly selected from a national database of tracts as authorized by the USDA. Audits will be performed as determined by the State Conservationist who will conduct compliance reviews within each state, as set forth in the following paragraph:

1. Knowledge, skills, and abilities to assess the status of both House Education and Labor Committee and Workers' Compensation compliance: If there are currently no employees in a county with the requisite training and knowledge, skills, and abilities to perform Compliance Reviews, the Area Conservationist or STC shall assign another employee the responsibility for that specific county.
2. The State Conservationist or designee shall ensure Compliance Review procedures are consistent with Parts 518 and 519 and the Quality Control Manual.
3. The State Conservationist or designee shall assure actions taken pertaining to requests for variances are executed and completed within the specified time frame.
4. The State Conservationist or designee shall assure execution of policy is consistent and uniform within the state and among adjacent states.
5. The State Conservationist or designee shall assure corrective action is taken to address deficiencies found in quality reviews.
6. The State Conservationist or designee shall determine if additional reviews are required.
7. The State Conservationist or designee shall provide training and follow-up to correct deficiencies.
8. The State Conservationist or designee shall identify potential cases of fraud, waste, and abuse.

SGS conducted a review of the USDA-Natural Resource Conservation Service (NRCS) audit process, as described above, for the purpose of assessing compliance to ISO 17021-1:2015, specifically in regard to inspectors, their training, and the overview of the program. Based upon document reviews, including manuals, organizational charts, maps, and compliance processes during the audit, the auditors determined that NRCS met the equivalency requirements of eight primary standards of ISO 17021-1:2015.

INTERNATIONAL VERIFICATION

Soy Export Sustainability, LLC, (SES) will provide shipment-specific record keeping and documentation information for U.S. soybeans. To ensure proper accounting of mass balance of U.S. soybeans compliant with this Protocol up to the point where certificates are issued for batches of compliant soy at point of export, the Protocol requires the following:

1. SES, acting as the developer, owner, and operator of the Protocol, will annually determine the total amount of U.S. Soy that is in compliance with the Protocol, based on information provided by the authorized audit bodies.

   a. This determination will be based on a calculation of the total number of soybean-producing acres that the group has entered into the Protocol and the average yield per acre recorded by the group.

2. This information will be maintained via a record keeping system that resides on an internet-accessible database (the Database).

3. A unique certificate will be produced for each batch of U.S. Soy exported under this Protocol that is compliant and recorded in the Database.

4. Shippers using the Database will establish and maintain a firm-specific record that will provide the necessary information for a uniquely identified shipment-specific document to accompany individual U.S. Soy exports.

5. In order to receive the certificate of compliance with this Protocol, a Shipper or exporter desiring to transport certified soy must:

   a. Register as a user of the U.S. Soy Sustainability Assurance Protocol (SSAP).

   b. Establish a Shipper-specific and secure record on the Database.

   c. Document shipment-specific information on the Shipper-specific secure record. The record created and maintained by the Shipper will include, at a minimum, the volume and date of shipment of soy from the U.S. Additional information may be recorded by the Shipper.

   d. Agree to allow SES access to the volume and date of shipment of soy from the U.S.

6. Each shipment of soy certified by this Protocol will be accompanied by a uniquely identified (numbered) shipment-specific document containing selected information from the Shippers' record, and an SES attestation that the specific batch of soy follows a mass balance accounting method chain of custody from a volume of Protocol-compliant soy verified by the authorized audit body.

7. In no circumstance will a Shipper be issued a certificate if the batch in question did not follow a mass balance accounting method chain of custody from a volume of Protocol-compliant soy verified by the authorized audit body, or if the certificate would result in that soy shipment exceeding the volume of Protocol-compliant soy verified by the authorized audit body. This ensures that the volume of Protocol-compliant soy as claimed by SES-issued certificates never exceeds the total volume of Protocol-compliant soy entered into the system (recorded in point 1, above).

8. SES will use the volume and date of shipment of soy from the U.S. to manage and provide necessary reporting on the Protocol. Soy Export Sustainability, LLC, will also maintain the website and an alternative/backup system for document issuance and record keeping should the web-based system not be available.

For reference, the Database can be accessed at www.usses.org.

ADDITIONAL INFORMATION

The Natural Resources Conservation Service and the National Agricultural Statistics Service are key agencies at work to ensure responsible agriculture production in the United States.

NATURAL RESOURCES CONSERVATION SERVICE
http://www.nrcs.usda.gov/wps/portal/nrcs/site/national/home/

The mission of the Natural Resource Conservation Service (NRCS) is to provide national leadership in the conservation of soil, water, and related natural resources. The NRCS provides balanced technical assistance and cooperative conservation programs to landowners and land managers throughout the United States as part of the U.S. Department of Agriculture (USDA). USDA invests approximately $6 billion annually in agriculture conservation efforts, including staffing over 2,500 conservation offices employing 10,000 individuals in conservation and compliance.

NATIONAL AGRICULTURAL STATISTICS SERVICE
http://www.nass.usda.gov/index.asp

The National Agricultural Statistics Service (NASS) provides timely, accurate, and useful statistics in service to U.S. agriculture. The USDA's NASS conducts hundreds of surveys every year and prepares reports covering virtually every aspect of U.S. agriculture. Production and supplies of food and fiber, prices paid and received by farmers, farm labor and wages, farm finances, chemical use, and changes in the demographics of U.S. producers are only a few examples.

SUSTAINABILITY GOALS

FOR CONTINUOUS IMPROVEMENT FOR THE U.S. SOYBEAN INDUSTRY

The United States soybean producer organizations, including the United Soybean Board (USB), American Soybean Association (ASA), and the U.S. Soybean Export Council (USSEC), concurred upon a national strategy for further enhancing U.S. soybean sustainability through the improvement of Key Performance Indicators (KPIs) in environmental, economic, and social sectors.

BY 2025, U.S. SOYBEAN FARMERS AIM TO:

- Reduce land use impact by 10% (measured as acres per bushel)
- Reduce soil erosion by 25% (measured as tons per bushel)
- Increase energy use efficiency by 10% (measured as BTUs per bushel)
- Reduce total greenhouse gas emissions by 10% (measured as pounds CO2-equivalent gasses emitted per year)

U.S. Soy commits to focusing resources on research, outreach, and measurements to make certain we are achieving these targeted goals. National benchmarks for resource use/impact per unit of production on land use, soil erosion, energy use, and greenhouse gas emissions for U.S. soybeans are measured by Field to Market, based upon 2000 national-level data of the U.S. Department of Agriculture and other public sources. This Field to Market process will improve efficiency and reduce impacts across soybean-producing regions.

U.S. Soy's commitment to sustainability is a long-term promise, rooted in conservation programs created by the U.S. Department of Agriculture over 75 years ago. U.S. Soy recognizes that sustainability is defined by continuous improvement.

FOOTNOTES

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THE U.S. SOY ADVANTAGE

The foundation of the U.S. Soy Advantage is innovation, which is focused on investment in continuous improvement and meeting customer needs. Today, the U.S. Soy Advantage is anchored by exceptional composition and consistent supply of our soy and soy products, as well as the sustainability practices of our 303,191 soybean farms.

EXCEPTIONAL COMPOSITION

U.S. soybeans have an excellent meal nutritional bundle (protein, amino acids, and energy) and superior oil functionality and performance. These attributes give U.S. Soy an edge over the competition with continuous (or ongoing) innovation in the pipeline to ensure the U.S. remains the leader in the soy industry.

CONSISTENT SUPPLY

The U.S. has an abundant supply of soy that can be reliably moved from the field to domestic end users or to the coasts for export using the best transportation infrastructure in the world.

SUSTAINABLE FARMING PRACTICES

U.S. soybean farmers are the most sustainable in the world. Through their commitment to continuous improvement, U.S. soybean farmers are committed to taking care of the environment, being good citizens, and producing their crop as efficiently as possible to deliver the most sustainably grown soy in the world.

INNOVATION BEYOND THE BUSHEL

The soybean industry is constantly innovating, whether it be in seed development, production practices, or marketing opportunities. The U.S. Soy industry vows to meet the needs of a growing world while protecting our natural resources.

MAY 2021

CONTACT:
16305 Swingley Ridge Road, Suite 200
Chesterfield, MO 63017-USA
Phone: 636.449.6046
Fax: 636.449.1292
usses.org

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