Hamilton-White Composting Technologies, LLC

A Comprehensive Vision for Transforming Livestock Waste Infrastructure

Introduction

Hamilton-White Composting Technologies (HWC) was founded to solve a problem that modern agriculture has lived with for generations: the reliance on open manure lagoons as the default method for handling high-liquid livestock waste. While lagoons have been tolerated as a practical necessity, they introduce persistent environmental, operational, and biosecurity risks that grow more costly as herd sizes increase and regulatory scrutiny intensifies.

HWC's vision is not incremental improvement. It is a structural replacement—substituting open, anaerobic storage with sealed, aerobic infrastructure that transforms waste into a stable, usable resource while eliminating long-term liabilities.

Foundational Research and Patent Lineage

The technological foundation of HWC traces back more than three decades. Early research efforts, including what became known internally as RPC-era work, explored the limits of aerobic processing for high-moisture organic waste. These early efforts revealed several critical insights:

- Passive composting systems were insufficient for consistent pathogen reduction
- High-liquid effluent required active mechanical mixing and aeration
- Odor and emissions control demanded sealed processing environments

These findings culminated in the issuance of U.S. Patent No. 5,405,780 in 1995, which described a mechanically agitated, sealed aerobic composting reactor. That system was successfully constructed and operated, demonstrating sustained thermophilic performance, odor control, and avoidance of methane generation associated with anaerobic lagoons.

The current HWC system represents a second-generation modernization of this proven architecture, updated for contemporary livestock scales, automation, and regulatory expectations.

The HWC Technology Platform

At the core of HWC's solution is a sealed, aerobic, thermophilic composting reactor capable of processing extremely high-liquid manure streams directly from barns or collection pits.

A defining feature of the system is its dual retractable auger configuration:

- A ribbon auger that maintains homogeneous mixing, oxygen distribution, and thermal consistency
- A cutting auger that enables fiber conditioning, size reduction, and safe processing of amendments and livestock mortalities

This configuration allows HWC systems to accept material streams that are incompatible with conventional composting, digestion, or lagoon-reduction approaches.

Applications Across Livestock Agriculture

Dairy Operations

Modern dairy operations generate large volumes of high-liquid manure and wash water that are traditionally managed through open lagoons. These systems require significant land area, introduce long-term groundwater and runoff risk, and force operators to manage waste application based on storage capacity rather than agronomic timing.

HWC systems are designed to replace lagoon construction entirely by accepting high-liquid effluent directly from barns or collection pits and processing it within a sealed, aerobic reactor. By eliminating anaerobic storage, the system removes a major source of methane emissions, odor, and nutrient loss while providing operators with a controlled, predictable waste-processing pathway.

For dairy producers, this translates into:

- Elimination of lagoon permitting, expansion, and long-term closure liabilities
- Reduced phosphorus and nitrogen runoff risk into surface and groundwater
- Greater flexibility in land application timing due to stabilized compost output
- Improved compliance posture as nutrient regulations tighten
- Reduced neighbor and community conflict related to odor and open storage

The resulting compost is stable, pathogen-reduced, and suitable for on-farm reuse or off-farm sale, allowing dairy operations to convert a regulatory liability into a managed resource.

Hog Operations

Hog production presents some of the most acute waste-management and biosecurity challenges in livestock agriculture. Open lagoons are not only sources of odor and emissions, but also act as environmental exposure points for pathogens, insects, and wildlife—compounding disease transmission risks within and between facilities.

HWC systems materially improve biosecurity by eliminating open storage entirely and replacing it with sealed, thermophilic aerobic processing. This controlled environment reduces pathogen persistence and minimizes external exposure pathways that contribute to herd health risks.

A critical differentiator for hog operations is the system's ability to safely manage hog mortalities alongside manure. Using a dual-augur design with integrated size reduction and mixing, mortalities can be processed within the same sealed reactor under sustained thermophilic conditions, reducing reliance on rendering, burial, or off-site transport.

For hog producers, this provides:

- A sealed, on-site pathway for mortality management
- Reduced disease-vector exposure associated with open pits or storage
- Improved operational resilience during disease outbreaks or transport disruptions
- Simplified waste and mortality logistics under a single infrastructure system

By integrating manure and mortality handling into one controlled process, HWC offers hog operations a higher level of operational security and regulatory defensibility.

Cattle Feedlots

Large cattle feedlots face ongoing challenges related to soil degradation, nutrient accumulation, and material handling within confined areas. Over time, pen surfaces degrade and require replacement material—often sourced by stripping topsoil from cropland or importing material at significant cost.

HWC systems convert manure and organic residues into a stable, soil-like compost that can be reused directly within feedlot operations as replacement surface material. This compost improves drainage, reduces dust, and provides a more uniform surface while maintaining organic content.

Key benefits for feedlot operators include:

- Reduced need to remove or disturb productive cropland for replacement soil
- Improved pen conditions and animal comfort
- Closed-loop nutrient cycling within the operation
- Reduced hauling and disposal costs associated with raw manure
- Optional diversion of excess compost to external markets

By reusing compost internally and exporting surplus material when appropriate, feedlots can reduce environmental disturbance while improving long-term site management.

Compost as a Value-Added Resource

Unlike lagoon effluent, compost produced by HWC systems is stable, pathogen-reduced, and marketable. In addition to on-farm reuse, HWC identifies premium off-farm markets including golf courses and professional turf operations.

Independent testing has shown compost derived from livestock effluent can reduce water and chemical inputs by up to 25 percent while improving soil structure and turf performance. This transforms waste management from a cost center into a potential revenue stream.

Phase One: The $400,000 Prototype Partnership

The first phase of HWC's commercialization strategy is intentionally disciplined. A $400,000 pre-seed partnership is targeted to complete:

- Final engineering and fabrication of a full-scale prototype
- Automation and monitoring integration
- Operational testing and validation

This prototype will be constructed and initially evaluated in Nebraska. Upon successful operation, it is designed to be transportable by truck to partner sites—such as dairy operations in Vermont—for physical proof-of-performance under real-world conditions.

This phase is not about rapid revenue; it is about proof, validation, and partner confidence.

Phase Two: First Commercial Nebraska Installation

Following successful prototype validation, HWC will deploy its first full-scale commercial installation in Nebraska. This facility will serve as:

- A commercial reference site
- A regulatory and partner demonstration location
- The operational foundation for scaled deployment

This phase establishes credibility and prepares the organization for infrastructure-scale growth.

Phase Three: The Nebraska Campus

The Nebraska Campus is designed as a fully integrated manufacturing, logistics, and knowledge hub capable of supporting national and international deployment of HWC systems at scale. Site selection prioritizes adjacency to existing rail infrastructure, allowing for efficient inbound delivery of steel, mechanical components, and bulk materials, as well as outbound shipment of completed reactor systems and ancillary equipment. Rail access reduces transportation cost, minimizes supply-chain volatility, and supports export-scale operations.

The campus will include large-scale, covered storage facilities for organic inputs and conditioning materials, including round-bale agricultural stocks. This storage capacity enables consistent production scheduling, buffers seasonal supply variability, and supports demonstration of full-system logistics for both domestic and international customers.

Dedicated research and development laboratories will be incorporated on site to support continuous system refinement, performance optimization, materials testing, and adaptation to region-specific feedstocks. These facilities will allow HWC to validate design improvements, document performance for regulatory and partner review, and maintain technical leadership as deployment scales.

In parallel, the campus will house workforce training and demonstration spaces designed for operators, technicians, regulators, and partners. These spaces will support hands-on training, system commissioning simulations, and live demonstrations, positioning the campus as a center for applied expertise in lagoon-elimination infrastructure rather than a simple manufacturing site.

Integrated trucking and fleet operations will provide flexible regional delivery, installation support, and ongoing service logistics. This capability ensures rapid response for commissioning, maintenance, and customer support across the Midwest and beyond, while complementing rail-based long-haul transport.

Proximity to Lincoln Airport enables efficient domestic and international access for visiting partners, regulators, and customers, as well as expedited shipment of specialized components and control systems. This access is critical for global deployment and positions Nebraska as the operational gateway for HWC's international activities.

At full build-out, the Nebraska Campus is expected to support a diverse, high-quality workforce spanning skilled trades, fabrication, engineering, logistics, research, operations, and administration. These roles are designed to be durable and non-seasonal, aligning with Nebraska's industrial and agricultural strengths while creating long-term employment opportunities that support workforce development pipelines across the state.

Corporate Structure and Capital Strategy

Hamilton-White Composting Technologies is being built as an infrastructure company, not a project developer or equipment vendor. The scale, service life, and regulatory relevance of lagoon-replacement systems require a capital structure capable of supporting multi-decade assets, global deployment, and institutional accountability.

Following successful proof-of-performance and confirmed buyer readiness, HWC plans to reorganize as a Delaware C-Corporation and pursue a public-market capital raise estimated at approximately $500 million. This transition reflects a deliberate move from prototype validation to infrastructure-scale execution.

The capital raised through a public offering is intended to fund:

- Construction of the Nebraska Campus as a permanent manufacturing, logistics, and research hub
- Expansion of domestic manufacturing capacity to meet national demand
- Workforce development and long-term employment across skilled trades, engineering, operations, and logistics
- Deployment of lagoon-replacement systems across U.S. livestock regions and international markets where open storage remains the norm

A public-market structure provides the transparency, governance, and durability required for large-scale agricultural infrastructure. Unlike private or incremental financing models, it aligns capital availability with the long service life of deployed systems, supports sustained investment in manufacturing and service operations, and enables participation by institutional stakeholders who require clear governance and long-term stability.

This strategy reflects HWC's ambition to move beyond individual installations and establish a globally scalable platform for livestock waste infrastructure—one capable of replacing open lagoons at scale, strengthening agricultural resilience, and positioning Nebraska as the operational center of a new generation of agricultural systems.

Carbon Credits and Economic Resilience

Traditional manure lagoons operate under anaerobic conditions that naturally generate methane and nitrous oxide—two of the most potent greenhouse gases associated with agricultural operations. These emissions are an inherent consequence of open storage and are largely unavoidable without fundamentally changing the waste-handling system.

By eliminating anaerobic lagoon storage entirely, HWC systems interrupt this emission pathway at the source. Manure and effluent are processed under controlled, aerobic conditions, significantly reducing the formation of methane and nitrous oxide associated with long-term anaerobic decomposition. These avoided emissions form the technical basis for modeled carbon credits under existing and emerging agricultural methane-avoidance and waste-management methodologies.

While carbon credit verification is necessarily project-specific and subject to third-party validation, the scale and permanence of lagoon elimination provide a strong foundation for quantifiable and repeatable emission reductions. Depending on herd size, waste volume, and baseline lagoon configuration, a single large livestock operation can reasonably generate thousands to tens of thousands of metric tons of CO_2-equivalent avoidance annually.

At current conservative market prices—often ranging from $15 to $30 per metric ton of CO_2e—this translates into a potential annual value measured in the tens or hundreds of thousands of dollars per installation, with larger operations or regional aggregations reaching higher levels. Over the multi-decade service life of lagoon-replacement infrastructure, these credits represent a meaningful economic offset rather than a one-time benefit.

From an economic standpoint, carbon credits are not treated as speculative upside, but as a cost-offset mechanism that improves system affordability and long-term viability. Verified credits are expected to:

- Offset a portion of initial capital deployment costs
- Contribute to ongoing operating and maintenance expenses
- Improve cash-flow predictability for producers
- Reduce reliance on grants or public subsidy programs

As carbon markets mature and methodologies stabilize, credits may also support structured revenue-sharing or aggregation models, further lowering barriers to adoption. Importantly, these financial benefits arise from a structural change in waste management—the permanent elimination of anaerobic lagoons—rather than short-term operational adjustments.

In this way, carbon credits function as an enabling financial layer that aligns environmental outcomes with operational and economic performance, reinforcing adoption at scale without becoming the primary justification for the infrastructure itself.

A Structural Replacement, Not an Incremental Fix

Hamilton-White Composting Technologies is not an add-on, retrofit, or optimization layered onto existing lagoon-based systems. It is a structural replacement—designed to remove open, anaerobic manure storage entirely and replace it with sealed, aerobic infrastructure built to operate reliably for decades.

Most solutions in the livestock waste space attempt to manage the consequences of lagoons rather than eliminate them. Covers, aeration devices, chemical treatments, and timing adjustments all seek to reduce odor, emissions, or runoff while leaving the underlying storage model intact. These approaches may mitigate symptoms, but they do not resolve the core structural risks associated with open, anaerobic storage.

HWC addresses the problem at its source by removing lagoons from the system altogether.

Why There Is No True Competition

While there are many technologies adjacent to manure management, none offer a direct equivalent to HWC's approach:

- Anaerobic digesters generate energy but still rely on anaerobic decomposition and liquid handling, retaining digestate that must be stored or land-applied
- Lagoon covers and gas capture systems manage emissions but leave nutrient concentration, runoff risk, and long-term liability intact
- Solid–liquid separation systems reduce solids loading but do not eliminate liquid effluent storage
- Windrow and bunker composting cannot accept high-liquid effluent and require significant land area and management
- Thermal destruction technologies are energy-intensive and incompatible with continuous high-moisture streams

HWC occupies a distinct category by combining:

- Direct intake of high-liquid manure and effluent
- Sealed, aerobic, thermophilic processing
- Mechanical mixing and size reduction through a dual-auger reactor
- Integrated handling of livestock mortalities

- Full elimination of open lagoons rather than modification

There is no other commercially oriented system that delivers this combination at infrastructure scale.

Infrastructure Built for the Long Term

HWC systems are designed to function as permanent agricultural infrastructure, not experimental installations. The reactors, control systems, and supporting logistics are engineered for continuous operation, predictable maintenance, and long service life—aligning with the realities of modern livestock production and regulatory oversight.

This long-term orientation allows environmental protection, agricultural productivity, and economic resilience to reinforce one another rather than compete. Producers gain operational predictability and reduced liability; regulators gain durable risk reduction; communities benefit from improved air and water quality.

Scaling from Nebraska to the World

By anchoring development, manufacturing, and training in Nebraska, HWC is building a stable operational foundation rooted in the center of U.S. livestock agriculture. From this base, the system is designed to scale outward—first regionally, then nationally, and ultimately into international markets where lagoon-based storage remains the dominant model.

In doing so, HWC is not merely introducing a new technology, but redefining how livestock waste is managed at its source. The goal is not incremental improvement, but systemic replacement—creating a new standard for agricultural waste infrastructure that can endure for generations.