Sorghum Assurances Protocol:
Providing assurances for global supply chains

Export Sorghum | San Antonio, Texas | September, 2025

U.S. GRAINS & BIOPRODUCTS COUNCIL

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1 Understanding sorghum sustainability

2 Sorghum and global supply chains

3 The Sorghum Assurances Protocol

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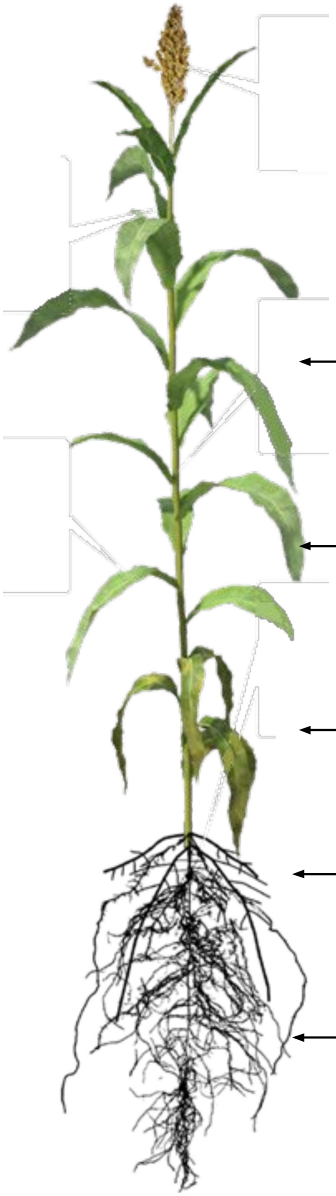
Understanding sorghum sustainability

Sorghum attributes

Sorghum landscape

Production practices



The sorghum plant: inherent attributes that contribute to sustainable production

High biomass production
Adverse environmental conditions and low inputs have a lower effect on biological productivity. Increased organic matter contributes to soil health.

Drought-responsive physiology
The plant can more rapidly close its stomata during water stress, minimizing water loss while still maintaining essential physiological functions

Reduced transpiration loss
Less water loss due to smaller, thicker leaves and waxy coating

High water efficiency
Growth under limited water availability conditions, more biomass per unit of water consumed

Deep root system
Plant resilience (access to water and nutrients), reduced soil compaction and erosion, increased stability and water infiltration

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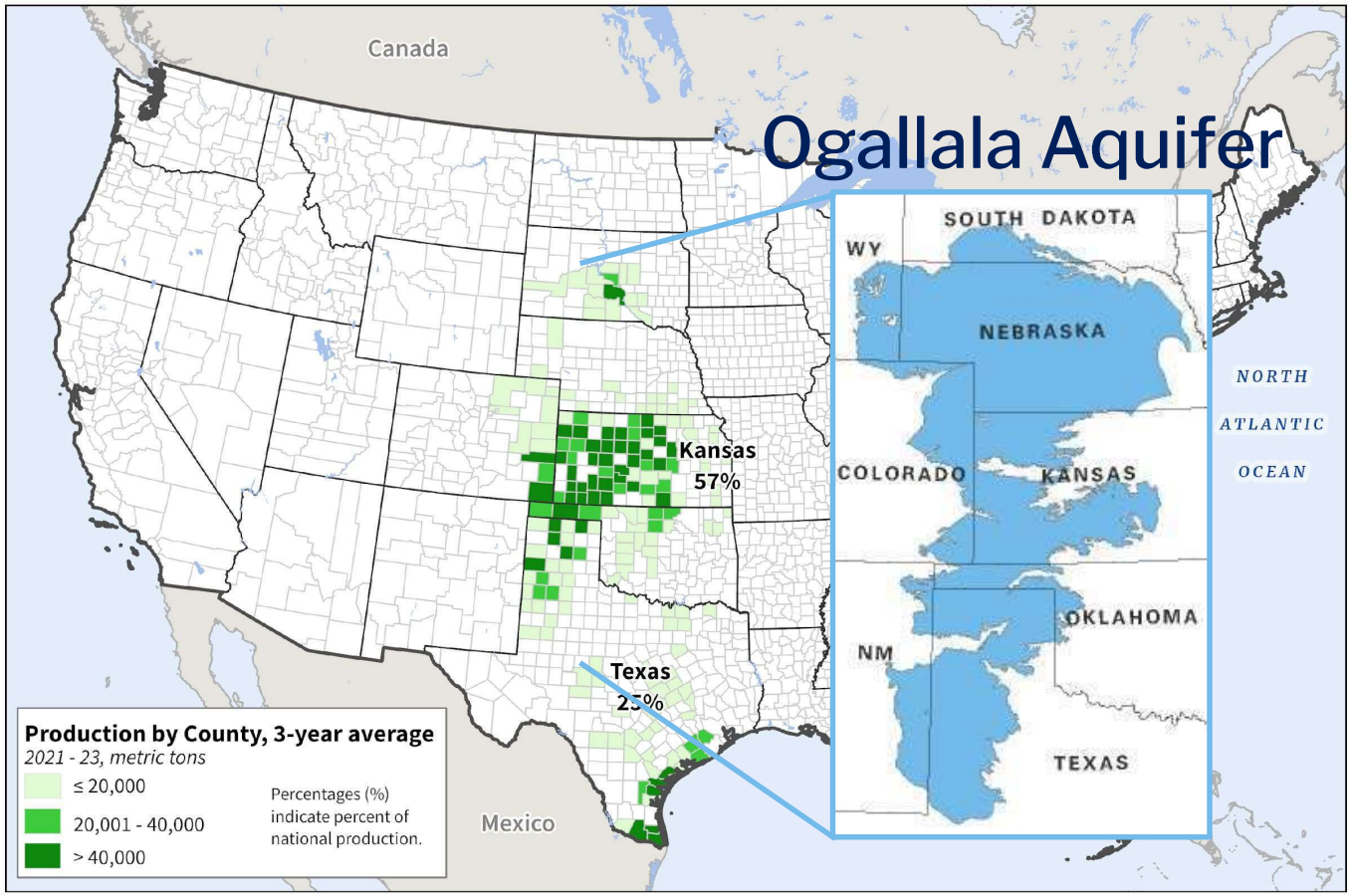
Sorghum producers and their landscape



Source: U.S. Department of Agriculture, National Agricultural Statistics Service
https://ipad.fas.usda.gov/cropexplorer/cropview/commodityView.aspx?cropid=0459200

Sorghum producers understand the importance of resource conservation within their production landscape: water, soil, and biodiversity

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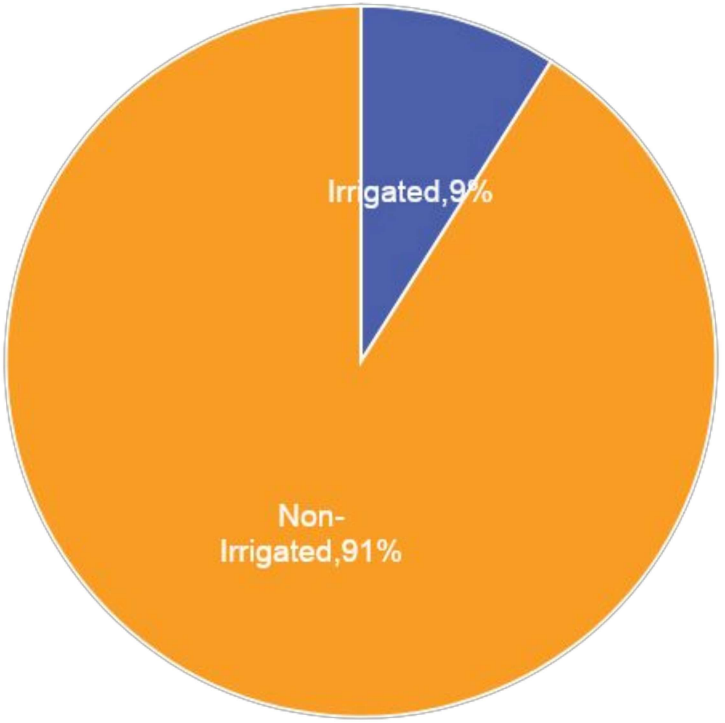
U.S. sorghum growers' production practices



More rainfed acres mean increased water conservation

Data: SGS North America, Agricultural Market Research- The Carbon Footprint of Sorghum, 2015; https://shorturl.at/wfLyt; chart by USGBC

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U.S. sorghum growers' production practices

Broad adoption of conservation tillage means:

Healthier soils
Improved soil structure, organic content, nutrients, infiltration, etc)

Less GHG emissions
(increased soil organic capture- SOC, and reduced fuel consumption)

Data: Sorghum Checkoff, SMR&P,- Carbon Footprint Study, 2020; https://shorturl.at/RcH9l; chart by USGBC

The production practices of U.S. sorghum producers

Quail

Pheasants

Geese & Ducks

Contribute to nature and biodiversity

Migratory birds use sorghum fields for cover and forage, particularly when reduced-tillage methods are used

Eastern meadowlarks

Longspurs

Savannah sparrow

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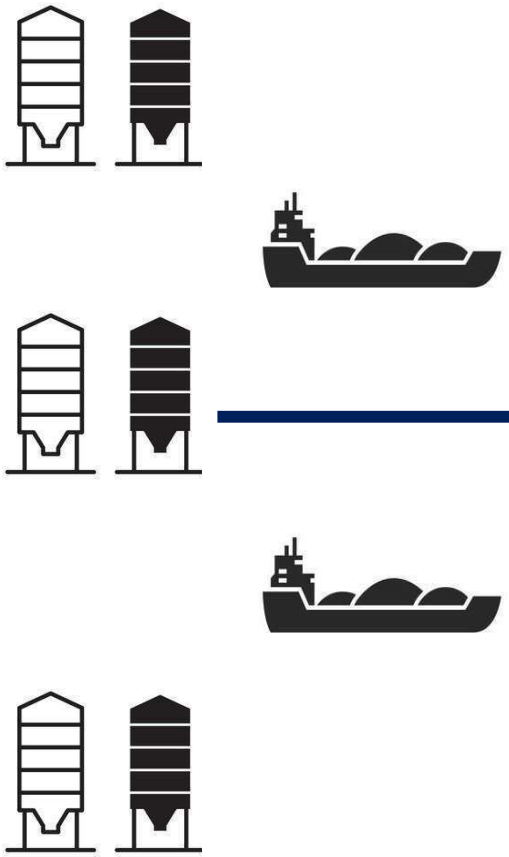
Sorghum sustainability and global supply chains

Aligning sorghum attributes with supply chains needs



Sustainability

Assurances

Disclosures

Management

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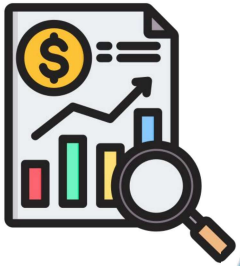
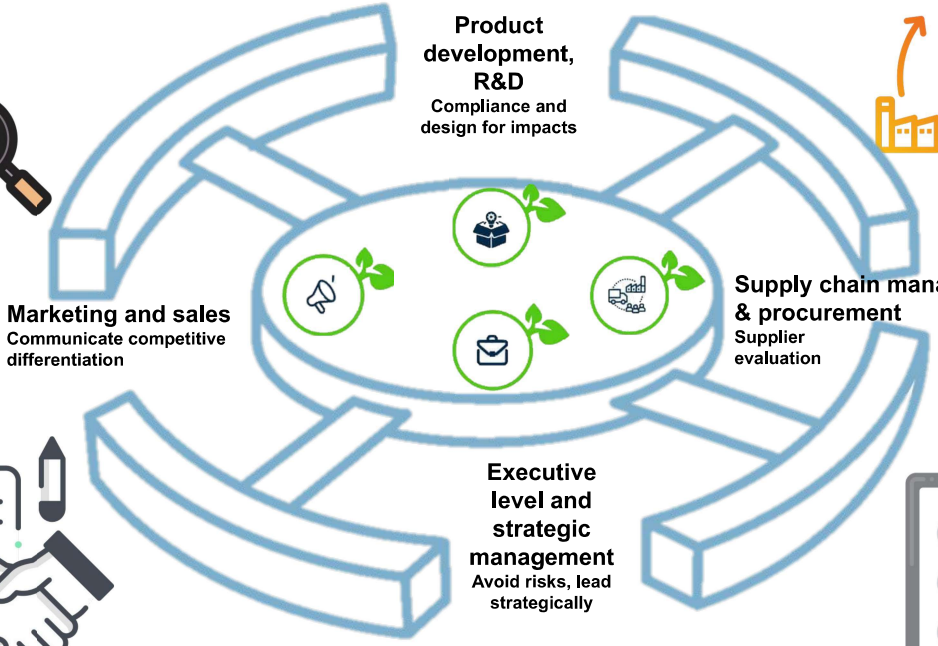
Companies' sustainability management efforts have become increasingly sophisticated

Respond to specific supply chain issues → Adopt impact assessments and measurement frameworks → Incentivize/demand action from suppliers to achieve systemic change

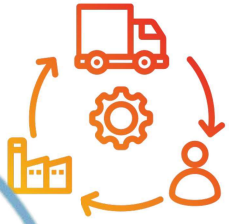
Financial Disclosure



Climate and Environmental Commitments



Industry Standards

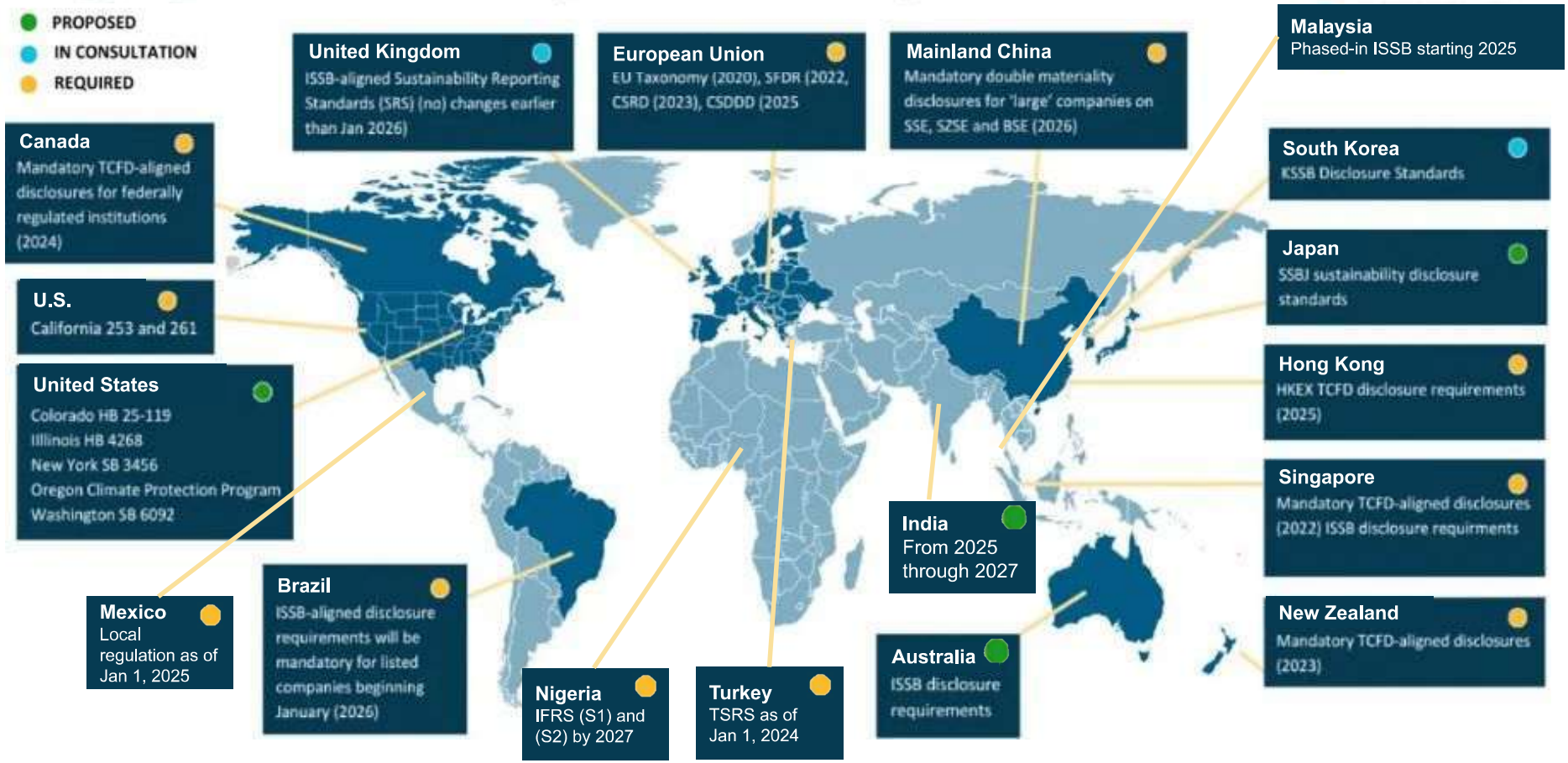


Management Standards

Source: adapted by USGBC from https://shorturl.at/boCUW

Corporate disclosure requirements continue to expand

They are estimated to soon cover over 40% of global GDP



Source: Adapted by USGBC from All4Inc (https://shorturl.at/VXzU7, March 2025); Trellis (https://shorturl.at/d4B9K, December 2024); and WRI (https://shorturl.at/9G2K1)

Sustainability criteria is expected to impact market access

Land Use

GHG Emissions

Nature

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EU agrees law preventing import of goods linked to deforestation

By Kate Abnett and Jake Spring

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S&P 500	3,895.08	2.28% ▲
NASDAQ	10,569.29	2.56% ▲

Fear & Greed Index → 46 Neutral sentiment is driving the US market

EU agrees to the world's largest carbon border tax

By Hanna Ziady, CNN
Published 9:26 AM EST, Mon December 19, 2022

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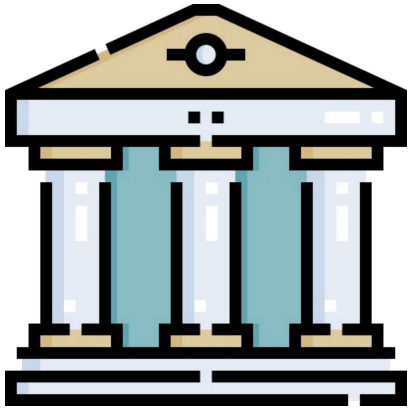
Sustainable Business

2 minute read · September 27, 2022 10:51 AM GMT-5 · Last Updated 5 months ago

EU backs lower residue limits for bee-harming pesticides

Reuters



Policymakers are pushing for increased sustainability regulation and enforcement

Sustainability criteria for market access:

Deforestation
Carbon Intensity
Ecosystem conversion

Regulation and scrutiny of sustainability claims:

B2C Communications
Eco-labelling

Visibility (disclosure) of sustainability impacts:

GHG emissions
ESG
Nature | Biodiversity

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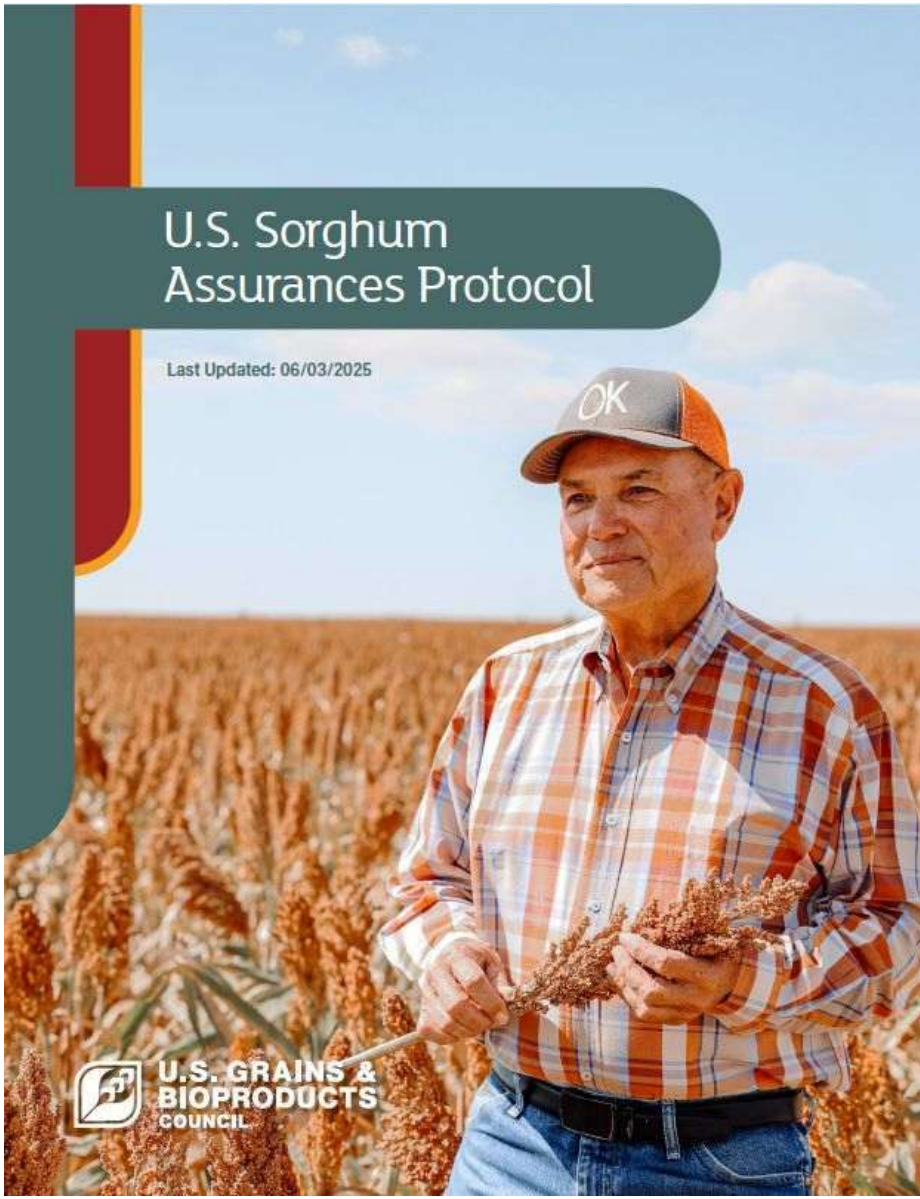
The Sorghum Assurance s Protocol



The Sorghum Assurances Protocol

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SORGHUM CHECKOFF℠

Baseline of assurances of U.S. sorghum origin for international markets

The Sorghum Assurances Protocol

Version 1.0

September 22, 2025

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Regulatory and enforcement framework

Impact categories

Continuous Improvement Goals

Best Practices, Regulations and Compliance Criteria

Sorghum tiered assurances framework

Sustainable sorghum volumes

Conservation compliance framework

Land-use assessment

Bespoke supply-chain partnerships

Regulatory and enforcement framework

Broad and robust scope of U.S. laws and regulations under which sorghum growers produce

Regulatory and enforcement framework

Broad and robust scope of U.S. laws and regulations under which sorghum growers produce

Federal Coordinated Framework

USDA

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

FDA

Local + State Laws and Regulations

Regulatory and enforcement framework

Sorghum assurances: best practices and regulations

GHG footprint

Growers strive to implement methods to minimize GHG emissions by:

- Reducing energy usage through conservation tillage methods as appropriate
- Optimizing nitrogen (N) and phosphorus (P) fertilizer use and application
- Monitoring and reducing fossil fuel use for management records and to increase enterprise viability

Irrigation water use

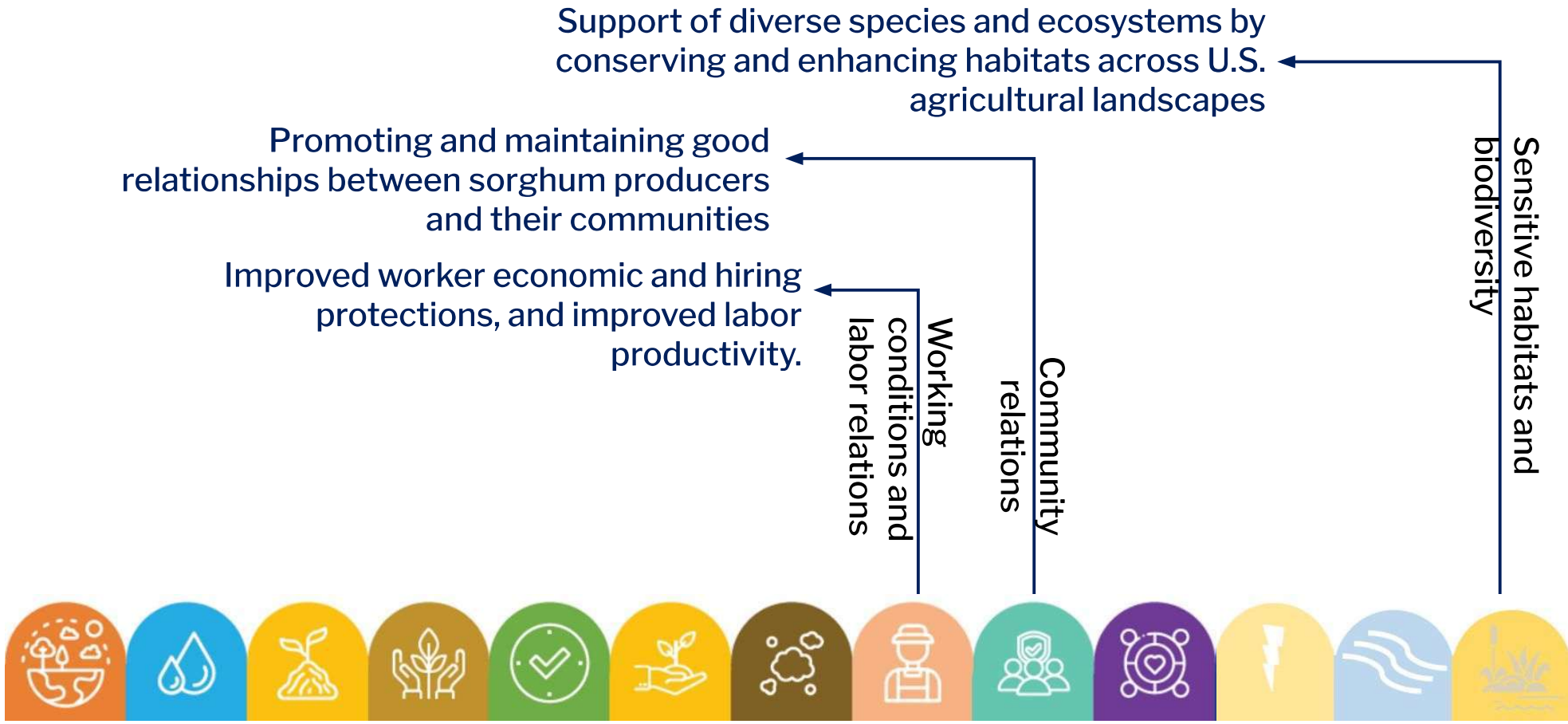
Growers are required to comply with U.S. Clean Water Act Law 40 parts 116–117 which regulate discharges of designated hazardous substances.

Land use

Growers are in compliance with U.S. Code of Federal Regulations, Title 16—Conservation, chapter 58—erodible land and wetland conservation and reserve program

Regulatory and enforcement framework

Sorghum assurances: continuous improvement goals



Sorghum tiered assurances framework

Tier 1
Conservation compliance framework

Assurances of

soil health

Growers will not undertake production of an agricultural commodity on highly erodible land without an adequate conservation system;

land use and conversion

Growers will not plant an agricultural commodity on a converted wetland

Growers will not convert a wetland to make possible the production of an agricultural commodity.

Enforcement and compliance

USDA

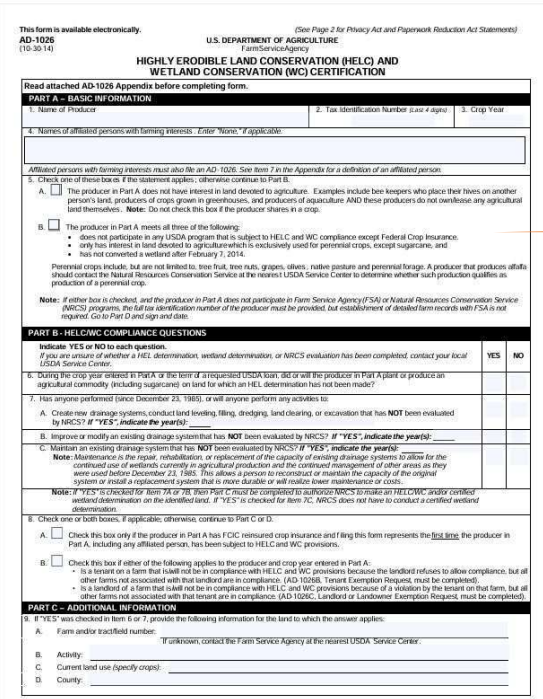
FSA FARM SERVICE AGENCY

NRCS

Sorghum tiered assurances framework

Tier 1
Conservation compliance framework

Form AD1026
Highly Erodible Land Conservation and Wetland Conservation Certification



This form is available electronically. (See Page 2 for Privacy Act and Paperwork Reduction Act Statements)
AD-1026 (10-30-14) U.S. DEPARTMENT OF AGRICULTURE Farm Service Agency

HIGHLY ERODIBLE LAND CONSERVATION (HELC) AND WETLAND CONSERVATION (WC) CERTIFICATION

Read attached AD-1026 Appendix before completing form.

PART A – BASIC INFORMATION

1. Name of Producer | 2. Tax Identification Number (Last 4 digits) | 3. Crop Year

4. Names of affiliated persons with farming interests. Enter "None," if applicable.

Affiliated persons with farming interests must also file an AD-1026. See Item 7 in the Appendix for a definition of an affiliated person.

5. Check one of these boxes if the statement applies; otherwise continue to Part B.

A. ☐ The producer in Part A does not have interest in land devoted to agriculture. Examples include bee keepers who place their hives on another person's land, producers of crops grown in greenhouses, and producers of aquaculture AND these producers do not own/lease any agricultural land themselves. **Note:** Do not check this box if the producer shares in a crop.

B. ☐ The producer in Part A meets all three of the following:
- does not participate in any USDA program that is subject to HELC and WC compliance except Federal Crop Insurance.
- only has interest in land devoted to agriculture which is exclusively used for perennial crops, except sugarcane, and
- has not converted a wetland after February 7, 2014.

Perennial crops include, but are not limited to, tree fruit, tree nuts, grapes, olives, native pasture and perennial forage. A producer that produces alfalfa should contact the Natural Resources Conservation Service at the nearest USDA Service Center to determine whether such production qualifies as production of a perennial crop.

Note: *If either box is checked, and the producer in Part A does not participate in Farm Service Agency (FSA) or Natural Resources Conservation Service (NRCS) programs, the full tax identification number of the producer must be provided, but establishment of detailed farm records with FSA is not required. Go to Part D and sign and date.*

PART B - HELC/WC COMPLIANCE QUESTIONS

Indicate YES or NO to each question. *If you are unsure of whether a HEL determination, wetland determination, or NRCS evaluation has been completed, contact your local USDA Service Center.* | YES | NO

6. During the crop year entered in Part A or the term of a requested USDA loan, did or will the producer in Part A plant or produce an agricultural commodity (including sugarcane) on land for which an HEL determination has not been made?

7. Has anyone performed (since December 23, 1985), or will anyone perform any activities to:

A. Create new drainage systems, conduct land leveling, filling, dredging, land clearing, or excavation that has **NOT** been evaluated by NRCS? ***If "YES", indicate the year(s):*** ____

B. Improve or modify an existing drainage system that has **NOT** been evaluated by NRCS? ***If "YES", indicate the year(s):*** ____

C. Maintain an existing drainage system that has **NOT** been evaluated by NRCS? ***If "YES", indicate the year(s):*** ____
Note: *Maintenance is the repair, rehabilitation, or replacement of the capacity of existing drainage systems to allow for the continued use of wetlands currently in agricultural production and the continued management of other areas as they were used before December 23, 1985. This allows a person to reconstruct or maintain the capacity of the original system or install a replacement system that is more durable or will realize lower maintenance or costs.*

Note: *If "YES" is checked for Item 7A or 7B, then Part C must be completed to authorize NRCS to make an HELC/WC and/or certified wetland determination on the identified land. If "YES" is checked for Item 7C, NRCS does not have to conduct a certified wetland determination.*

8. Check one or both boxes, if applicable; otherwise, continue to Part C or D.

A. ☐ Check this box only if the producer in Part A has FCIC reinsured crop insurance and f iling this form represents the first time the producer in Part A, including any affiliated person, has been subject to HELC and WC provisions.

B. ☐ Check this box if either of the following applies to the producer and crop year entered in Part A:
- Is a tenant on a farm that is/will not be in compliance with HELC and WC provisions because the landlord refuses to allow compliance, but all other farms not associated with that landlord are in compliance. (AD-1026B, Tenant Exemption Request, must be completed)
- Is a landlord of a farm that is/will not be in compliance with HELC and WC provisions because of a violation by the tenant on that farm, but all other farms not associated with that tenant are in compliance. (AD-1026C, Landlord or Landowner Exemption Request, must be completed).

PART C – ADDITIONAL INFORMATION

9. If "YES" was checked in Item 6 or 7, provide the following information for the land to which the answer applies:

A. Farm and/or tract/field number: _____ If unknown, contact the Farm Service Agency at the nearest USDA Service Center.

B. Activity: _____

C. Current land use *(Specify crops)*: _____

D. County: _____

Determines access to federal government support programs

Farm Bill Titles

Title I — **Commodities:** Provides support for major commodity crops, including wheat, corn, soybeans, peanuts, rice, dairy, and sugar, as well as disaster assistance (ARC, PLC, MAL).

Title II — **Conservation:** Encourages environmental stewardship of farmlands and improved management through land retirement programs, working lands programs, or both (CRP, CSP, EQIP)

Title V — **Credit:** Offers direct government loans and guarantees to producers to buy land and operate farms and ranches.

Title VI — **Rural Development:** Supports rural housing, community facilities, business, and utility programs through grants, loans, and guarantees.

Title XI — **Crop Insurance:** Enhances risk management through the permanently authorized Federal Crop Insurance Program.

Sorghum tiered assurances framework

Tier 1
Conservation compliance framework

Sustainable sorghum volumes

Derived from the total acres reported by growers to be in compliance with USDA conservation provisions

Sorghum tiered assurances framework

Tier 1
Conservation compliance framework

2,550,607 sorghum hectares USDA WASDE (MY2024/2025)

20,000 growers (e)

9,809,226 tons U.S. sorghum production
(WASDE total hectares x avg yield)

2,358,301
Conservation Compliance sorghum hectares USDA WASDE (MY2024/2025)

Sustainable sorghum volumes

Assurances:
HEL
Wetland conversion

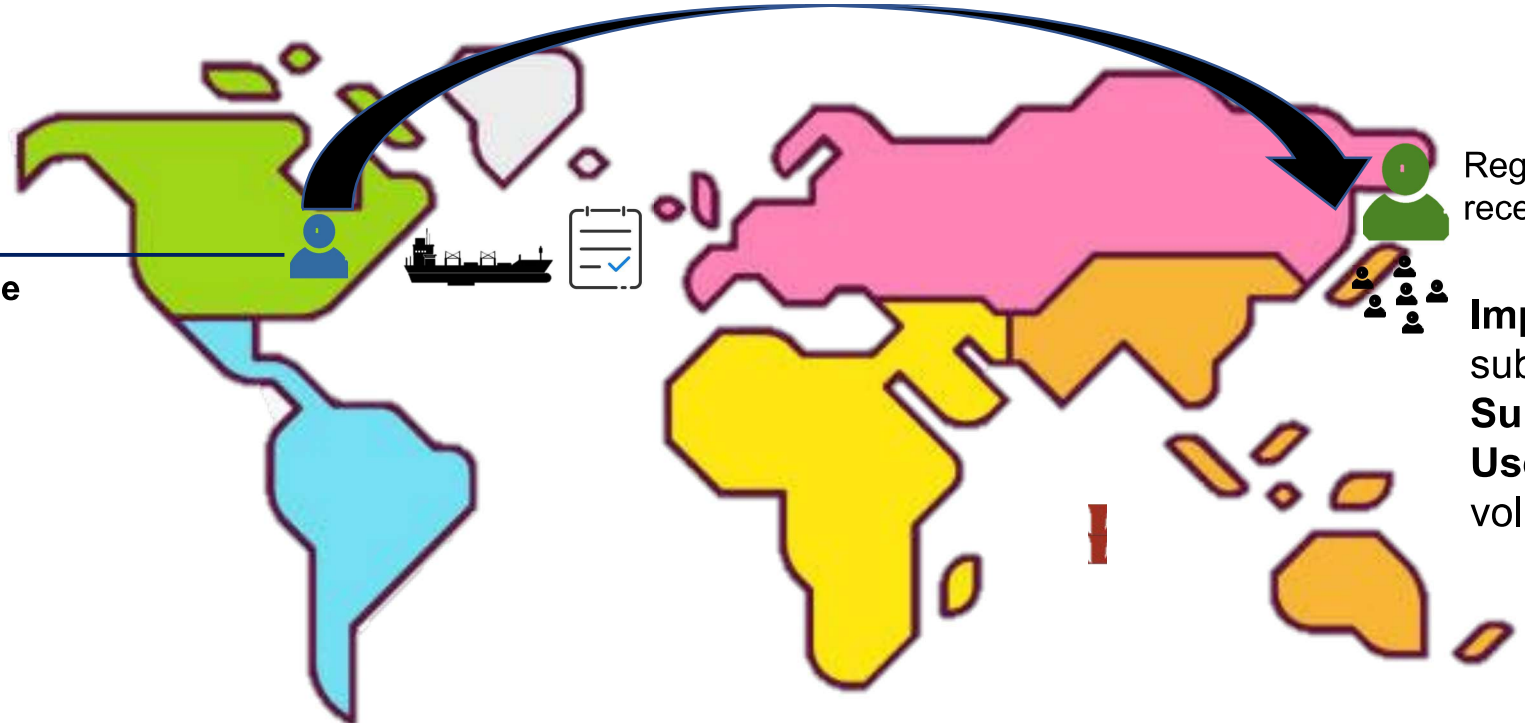
9,069,649 tons (USDA FSA hectares x avg yield)

Average yield: 3.84 MT/hectare (MY2024/2025)

Integration of sorghum into operations platform

Marketing Year Sustainable Sorghum Exports Global Allocation
MY sorghum acres participating in Farm Service Agency programs x MY Average Yield

Exporters register and request yearly (MY) company allocation
that is drawn down by generating individual **Records of Assurance** (ROA) per shipment/client



Registered **exporter** issues **shipment-specific ROA**

Registered **importer** receives **ROA**

Importer sub-allocates to **Supply Chain Users** specific volumes

Sorghum tiered assurances framework

Tier 2
Low-risk Grassland Conversion

Builds upon the assurances associated to ‘sustainable sorghum volumes’ and adds an **additional verification component**

Adopts a baseline of grasslands and sorghum acres and develops a performance-based categorization of conversion for each marketing year

Integrates annual surveying to confirm low-risk level of grassland-to-farmland conversion for each marketing year

Sorghum tiered assurances framework

Tier 3
Bespoke Supply Chain Partnerships

Creates the framework to build partnerships between supply chain stakeholders and sorghum growers that are willing or already implementing production practices that go much further in terms of sustainability requirements and environmental impacts

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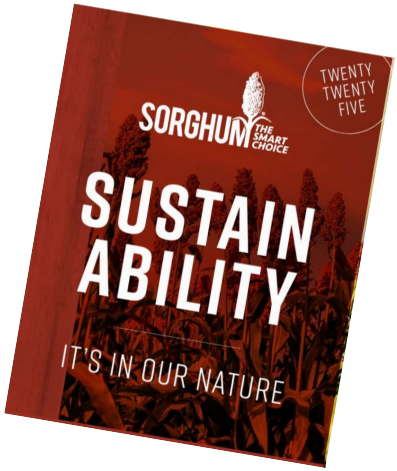
SORGHUM CHECKOFF



We are ready to take sorghum assurances to supply chains across the world.

SAVING WATER

One of Sorghum's superpowers is adaptability to climate challenges such as heat and drought, requiring an amazing 30% less water than other grains. That's a savings so significant, it could supply the annual water usage of over 16 million homes. Nationally, 91% of sorghum acres are fed by rain alone.

BUILDING SOIL HEALTH

Sorghum helps regenerate soil with increased organic matter, enabling it to retain more important soil nutrients and moisture. The stalks left standing in fields help add nutrients back into the soil, break up soil compaction, capture and retain moisture and reduce wind erosion.

RESTORING OUR ENVIRONMENT

Sorghum removes harmful carbon from the atmosphere and stores it safely in the soil, cleaning our air and helping to fight climate change. The crop has a reduced carbon footprint through conservation tillage practices and nitrogen-use efficiency. Not only does this add to overall environmental health, it leads to greater profitability for farmers, as well.

SUPPORTING ROBUST ECOSYSTEMS

Sorghum helps wildlife populations thrive as a preferred food choice for quail, pheasants and many other species of birds and deer. It's many leaves and sturdy structure creates wildlife habitat and protection from the elements during harsh winters and extreme summer heat.

A RESOURCE-CONSERVING INGREDIENT

With its exceptional climate-smart and water saving advantages plus a robust nutritional profile that includes protein, iron, B6, niacin, magnesium and phosphorus, this super grain delivers double the value to the earth and the consumer.

Thank you

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