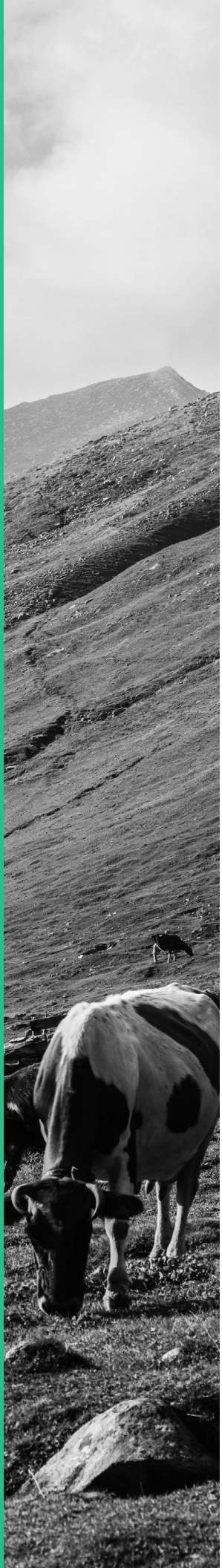
ADVANCED ANIMAL WASTE TREATMENT SOLUTIONS



AOT™ System

FOR CONCENTRATED ANIMAL FEEDING OPERATIONS

A cost-effective modular system comprising of total animal effluent treatment, water recycling, and drying of solids into a commercial organic-certified fertilizer.

- Converts nutrients into a value-added fertilizer and recycles water as a clean reusable resource
- Allows for farm expansion and increases regulatory compliance through a Closed Loop System
- Destroys harmful pathogens while increasing productive, beneficial bacteria
- Protects the natural environment including lakes, rivers, and streams
- Increases livestock health by reducing volatilization of nutrients
- Produces no discharge or pollution
- Meets regulatory compliance standards

SAVE THE WATER™

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“As you are aware, there continue to be challenges in how we can more effectively use manure on cropland while minimizing the potential water, soil, and air quality problems. These challenges can be met if we apply our imagination to this problem and I am excited about the [AOT™] system... to process and dry manure. What I have seen of the manure handling system could provide a solution to the ammonia emission and pathogen problem and retain the nutrients in the solid materials...

This is one of the most exciting technologies I have seen in the past few years on manure handling.”

– J.L. Hatfield, Laboratory Director
National Soil Tilth Laboratory, USDA

Overview of the AOT™ Solution

AOT™ offers a completely integrated solution to treat animal waste. This technological breakthrough will resolve the most significant problem of today's "raising-animals-for-food" industry.

Save the Water™ is taking the next step in transforming America's concentrated animal feed operations (CAFOs), which are plagued with economic, ecological, and environmental challenges into a self-sustaining green industry.

This technology will improve the financial performance of the industry, while converting its toughest operational challenge (disposal of animal waste) into a profit center for farmers.

The system allows CAFOs and AFOs to achieve a Zero Discharge of Waste Goal with complete recovery, recycle, and reuse of animal waste as a recoverable natural resource.

The environmental impact of "Zero Discharge" allows the watershed/water quality conditions to continue to improve at an accelerated rate.

AOT™ Benefits

Most CAFOs rely on 100-year-old technologies and techniques that have made only marginal improvements in the collection and disposal of animal waste. Save the Water™'s solution stops the problem at the source while improving business operations by doing the following:

- Eliminates odor
- Recaptures water in the waste stream
- Sequesters nutrients
- Stops groundwater and estuary pollution
- Reduces antibiotic use
- Improves worker and animal health
- Restores soils
- Increases crop production
- Minimizes vegetable contamination
- Creates a marketable product
- Improves profitability of the CAFO operation
- Cleans up old sites
- Addresses all size operations
- Produces a stream of profitable by-products for farmers

How it Works

The process schematic on the next page (Fig. 2) visualizes the animal waste treatment process in concentrated animal feeding operations (CAFOs), such as swine and dairy cattle. The traditional waste treatment process is shown on the upper right side of the schematic in green, and Save the Water™'s proprietary AOT™ system is shown on the left and bottom of the schematic in blue.

With traditional treatment methods, the animal waste is simply washed, mixed, and spread raw into the environment. This results in an untreated high-odor product (manure) that causes water pollution and regulatory compliance problems. It also wastes a substantial amount of water and puts additional financial burdens on farm operations from the use and storage of contaminated water and fertilizer.

The AOT™ system eliminates these problems by economically treating the waste with a proprietary additive (blue flow line #2), which is then sent through the AOT™ reactor and ozone diffusion, followed by proprietary flocculation additives. The solids are then separated by a centrifuge and dried, producing an odor- and pathogen-free fertilizer.

The produced water is separated into two streams – one is treated with ozone to further purify and reuse it (blue flow line #4), and the other is sent back to the process as flush water (blue flow line #3).

AOT™ dewatering centrifuge

AOT™ dryer

Fig 1. Water & fertilizer samples from traditional waste treatment vs. AOT™ (sample numbers correlate with those on Fig. 2)

This image shows samples of the water and fertilizer produced from a traditional waste treatment versus AOT™. #1 is the current flush water and #2 is the raw manure water. #3 is the AOT™ flush water, and #4 is the final water produced for reuse. #6 is the dewatered solids, and solid #5 is the odor and pathogen free fertilizer that can be sold commercially.

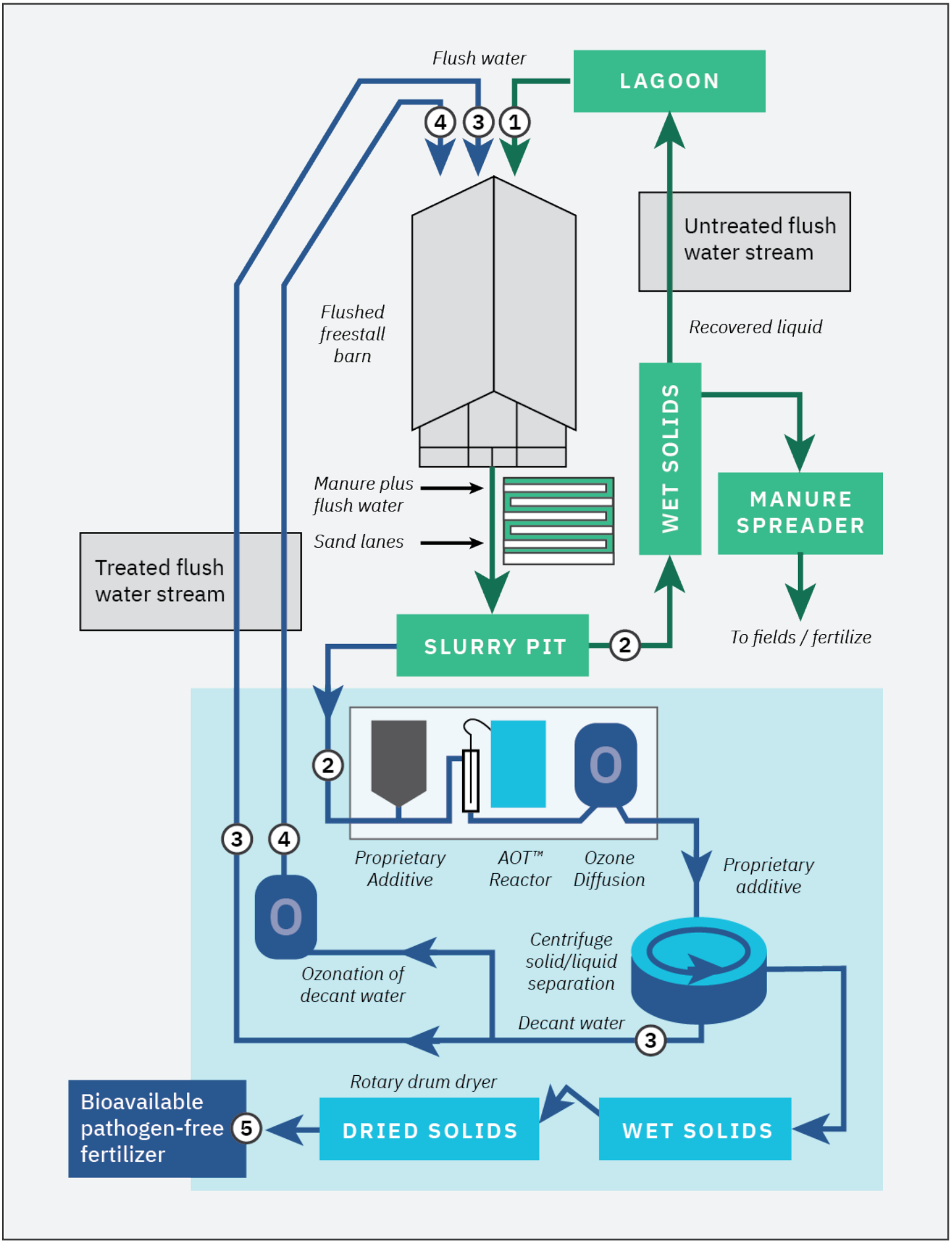

Fig 2. Process schematic of animal waste treatment processes for CAFOs with traditional systems vs. AOT™ (sample numbers correlate with those on Fig. 2)

Cost Savings & Optimization

CAFOs of all sizes are particularly concerned about access and control of a reliable source of fresh water (for consumption, cleaning, and flushing) in support of their operations. Such water sources, whether provided publicly or commercially, are expensive (as much as hundreds of thousands of dollars annually for even small CAFOs). Self-owned wells, on the other hand, run the risk of depletion because the amount of operational water needed is so great.

The challenges facing the food-supplying industries' CAFOs (and therefore the target of this plan) are that of finding the means to:

- Manage more effectively and efficiently the disposal of animal waste
- Mitigate the health and environmental concerns through the application of leading-edge technologies
- Transform a current economic burden (for CAFOs) into a new source of revenue and improved profitability to the operations

Save the Water™ has developed a technological breakthrough in animal waste treatment that results in more effective and efficient disposal by alleviating or minimizing all health and environmental concerns. The technology destroys pathogens, isolates nutrients (for production of an organic fertilizer), and can recycle the water and return it to the operation for reuse. We convert the current waste economic burden into a new source of revenue.

The resultant ability to recycle and reuse a high percentage of wastewater alone is a monumental cost reduction for larger-scale CAFOs, and in smaller-scale CAFOs it may be a major factor in allowing the small family farm to continue operating.

Save the Water™ provides proprietary solutions that ensure complete management of animal waste at CAFOs. In addition to mitigation of the environmental and ecological challenges present in CAFO animal waste, Save the Water™ delivers an improved model through operational cost improvement and production of marketable by-products.

The AOT™ would be a totally integrated green solution to waste management at CAFOs. This holistic view provides a new business model where the operational cost savings, combined with the sale of by-products resulting from the technology, provide for an attractive payback on the capital equipment expense while simultaneously improving the operating margin.

Case Study

The substantial benefits of the AOT™ system were first demonstrated by the inventor on a family farm in Iowa, which raised 4,500 hogs per year.

The focus of this initial study was on hogs because it is generally acknowledged that swine waste is the most difficult to process, as it contains more volatile compounds than bovine or poultry waste.

The laboratory results to date, independently verified by third parties, included:

- 97% capture of nitrogen, phosphorus, and potassium into dried solids
- 97% reduction in malodor
- 97% reduction in chemical odor
- 100% elimination of pathogens in dried solids

Other benefits mathematically derived from the demonstration data were:

- 70% reduction in carbon emissions
- 80% recapture (and recycling) of water for operational reuse

LAB TEST SUMMARY (FARM BUREAU)			
Analysis %	2.8% Manure	Air-Dried Solids	Tempest Dried
TKN	0.48	1.5	3.07
Organic (N)	0.4	0.56	0.93
Nitrate (N)	0.13	0.37	**0.43**
Total (N)	0.61	1.87	**3.5**
Total (P)	0.07	1.2	2.0
Total (K)	—	—	1.8
Calcium	0.06	1.93	3.09
Carbon	2.0	17.7	**23.4**
Solids	2.82	44.5	**87.8**
Fecal Coli form MPN/100ml	4700	<2	**<2**

Source: J. Jeske, Eldora, Iowa
Operating Parameters: Onsite Mobile Trailer run at 37 GPM continuous flow

AOT™ Typical Results

ANALYSIS OF SAMPLES FROM AOT™ SYSTEM						
Samples from Figure 1:		1	2	3	4	
Parameter	Units	Recycle Flush Water from RCS	Raw Measure Stream from Freestall Barn	Decant Liquid after Treatment w/ Zeolite and Ultrasound	Decant Liquid from Centrifuge after Ozone Treatment	Percent Reduction from Sampling
TS	mg/L	4,750	10,200	2,506	2,470	76%
TSS	mg/L	960	3,400	128	18	99%
TOS	mg/L	3,790	3,840	2,240	2,170	43%
TVS	mg/L	2,660	4,100	715	649	84%
TKN	mg/L	556	520	226	211	59%
Total P	mg/L	55.30	73.10	1.55	0.55	99%
Ortho-P	mg/L	12.70	13.70	0.08	0.01	99%
BODS	mg/L	909	936	139	138	85%
E-coli	MPN / 100ml	980,000	193,490	>2.4M	0.5	100%
Total Coliform	MPN / 100ml	727,000	307,590	>2.4M	0.5	100%

About Save the Water™

Vision | Our vision is to achieve contamination-free, healthy water for all. We want to ensure all communities have access to clean, healthy water and to protect the supply so it stays clean for generations to come.

Mission | The mission of Save The Water™ is to conduct water research to identify and remove harmful contaminants in water, to improve the quality of drinking water, and to raise public awareness about water contamination and its health impact.

Work | Our research team will work on ensuring each chemical present in North American waters is identified and its effects documented. Then we will translate this information into simple terms and share our knowledge so that every family in the United States and Canada is aware of water pollution's health impacts. Our scientists and engineers have designed water treatment technologies to remove dangerous pollutants in water to make water cleaner for our families.

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