

SWANA – NNE June 14, 2013

# Persistent Herbicides & Compost

## A Recent Encounter

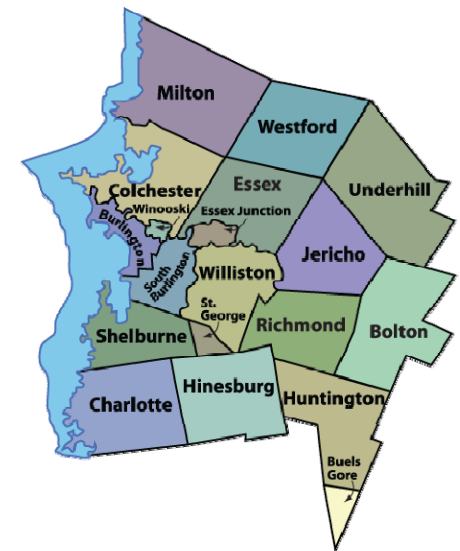
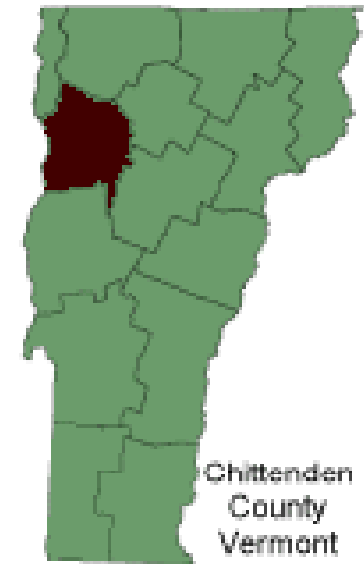
Chittenden Solid Waste District / Green Mountain Compost  
Tom Moreau

# The Issue

Having less than 10 parts per billion of two different persistent herbicides in our compost caused significant problems and cost to a mid-size composter

# CSWD

- Located in Northwest Vermont
- Municipal Charter – public entity
- 18 municipalities in the County
- 156,000 population
- Multiple Solid Waste Programs
- \$9 million annual operating budget



# CSWD Facilities & Programs

## FACILITIES

- Single Stream MRF
- Hazardous Waste Depot
- Special Waste Facility
- Drop-Off Centers (7)
- Compost Facility

## PROGRAMS

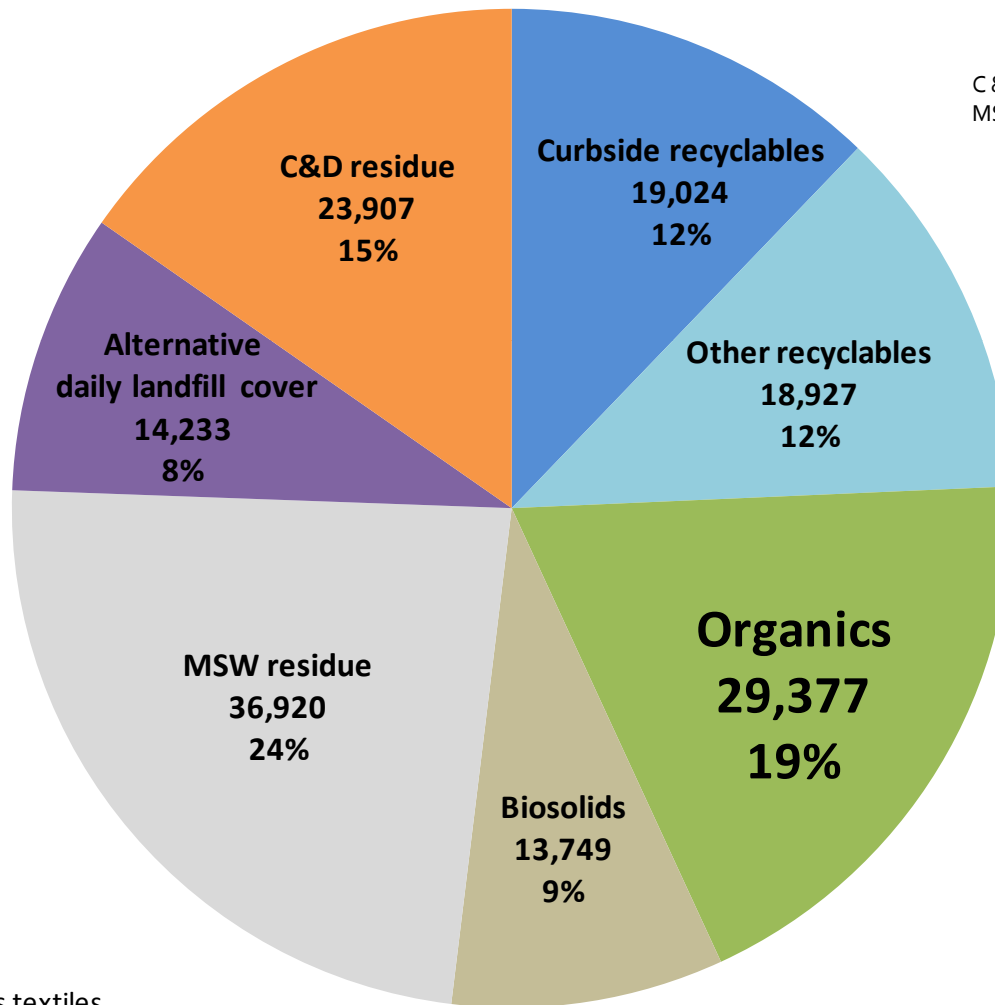
- Curbside Recycling
- Waste Reduction
- Product Stewardship
- Biosolids Management
- Public Education



### COMPONENTS OF ALL CSWD WASTE DISPOSED

Estimated Percents & Tons per Year

Based on 2001 Vermont & 2010 CSWD Waste Composition Studies & FY 2012 CSWD Disposal Data



C & D = Construction and Demolition  
MSW = Municipal Solid Waste

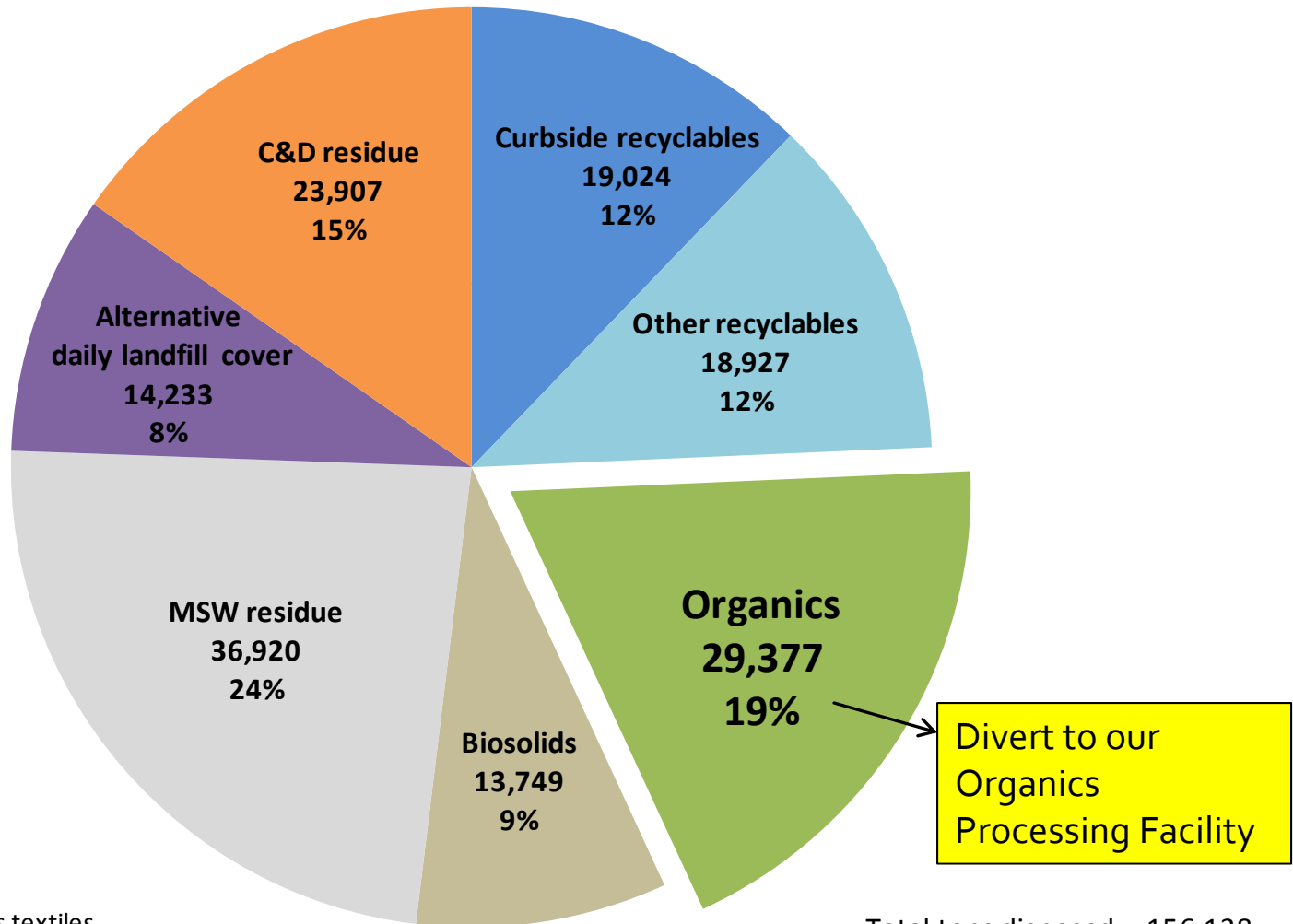
NOTE: Other recyclables includes textiles, scrap metal, clean wood, and hardcover books.

Total tons disposed = 156,138

### COMPONENTS OF ALL CSWD WASTE DISPOSED

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# Vermont Act 148 (2012)

- Phased in ban of organics from landfill disposal
  - 2014 – generators of more than 104 tons/yr
  - 2015 – generators of more than 52 tons/yr
  - 2016 – generators of more than 26 tons/yr
  - 2017 – generators of more than 18 tons/yr
- 
- 2020 – all residuals, including households  
(regardless of distance)

# Persistent Herbicides (1)

- Picloram                                      Dow AgroSciences                      1963
- Clopyralid                                      Dow AgroSciences                      1978
- Aminopyralid                                      Dow AgroSciences                      2005
- Aminocyclopyrachlor                      DuPont                                      2010

# Persistent Herbicides (2)

## Active Ingredient

- Picloram
- Clopyralid
- Aminopyralid
- Aminocyclopyrachlor

## Trade Names

- Tordon, Grazon, Access, Pathway
- Transline, Redeem R&P, Lontrel, Confront, Curtail
- Milestone, Forefront, Chaparral
- Imprelis, Perspective, Viewpoint, Streamline

# Persistent Herbicides (3)

- Pyridine based carboxylic acid compounds
- Act as synthetic auxins or growth regulating hormones
- Initial applications are effective at killing or repressing broadleaf plants for an entire growing season or beyond
- Can pass through mammals into manure and urine unscathed after treated grasses are eaten
- Can survive the heated and prolonged compost process intact

# Persistent Herbicides (4)

- In low part per billion range, they can have a significant impact on garden plants such as beans, peas, tomatoes and many common flowers
- Symptoms include poor seed germination, twisted and stunted stems, curled leaves, reduced and miss-shaped fruit







# Persistent Herbicides (5)

## Impact Threshold in Compost

- Picloram 5 parts per billion (ppb)
- Clopyralid 10 ppb
- Aminopyralid 1 ppb
- Aminocyclopyrachlor In development

# Persistent Herbicides (6)

- Have very low toxicity to mammals, fish, amphibians & fowl
- Are very effective in eliminating nuisance weeds
- Are heavily relied upon by the agricultural industry

# Persistent Herbicides (7)

- In conversations with USCC staff, CSWD and others, the USEPA has stated very clearly that they have no intention to ban these persistent herbicides; nor do they have any effective means to do so.

# Lab Analysis – not always an option

- Clopyralid can be analyzed down to 1 ppb in compost and manure samples by some state and commercial labs. Impact on plants can be down to 3 ppb.
- Aminopyralid presently can only be analyzed down to 1 ppb in compost and manures reliably by Dow's own lab. Impact on plants can be down to 0.2 ppb.

# Herbicide Regulation (1)

- EPA receives its authority to register pesticides/herbicides under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA)

# Herbicide Regulation (2)

- “States are authorized to regulate pesticides under FIFRA and under state pesticide laws. States may place more restrictive requirements on pesticides than EPA. Pesticides must be registered both by EPA and the state before distribution.”

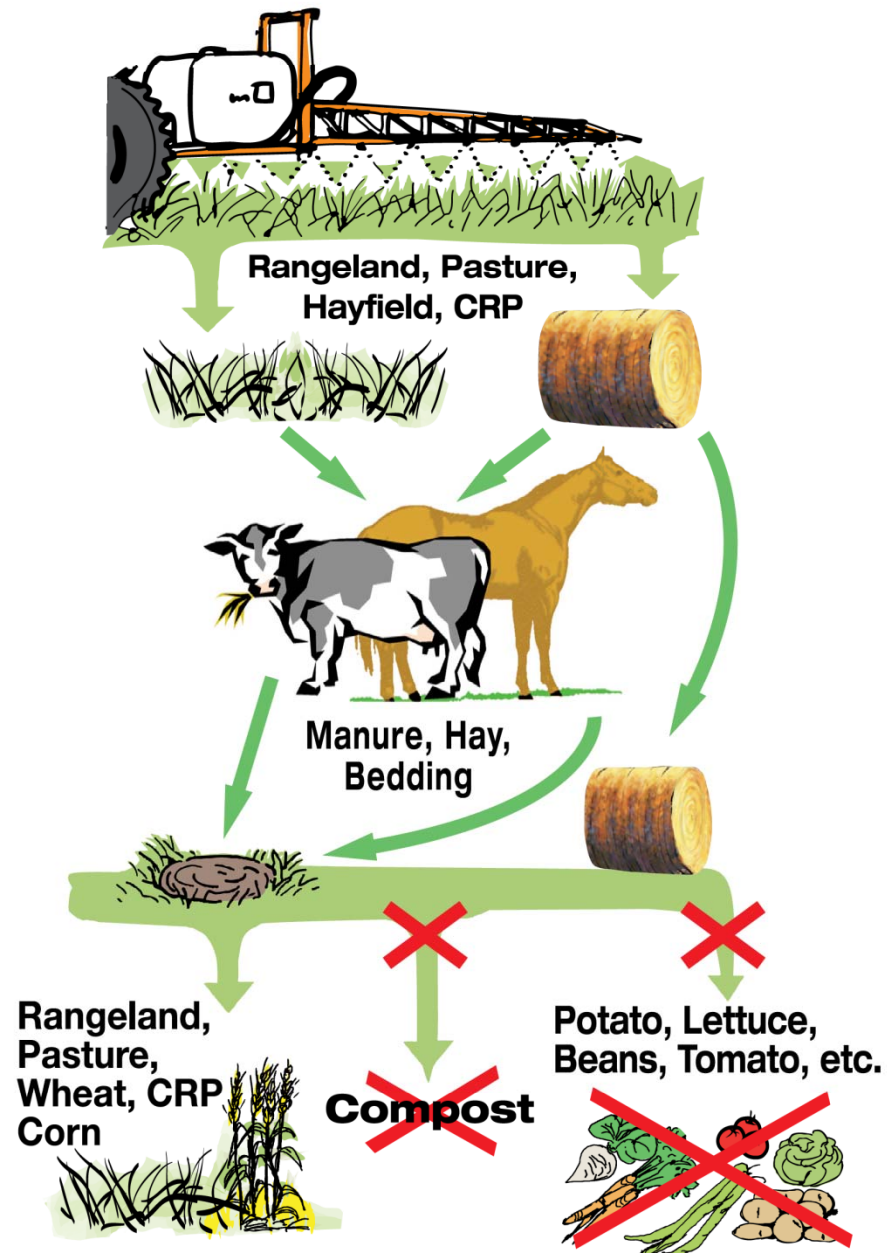
Ref: <http://www.epa.gov/pesticides/regulating/index.htm>

# Herbicide Registration

- “Before registering a new pesticide or *new use* for a registered pesticide, EPA must first ensure that the pesticide, when used according to label directions, can be used with a reasonable certainty of no harm to human health and without posing unreasonable risks to the environment.”

Ref: <http://www.epa.gov/pesticides/regulating/index.htm>

# Forage and Manure Management







### **Aminopyralid Use Precautions and Restrictions**

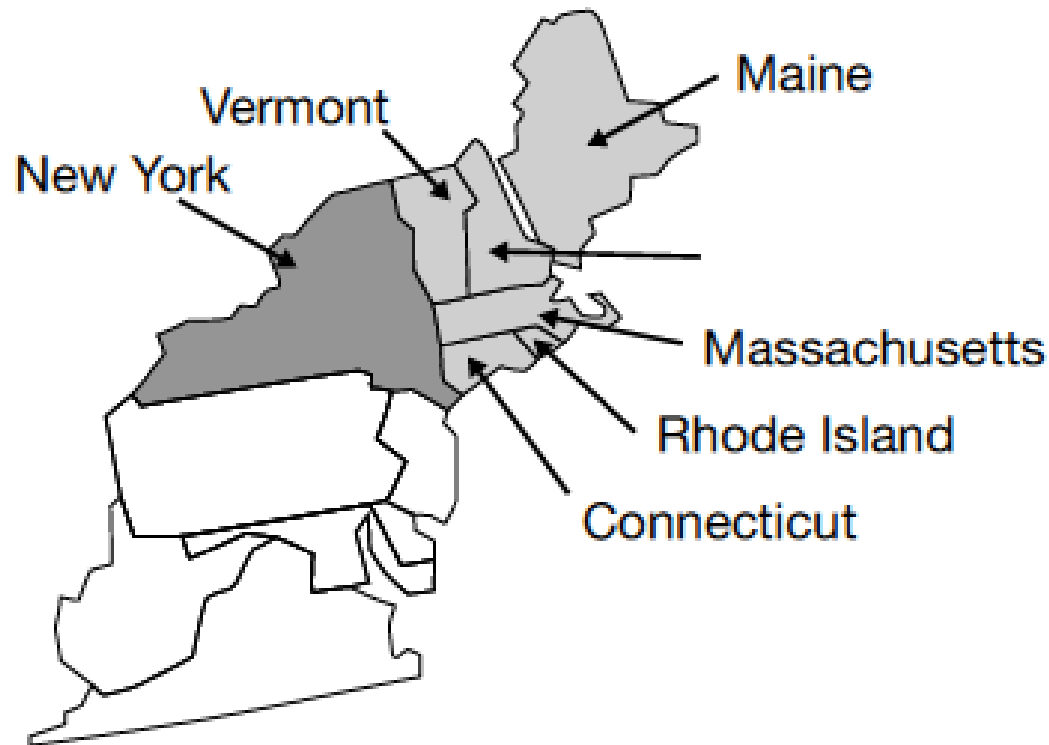
- Grasses grown for hay must not be exported outside the United States.
- Manure and urine from animals consuming grass or hay treated with this product may contain enough aminopyralid to cause injury to sensitive broadleaf plants.
- Do not use hay or straw from areas treated with aminopyralid or manure from animals feeding on hay treated with aminopyralid in compost.

### **Grazing and Haying Restrictions on Aminopyralid-treated Grass**

- Do not transfer grazing animals from areas treated with the product to areas where sensitive broadleaf crops occur without first allowing 3 days of grazing on an untreated pasture. Otherwise, urine and manure may contain enough aminopyralid to cause injury to sensitive broadleaf plants.
- Do not use treated plant residues, including hay or straw from treated areas, or manure from animals that have grazed forage or eaten hay harvested from treated areas within the previous 3 days, in compost, or mulch or mushroom spawn that will be applied to areas where commercially grown mushrooms or susceptible broadleaf plants may be grown.
- Do not spread manure from animals that have grazed or consumed forage or eaten hay from treated areas within the previous 3 days on land used for growing susceptible broadleaf crops.
- Manure from animals that have grazed forage or eaten hay harvested from treated areas within the previous 3 days may only be used on pasture grasses, grass grown for seed, and wheat and corn.
- Do not plant a broadleaf crop (including soybeans, sunflower, tobacco, vegetables, field beans, peanuts and potatoes) in fields treated with manure from animals that have grazed forage or eaten hay harvested from aminopyralid-treated areas until an adequately sensitive field bioassay is conducted to determine that the aminopyralid concentration in the soil is at a level that is not injurious to the crop to be planted.
- Do not plant a broadleaf crop in fields treated in the previous year with manure from animals that have grazed forage or eaten hay harvested from treated areas until an adequately sensitive field bioassay is conducted to determine that the aminopyralid concentration in the soil is at a level that is not injurious to the crop to be planted.
- To promote herbicide decomposition, plant residues should be evenly incorporated in the surface soil or burned. Breakdown of aminopyralid in plant residues or manure is more rapid under warm, moist soil conditions and may be enhanced by supplemental irrigation.
- Do not rotate to any crop from rangeland, permanent pasture or CRP acres within one year following treatment. Cereals and corn can be planted one year after treatment. Most broadleaf crops are more sensitive, and can require at least 2 years depending on the crop and environmental conditions. Do not plant a broadleaf crop until an adequately sensitive field bioassay shows that the level of aminopyralid or metsulfuron present in the soil will not adversely affect that broadleaf crop.

**Not For Sale, Distribution, or Use in New York State.**

**Not for use on pastures in Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, and Vermont. All other labeled uses are permitted in these states including grazed areas in and around these sites.**



Light grey = states where use in pastures is not permitted  
Dark grey = NY where the product is not registered

# From Dow Label

- “Do not use hay or straw from areas treated with aminopyralid or manure from animals feeding on hay treated with aminopyralid in compost.”

- Hay from areas treated with Milestone in the preceding 18-months CAN NOT be distributed or made available for sale off the farm or ranch where harvested unless allowed by supplemental labeling.
- Hay from areas treated with Milestone in the preceding 18-months CAN NOT be used for silage, haylage, baylage and green chop unless allowed by supplemental labeling.
- Do not move hay made from grass treated with Milestone within the preceding 18-months off farm unless allowed by supplemental labeling.
- Do not use hay or straw from areas treated with Milestone within the preceding 18-months or manure from animals feeding on hay treated with Milestone in compost.
- Do not use grasses treated with Milestone in the preceding 18-months for seed production.



# Green Mountain Compost Facility

Williston, Vermont

Capital Cost: \$2.25 million

Time Frame: started permitting in April 2010,  
started construction in October 2010  
started operations in July 2011

Capacity: 20,700 tons per year / 83 tons per operating day

Tip Fee: \$37.50/ton for food scraps

# Green Mountain Compost - GMC

- Formerly Intervale Compost Products (ICP) 20 year operation – windrow technology
- Purchased by CSWD in 2008 – transfer overseen by VT Attorney General's Office
- ICP Closed in March 2011
- Moved to new aerated static pile facility and rebranded as GMC in July 2011



# Green Mountain Compost - GMC

15,000 tons/year feed stocks



10,000 cubic yards compost

- Member of USCC's Seal of Testing Assurance (STA)
- Every ~1,000 cubic yards, samples sent for testing
- Dual streams: Conventional and "Organic"



# Raw Food Scraps





# Leaf and Yard Debris





# Pre-Consumer Food Processing Residuals





# GMC Customers by the Numbers

## BULK PRODUCTS



- **3,200 CY COMPOST IN 2012**
- **5,800 CY OF ALL BULK**
- **MORE THAN 2,500 CUSTOMERS**
- **90%+ SOLD WITHIN 25 MILES**

# CSWD Approach:

- Co-existing with herbicides
- Collaborating with:
  - Regulatory Agencies – USEPA, VTAAFM
  - Manufacturers – Dow & DuPont
  - Trade Groups – USCC, CAV
  - Agronomic Researchers / Labs – Woods End, OSU
- Insisting on better access to chemical testing and better labeling/user education

# GMC Customers by the Numbers



## BAGGED PRODUCTS

- 4 PRODUCTS
- 48,000 BAGS SOLD IN FY12
- 77 RETAILERS, 2 DISTRIBUTORS
- VT, MA & NY PRIMARY MARKETS

# CSWD Compost Program

- Current % of Revenues:
  - Tip Fees = 15%                      \$37.50/ton
  - Material Sales = 85%                \$33.00/cubic yard
- Annual Operating Budget = \$1 million

# From Discovery to Full Scale Investigation and Response

- Problem with persistent herbicides was reported and identified in two gardens on June 25, 2012
- Vermont Agency of Agriculture pathologist and pesticides chief identify herbicides as culprit by that afternoon
- Sales of Bulk Compost immediately suspended

# From Discovery to Full Scale Investigation and Response

- UVM Master Gardener helpline informed, pass along additional reports of probable gardens
- Coordination with Vermont Agencies of Agriculture, Natural Resources, and Department of Health
- Press Release on June 27<sup>th</sup>



# From Discovery to Full Scale Investigation and Response

- Health Department Issues Warning
  - “Do Not Eat”
- Phone lines begin to ring
- Media Frenzy Begins



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# THE LAST SEVEN DAYS

WEEK IN REVIEW

JULY 04-11, 2012

COMPILED BY ANDY BROMAGE & TYLER MACHADO

**F**or unsuspecting green thumbs around Vermont, "Compostgate" is turning into the horror show of the summer. What gardeners thought was nutrient-rich topsoil enhancer turned out to be an herbicide-laced menace that is wilting tomatoes and killing beans.

As staff writer Corin Hirsch reports on *Blurt* this week, Chittenden Solid Waste District — which operates and produces the tainted Green Mountain Compost — now confirms that both bulk and bagged soil and compost are contaminated with two persistent herbicides, both of which are banned in Vermont: clopyralid and picloram.

State health officials say the amount of weed killer in the compost isn't enough to harm humans, but that's little comfort to gardeners like Jason Wolstenholme of Burlington, who tells Hirsch he plans to replant his entire vegetable garden to combat the contaminants.

Tim Riddle's home garden in Winooski won Organic Garden of the Year from Gardener's Supply in 2005, but this year is full of slow-growing tomatoes with curled leaves — thanks to a bad batch of compost. CSWD general manager Tom Moreau explains that Green Mountain Compost routinely screens feedstock for heavy metals but not for compounds that are banned.

Will customers such as Wolstenholme and Riddle get compensated for their loss? All options — including monetary compensation — are still on the table, Moreau says.

## ATTACK OF THE KILLER COMPOST



MICHAEL TONN



## PLANTS IN CRISIS

at the Chittenden ng in the compost beginning.

## ated

e presence of Impre confirmed, is dis ng, Moreau said, es lly in light of the pre ary results of Carbor mics testing tha it widespread in ani feed sold by major anies nationwide.

e conflicting test re will slow the state's district's efforts to how best to prevent cide contamination mpost and lessen the ts of the chemicals re said. Everyone ind has to figure out caused the discrep s and what the true results are, he said.

atek and Carbon Dy s both have been co tive, Giguere said. ver, Carbon Dynam icials did not partici n a conference call g the various parties ed in the Vermont ost investigation. Gi said Carbon Dynam as absent because of a scheduling e did not make it to any officials in time.

ct Matt Sutkoski at 46 or oski@burlington ess.com. Follow n Twitter at tter.com/ ntweather.

# From Discovery to Full Scale Investigation and Response

- Three days after discovery, website FAQ and online reporting form for garden damage are launched



# Compost & Persistent Herbicides Fact Sheet

Much of the information contained in this fact sheet has been obtained from the U.S. Environmental Protection Agency (EPA), the State of Vermont, the UVM Extension Service and other sources CSWD believes to be reliable. CSWD, however, has not independently verified the information obtained from third parties.

## General Background and Information about Persistent Herbicides

- Timeline Summary of Herbicides Issue
- What are persistent herbicides?
- How long do persistent herbicides last in soil?
- Where do persistent herbicides come from and how did they get into compost?
- Why don't persistent herbicides break down in the compost process?
- It looks like people have had problems with persistent herbicides in other states for several years. Why are they just now becoming a problem in Vermont?
- What is the scope of contamination? How many gardens are affected?
- Is compost from another source safe?

## Information About CSWD Action and Impact on Compost Products

- What is CSWD doing to address this problem?
- What is CSWD doing to help those whose gardens may have been impacted?
- I'm a commercial grower and I believe I have produce affected by persistent herbicides, what should I do?
- I believe my soil may be contaminated, will you come test it?
- Which compost products may be affected by persistent herbicide residue?

## Information Specific to Managing Garden Impact

- How do I know if I have these persistent herbicides in my garden?
- What should I do if my garden is impacted?
- Will my garden be affected in future years? What can I do?
- Are plants and vegetables grown in soil containing persistent herbicides safe to eat?
- Is there anything I can do to save my tomato plants if they're planted in soil believed to contain persistent herbicides?
- If my plants do not have leaf curling, is my compost ok?
- Can I replace plants that appear to have been affected by a persistent herbicide?
- Disposal options if you choose to remove plants and/or soils from your garden.

What to Compost



How to Compost



Current Products



## Latest News

[Backyard Compost Bin Offer](#)

[Status Report: Compost and Persistent Herbicides](#)

[Sales of Compost Products Suspended for 2013](#)

[Where Can I Take My Food Scraps and Yard Debris?](#)

[Recommendations for Accelerated Remediation of Persistent Herbicides](#)

[NOFA VT issues memo on Use of Compost \(containing persistent herbicides\) on Organic Farms](#)

Where to Find Us





# Green Mountain Compost™

Local. Sustainable. Wicked Good.

Formerly Intervale Compost Products

[Home](#)[Products](#)[All About Compost](#)[How to Compost Anywhere](#)[About Us](#)[Contact](#)

## Form for Reporting Abnormal Plant Growth

### Reporting Potential Herbicide Exposure in Your Garden

If you purchased and applied Green Mountain Compost products on your garden this year and are seeing abnormal plant growth in those beds, we want to know about it!

The specific signs you should be looking for are extreme curling on the leaves of tomato plants, beans or legumes. These are the symptoms most commonly associated with persistent herbicide contamination. If you are experiencing plant symptoms that don't match this description, contact the UVM Plant Diagnostic clinic at 802-656-0493.

**If you do not receive an automatic email reply following the submission of your entry, it may not have processed. This may be caused by very large or multiple photos being attached to your entry. If this occurs, please retry submitting your entry and emailing the photos separately.**

Thank you for helping us get to the bottom of this issue. We very much appreciate your help and support. We are compiling a database of all reports so we can contact you with any updates.

Last Name \*

First Name \*

Name of person who purchased the compost product (if not you)

[What to Compost](#)[How to Compost](#)[Current Products](#)

### Latest News

[Backyard Compost Bin Offer](#)[Status Report: Compost and Persistent Herbicides](#)[Sales of Compost Products Suspended for 2013](#)[Where Can I Take My Food Scraps and Yard Debris?](#)[Recommendations for Accelerated Remediation of Persistent Herbicides](#)[NOFA VT issues memo on Use of Compost \(containing persistent herbicides\) on Organic Farms](#)[Where to Find Us](#)

# From Discovery to Full Scale Investigation and Response

- Scope still unknown during the first week
- Multipronged response is launched

How do we compensate affected gardeners?

- Verify Damage
- Proof of Purchase

Who's been affected?

- Creation of database and online form
- Retail vs. Wholesale

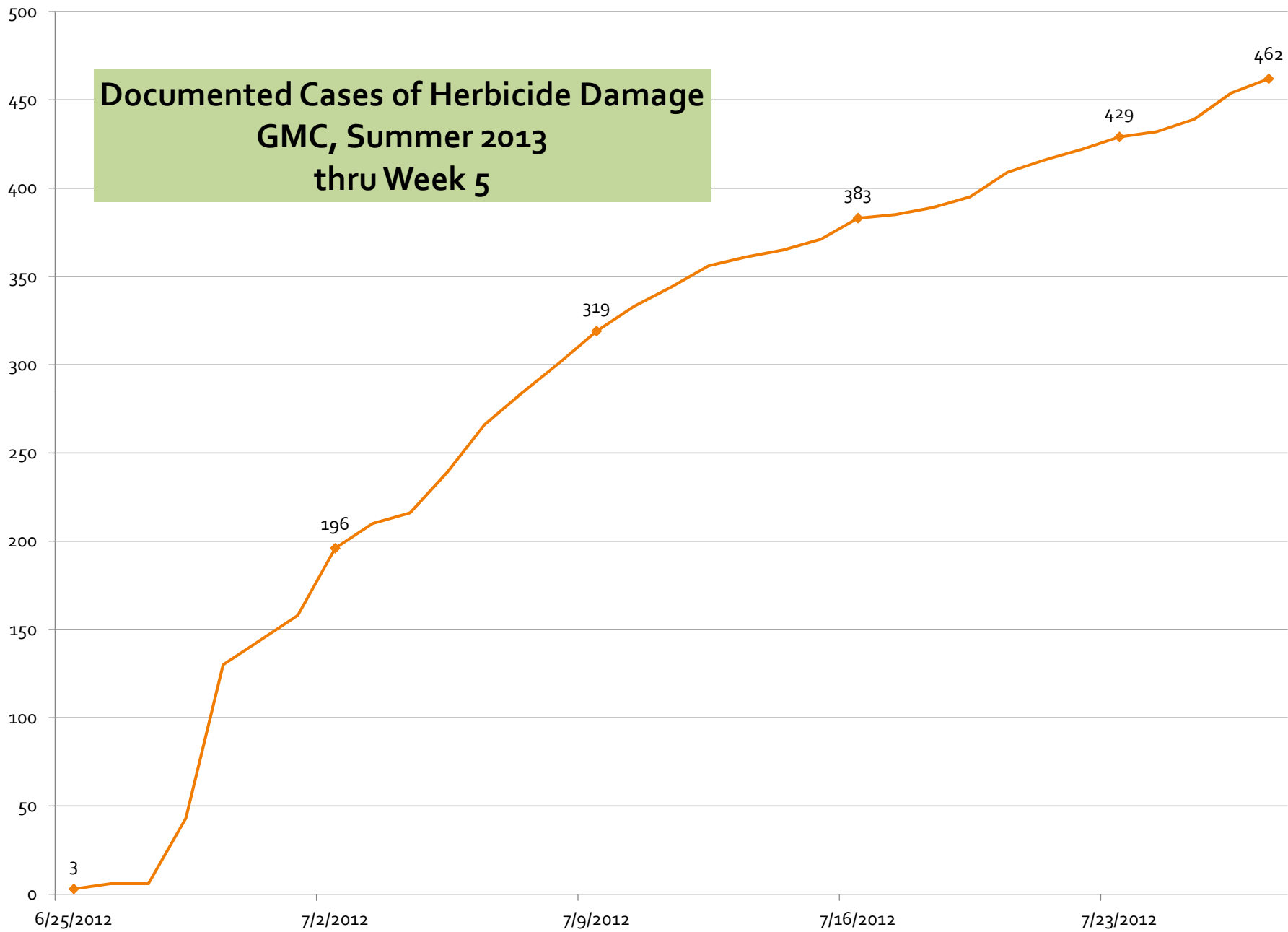
How do we confirm damage?

- Hiring of Field Technicians

“We don’t expect that low levels of herbicides would cause consumers any harm but, as a precaution and until we know more, it makes sense to not eat food grown in what we suspect to be contaminated compost.”

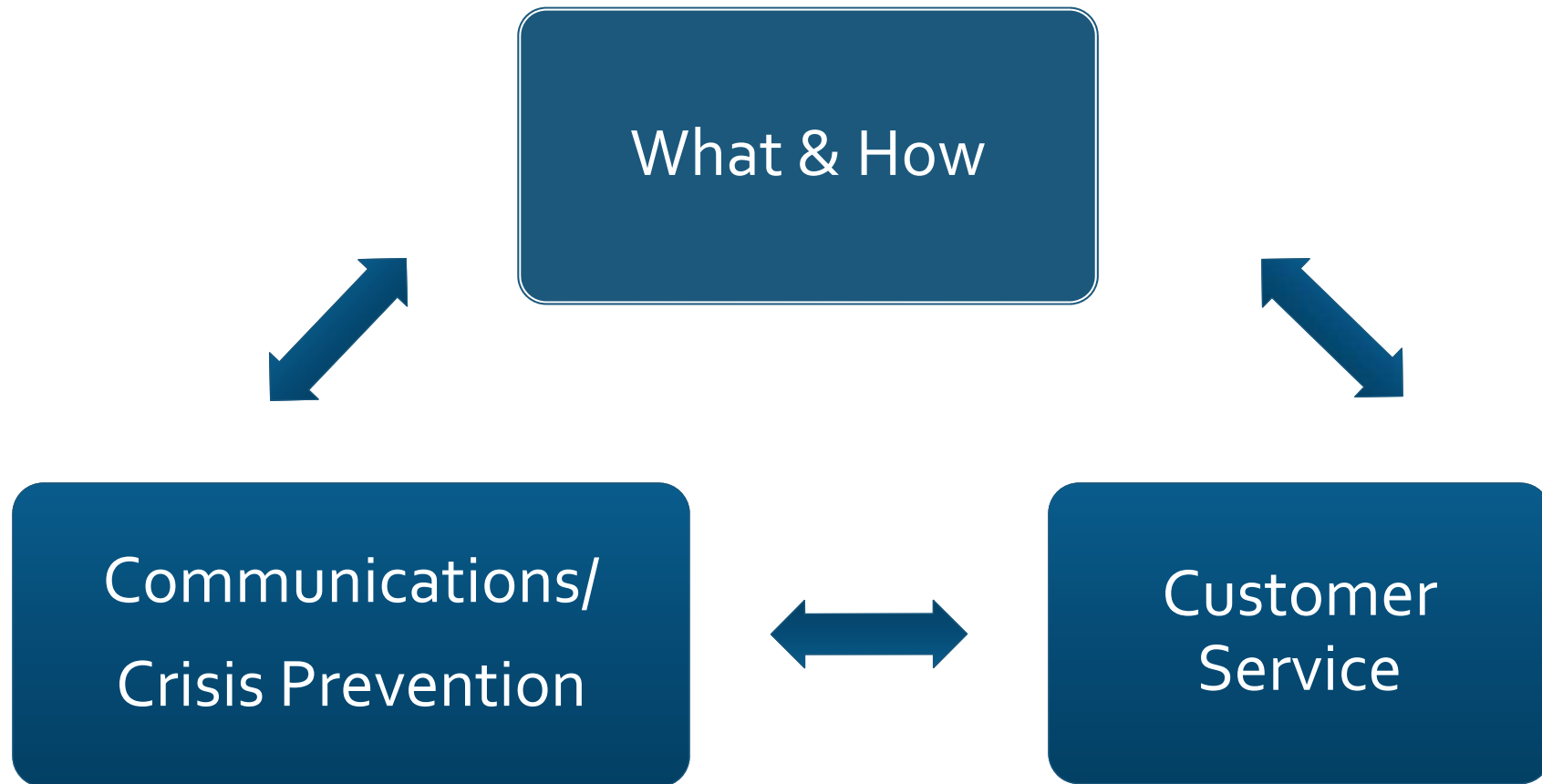
-VT Dept of Health  
6/27/12

**Documented Cases of Herbicide Damage  
GMC, Summer 2013  
thru Week 5**





# Simultaneous Facets of Persistent Herbicide Response



# What?

What herbicides are we dealing with?

What's the scope of affected products?

# How?

How did the herbicides get to our compost?

How do they work?

How do we get rid of them?

# Communications/Crisis Prevention

## Consultants Hired

- Marketing/Crisis Management

## Attorneys Activated

Extensive Coordination with Affected State Agencies

## District Support Staff

# Customer Service

Who's  
been  
affected?

How do  
we  
alleviate  
health  
concerns?

How do  
we  
confirm  
damage?

How do  
we pay  
claims?



How do we alleviate health concerns?

- VT Dept of Health, research

How do we confirm damage?

- Hiring of Field Technicians

How do we compensate affected gardeners?

- Verify Damage
- Proof of Purchase Standard Offer

Who's been affected?

Creation of database and online form

Retail vs. Wholesale

Bagged or Bulk only?

How do we compensate affected gardeners?

- Verify Damage
- Proof of Purchase
- Standard Offer

Who's been affected?

- Creation of database and online form
- Retail vs. Wholesale
- Bagged or Bulk only?

How do we alleviate health concerns?

- VT Dept of Health, research

How do we confirm damage?

Hiring of Field Technicians

Priority	Due	Customer Name	Amount	B
Tuesday 7/24				
	Anna	ERIC Sarah	Danika	
	Richmond Huntington	BTU	Colchester, BTU	So. Bur/Villi
1	Kenny B Richmond		O'Brien, A. Colchester RB, West De Home	Hunt. SBTU
2	Mc Sweeney Huntington	Knight, J BTU	Imric, D. Colchester	Norris Will.
1	Hart, Richmond	Everett Winoski	Lioha, L. Colchester	izzo. Williston
2	Lavoie Richmond	Howe, NNE	MacPherson - Colch Ethan Allen Homestead	Goyo, G Williston
3	Galligan Richmond	Cloutier NNE	J. Hyman - 2 schools	Herbert, P. Williston
4	Allen, W Richmond	Kilbourn, K NNE	Shyman's house	Brown, G & T Williston
5	Cole, M Richmond	Ellis, D. NNE	Cobb BTU	Stone, K Williston
6		Community Garden	Mariani (a) BTU	Donahue, P Williston
Wednesday 7/25				
	Anna	Jen. Sarah	Danika	
	Hyde Park, Stowe, Waterbury, Duxbury	Underhill Jericho	Winoski/BTV Colchester ONE	Westford Essex town - Jericho
11:30	Decell Hyde Park	Doherty, Underhill	Kellogg BTU	
R	Miller, Ed S11 Mountain Rd	Williams, K Underhill	McVeigh BTU	12:30 Budell, Della in Westford
1	Reed, Louise 200 Kimball Waterbury, CT	Dunphy, Roy Underhill	Kirby, F.	1-1:30 Hodgeon, Fred Westford
2	Ndione, Ann Waterbury CT	Vogellman Jericho	Gauderer BTU ONE	
3	Murphy, Shanna Waterbury	Norcross Jericho	Perkins, Brian BTU ONE	Motto, Joe Westford
4	Boehme S-5:30 Waterbury CT	Broekhuizen Jericho	Staddon, Joe BTU ONE	Whitney, Ann Westford
5:30	Hannop, Rhonda Duxbury	Keister Underhill	Wynne, Sandy BTV ONE	
6	Kifers, Chrissy Marctown 859-2195	Renshaw Underhill Ctr	Kline, O. BTU ONE	Gorman Westford
			Lafayette, H BTU ONE	Porth Jericho
			Demer, A. Westford	Schwer Jericho



# The compost detectives



The Chittenden Solid Waste District sent Green Mountain Compost field technician Eric Bidlack (right) and marketing specialist Michele Morris (rear left) to inspect Nicole Driscoll and Keegan Reed's Burlington garden on Thursday to determine if their plant damage was caused by the herbicide contamination. EMILY MCMANAMY/FREE PRESS

## Technicians compile database to help distribute money for people with contaminated gardens

MATT SUITKOSKI

ning out across much of northwestern Vermont to inspect gardens for damage. The district is offering a \$934,000 compensation package for customers whose gardens were damaged d



## Who's been affected?

- Creation of database and online form
- Retail vs. Wholesale
- Bagged or Bulk only?

## How do we alleviate health concerns?

- VT Dept of Health, research

## How do we confirm damage?

- Hiring of Field Technicians

## How do we compensate affected gardeners?

Verify Damage

Proof of Purchase

Standard Offer

# The Standard Offer

- Full refund of purchase price, tax & delivery
- Compensation - \$100 per cubic yard purchased
  - Seeds, Transplants
  - Time, Labor
  - Lost produce

# Timeline of initial response

- June 25<sup>th</sup> – GMC learns of first complaint
- June 27<sup>th</sup> - Anatek Labs identified, sent first 26 samples of feedstocks and composts
- June 28<sup>th</sup> – Press Release, FAQ, Online Form
- July 3<sup>rd</sup> – Test results from first batch

# Timeline of initial response

- July 13<sup>th</sup> – Bagged Product Buy-back Announced
- July 20<sup>th</sup> – Field Techs Deployed
- July 25<sup>th</sup> – Board Approves Assistance Package
- August 10<sup>th</sup> – First Checks Mailed to Customers

# Paid Claims on Products Sold

<u>Product</u>	<u>Total Sold</u>	<u>Paid Claims</u>	<u>% of Sold</u>
Bulk Soils	5,809 cy <sup>1</sup>	1,293 cy	22%
Bagged Soils	36,462 <sup>2</sup>	447 bags <sup>3</sup>	1.2%

<sup>1</sup> The amount of compost sold in 2012 was significantly reduced due to limited availability

<sup>2</sup> Of total 48,163 bags sold, 11,701 were returned through buy back

<sup>3</sup> 203 (45%) of these paid claims on bags were from one customer



# Financial Impact to GMC and CSWD

- 626 Complaints received
- 510 confirmed to have verifiable damage
- 450 individual claims paid
- \$450 average payout per customer

# Financial Impact to GMC and CSWD

Payments to customers and resellers	\$270,000
Estimate of CSWD internal cost	\$372,000
<u>Loss of value added sales</u>	<u>\$150,000</u>
<b>Total Estimated loss</b>	<b>\$792,000</b>

Annual Operating Budget = \$1 million

**INTRODUCING**



[www.GreenMountainCompost.com](http://www.GreenMountainCompost.com)

formerly *Intervale Compost Products*

*Local. Sustainable.  
Wicked Good.*



**Ask for it at your favorite hardware store, corner grocery, or garden center!**

Approved for use on  
**Organic**  
farms & gardens

**New location:** 1042 Redmond Rd., Williston, VT 05495 • (802) 660-4949  
[compost@GreenMountainCompost.com](mailto:compost@GreenMountainCompost.com)

# Organic Certification



Northeast Organic Farming Association  
of Vermont

*An organization of farmers, gardeners, and consumers working to promote an  
economically stable and ecologically sound Vermont food system*

“A certified organic farm will not lose their organic certification for the use of compost that is produced from approved feed stocks. The NOP regulations were established with recognitions that background levels of synthetic pesticides may be present in the environment and, therefore, may be present on organic farms. This is referred to in the regulations as unavoidable residual environmental contamination (UREC).”

- Northeast Organic Farming Association of Vermont, July, 2012

# “Recommendations for Accelerated Remediation”

- Suggestions solicited from Dow, DuPont
- Wheat, Oats identified as good crops for the job
- Oats chosen as best fit due to climate
- Oat kits made available to all with damage





















# 2012, Longest Summer Ever?

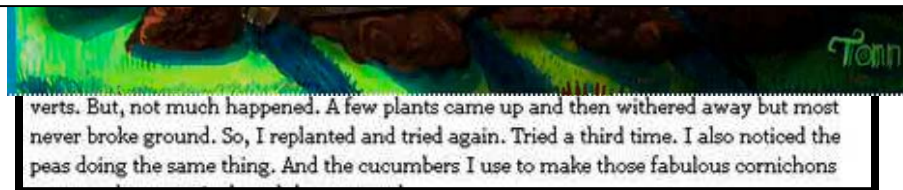
“Right from the start CSWD took responsibility, kept me informed, followed through on each promise made, took responsibility for the problem, and showed genuine concern. Their customer service was exemplary.

Mo  
'Kill

Sure, they had a problem – a huge one. But they also showed compassion for the difficulties they caused, and they were honorable in their dealing with me. That is great customer service. Thank you, CSWD.”

-Peter Post

The E Word, Boston Globe, September 18, 2012





# Expressed Appreciation

*"Thank you Green Mountain Compost! Your support and care for your customers with affected gardens has been beyond expectations"*

*"I just wanted to take a moment to commend you and your organization for being so forthright and upfront on how you handled this unfortunate situation. I especially appreciate the proactive approach you took in researching the problem, communicating your findings and then offering what I consider a fair settlement. It is always nice to see an organization willing to accept responsibility. I have complete confidence in continuing to use your product in the future."*

# Testing: Chemical (1)

- Round 1 – CSWD Sent 84 samples sent to Anatek
  - Clopyralid results valid, picloram & aminopyralid suspect
- Round 2 – VT Agency of Agriculture sent 68 samples to Carbon Dynamics lab, paid for by Dow Agrosiences
  - Their results for aminocyclopyrachlor were later discredited
- Round 3 – VT Agency of Agriculture sent 9 “split” samples to seven different labs
  - EPA yet to report
  - Aminopyralid believed to be major the culprit at CSWD

# Testing: Chemical (2)

- Round 4
  - Dow agrees to retest the 68 samples for the Vermont Agency of Agriculture originally sent to Carbon Dynamics. Results to be used for “trace back” analysis.
  - Dow agrees to test new samples from CSWD. Results for samples of compost made without horse manure still indicate a slight problem with aminopyralid.

# Testing: Chemical (3)

- Round 4
  - Dow's lab was eventually able to trace back the presence of aminopyralid to at least one horse stable.

## Testing: Chemical (4)

- DuPont has made their test method available
  - 3 commercial labs offering to test for DuPont's aminocyclopyrachlor
- Dow working on making their test methods available – possibly one procedure for 3 compounds



# Testing – Bioassays (1)

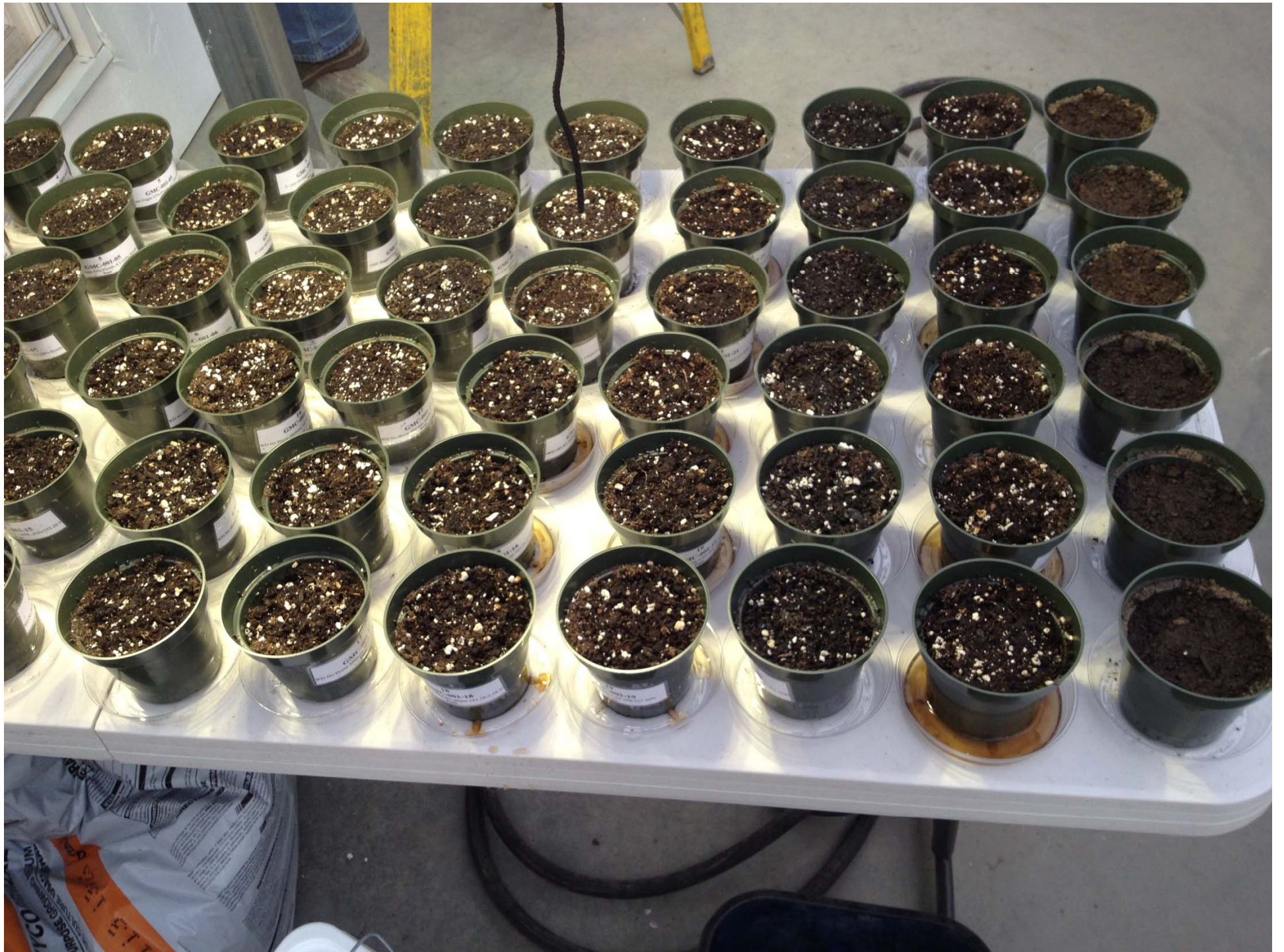
- Fred Michel, PhD of OSU has been running growth trials on several samples with no horse manure
- Will Brinton, PhD of Woods End Labs has been running growth trials of CSWD compost and feedstocks

## Testing – Bioassays (2)

- CSWD has collected samples from compost and area gardens for new set of growth trials at our own greenhouse.


















**GMC-001-01**

**Control**

**GMC-001-10**  
**Bulk Topsoil**  
**(most mature),**



# CSWD Staff Conclusions (so far)

- After analyzing the chemical test results from Dow, Anatek and the State of Vermont, the bioassay or growth trial results performed by CSWD, Ohio State University and Woods End lab and reviewing the technical/peer reviewed literature:
- We had an acute problem with aminopyralid
- We have a chronic problem with clopyralid

## CSWD Staff Conclusions (2)

- Aminopyralid needs to be avoided
- Clopyralid needs to be managed

# CSWD Current Efforts:

- Working with Manufactures, USEPA, State Agencies and USCC on prevention
- Patching together funding for deficit – CSWD filed lawsuit on our insurance company
- Obtaining needed information from the herbicide industry
- Bringing the herbicide industry up to speed on the composting industry



# Thank You!



[tmoreau@cswd.net](mailto:tmoreau@cswd.net)



**GMC-001-01**

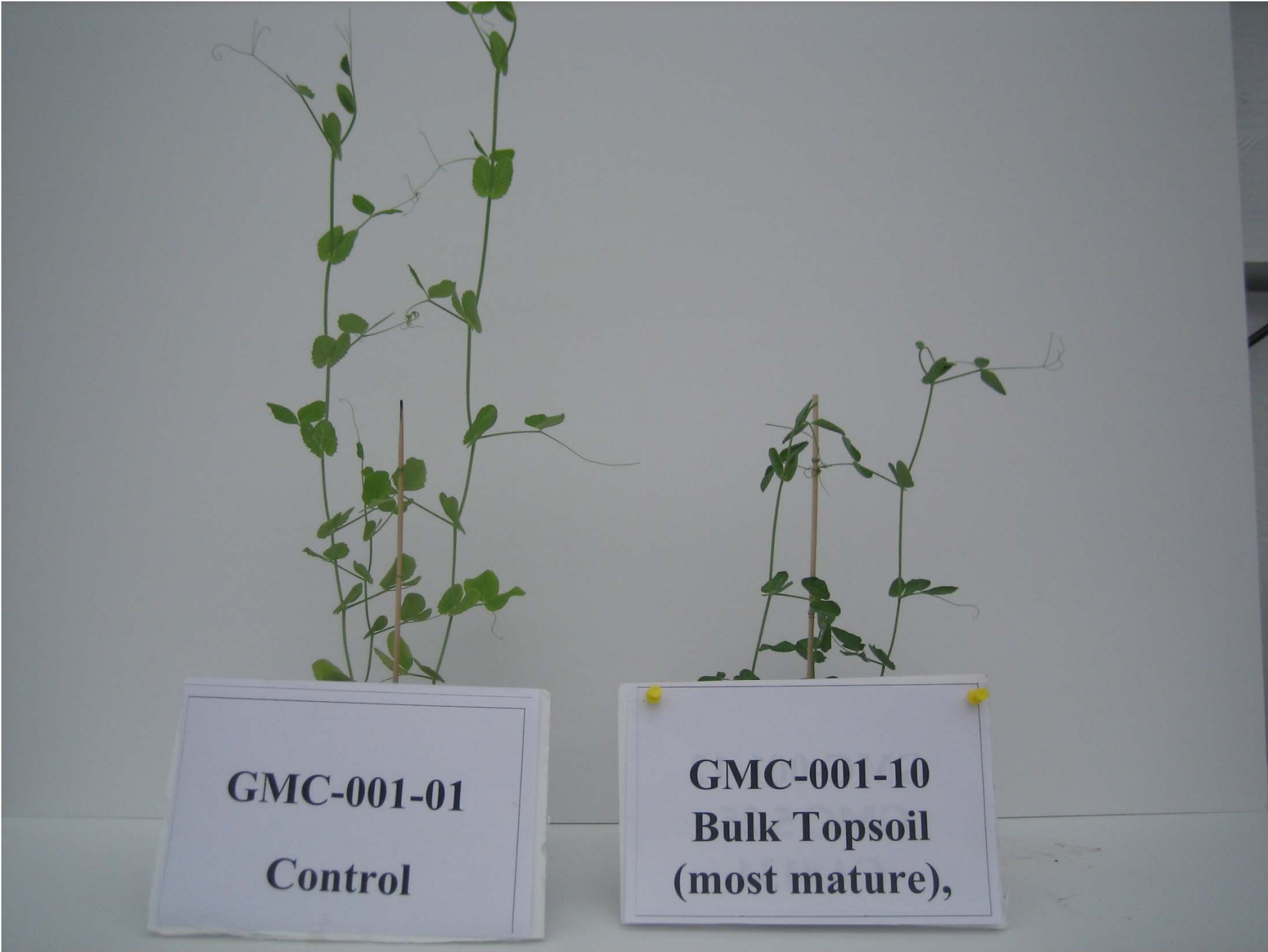
**Control**



**GMC-001-02**

**Moreau virgin**

**50%**



**GMC-001-01**

**Control**

**GMC-001-10**  
**Bulk Topsoil**  
**(most mature),**





**GMC-001-02**  
**Moreau virgin**  
**50%**



**GMC-001-04**  
**Moreau Virgin**  
**50%:Flyash, 4:1 (20%**  
**flyash)**

# VT Agency of Ag, Dow, EPA

- Conducted trace back analysis to find path of entry into CSWD compost
- How to prevent in future?



# Persistent Herbicides (1)

- Have very low toxicity to mammals, fish, amphibians & fowl
- Are very effective in eliminating nuisance weeds
- Are heavily relied upon by the agricultural industry

# Chemical Testing

- Key that testing for all species of persistent herbicides be reliable, consistent and affordable to regulators and composters.

# Regulatory Oversight

- A perplexing dilemma for regulators is how to regulate a persistent herbicide compound whose concentration is within the established tolerance limits for grains, meats, milk, etc. but still high enough to cause damage in compost.