NEWTRIENT
INNOVATIVE SOLUTIONS IN RESOURCE RECOVERY

TECHNOLOGY PROVIDER
TECHNOLOGY INFORMATION REQUEST

(1)

Technology/Service:	Bedding production, horticultural product production, nutrie		
Information by:	Scott Whorley	**Date:**	12/22/2016

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
Phone:	717.261.5711 or 717.658.4127 mobile
Email:	swhorley@ncsysinc.com
Address:	126 Sunset Blvd. East
City:	Chambersburg
State:	PA
Zip Code:	17202

DEMONSTRATION SITE CONTACT

Site Name:	Response not given
Contact:	
Title:	
Phone:	
Email:	
Address:	
City:	
State:	
Zip Code:	

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 mixers

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

Cri-Man mixers can be used to agitate any and all types of dairy, hog, and poultry manure.

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	250 cow to 5,000 cow+
Pork	20+ in US, 1000+ worldwide	
Poultry		

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

No preferred regions

Location of farm(s)?

Encompass major dairy regions of the US and Canada

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

50 – 5,000 cows +
any size of hog establishment

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 source of waste product

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 mixers in warm climates, as well as very cold climates

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.

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?

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

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.

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

The mixers do not require water input, however water is required to dilute material used to produce bedding and aids in the agitation process

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.

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.

The pumps can accommodate single and three phase voltage. Overall system amp load varies with farm size and voltage considerations.

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.*

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

Submersible mixers require attachments and accessories, which include a rail system and bracket placed at the bottom of the pit

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

Depends. Mixers can be sold individually or as part of a bedding package

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

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

Depends upon size of the mixer. Smaller mixers can be delivered via UPS or FedEx. Larger mixers are delivered via skid.

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.*

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 the 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?

Can be controlled with a variable frequency drive or a motor starter.

What is the usable life of the system?

Depends 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. Technical support is provided by NCS

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.

Very little maintenance involved.

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.

The price range on mixers varies

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 warrantee 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.

Cri-Man mixers are very aggressive agitating machines. They come in submersibles (which we use almost exclusively) and in vertical form. Flow accelorators for biogas are also available. NCS views the mixers as one of the most efficient and aggressive mixers on the market with very low maintenance required.

Would you be willing to provide a location for a site visit by Newtrient? ◉ **Yes** ○ **No**
If so, please provide location.

We have hundreds of sites nationwide that use Cri-Man mixers

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:	Available upon request
Company Location:	
Contact Name:	
Contact Information:	

Reference 2

Company Name:	
Company Location:	
Contact Name:	
Contact Information:	

Reference 3

Company Name:	
Company Location:	
Contact Name:	
Contact Information:	

Reference 4

Company Name:	
Company Location:	
Contact Name:	
Contact Information:	

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