

FAN Bedding Recovery Unit (BRU)

Drum Composting Technology



BUSINESS OVERVIEW

Headquartered in Westfalia, Germany, FAN Separator, established in 1986, specializes in solid/liquid separation equipment and solutions for mechanical and chemical-physical treatment. With a global presence across five continents and a significant presence in the U.S. dairy industry, FAN Separator is known for its innovative products, including the groundbreaking Bedding Recovery Unit (BRU) introduced in 2005. As part of the Bauer-Group since 2004, the company has strengthened its capabilities to tackle industry challenges effectively. FAN Separator serves over 80 countries through an extensive network of distributors and agents, making it a prominent player in the international market.

PROJECT

TECHNOLOGY OVERVIEW

Generating new bedding on a daily basis, the FAN BRU system functions as an insulated Compost Dryer, subjecting the solids in slurry, to a rigorous aerobic process that not only significantly reduces harmful bacteria, but also dries the material. This entire process takes place in a controlled environment, guaranteeing a uniform mixture. As a result, the chemical composition of the manure undergoes a transformation once the cycle is finished, effectively countering the presence of mastitis-causing microorganisms that were initially present in the fresh manure, optimizing cow comfort and milk production.

PROJECT SIZE

As of 2018, FAN Separator has successfully installed BRU systems on a total of 80 U.S. dairy farms, ranging in size from 250 cows to more than 4,000 cows. Depending on the type of system, FAN BRU can produce between 13.1 and 62.8 yd³ of treated manure solids per day.

REQUIREMENTS

FAN BRU requires a feedstock such as dairy or cattle manure, swine manure, poultry litter, municipal biosolids, brewery sludge, animal mortalities, and food residuals. To implement a FAN BRU system, farms need available space on their farm for system installation, a concrete pad, a reliable power supply, access to a source of slurry (undigested raw fibers), fresh water for cleaning and in most cases, a manure separator. Proper planning, compliance with regulations, regular maintenance, monitoring, record keeping, and training for personnel are also crucial.

KEY CALL-OUTS



Reduced Nutrient Leaching: Nutrient-dense Recycled Manure Solids (RMS) mitigates nitrate leaching risks into waterways.



Pathogen Elimination: FAN BRU produces virtually pathogen-free bedding.



Steady Bedding Supply: Within 1-3 days, FAN BRU transforms recycled manure solids into quality cow bedding.



Cost-Efficiency and Eco-Friendly: FAN BRU separates, dries, and disinfects raw fibers, cutting costs and optimizing milk production, all while contributing to an ecological cycle.

Findings are based on an evaluation conducted under a Conservation Innovation Grant awarded to Newtrient. To view a more detailed description of these results, visit the FAN BRU Evaluation Summary on the [Newtrient website](#).



FINANCIAL OVERVIEW



CAPITAL INVESTMENT

As of 2023, the BRU-400 system is estimated at \$223,080; the BRU-1000 is estimated at \$380,380; and the BRU-2000 system is estimated at \$405,210, with an additional \$20,000 if a pump and mixer are required. The estimated cost for the equipment is calculated based on various factors such as specifications, features, and market prices, providing a reasonable projection of the investment required. The estimate does not include installation costs and other necessary equipment expenses.



DOWNSTREAM BENEFITS

When not utilized as bedding on the dairy, the treated RMS generated from FAN BRU offers the potential for additional farm income. It can be sold to other farms for use as bedding, potting soil, or fertilizer, providing an additional revenue stream for the farm.

ENVIRONMENTAL IMPACT

WATER QUALITY

FAN BRU technology delivers significant water quality benefits by mitigating the risks of nutrient leaching during both storage and land application, which sets it apart from non-treated manure management methods. The reduction in nutrient leaching achieved by FAN BRU treatment is particularly noteworthy, as it effectively prevents the infiltration of harmful chemicals and bacteria into waterways.

PATHOGEN REDUCTIONS OR ELIMINATIONS

FAN BRU technology offers remarkable pathogen-killing capabilities, resulting in the production of near pathogen-free animal bedding with a dry matter content ranging from 36% to 46%. The treatment process within the FAN BRU unit is highly effective, as it reduces the presence of fecal coliform bacteria through high temperatures from an initially unacceptable level to nearly undetectable levels. This exceptional pathogen control not only ensures the creation of a safe and high-quality bedding environment for cows, prioritizing their well-being and overall health, but also reduces the risk of pathogen contamination into surface and groundwater.



FAN BEDDING RECOVERY UNIT (BRU) SYSTEM

NEWTRIENT'S 9-POINT TECHNOLOGY SCORING



For FAN Bedding Recovery Unit (BRU)



- 1 | Operational History
- 6 | Value Proposition
- 2 | Operational Reliability
- 7 | Vendor Information Sharing
- 3 | Market Penetration
- 8 | Case Study
- 4 | Capital Cost
- 9 | Funding Availability
- 5 | Operations & Maintenance Cost

Discover Newtrient's technology evaluation process: Learn more about [Newtrient's 9-Point Technology Scoring System](#).

Visit the [FAN BRU](#) page in Newtrient's Solutions Catalog.

Each solution can earn up to nine points, one for each criterion. Colored numbers indicate fulfilled criteria.

FAN BRU is designated as **Newtrient Recognized**, meaning it is a solution that demonstrates high marks on the 9-Point Criteria and does what it claims to do.



Newtrient's mission is to reduce the environmental footprint of dairy while making it economically viable to do so.

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