

TRACEABLE BY NATURE: THE CASE FOR MISCANTHUS IN PET NUTRITION

CASE STUDY

How MFiber's field-level traceability brings transparency and environmental impact together

Overview

Consumers increasingly connect personal and household health to planetary health¹. In addition, transparency in sourcing, packaging and production practices continues to be a key area of consumer interest. In pet food supply chains, that expectation can be difficult to meet because many ingredient systems do not retain farm- or lot-level traceability data in a way that is easy to audit or verify.

MFiber, a PSC Accredited, Icon Member, developed a field-level traceability system that links every bale of Miscanthus grass to the field where it was grown. The system connects ingredient lots to farm identifiers, harvest timing, and chain-of-custody records through processing and distribution. MFiber reports that its Miscanthus grass supply is fully field-traceable and produced in Safe Feed/Safe Food-audited facilities².

By pairing traceability with lifecycle comparison data and peer-reviewed research on Miscanthus production systems, MFiber demonstrates how ingredient suppliers can help pet food brands verify sustainability claims through traceable sourcing and documented environmental data. Traceability systems are widely recognized as a key mechanism for improving supply chain transparency and verifying product claims³.

About MFiber

MFiber supplies Miscanthus fiber ingredients for pet food and treat formulations⁴. Its flagship ingredient, M-Fiber M23, is an all-natural, non-GMO fiber derived from Miscanthus grass grown and lightly processed in Missouri. The ingredient contains approximately 80% dietary fiber, most of which is insoluble⁶.

The company has focused on building a transparent supply chain for Miscanthus fiber, including field-level traceability and documented chain-of-custody records that follow the ingredient from farm through processing and distribution. MFiber works closely with contracted growers to maintain field-level documentation, ensuring harvest records, lot numbers, and chain-of-custody data remain connected throughout processing.

"Sustainability claims only matter when they're backed by proof. With field-level traceability, we give pet brands the ability to connect real environmental data to the exact ingredients in their supply chain."

Dustin Dover

COO of Mfiber & Board Chair for PSC

Takeaways



Traceability helps verify sustainability claims.

Field-level traceability links ingredient lots to specific farms, harvests, and supply chain records, making sustainability claims verifiable³.



Traceability supports reporting and audits.

Traceability systems turn environmental research into usable data for retailer audits, sustainability reporting, and regulatory reviews³.



Transparency is becoming a competitive advantage.

Suppliers providing documented origin and chain-of-custody data gain a competitive advantage in transparency-driven markets¹.

What is Field-Level Traceability?

Each finished ingredient lot can be linked to a specific farm or field identifier, harvest date, lot number, and documented chain of custody.^{2 3}

What is Miscanthus?

Miscanthus grass is a perennial plant used as a fiber source in pet food and treats.

Because it is a high-fiber, plant-derived ingredient, it can serve as a one-to-one replacement for powdered cellulose in many formulations, providing a highly concentrated insoluble fiber ingredient



The Challenge

Traceability systems were originally developed to improve food safety response during recalls and outbreak investigations. When traceability data is incomplete, companies may struggle to isolate contamination sources, conduct targeted recalls, prevent fraud, or provide documentation required during regulatory or retailer audits³.

Strong traceability systems allow companies to quickly track ingredients through production and distribution, improving response speed and transparency³. The same infrastructure is increasingly important for verifying sustainability claims.

Environmental research often describes the potential impacts of crop production systems, but without documented origin data, brands may only be able to make generalized claims about an ingredient rather than verify the performance of their specific supply chain.

MFiber recognized an opportunity to extend traceability beyond compliance and use it as a tool to support credible sustainability claims and as a way to stay connected to the farmers they work with.

The Solution

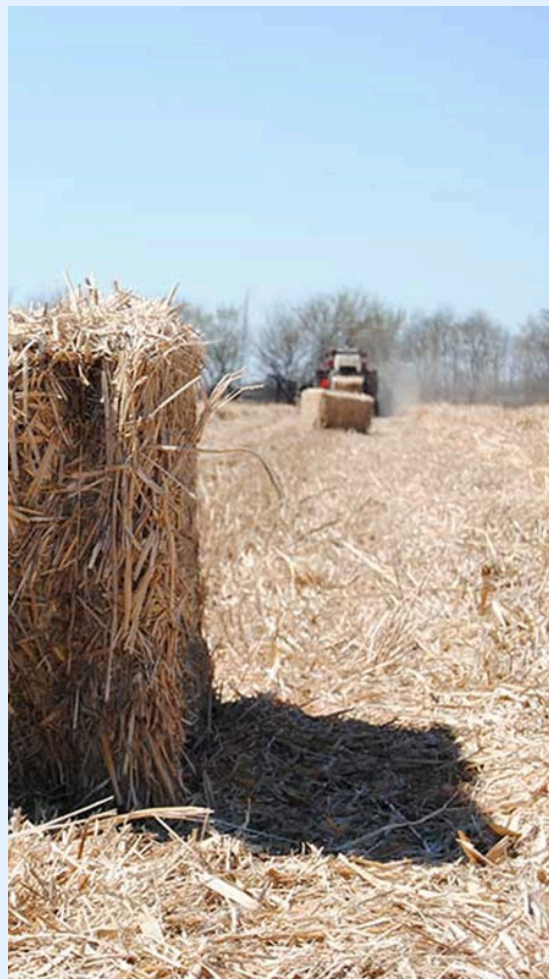
Goal: Build a fiber supply chain capable of providing documented origin, chain-of-custody verification, and support for sustainability claims.

Implementation

MFiber developed a traceability system linking each finished ingredient lot to:

- **Field or farm identifier**
- **Harvest date or window**
- **Bale and processing lot numbers**
- **Chain-of-custody documentation through processing and shipping**

MFiber reports that its Miscanthus supply is fully field-traceable and produced in facilities audited under the Safe Feed/Safe Food program, which requires documented traceability and tested recall procedures²¹¹. The system aligns with traceability frameworks described in the FMI Traceability Implementation Guide, which emphasizes standardized data elements and documented tracking events across the supply chain³.



Results

Connecting Traceability to Environmental Performance

Environmental research describes the potential environmental performance of Miscanthus grass production systems. Field-level traceability allows brands to connect those research findings to specific ingredient lots.

This matters because environmental outcomes can vary depending on soil conditions, fertilizer use, and land management practices⁸. Documented origin data helps companies demonstrate where an ingredient was produced and supports sustainability claims during audits and reporting³. Research on Miscanthus cultivation provides examples of the environmental characteristics associated with perennial production systems. Studies suggest the crop can deliver measurable advantages compared with some annual crops under appropriate growing conditions, including:

- **Soil carbon storage:** ~0.64 tonnes carbon per hectare annually (≈ 2.35 tonnes CO₂e/ha/year).⁸
- **Lower nitrous oxide emissions:** Unfertilized Miscanthus systems can produce significantly lower N₂O emissions ($\sim 5\times$ lower) than conventional annual crops.⁸
- **Resource efficiency:** As a perennial crop, Miscanthus requires minimal fertilizer inputs, shows strong drought and flood resilience, and removes fewer nutrients from soil.⁸

While outcomes depend on growing conditions, traceability allows brands to document that their ingredients come from Miscanthus production systems rather than relying solely on generalized crop claims.



Practical Adoption for Pet Food Brands

MFiber's traceability system supports the adoption of Miscanthus fiber across pet food supply chains by combining environmental documentation with practical formulation compatibility.

- **Formulation compatibility:** Miscanthus fiber can function as a one-to-one replacement for powdered cellulose in many formulations⁴. Feeding studies have shown similar intake and stool quality outcomes when Miscanthus replaces cellulose in canine diets⁹.
- **Cost-aligned sustainability:** Trade reporting indicates Miscanthus fiber can be competitively priced relative to powdered cellulose, enabling brands to reduce environmental impact without increasing ingredient costs⁴.
- **Audit-ready transparency:** Documented origin and chain-of-custody records support retailer supplier reviews and sustainability scorecards.
- **Support for ESG reporting:** Traceability data combined with lifecycle analysis provides ingredient-level information that can support Scope 3 disclosures and supplier environmental assessments.

"Miscanthus fiber is a strong example of how ingredient functionality and sustainability can work together. It provides the insoluble fiber needed to support digestive health in our formulations while also offering traceability that helps connect sustainability research to real ingredients in our supply chain."

Shayne Horn

Global Director, Formulation & Nutrition Compliance, Champion Petfoods Holding Inc

Guidance for Pet Food Brands

MFiber's experience highlights three steps companies can take to strengthen ingredient transparency:

1

Ask deeper sourcing questions: Ask suppliers how far back they can trace an ingredient. Systems that link finished ingredient lots to farms, harvest records, and chain-of-custody documentation improve both recall readiness and sustainability verification³.

2

Pair traceability with environmental data: Environmental claims are most credible when traceable sourcing is paired with peer-reviewed research or third-party lifecycle analysis.

3

Prioritize documentation: Retailers and regulators increasingly request documented origin data and supply-chain transparency. Suppliers that provide auditable sourcing records are better positioned to meet evolving expectations¹³.

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