

Aminopyralid, Compost, and Field Restoration

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Milestone, Composting, Bioassay, RME

Contents

- **Milestone – What is it?**
- **Composting with Milestone in Mind**
- **Bioassay testing for Milestone**
- **RME**

Milestone

- **Selective Herbicide**
- **Residual**
- **Active Ingredient**
- Aminopyralid



Aminopyralid Family

Brand Name	Common Name	Year Introduced
Tordon	Picloram	1970's
Garlon	Triclopyr	1980's
Curtail/Stinger	Clopyralid	1990's
Confront	Clopyralid+ Triclopyr	1990's
Redeem R&P	Clopyralid+ Triclopyr	1990's
Starane	Fluroxypr	Late 1990's
Milestone	Aminopyralid	Late 2000's
Imprellis/Perspective	Aminocyclopyrachlor	2010 +

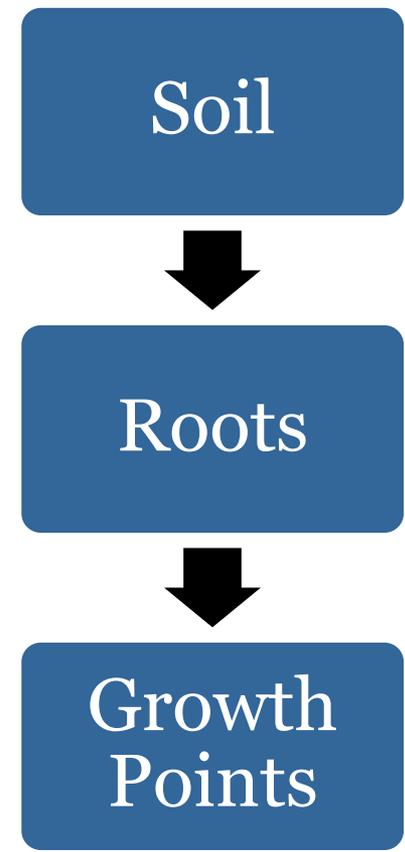
Why is Milestone Popular?

- **Selective**
 - **Kills Broadleaves**
- **Less likely to volatilize than 2,4D**
 - **Caution**
- **No Grazing Restriction**
- **Residual control**
- **There is a time and place for it!**

How Does Milestone Work?

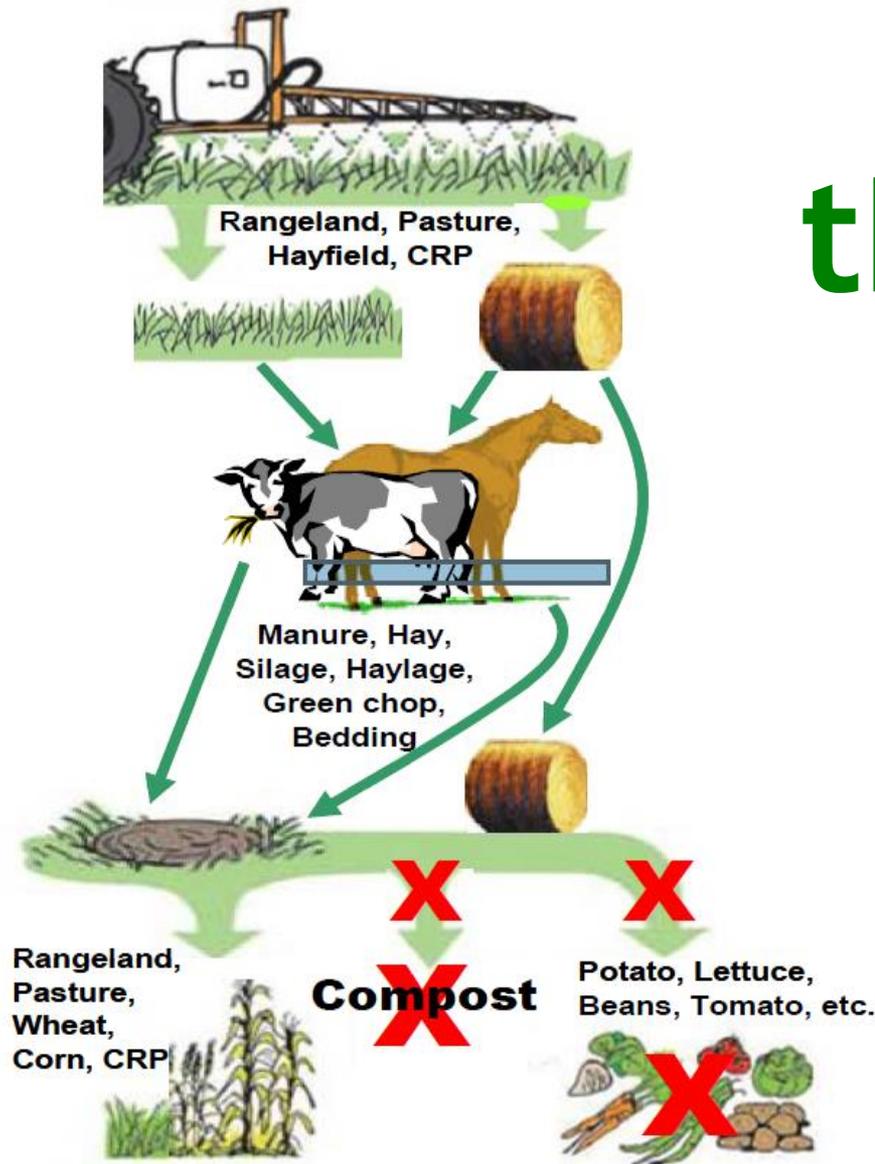
- **Broadleaves**
- **Grasses bind the active ingredient to the cell wall**
 - **Does not harm the plant**
 - **For more information on how this works see:**

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Forage and Manure Management

What is the Problem?



Residual carries through the whole system, not just in the ground

Livestock, Hay & Milestone

- **Livestock**
 - **Active ingredient is highly soluble**
 - **Does not harm animals (passes right through)**
 - **Concentrates in manure and urine**
 - **Not good for compost**
 - **Manure/Urine from cows grazing treated pasture can damage broadleaves**
- **Grass Hay**
 - **Active ingredient does not decompose or metabolize in hay/straw**
 - **Not good for compost**

How Long Does it Last?

- **Soil**
 - 18 months (LEAGLLY)
 - Shorter if soil is warm and moist
- **Hay**
 - 18 months after applied to soil (i.e. until hay turns to dirt)
- **Compost**
 - 18 months after applied to soil

Compost

Involves:

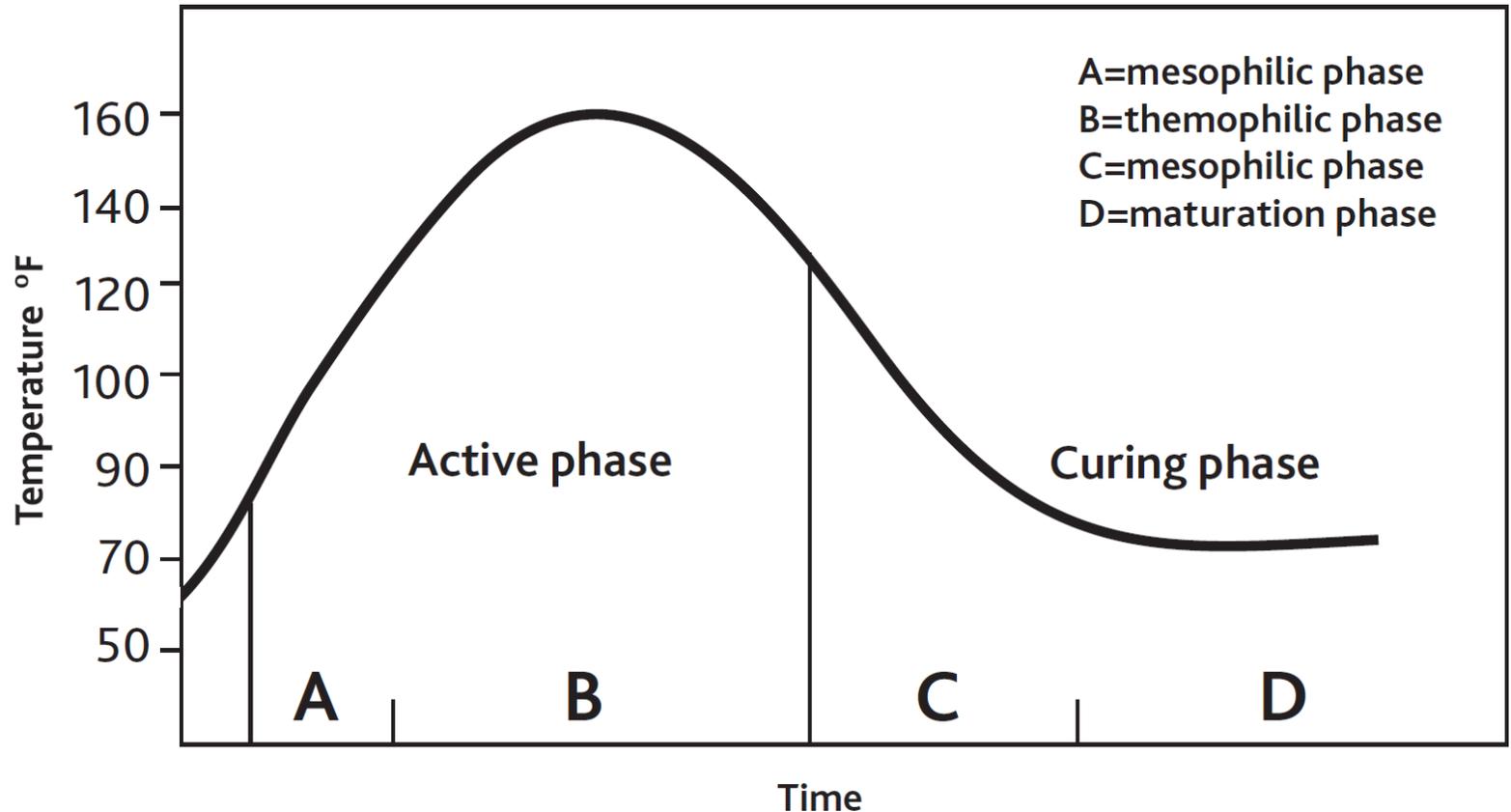
- **Organic Matter**
- **Moisture**
- **Oxygen**
- **Bacteria**
- **Temperature****
- **Time****

My journey began with:

- **A Leaky Tarp**
- **Manure**



Bacteria & Temperature



Temperature/Moisture

- **Temperatures in compost piles can get hot enough to kill seeds and pathogens**

- **145 Degrees** 

- **50-60% Moisture**



C:N

- **Carbon : Nitrogen**
- **10-20:1**
- **More carbon than nitrogen**
- **Hay = 60:1**
- **Manure = 10:1**



Time

	Action	Time to Compost
C:N Ratio		
Particle Size		
Moisture		
Ambient Temperature		
Pile Size		
Frequency of Turning		
PH	6.5 < 7 < 7.5	

Rules

- **WAC 173-350-220**
 - **Defines composting facilities**
 - **Frequent testing, annual permits and reporting**
 - **Exemption for operations under 25 yards/year**
 - **Exemptions for agricultural waste**
 - **Crop residues**
 - **Manure and bedding**
 - **Bulking agents**
 - **Chips, Shavings, Straw**

Rules Cont.

- **WAC 173-350-220**

“Does not apply to...”

- **WAC 173-350-020**

- **(5) Agricultural composting when all agricultural wastes are generated, processed, and applied on-farm at agronomic rates in accordance with accepted agricultural practices.**

When Milestone and Compost Meet

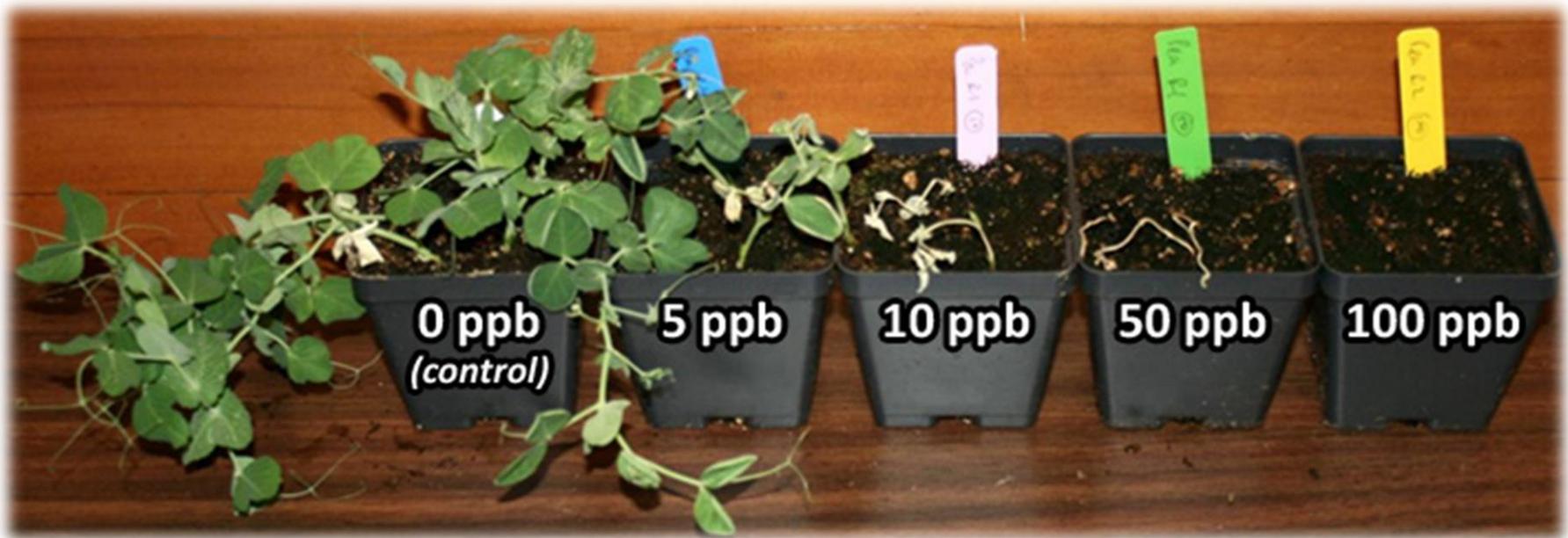
- **Fiddle-necking of growing points.**
- **Growth not stunted.**
- **Color not affected.**



BIOASSAY

A decorative horizontal line consisting of a thick grey bar on top, followed by a white bar, and then several thin grey and white lines on the right side.

Aminopyralid Bioassay



“Results of a bioassay with known concentrations of aminopyralid. Plants shown are at six weeks after planting. Note leaf curling on plant grown in 5ppb (parts per billion) aminopyralid and death of plants at higher levels.”

<http://whatcom.wsu.edu/ag/aminopyralid/bioassay.html>

Day 1





Compost

Compost



Miracle-Grow

Miracle-Grow

10 Days



50/50

50% Compost
50% Miracle-Grow

10 Day Leaf Health

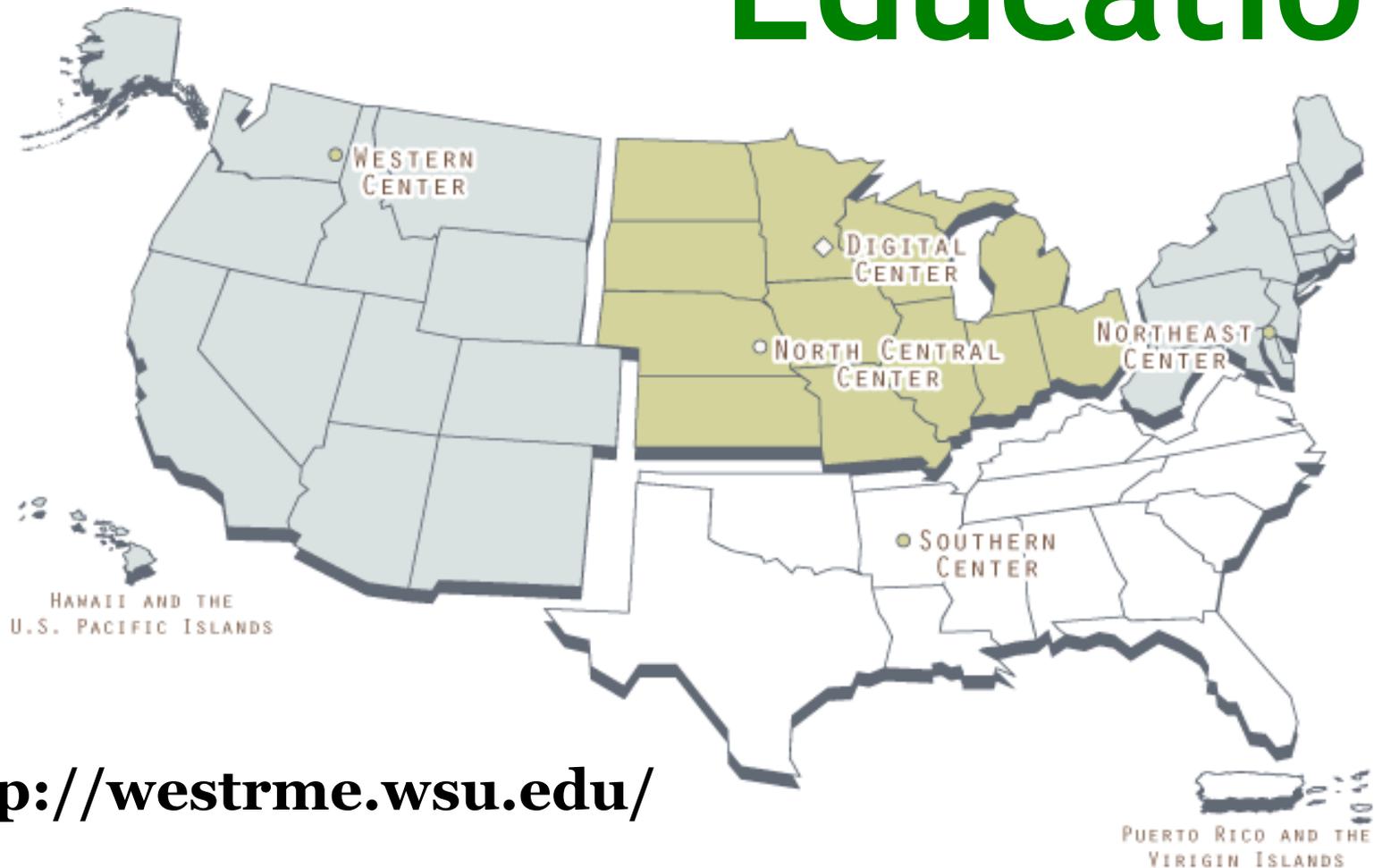
- **Nothing important about 10 days**
- **3 pairs of leaves!**



Conclusion

- **Aminopyrrolid residual can be positive or negative**
- **Composting can be a great tool in ag waste management**
- **Test compost/manure before applying to gardens or broadleaf crops**
- **Choose weed control measures with these issues in mind.**

Risk Management Education



<http://westrme.wsu.edu/>

THE END

