



Metropolitan Water Reclamation District of Greater Chicago

**Welcome to the August
Edition of the 2021
M&R Seminar Series**

NOTES FOR SEMINAR ATTENDEES

- All attendees' audio lines have been muted to minimize background noise.
- A question and answer session will follow the presentation.
- Please use the "Chat" feature to ask a question via text to "All Panelists".
- The presentation slides will be posted on the MWRD website after the seminar.
- This seminar has been approved from the ISPE for one PDH, and approved from the IEPA for one TCH. Certificates will only be issued to participants who attend the entire presentation.

JAMES FOTOUHI
PROGRAM MANAGER
BLOOM, WASHINGTON, D.C.



As Program Manager for Biosolids Operations, James ensures that all DC Water and contractual biosolids operations and services at the Blue Plains Wastewater Treatment Plant follow the internal biosolids management plan and system, as well as Federal, State, and local regulatory permits and requirements. He also oversees blending, greenhouse and co-digestion operations, including managing the activities of over 50 contractor drivers, crane operators, and dispatchers. James holds a Bachelor's degree in Civil Engineering from the University of British Columbia and worked for BlueTech Research and Engineers without Borders before joining DC Water.

APRIL R. THOMPSON
DIRECTOR OF MARKETING AND SALES
BLOOM, WASHINGTON, D.C.

April Thompson is Director of Marketing and Sales for Bloom, a branded Class A EQ biosolids product developed by DC Water. Her main responsibilities include overseeing, planning and implementing all marketing and sales activities for Bloom, DC Water's recycled class A biosolids soil amendment produced at Blue Plains, the world's largest advanced wastewater treatment plant. Her achievements include growing sales 338% in one year, from 9,251 tons to 40,514 tons, and landing several prominent new accounts.

A graduate of The American University and the University of Virginia with an MBA and a master's in international development, April has worked at the nexus of entrepreneurship, agriculture/horticulture and the environment both locally and internationally. She has also worked as a freelance writer, editor and marketing/communications consultant for more than 20 years.





Bloom: Lessons in Biosolids Marketing & Sales

April Thompson

Director of Marketing and Sales, Bloom

James Fotouhi

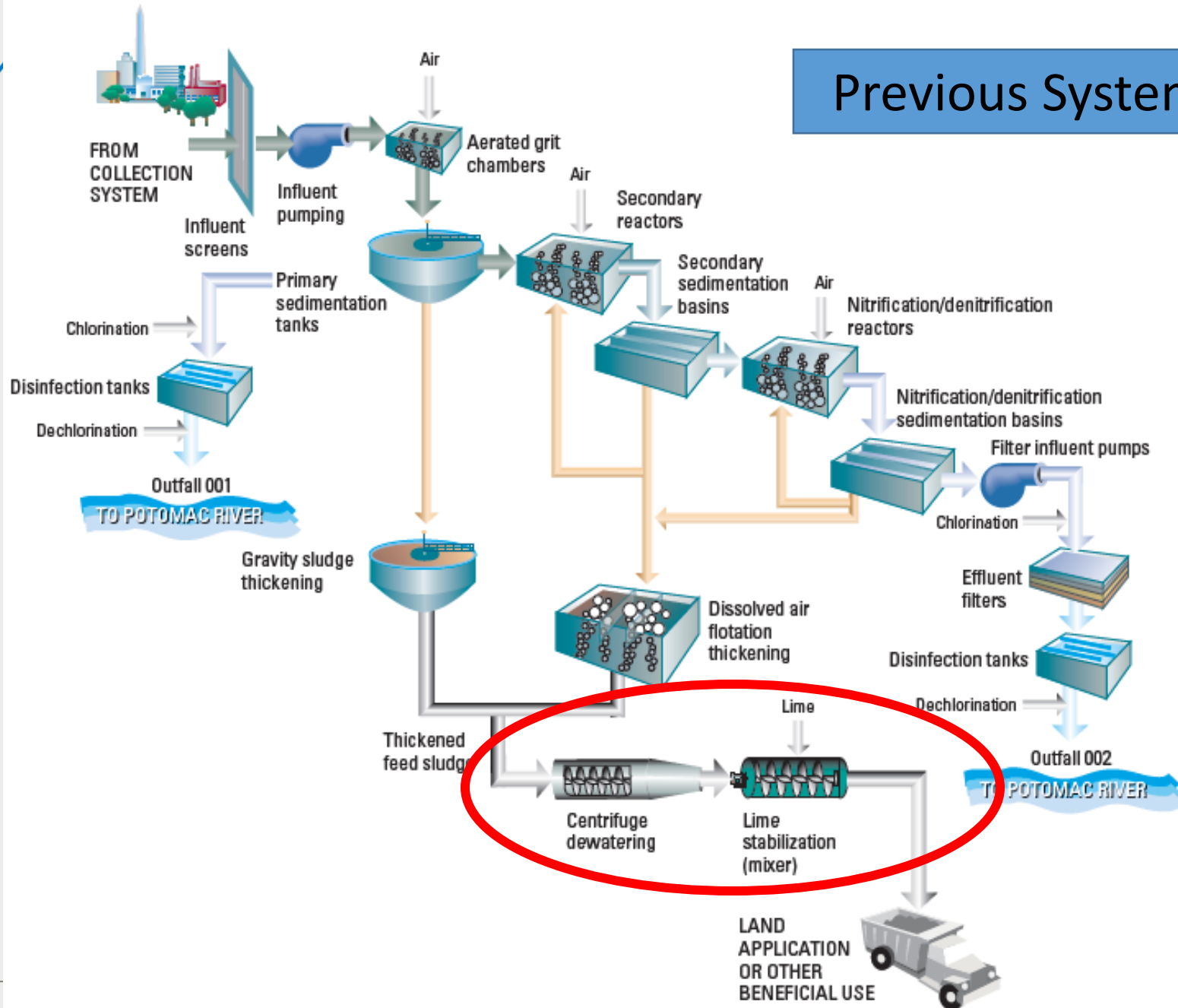
Program Manager, Resource Recovery, DC Water

There is no such thing as waste, only wasted resources.



370 million gallons/day (16.2 m³/s) design capacity
Largest advanced Water Resource Recovery Facility in the world

Previous System

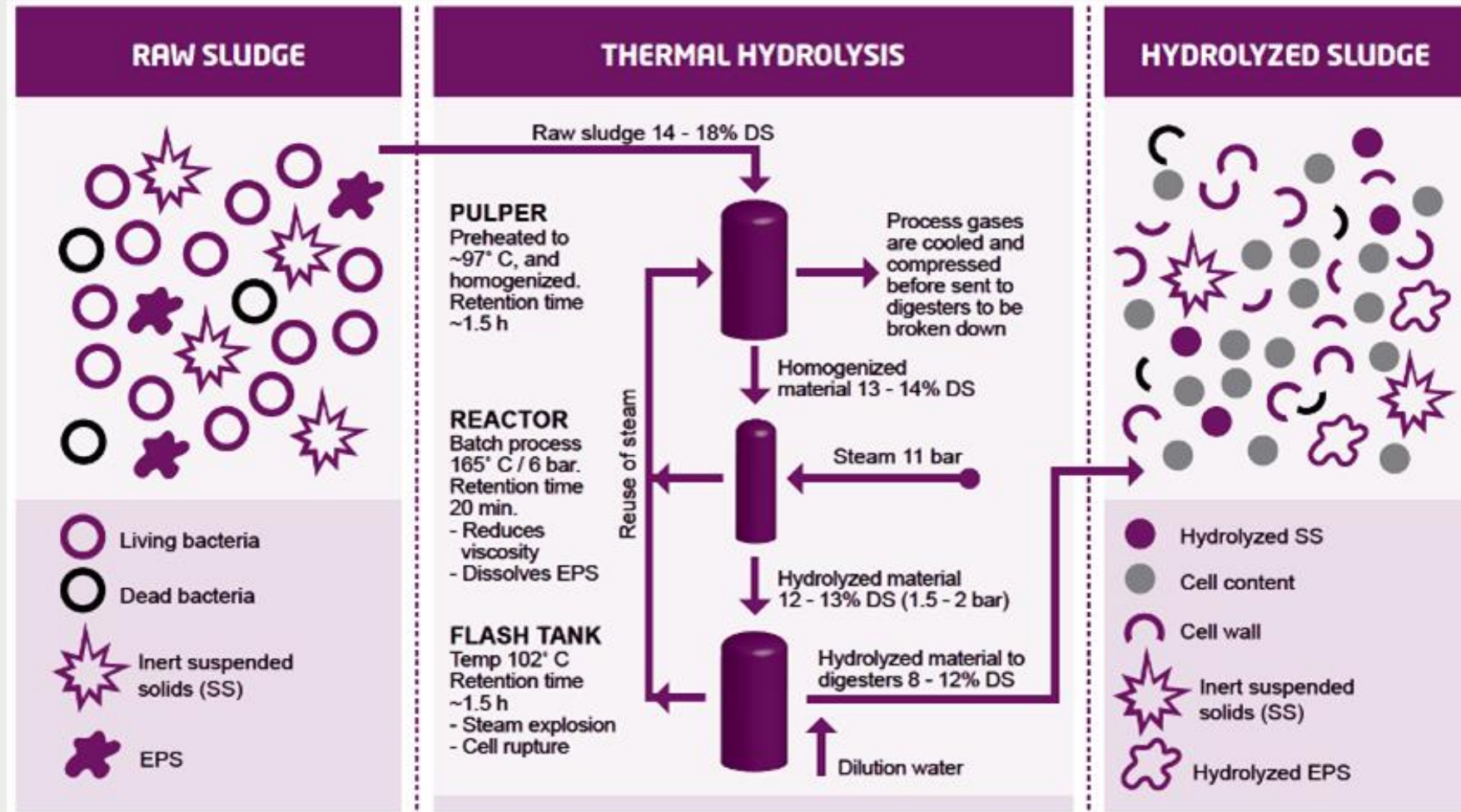




Blue Plains: Anaerobic Digestion / Thermal Hydrolysis



Thermal Hydrolysis Process



Program Benefits



Reduce biosolids quantities by more than 50%



Improve product quality (Class A and more)



Generate 8 MW of clean, renewable power



Cut GHG emissions dramatically - by 1/3 or 50,000 MT CO₂e annually



Save millions of dollars annually

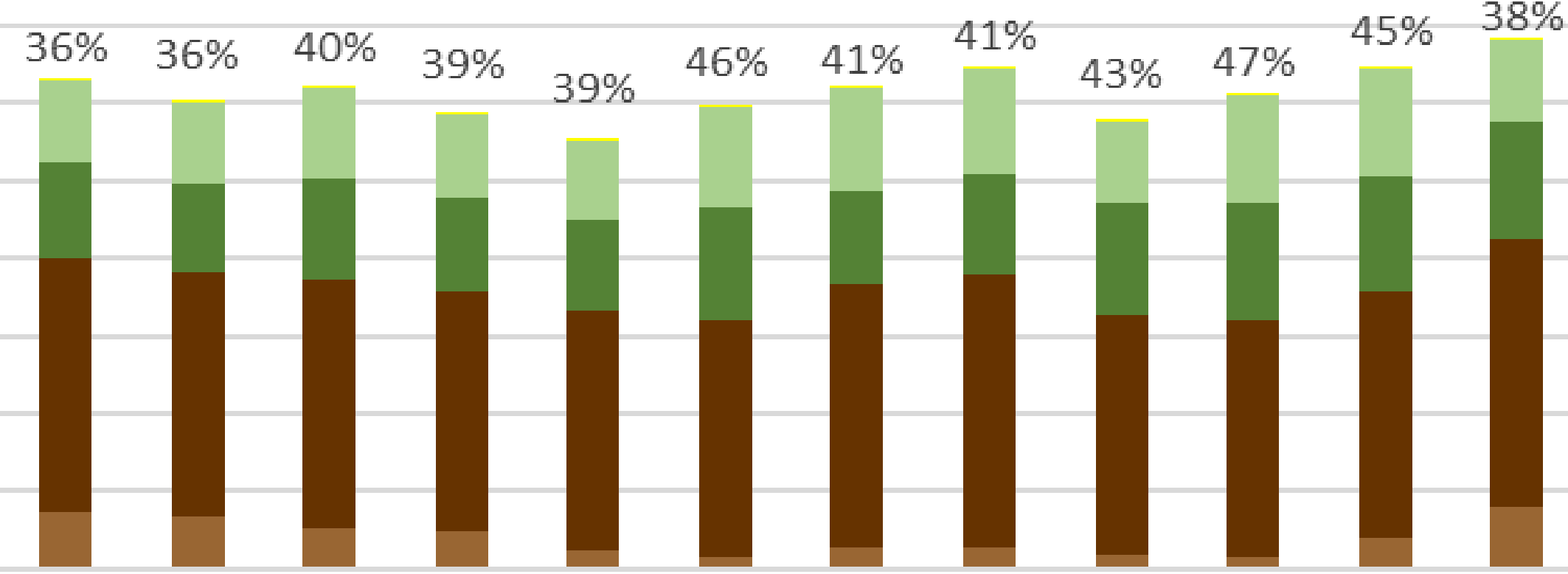
Digester and CHP provide ~40% of the Blue Plains Energy Needs

MWhr/month

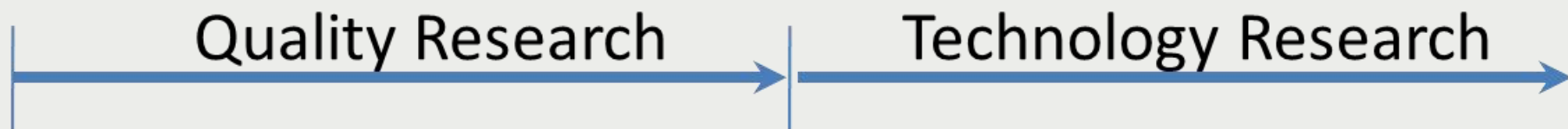
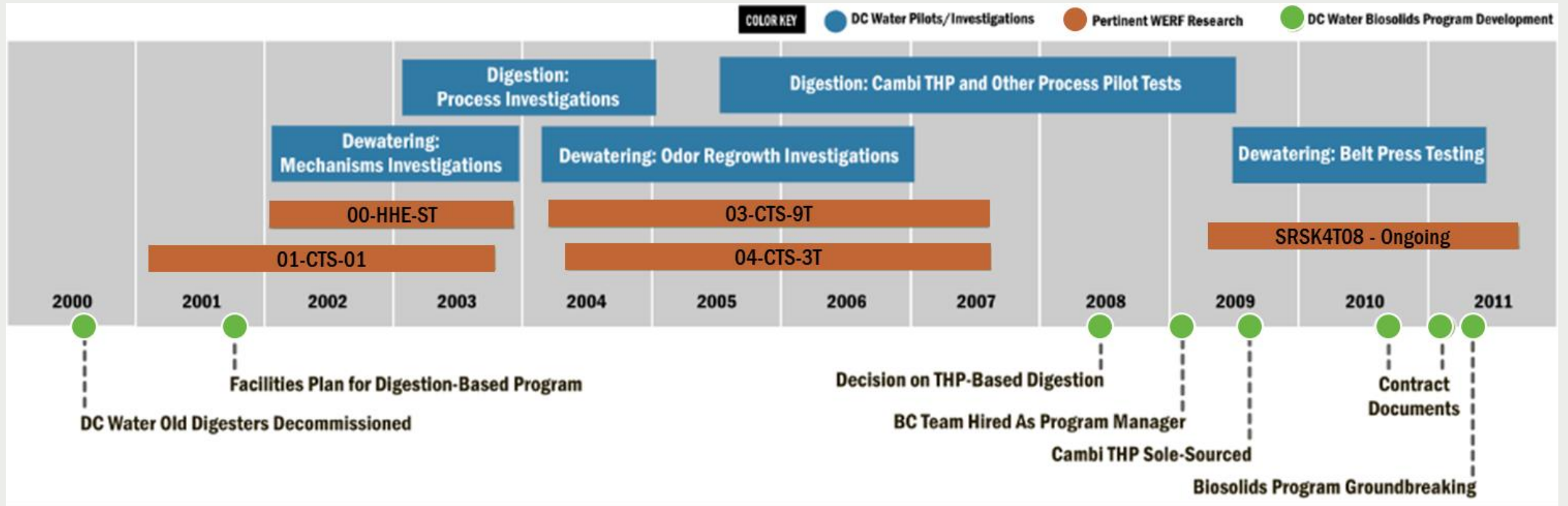
40,000
35,000
30,000
25,000
20,000
15,000
10,000
5,000
0

Jan-20 Feb-20 Mar-20 Apr-20 May-20 Jun-20 Jul-20 Aug-20 Sep-20 Oct-20 Nov-20 Dec-20

- natural gas
- gross CHP electricity
- solar
- grid electricity
- CHP steam
- % renewable

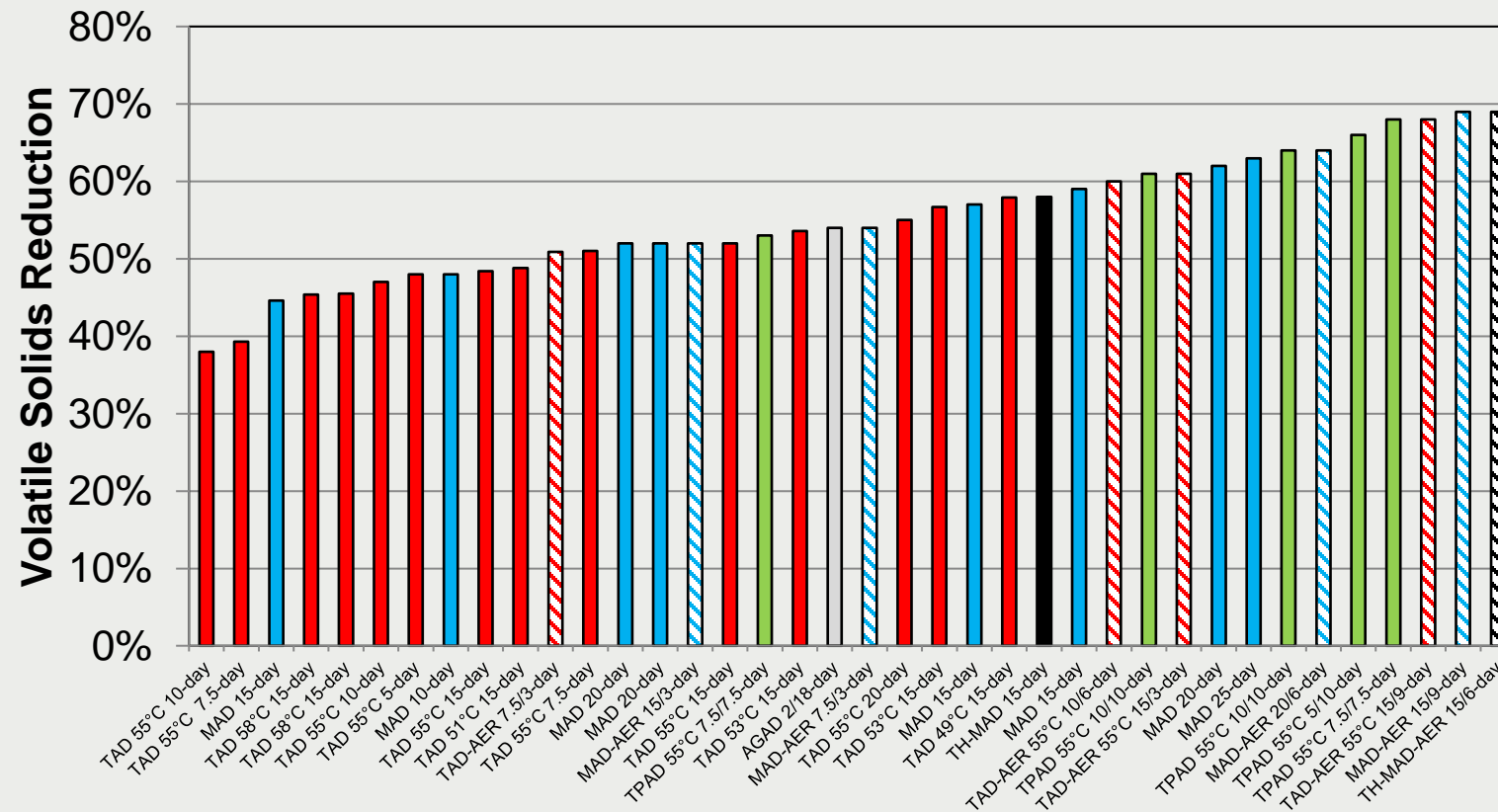


Technology Assessments

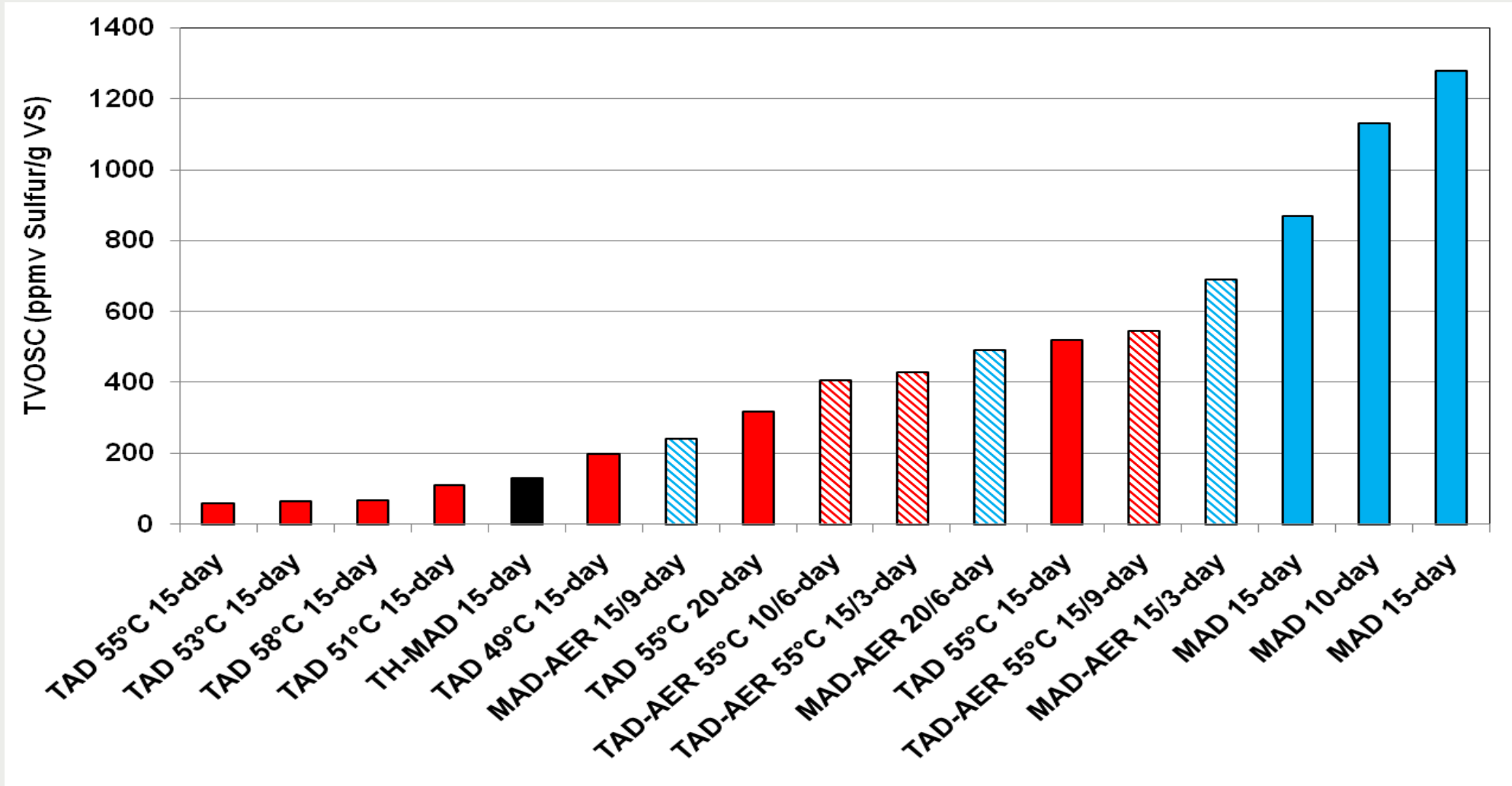


Volatile Solids Destruction

- Tested over 50 Digestion options at lab-scale (VT)
 - Feedstock for all tests was Blue Plains solids (primary and WAS)



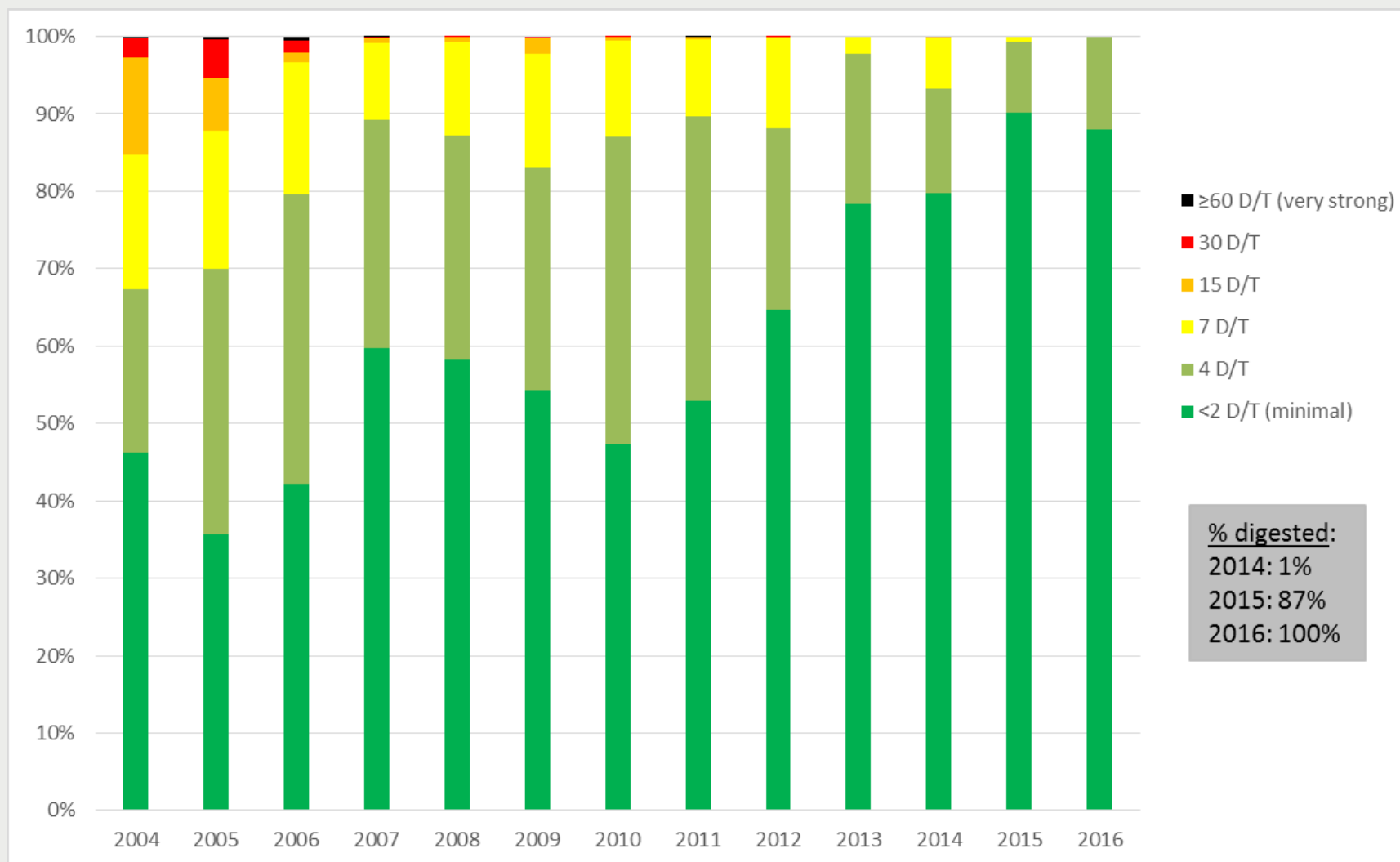
Digested Biosolids Odor



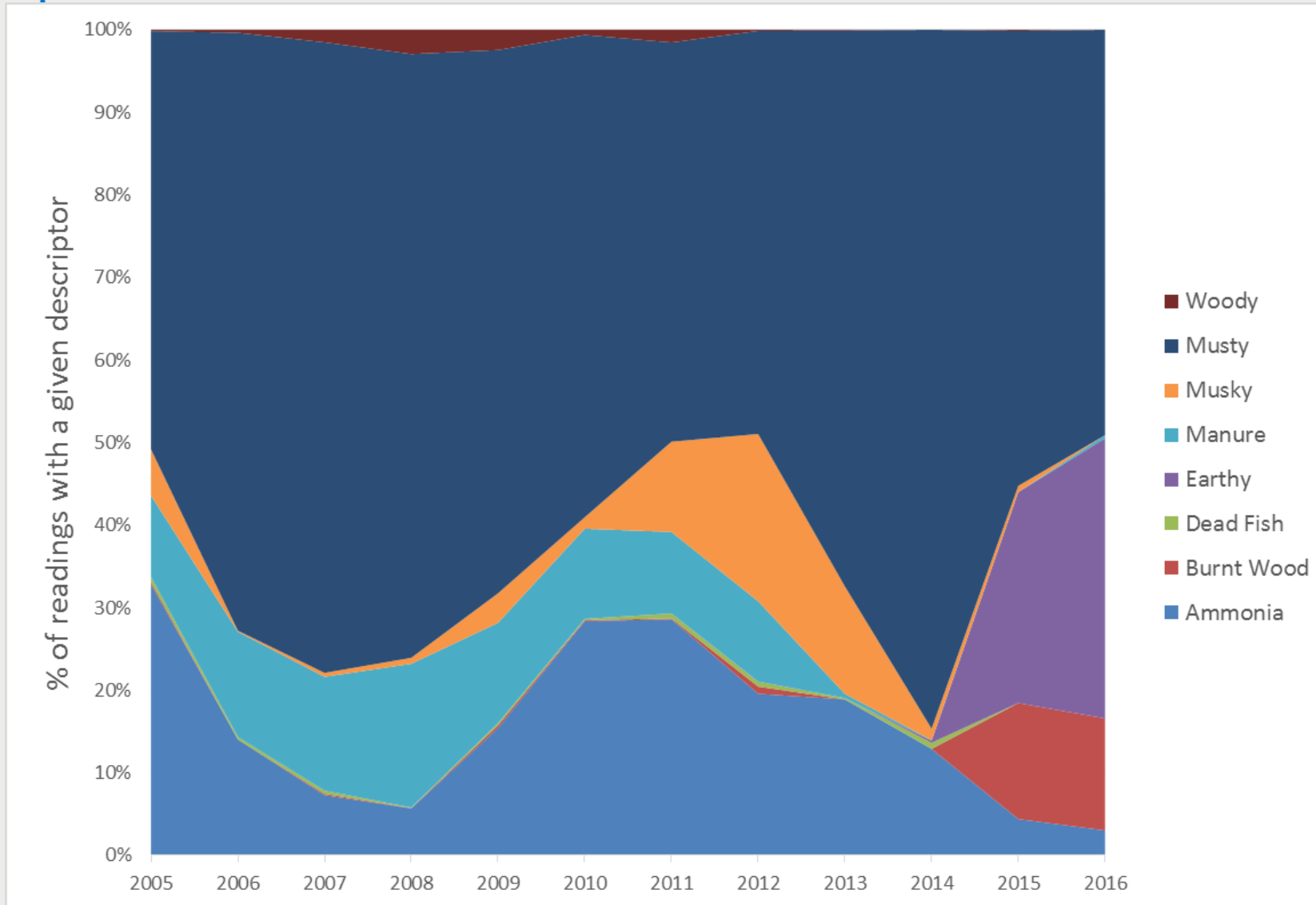
Class B vs. Class A Product



Results: Dilution to Threshold



Results: Odor Descriptor



**BIOSOLIDS WORKGROUP MEETING
 JANUARY 13, 2021
 MES AGENDA ITEMS (cont'd)**

**TOTAL BLUE PLAINS AWTP INCIDENTS NOTED BY MES STAFF
 DURING THE PERIOD JANUARY 1, 2020 THROUGH DECEMBER 31, 2020**

INCIDENT TYPE	Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20	Jul-20	Aug-20	Sep-20	Oct-20	Nov-20	Dec-20	TOTALS
Odors Noted by MES Inspector	0	0	0	0	0	0	0	0	0	0	0	0	0
Odor Complaint From Public	0	0	0	0	0	0	0	0	0	0	0	0	0
Odor Noted by Contractor	0	0	0	0	0	0	0	0	0	0	0	0	0
Overtured Trailers	0	0	0	0	0	0	0	0	0	0	0	0	0
Truck/Equipment Malfunctions	0	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Accident	0	0	0	1	0	0	0	0	0	0	0	0	1
Contractor /Field Management Issues	0	0	0	0	0	0	0	0	0	0	0	0	0
Biosolids pH/Treatment/Quality	0	0	0	0	0	0	0	0	0	0	0	0	0
Biosolids Spills	0	0	0	0	0	0	0	0	0	0	0	0	0
General Complaint	0	0	0	0	0	0	0	0	0	0	0	0	0
Informational Requests/ Inquiries from the Public	0	0	0	0	0	0	0	0	0	0	0	0	0
Dragout onto Public Roadways	0	1	0	1	0	0	0	0	0	0	0	0	2
ESTIMATED NUMBER OF ONE WAY TRUCK TRIPS *=	308	298	310	283	154	218	225	267	283	174	212	N/A	2,733
TOTAL INCIDENTS =	0	1	0	2	0	0	0	0	0	0	0	0	3

*Estimated Number of One-way Truck Trips = (Number of Trips Direct From the Plant) + (Tonnage Removed Out From Storage / 24 Tons per Truckload)
 N/A = This data not available at this time
 NOTE: Began adding complaints from DEQ PReP Database in June 2015

Research – DC Water invested in both product efficacy research and risk potential

Virginia Tech

- Drought resistance study
- Greenhouse gas balance
- Wintertime N uptake
- P land base analysis
- Blended soil products development



University of Maryland

- Beneficial soil microbes
- Wye poplar plantation surface application
- Mine reclamation with poplars
- Turfgrass growth Trials
- Wetlands Restoration



USDA + University of Maryland

- Triclosan, trichlorocarbon
- PBDEs



Outreach Pre-Launch



- Proactive meetings with community gardens and environmental groups
- Ensure all elected officials are informed and on board
- Donate to gardens and non-profits with a high-quality product
- Engage the press and inoculate with facts
- Gather and disseminate testimonials and success stories
- Demo gardens, bringing delicious food grown in Bloom to meetings



BLOOM

GOOD SOIL,[®]
BETTER EARTH.

An exceptional
soil amendment



bloomsoil.com





Bloom Marketing by Blue Drop

- Blue Drop is the non-profit LLC of DC Water
- Blue Drop established to generate and manage non-ratepayer revenue
- Contract with DC Water for Bloom Sales and Marketing
- Sales goals set to help meet aggressive biosolids budgets
- Blue Drop also helps manage the revenue from renewable energy credit sales generated by the biosolids program

Bloom Timeline



- First product from digesters: November 2014
- First Distribution (free sample): November 2015
- First product sale: August 2016
- First Distribution & Marketing permits: November 2016
- Bloom trademark registered: January 2017
- First daily production sell-out: April 2018 (450 wt)
- First bagged product in stores: May 2018
- First month sellout: April 2019
- Sales team expansion: November 2019
- Broke \$1M in savings and revenue and 40k tons sold: 2020



Sales & Marketing Bloom, Five Years In

- Marketing is done through Blue Drop, the DC Water non-profit arm built to generate non-ratepayer revenue
- Focus on business to business (B2B) segments: soil blenders, landscapers, nurseries, bulk suppliers, turf growers, farms
- Selling raw cake as well as value added products produced at the plant and through private partnerships
- 2.5 person sales team, each focused on different market segments
- Free/cheap trials for early adopters but otherwise insisting on market rate
- Hauling is mainly contracted, largest expense and ends up being subsidized for many customers

Bloom Products

- Fresh Bloom:
 - Biosolids straight from process
 - Good for farming, construction, blending application
 - Product slickiness, limits use in home gardening.
- Cured Bloom (100% Bloom):
 - Dried/windrowed material
 - Granular, easy to use
 - Higher nutrient content
 - Requires space and labor to produce
 - Lawn, landscape, home gardens etc
- Blended Products
 - Woody Blend (compost substitute)
 - Sandy Blend (preferred topdress)
 - Same end users as Cured Bloom



On-Site Blending Facility



Cured Bloom

- Similar to windrow composting
- (biosolids cake air dried to ~60% solids)
- Short piles in long rows, turned regularly and covered during rain
- Private partners curing and bagging; receive royalty on bag sales



Moisture Level of Cured Bloom Makes it Suitable for Bags or Bulk



Pricing Strategy

- Fresh Bloom (cake):
 - Subsidized rate for agricultural customers (\$2-6/ton including delivery, depending on location). Spreading provided free for some large-scale farm customers
 - \$5.10/ton plus delivery for all other customers – soil blenders and construction
- Blends:
 - Tiered pricing that ranges from \$10-\$24/cubic yard, depending on the order size/product type, plus delivery (\$5/mile/truckload)
 - Tiered pricing allows resellers to markup and come at an equivalent price to our small order pricing
- Bags:
 - \$4.75 - \$6/50 pound bag for distributors/wholesalers, suggested retail price of \$9.50/bag
- Some commercial customers (soil blenders, resellers, construction) pick up with their own trucks – these deals are much more profitable given hauling costs

Market Positioning

Bloom has built a market position based on consistent product availability, high quality assurance, competitive pricing and strong customer service/technical assistance

Bloom faces different competition in different market segments:

- Leafgro, a popular leaf compost made by a municipal yard waste with good brand recognition
- Chicken litter for farms looking for fertilizer/organic matter (as well as chemical fertilizers)
- Orgro, another biosolids product made in a neighboring city

Our Customers

BLOOM GOOD SOIL,[®]
BETTER EARTH.

You're in Good Company When You Choose Bloom



What They Grow



Hay Farm



Horticultural Society



Golf Course



Hobbyist Vintner/Grape Grower



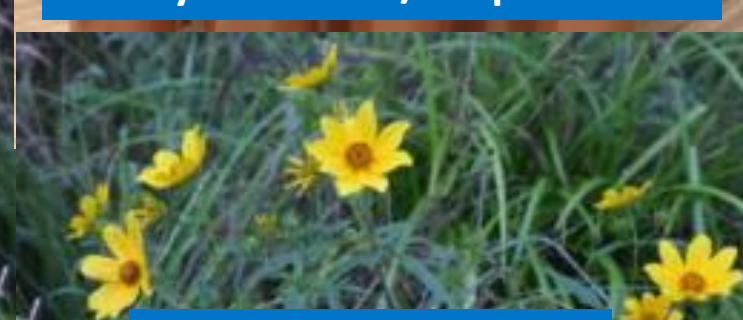
Cut Flower Farm



Street Tree Plantings



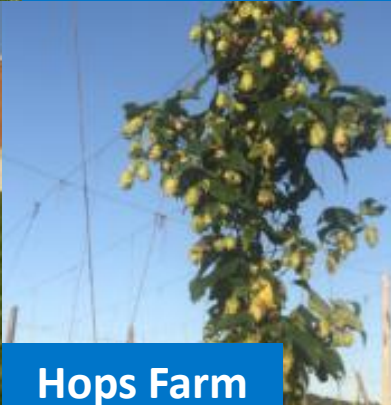
Elementary School Garden



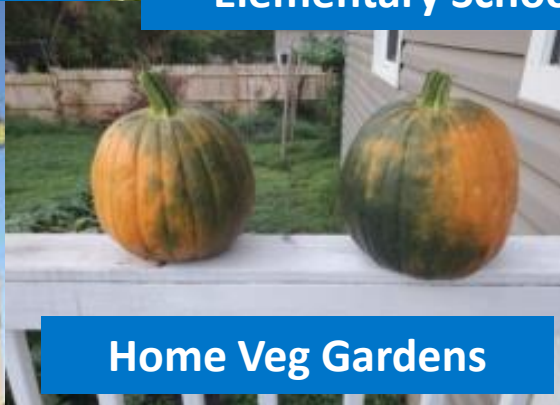
Wetlands Restoration



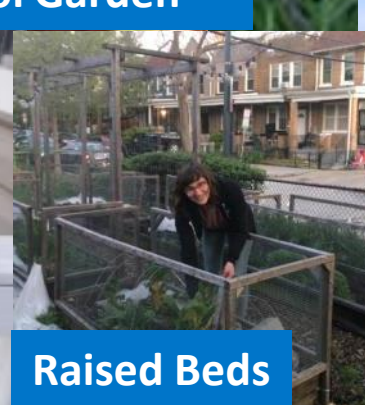
School Landscaping



Hops Farm



Home Veg Gardens



Raised Beds



Commercial Corn

Construction/Blending & Agriculture, Ideal Applications for Fresh Bloom



Commercial soybeans



Maryland State Highway project

MD 5 (Branch Ave.) at Brandywine Rd. and MD 373 (Accokeek Rd.) Improvement Project

- Lane Construction contractor for SHA route 5 interchange.
- Incorporated Bloom into existing heavy clay sub soil to meet SHA – Salvaged topsoil specification.





SHA 920 – Landscaping Materials

COMPOSITION - EXISTING TOPSOIL & SALVAGED TOPSOIL

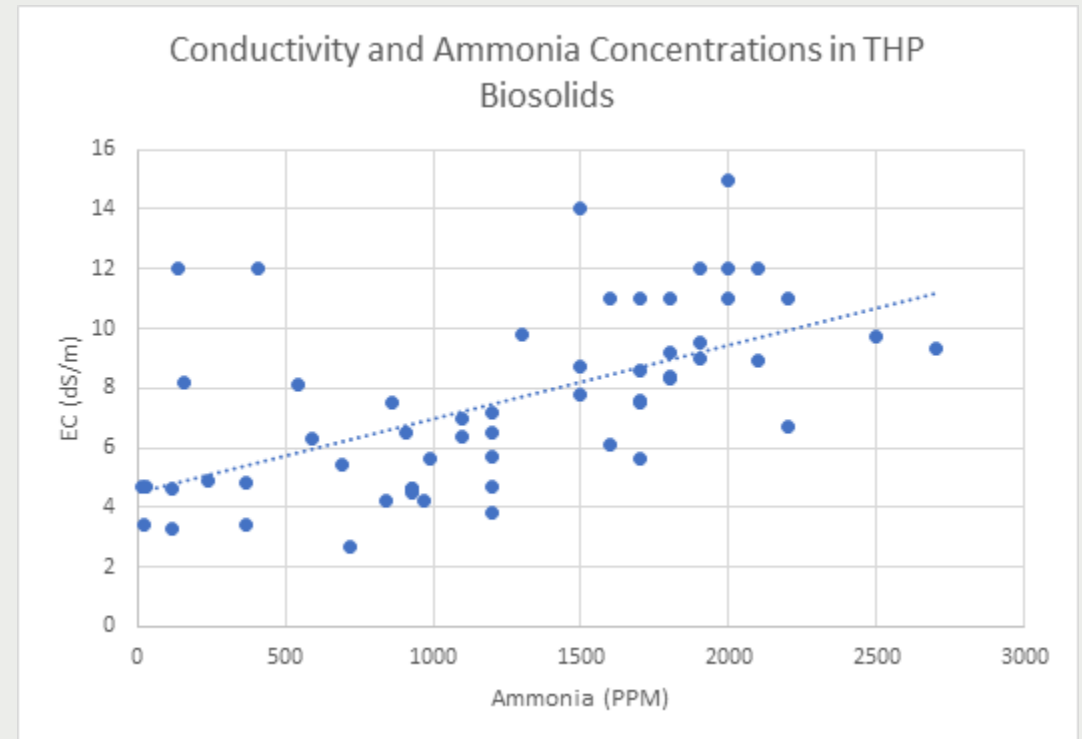
TEST PROPERTY	TEST ¹ METHOD	TEST VALUE AND AMENDMENT			
Prohibited Weeds	—	Free of live stems or roots of Shattercane, Johnsongrass, Canada Thistle, Bull Thistle, Plumeless Thistle, Musk Thistle, Common Reed and Japanese Knotweed when inspected before transportation.			
Debris	—	1.0 % or less by weight of cement, concrete, asphalt, crushed gravel or construction debris when inspected.			
Grading Analysis	R-58	Sieve Size		Passing by Weight Minimum %	
		2 in.		100	
		No. 4		90	
		No. 10		80	
Textural Analysis	T-88	Particle		% Passing by Weight	
		Size	mm	Minimum	Maximum
		Sand	2.0 – 0.050	15	77
		Silt	0.050 – 0.002	Combined Silt and Clay 23	80
		Clay	less than 0.002		30
Soil pH	ASTM D 4972	pH of 4.8 to 7.6. Apply limestone to Existing Topsoil and Salvaged Topsoil with pH 4.8 to 6.1 per NMP. Apply sulfur to Existing Topsoil and Salvaged Topsoil with pH 7.1 to 7.6 per NMP.			
Organic Matter	T-267	1.0 to 8.0 % OM by weight. Apply compost to Existing Topsoil and Salvaged Topsoil with 1.0 to 3.7% OM per NMP.			
Nutrient Content	—	Administration will assess. Apply fertilizer per NMP for nitrogen requirement and optimum fertility index values (FIV) for phosphorus and potassium.			
Soluble Salts	EC 1:2 (V:V)	800 ppm (1.25 mmhos/cm) or less. Apply gypsum to Existing Topsoil and Salvaged Topsoil with 500 to 800 ppm (0.78 to 1.25 mhos/cm) per NMP.			
Harmful Materials	—	Topsoil shall not contain substances in concentrations that are harmful to human health, water quality, or plant growth. Industrial waste such as ash, slag, raw sludge, dredge spoil, or similar materials shall not be soil components.			

COMPOSITION - FURNISHED TOPSOIL

TEST PROPERTY	TEST ¹ METHOD	TEST VALUE AND AMENDMENT			
Prohibited Weeds	—	Free of live stems and roots of species in 920.01.01 as well as live stems and roots of Bermudagrass, Quackgrass, and Yellow Nutsedge.			
Debris	—	920.01.01			
Grading Analysis	R-58	920.01.01			
Textural Analysis	T-88	Particle		% Passing by Weight	
		Size	mm	Minimum	Maximum
		Sand	2.0 – 0.050	20	75
		Silt	0.050 – 0.002	Combined Silt and Clay 25	75
		Clay	less than 0.002		30
Soil pH	ASTM D 4972	pH 6.1 to pH 7.2			
Organic Matter	T-267	4.0 to 8.0% OM by weight			
Nutrient Content	—	920.01.01			
Soluble Salts	EC 1:2 (V:V)	500 ppm (0.78 mmhos/cm) or less.			
Harmful Materials	—	920.01.01			

Specification Challenges

- High soluble salts due to Ammonia
 - Topsoil with bloom 1-2 dS/m.
SHA < 0.78 dS/m
- Biosolids based products not included on approved amendment list.



EC correlates with NH3 concentration

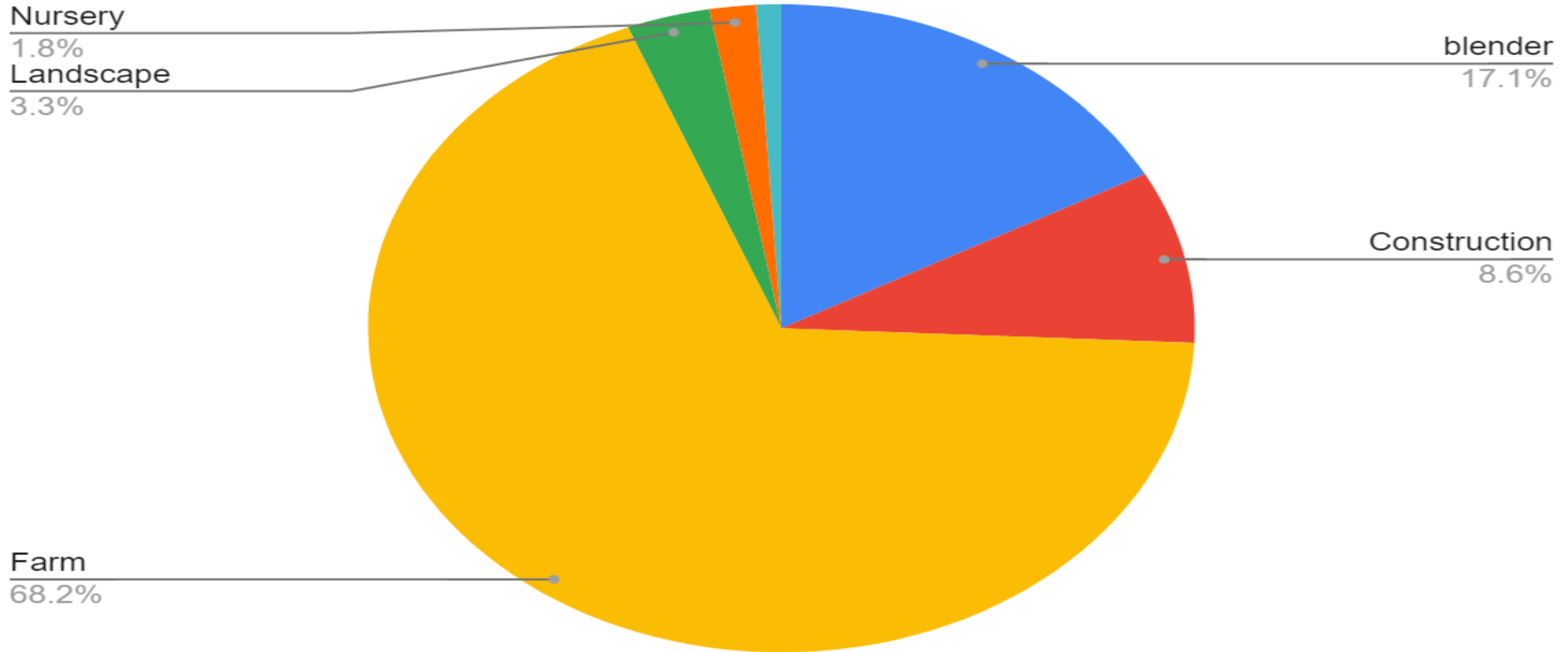


Blends Ideal for Commercial and Residential Landscaping/Gardens



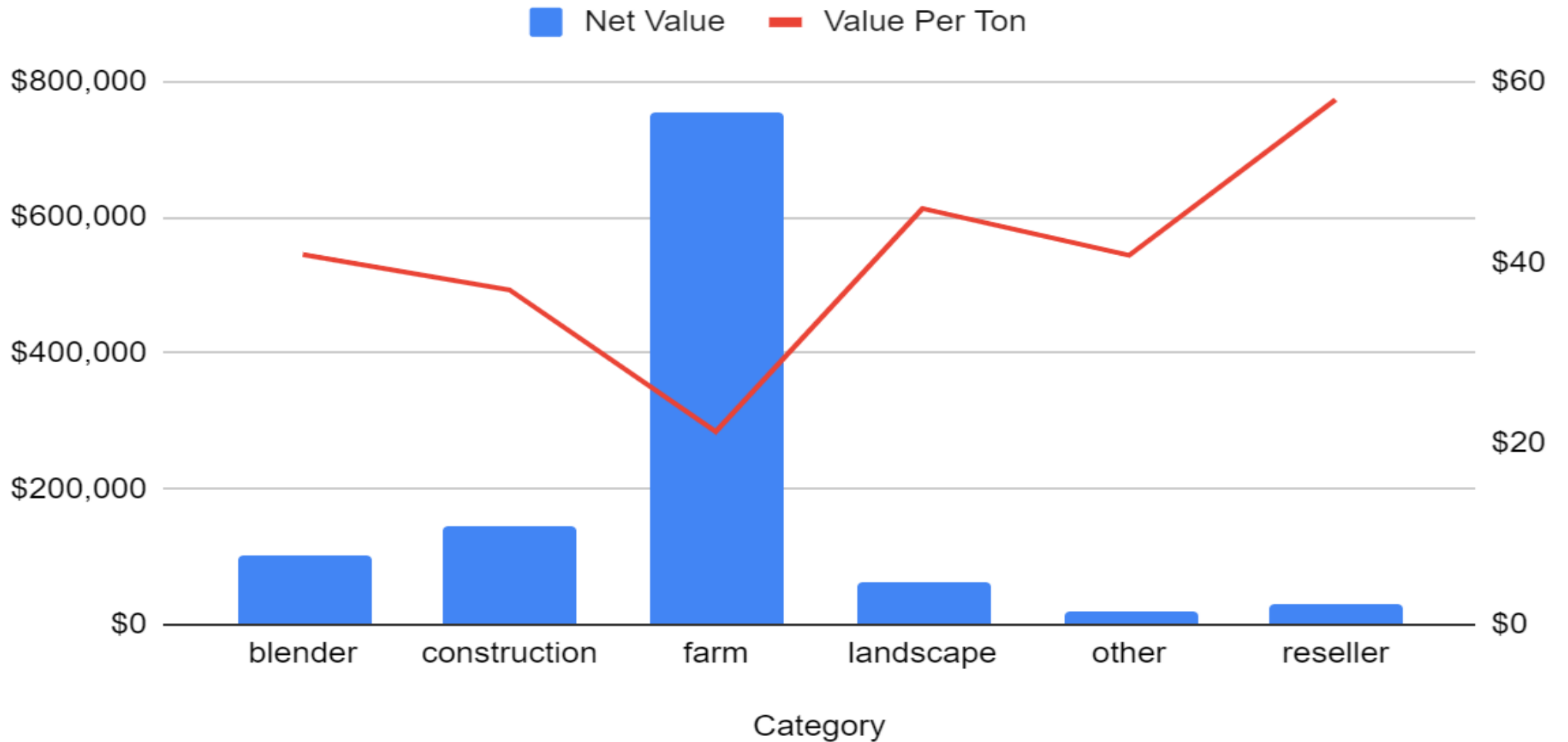
Farms Comprise Nearly 3/4 of Sales Volume

Market segments breakdown from 2018-2021

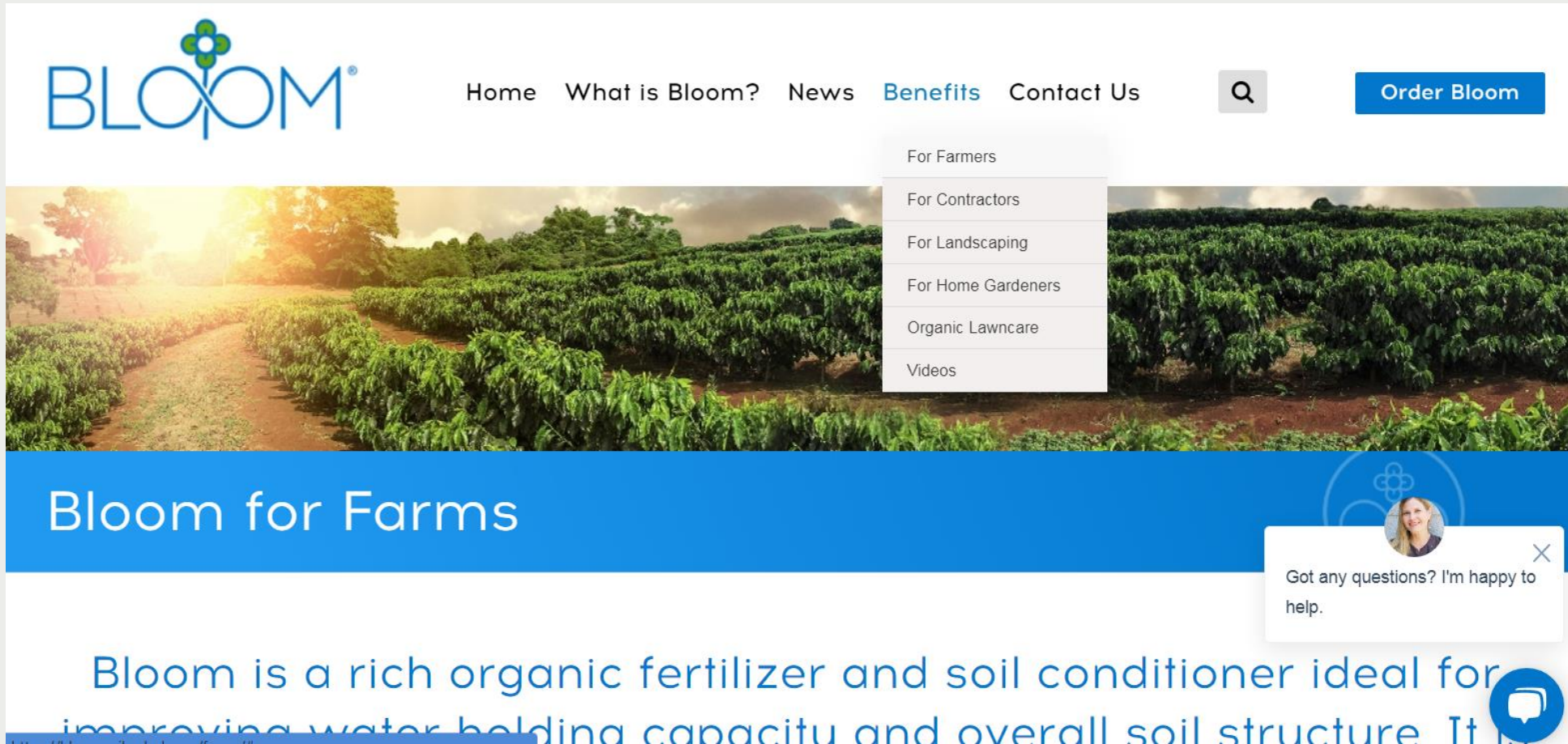


Other Segments are More Profitable on Per Ton Basis

Net and Per Ton Value By Category



Bloom Marketing: Website



2020: Revamped site with landing pages for key audience segments; targeted advertising and outreach driven to these pages

Bloom Marketing: Collateral

Bloom for Construction fact sheet

BLOOM GOOD SOIL,[®]
BETTER EARTH.

Enrich your soil with Bloom®, a soil conditioner rich in organic matter and nutrients made from Class A Exceptional Quality biosolids produced at DC Water's Blue Plains Advanced Wastewater Treatment Plant.

Bloom is a flexible product with many applications, including establishment of lawns, trees, flowers and crops. It's a sustainable alternative to chemical fertilizer and an affordable alternative to compost, providing the benefits of both in a single product. Our product is a great solution for contractors looking to enrich salvaged soil and meet nutrient and organic matter requirements, saving time, money and labor.

Bloom has been used by several major landscaping and construction companies in DC, Virginia and Maryland, in addition to 100+ farms and community gardens in the DMV. Click here for a case study on how one leading U.S. construction company turned to Bloom to affordably enrich salvage soil and grow lush new turf on a new MD 5 (Branch Avenue) interchange near Brandywine, Maryland.



Product Specs and Pricing

Fresh Bloom: Our fresh product is produced daily at Blue Plains and available with one week lead time at \$3.50/ cubic yard (CY). Fresh Bloom is a cost-effective solution for renewing salvage soil on site for growing turf, trees and more. Recommended application: Blend 20 - 25% Fresh Bloom with topsoil, sand, bark, and/or sawdust.

Woody blend (30% Fresh Bloom and 70% hardwood fines): Also produced at Blue Plains, our mulch blend is a great solution for landscaping jobs large and small, offered at \$10/ty.

Cured Bloom (available in early summer): Our highly sought after dried product, cured Bloom is available in bulk or bagged. It's easy to apply, looks like topsoil and provides even further stabilized carbon and nutrients.

Delivery: Standard delivery charge of \$4/loaded mile with a \$150 minimum applies to all products or free pickup from Blue Plains facility (5000 Overlook Ave SW, Washington, DC 20032).

Guaranteed Nutrient Analysis 1.5-1.5-0

Benefits of Bloom

- Nutrient-rich soil conditioner providing slow-releasing nitrogen, iron for darker grass and green leaves and other micronutrients
- Reduces hauling costs and purchase of expensive composts or fertilizer
- Supplies all the nutrients and organic matter needed to meet Maryland State Highway Authority specifications among others
- Improves drought resistance and water retention capacity
- Permitted for any use in Maryland, Virginia, Pennsylvania, and the District of Columbia, including construction
- Sustainable, recycled material
- Weed- and debris-free

For Construction

BLOOM

Try Bloom Today!

Lay the perfect foundation for your landscaping jobs with Bloom, an exceptional soil amendment. Bloom is a sustainable alternative to chemical fertilizer and an affordable alternative to compost.

Our premium product, Cured Bloom, is now available in bulk and 50 pound bags. Visit bloomsoil.com/landscaper for a free sample!

Grow Cheaper
Bloom is one of the most affordable, high performing soil conditioners available to the landscaping trade.

Grow Greener
Expect darker, lusher growth with Bloom's slow release nitrogen, iron, and other nutrients.

Grow Better
Bloom improves drought resistance and nutrient and water retention capacity.

Bloom is a recycled product made from EPA-verified Class A Exceptional Quality biosolids. Nutrient content: 1.5% N, 1.5% P₂O₅, 1% Ca, 2% Fe

bloomsoil.com bloom@bloomsoil.com 202-745-3292 ext. 100



GOOD SOIL,
BETTER EARTH.

For Landscapers

Maryland Farmer Logs Record Corn Yield After Introducing Bloom




40% HIGHER THAN FARM AVERAGE

220 BUSHELS/ACRE IS THE BEST EVER RECORDED AT AQUASCO FARM

Chappelle Enterprises achieved an incredible result for three acres of corn in Aquasco, Maryland with the help of Bloom. The 2018 Aquasco yield of 220 bushels/acre is the highest ever recorded at the farm. The field was fertilized with Bloom and further amended with potash and a light urea starter to support germination per the farmer's recommendation. The corn was

For Farmers


BLOOM GOOD SOIL,[®]
BETTER EARTH.



How to use Bloom
Bloom is easy to use. Please follow our guidelines for the best results.

- **Plant Establishment** – trees, flowers, vegetables, fruit, herbs – Incorporate 1/2-1 inch of Bloom to a depth of 6-12 inches of existing soil.
- **Turf Establishment** – Lawns (before seeding or sodding) – Incorporate 1-2 inches of Bloom to a depth of 6-12 inches of existing soil.
- **Potting Soil** – Uniformly blend 10% Bloom into existing potting soil or other growing media to enrich soil for container gardening or potted plants.
- **Topdressing** – Spread 1/4 inch Bloom evenly on your lawn to improve soil quality without disturbing turf growth.

Ask a salesperson to learn more, or contact Bloom directly at: bloomsoil.com, bloom@bloomsoil.com or 202-745-3292.



For Home Gardeners

- Targeted materials in lieu of lengthy “one size fits all” marketing packet



Bloom Marketing: Advertising

BLOOM® Join the growing list of farmers, landscapers, home gardeners, and others using Bloom to get their crops, grass and plants blooming today!

Let's Get Growing!

Return this postcard or visit bloomsoil.com/farms for a free sample load of Bloom.

Blue Drop
1395 Cornell Street, SE
Washington, DC 20003

BLOOM GOOD SOIL, BETTER EARTH.

Give Your Soil a Boost with Bloom!

Lay the perfect foundation for your crops, landscaping and more with Bloom, an exceptional soil amendment. Bloom is a sustainable alternative to chemical fertilizer and an affordable weed-seed-free alternative to compost.

Whether you're growing flowers, trees, turf, vegetables or other crops, Bloom' slow-release nitrogen, iron, and other nutrients will give them the boost they need. Bloom also improves drought resistance and water retention capacity.

Bloom® is a recycled product made from EPA-certified Class A Exceptional Quality biosolids.

nutrient content:
1.5% N, 1.5% P₂O₅, 1% Ca, 2% Fe

bloomsoil.com bloom@bloomsoil.com
202-765-3292 ext.103

Return this postcard or visit bloomsoil.com/farms for a free sample load of Bloom.

CUT OUT

BLOOM

NAME _____

BUSINESS NAME _____

PHONE _____

EMAIL _____

ACREAGE (If farm/nursery) _____

CROPS (If applicable) _____

CURRENT SOURCE OF FERTILIZER / SOIL AMENDMENT _____

- Ad dollars reserved for priority markets rather than trying to reach everyone



Blue Plains Tour 

**Webinar recordings available at
bloomsoil.com/videos/**



WEBINAR:
Benefits and Applications for Turfgrass



Four Streams Golf Course after one Bloom application

You are invited! Please join us for a webinar June 30 to learn about the benefits and applications of **Bloom**, DC Water's high performing, sustainable fertilizer, for turfgrass professionals.

This webinar will feature speakers from a leading Maryland golf course, a turfgrass specialist and an engineer with DC Water, and provide practical information on how you can use this affordable, locally produced soil

12pm - 1pm
Tuesday, June

30

REGISTER





Marketing Bloom Translates to Both Revenue and Net Savings

Year	Goal (tons)	Achieved (tons sold)	Savings	Revenue	Total
2017	9000	8600	\$260,000	\$22,000	\$282K
2018	20,000	8038	\$280,000	\$47,000	\$320K
2019	40,000	39,873	\$715,000	\$170,000	\$900k
2020	60,000	43,544	\$1,200,000	\$230,000	\$1.4M

Facing Challenges

- *Concerns about heavy metals and other safety issues; public perception:* Using peer influence/influential figures/companies to normalize biosolids use; being transparent with data
- *Farmer willingness and ability to pay:* Subsidizing rate for farmers, while being willing to walk away from lowball deals in order to protect overall pricing strategy
- *Seasonality of demand:* Developing customer segments/storage arrangements who can take material in down months, being willing to cut deals in down season (and using land app as safety net)
- *Regulatory hurdles:* Ongoing challenge that has impacted on sales for construction, farms in certain states. Proactively lobbying for regulatory changes while not counting on them for success

Thank you!



April Thompson april@bloomsoil.com

James Fotouhi – james.fotouhi@dcwater.com

bloomsoil.com