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Technology/Service: Bedding production, horticultural product production, nutrie

Information by: Scott Whorley

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COMPANY INFORMATION

Company Name: Nutrient Control Systems, Inc. (NCS)

Phone: 717.261.5711

Web Site: <http://www.ncsysinc.com/>

Address: 126 Sunset Blvd. East

State: PA

City: Chambersburg

Zip Code: 17202

TECHNICAL CONTACT

Name: Scott Whorley

Site Name: Response not given

Phone: 717.261.5711 or 717.658.4127 mobile

Contact:

Email: swhorley@ncsysinc.com

Title:

Address: 126 Sunset Blvd. East

Phone:

City: Chambersburg

Email:

State: PA

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Zip Code: 17202

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State:

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INITIAL TECHNOLOGY OVERVIEW

This information is to guide in the development of a more specific and detailed Technology Information Request. Please answer the following questions for each Technology or Service provided.

What is the name of the technology or service you provide?

Cri-Man direct-fed screw presses

Describe how this technology is used in a larger Nutrient Management System. Please be as detailed as possible.

These machines are used to provide the dairy farmer with comfortable bedding as well as nutrient management. Another benefit is to reduce solids in manure that are going to the lagoon or final holding areas. We can reduce these solids and increase storage capacity in the holding areas by up to 20%.

How many systems do you have installed on dairy farms or other livestock operations?

	Number of Sites	Size of Installations
Dairy	100+ in US, 1000+ worldwide	100 cow to 5,000 cow+
Pork		
Poultry		

Do you have a preferred region or area for the location of projects?

No

Location of farm(s)?

Encompass major dairy regions of the US

What's the smallest and largest farm using your system?

100 – 5,000 cows +

Input and output of your unit/system – do you have a mass balance analysis?

If a mass balance is available, please attach or include as a separate document.

Yes. Mass balance is dependent upon specific farm size and level of solids removal used. A mass balance would be furnished with proper confidentiality agreements.

Input material description/characteristics:

For example: raw manure, digestate, screened digestate, suitable non-farm feedstocks, other.

Any pumpable input

Does the technology treat the full manure stream for a farm or a fraction of the stream?

Full manure stream

Do you consider this a mature system or ongoing farm development?

Mature system

Any weather constraints? Yes No *Please describe.*

We have units in warm climates such as Florida and California and also colder areas such as New York, Wisconsin, and Vermont

Any bedding constraints? Yes No *Please describe.*

Output materials description and characteristics:

Please include the % of the total stream for each material, i.e. 10% fiber and 90% screened liquid by weight.

Output solids are 20-45% by volume on a net mass balance basis (net of recycled water on flushing dairies).

Do the Outputs of the process have a resale market identified? Yes No

If so under what brand name or who is the contract with?

Confidential, however, dairy farmers have the ability to sell excess fiber to other dairies or landscaping companies. The presses will produce more fiber than what is needed for bedding.

Is this process scalable and to what extent (top and bottom limits)? *Please describe.*

Yes. Typically, one cow can produce enough manure to obtain bedding for two cows.

Do you have a known scaling factor? *Please describe.*

N/A

Does this technology require any air input? Yes No

What is the preferred air connection? *For example: psi, fitting size, air quality.
If not distributed by the system please list each connected device.*

Certain components do.
Confidential

Does this technology require any water input? Yes No *If so, please describe.*

Parlor water (or fresh water) is typically needed to dilute the material to obtain a total solids between 4 to 12%.

What is the preferred water connection? *For example: psi, fitting size, water quality, gpm.
If not distributed by the system please list each connected device.*

Parlor water inputs are preferred.

Does this technology require any electrical input? Yes No *If so, please describe.*

What is the preferred electrical connection? *For example: phase #, voltage, full load amps.
If not distributed by the system, please list each connected device.*

Presses can accommodate single and three phase voltage. Overall system amp load varies with farm size and voltage considerations. Generally speaking presses range from 5 - 10 hp per units.

Does this technology require any mechanical input? Yes No *If so, please describe.*

What is the preferred mechanical connection? *For example: horsepower, connection, rpms.
If not distributed by the system please list each connected device.*

Confidential

Does this technology require any special plumbing? Yes No *Please describe what is required.*

Machines are generally plumbed in PVC

Does this system require and special foundations or pads? Yes No *If so, please describe.*

Generally, an elevated building houses the unit, however, conveyors can be used to transport material to other areas.

Do you consider this technology part of a larger system that you provide? Yes No *If so, please describe.*

Pumps and mixers are used to provide a complete system.

Does your system require any other components that you do not provide or are not included in your proposal?

Yes No *If so, please describe.*

Farm provides electric power supply and liquids storage

How is the system delivered to the site? *For example: skid mounted, assembled on site, constructed on site.*

All listed

Is this system portable or configured in such a way that it could be easily transported for use in several locations?

Yes No *Please describe.*

The unit can be moved, but it generally going to stay in the same area

Has your technology been accepted by the NRCS and is it included into a practice standard? Yes No
Describe if necessary.

Response not given

Are there any unusable or hazardous byproducts of this process? Yes No
If so, please describe the product and recommended means of disposal.

What spare parts and redundant components are included with the system?

Spare parts are typically purchased as required. We carry a complete inventory of spare parts.

How is the system controlled and what are the components and capabilities of the control system?

Customized control panel provided by NCS

What is the usable life of the system?

5-20 years depending upon site conditions

What is the salvage value at the end of the usable life?

Response not given

What is the educational and technical level of competence for the operation of the system?

Ranges from basic mechanical skills to specialized electrical knowledge. Manuals are provided.

What level of maintenance is required for the system?

Please indicate if rebuilds or major components must be replaced and what the frequency is for these components.

Screens and augers are the main wear components. Screens should be cleaned once a month. Screen life varies on amount of grit going through the unit. Same with augers.

Are consumables used in the process? Yes No

Please provide the nature and purchase relationship for these consumables. For example: proprietary, special contract, generally available.

Wear parts on mechanical components

Which of these NRCS codes would your technology be classified under? Check all that apply. Add If necessary.

CODE	NRCS DESCRIPTION	APPLIES
472	Access Control	
560	Access Road	
309	Agrichemical Handling	
371	Air Filtration and Scrubbing	
591	Amendments for the Treatment of Agricultural Waste	
366	Anaerobic Digester	
672	Building Envelope Improvement	
372	Combustion System Improvement	
317	Composting Facility	
554	Drainage Water Management	
375	Dust Control from Animal Activity on Open Lot Surfaces	
373	Dust Control on Unpaved Roads and Surfaces	
374	Farmstead Energy Improvement	
512	Forage and Biomass Planting	
561	Heavy Use Area Protection	
516	Livestock Pipeline	
590	Nutrient Management	
521A	Pond Sealing or Lining, Flexible Membrane	
533	Pumping Plant	
558	Roof Runoff Structure	
367	Roofs and Covers	
318	Short-Term Storage of Animal Waste and By-Products	
570	Stormwater Runoff Control	
606	Subsurface Drain	
635	Vegetated Treatment Area	
601	Vegetative Barrier	
360	Waste Facility Closure	
632	Waste Separation Facility	
313	Waste Storage Facility	
634	Waste Transfer	
629	Waste Treatment	
359	Waste Treatment Lagoon	

Can you provide an estimate of the capital required for the installation of this technology?

Please include all components and designate if provided by you or others.

Screw presses are typically sized based on the need of the farmer and size of operation. Units range from \$30,000 to \$60,000.

Can you provide an estimate of the operational costs required for this technology?

Please include all costs and designate if provided by you or others.

Is there financing available for this system? Yes No *If so, what are the conditions for this financing?*

Yes. We work with a financing company that can provide an application process.

Is the system available for lease? Yes No *Please describe.*

What sort of warranty or guarantee do you provide with this technology?

Do you provide any performance guarantees or strictly defects in parts and materials?

One year on all non-wear parts

Explain how this system is unique or transformative and how does it improve upon or go beyond other technologies that are currently available.

The Cri-Man presses are unique in that they are bottom-fed and employ an overflow tube. This helps make sure that the press always gets more manure than it can handle, which aids in efficiency by creating the perfect head pressure. Other presses are top or side-fed. Additionally, the presses have a front bearing that keeps the auger perfectly aligned from the front clear back to the planetary gears.

Would you be willing to provide a location for a site visit by Newtrient? Yes No

If so, please provide location.

We have many sites available to tour across the country.

Technology References. Please provide customers with whom we can discuss this technology and its performance. Include a company name, location, contact name and contact information.

Reference 1

Company Name:	
Company Location:	New York
Contact Name:	Bill O'Dell
Contact Information:	716-397-9629

Reference 2

Company Name:	Beam Dairy
Company Location:	North Carolina
Contact Name:	John Beam
Contact Information:	704-300-9642

Reference 3

Company Name:	Vernon Martin Farm
Company Location:	Maryland
Contact Name:	Delvern Martin
Contact Information:	301-573-1926

Reference 4

Company Name:	Beidel Brothers Dairy
Company Location:	Pennsylvania
Contact Name:	Wayne Beidel
Contact Information:	717-423-6705

Are there any other facts about this technology that you feel should be included in this document?