Herbicide Carryover from Manure & Other Organic Matter

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Where Carryover Comes From

• Herbicides used for weed control in:
  – Pastures & hay
  – Grain crops
  – Lawns
  – Some fruits & vegetables

• EPA & EU evaluations
  – Safe for use in animal feeds
  – Pass through digestive tract
    • Excreted in urine & manure
  – Can remain active even after composting

• Will carryover extended time in original form i.e. hay, straw, etc.

http://1812garden.hamiltoncollegeblogs.com/index.cfm/2008/12/2/All-in-Favor-of-Manure
Herbicides Likely to Cause Carryover Issues

<table>
<thead>
<tr>
<th>Herbicides that contain picloram, clopyralid, aminopyralid, Sulfonyl ureas</th>
<th>Pasture &amp; agronomic</th>
<th>Turf &amp; lawns</th>
<th>Fruit &amp; vegetables</th>
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</thead>
<tbody>
<tr>
<td>Curtail</td>
<td>Confront</td>
<td></td>
<td>Clopyr AG</td>
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<tr>
<td>(2,4-D &amp; clopyralid)</td>
<td>(triclopyr+clopyralid)</td>
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<td>(clopyralid)</td>
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<tr>
<td>Cimarron Max</td>
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<tr>
<td>(metsulfuron, dicamba and 2,4-D)</td>
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<tr>
<td>Dicamba DMA Salt</td>
<td>Dicamba DMA Salt</td>
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<tr>
<td>(dicamba)</td>
<td>(dicamba)</td>
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<tr>
<td>Forefront</td>
<td>Lontrel</td>
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<td>Stinger</td>
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<tr>
<td>(aminopyralid + 2,4-D)</td>
<td>(clopyralid)</td>
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<td>(clopyralid)</td>
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<tr>
<td>Grazon Next</td>
<td>Millennium Ultra Plus</td>
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<tr>
<td>(aminopyralid + 2,4-D)</td>
<td>(2,4-D+clopyralid+dicamba)</td>
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<tr>
<td>Grazon P+D</td>
<td>Millennium Ultra &amp; Ultra 2</td>
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<tr>
<td>(picloram+2,4-D)</td>
<td>(2,4-D+clopyralid+dicamba)</td>
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<tr>
<td>Milestone</td>
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<tr>
<td>(aminopyralid)</td>
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<tr>
<td>Redeem R&amp;P</td>
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<tr>
<td>(triclopyr+clopyralid)</td>
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<tr>
<td>Surmount</td>
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<tr>
<td>(picloram+fluroxypyr)</td>
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</table>

There may be other herbicides, but the main point is to know what has been applied and what may cause carryover problems. Source of information was NC State University Cooperative Extension.
Bioassays Check It Out!

• Prepare multiple pots of:
  – Suspect materials
  – Checks (clean potting mix)

• For suspect manures or compost:
  – Collect random samples of suspect material
  – Shovel-fulls from potential source 20+
    • From deep within pile
    • Mix well
  – Prepare 1:1 mix of sample + potting mix
Bioassays Check It Out! Continued

• For suspect hays or straw
  – Mulch pots of growing media (heavily)
  – Equal # of un-mulched pots

• Plant indicator plants or seeds:
  – Tomato plants
  – Bean
  – Spinach

• Grow for 3-4 weeks
  – Evaluate for damage
Conclusions

• Prevention is key:
  – Ask questions
    • About potential O.M.
    • Check herbicide labels
  – When in doubt:
    • Apply to non-crop areas
      – Grain fields
      – Hay fields
      – Lawns

• If you suspect carryover:
  – You can do bioassays
  – Patience, carryover will breakdown in time