

Clopyralid Sampling for Growth Trials and Lab Analysis

The WasteMINZ Organic Materials Sector Group recently undertook to review the New Zealand situation for clopyralid and its level of contamination of greenwaste, and subsequent compost products. Clopyralid is a herbicide used to control broadleaf weeds, particularly thistles and clovers. It can survive the composting process and actually increase in concentration as the greenwaste breaks down.

Compost products contaminated by clopyralid can damage peas, tomatoes, sunflowers, potatoes, lettuce and spinach. Due to its persistence as a contaminant, and resulting implications for product end users, clopyralid is a substance that we need to protect our industry from as best we can.

The review found that whilst not all compost manufacturers test for clopyralid, of those who do several were finding concerning levels of clopyralid. The Organic Materials Sector Group strongly encourages all manufacturers of compost to test regularly for clopyralid. Details of how to test for clopyralid can be found below.

There are two options for testing for clopyralid: laboratory testing or tomato plant growth testing.

1. Laboratory Testing:

Hills Laboratory in Hamilton will test for clopyralid. They charge \$275 for the testing of green pre-compost or partially composted samples and \$255 for testing of finished product. The Organic Materials sector group advocates testing of the finished product. By testing the incoming greenwaste or partially composted material, there is always the factor of 'decomposition' to take into account. This means that as the greenwaste breaks down, it reduces in volume and weight and the concentration of clopyralid changes (increases). Testing green pre-composted or partially composted samples will therefore generally provide a lower concentration than finished compost.

- To find out more about finished product testing contact v Martin Cowell, Ph: 07 858 2835, email: martin.cowell@hill-labs.co.nz
- To find out more about pre compost or partially composted samples contact Ph: 07 857 0615, email: doreen.day@hill-labs.co.nz

2. Tomato Plant Growth Testing

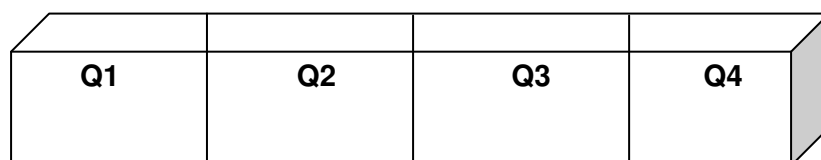
The presence of Clopyralid in compost can be determined by a growth trial using tomato plants. Any plant damage is scored against standard photographs.

Equipment

Sampling	Growth Trial
Clean spade	PB Bags or clean pots 3L
Bags to collect samples	Washed sand to mix with compost
Small hand screen	Slow release fert (3 or 6 month)
	Tomato seedlings

Sampling

- a) Compost samples can be taken from a row that is at least 60 days old.
Alternatively samples can be taken from a finished screened pile.
- b) Divide the row length into quarters.



- c) In each quarter, take 6 – 8 random 'grab' samples of 0.5L each. Note, take 1L or more if compost row contains a lot of coarse material (this will be screened out)
- d) Using the spade, dig into the row approx. 100mm deep and collect each sample
- e) Place the 6-8 samples from each quarter into a sample bag and label.
- f) Repeat for remaining quarters of the row

Sample Preparation

- a) Tip sample bag into large plastic bin or clean tarp and mix well
- b) Pass sample through (approx.) 12mm screen to remove coarse material. The fine compost can now be used in a growth trial.

Growth Trials

- a) Compost sample to be tested is mixed by 1:1 by volume with washed sand.

- b) Slow release fertiliser is added at 5 grams (1 teaspoon) per litre.
- c) Compost/sand mix is put into 3L (PB5) planter bags or pots. A tomato seedling is transplanted into each bag/pot. This is replicated three times.
- d) Ensure each bag or pot is clearly labelled so the location of sample from the row can be identified.
- e) A control treatment is done at the same time. This consists of transplanting a tomato seedling into a 2L planter bag containing sand and slow release fertiliser at 5 grams per litre. This is replicated three times.
- f) Each planter bag is placed in a saucer to contain runoff and prevent cross contamination with other plants.
- g) Plants are monitored closely for any development of clopyralid symptoms. This is usually seen as curling or cupping of the new leaf growth.
- h) After 8 – 12 weeks, any plant symptoms are compared and scored against standard photographs.

Lab Analysis

- a) Samples taken from each quarter may be sent for analysis or all quarters can be combined together into one composite sample

Clopyralid Damage on Tomato Plants
Score Sheet



Score 1 - Slight



Score 2 - Moderate



Score 3 - Severe



Score 4 - Extreme