



Building Partnerships to Solve Major Environmental Problems

2014 Sustainable Company
of the Year



Portfolio
Company

Common Sense Economic Solutions to Nutrient Loading & Pollution



QuickWASH™ 

80-95+%+Phosphorus removal and recovery

Every pound of Phosphorus recovered =
a pound that will never enter the Chesapeake Bay



Developed by USDA-ARS

Patent - March 18, 2014 - 8673046

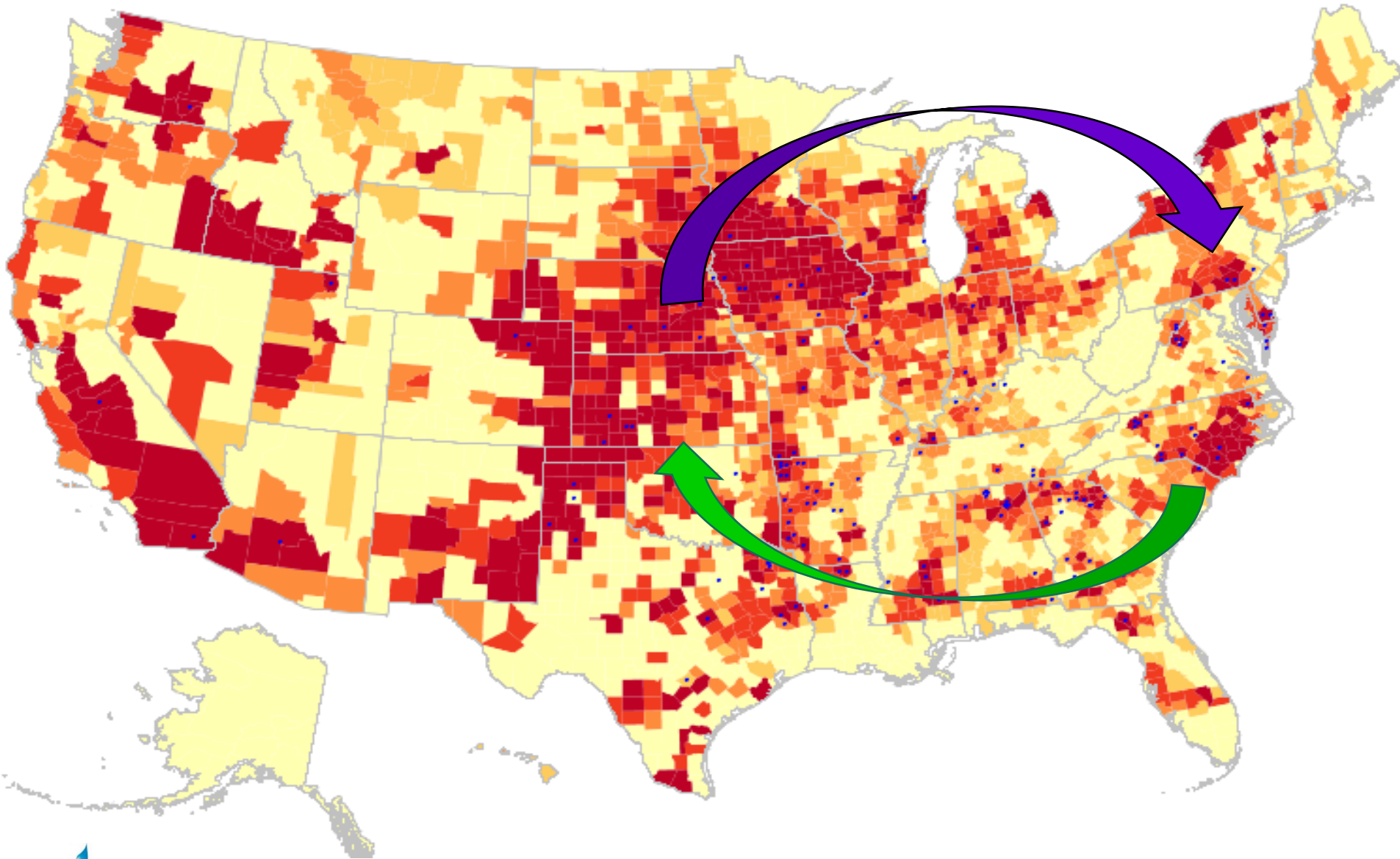
Exclusive North American License

Effective on all forms of animal manure and human bio-solids

Awarded a \$250,000 development grant from Md. Dept. of Natural Resources

Three pilot plants in design – Eastern Shore, Necoia Illinois, Ephrata Pa

Issue & Opportunity



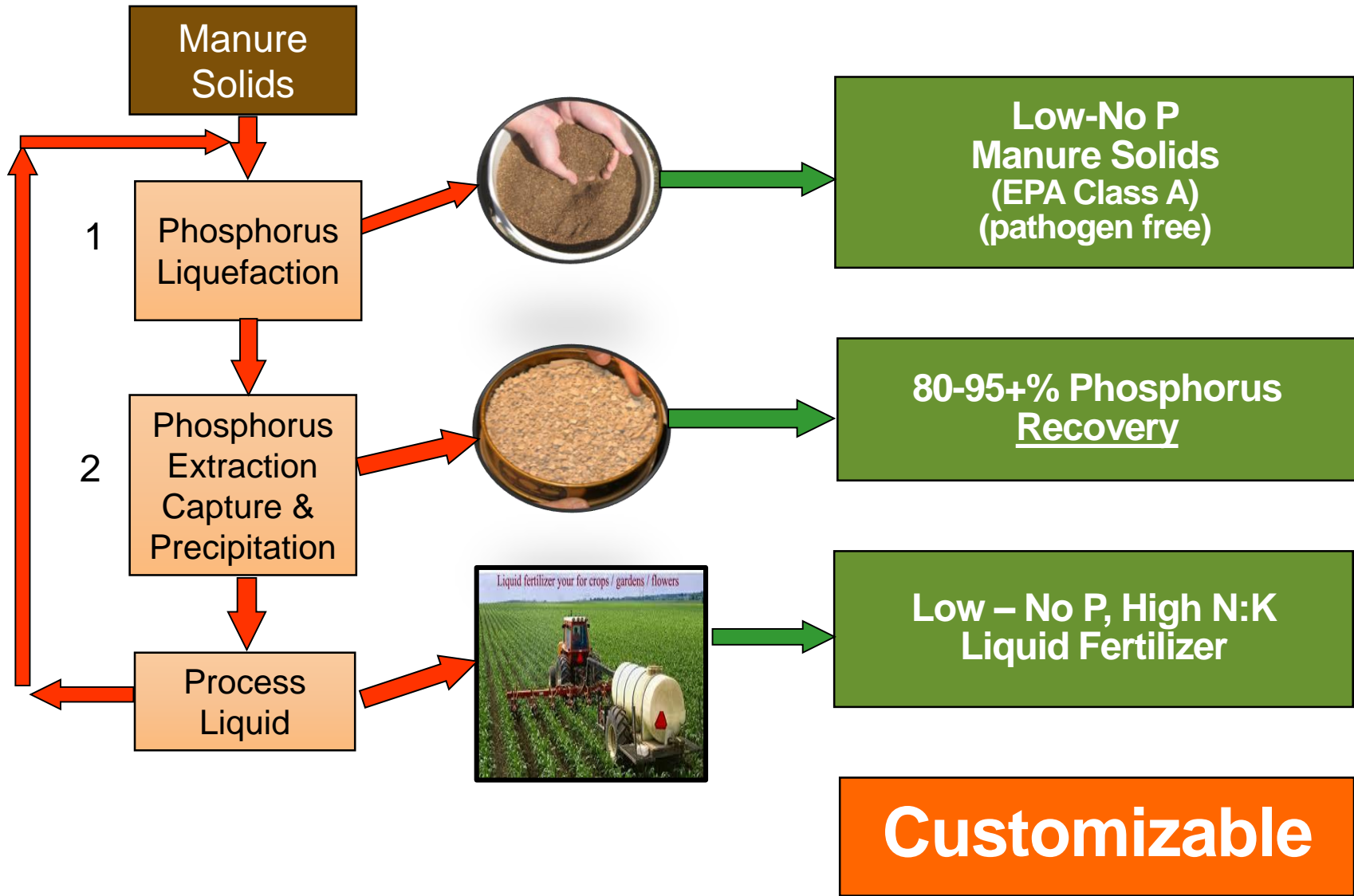
Goals

Goal = Average 90+% Phosphorus Recovery

Dramatically reduce nutrient loading in the Chesapeake Bay region

Keep as many resources on local land as possible

Create new economic opportunities for farmers



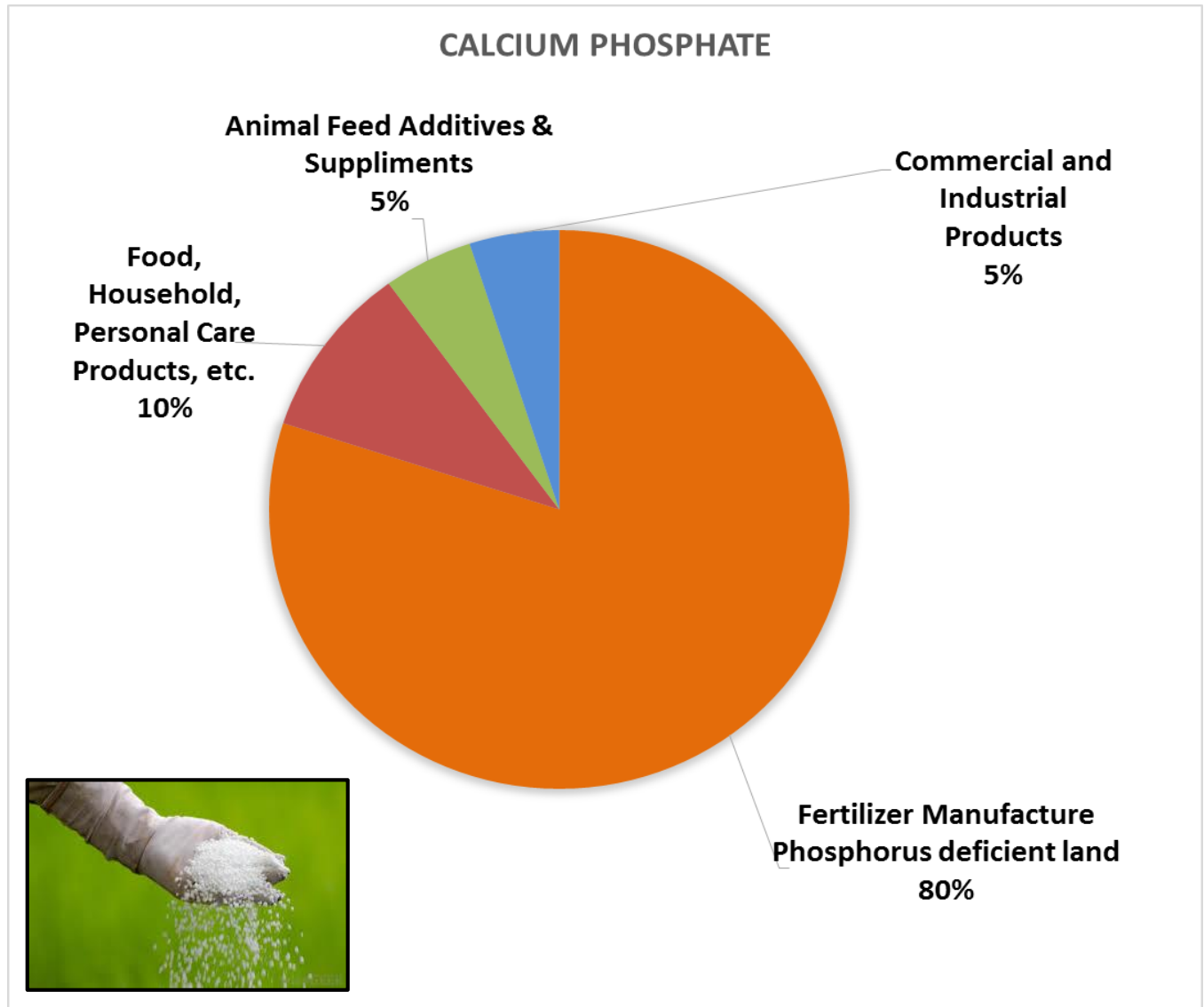
Results to Date

Manure Type	Average % P Recovery
Patent/Research Results (Poultry)	72-83%
Poultry (West Virginia) (1st run)	76-85%
Poultry (Southern PA) (1st run)	70-90%
Swine (Illinois) (1st run)	98%

Potential Economic Opportunities

Current By-product Economic Value	Current Estimated Price/ton
Calcium Phosphate (Liquid or Solid)	\$400-\$700
EPA Class A Compost (Landscape Quality)	\$35-\$90
Liquid Fertilizer (Composition Dependent)	\$500-\$750
Nutrient Credit Trading	?????????

By-Product Uses



Product Outlets

By-Product	Outlets
Calcium Phosphate	● Direct to farm fertilizer in phosphorus deficient areas of country
	● Industrial, commercial chemical distributors, brokers
Manure Solids	● Direct to farm compost and soil amendment
	● National & International high quality compost markets
	● Manure to Energy system feedstock
Process Liquid	● Direct to farm low-no P, high N/P fertilizer
	● National and International markets

Operational Strategies



Greatest flexibility in implementation

On farm systems

Mobile processing platforms

Regional processing facilities

Manure to Energy processes


Establish by-product aggregation service

Strategic Business Partners



- Renewable Nutrients, LLC
- University of Maryland – Baltimore County
- Maryland Dept. of Natural Resources
- Maryland Industrial Partnership
- Synergistic Environmental Solutions
- Keystone Engineering Group
- Kershner Environmental Technologies
- Red Barn Consulting – Nutrient Credit Trading

Stakeholders

Growers/Farmers	Institutions	Organizations
Cottage Hill Farm, Petersburg, WV	University of Maryland Baltimore County	Delmarva Poultry Industry
Woodward Farms, Preston, MD	University of Maryland	USDA, Florence, SC, Beltsville, MD
E&J Farms, Kraemer, PA	University of Maryland Extension Service	Maryland Industrial Partnerships
Walk Stock Farm, Neoga, IL		Rural Maryland Council
		Technology Development Corp (TEDCO)
		MD Department of Natural Resources
		Chesapeake Bay Commission
		MD Department of Agriculture
		Chesapeake Bay Foundation
		Sustainable Chesapeake
		MD Clean Energy Center



Building Partnerships with the Agriculture Industry

Chris Haug
Chief Executive Officer
866.620.9245
Cell: +1 443.831.7113
lchaug@triatechnologies.com

Mike Schmid
Chief Marketing Officer
866.620.9245
Cell: +1 717.324.6296
mike.schmid@triatechnologies.com