Digester | Technical Sheet

Vegetables, cover crops and general crop trash

Biostart **Digester** is a soil microbial stimulator that activates those beneficial, naturally occurring bacteria and fungi in your soil responsible for decomposition.

Benefits of using Digester

Digester returns organic matter to the soil by promoting the rapid breakdown of leaf litter, cover crops, old roots and post-harvest crop trash in horticultural crops.

Applied directly on to crop trash, **Digester** activates the decomposition microbes already present in the soil. For vegetable and cover crops, breaking down crop trash makes it easier to prepare seedbeds, reduces blockages of seed drills and improves accurate seed placement. **Digester,** by efficiently decomposing the crop residue that many fungal and bacterial pathogens survive on between crops, reduces disease pressure on consequent crops.

Trials show that Digester:

1. Enhances the Breakdown of Cover Crops

Cover crops are used by growers to build up soil organic matter. One of their issues is getting the cover crop residue broken down before the next seedbed needs to be prepared.

A trial was conducted in May 2019, where an Auckland commercial oat cover crop was sprayed with glyphosate. Half of the cover crop was sprayed with just glyphosate, and the other half with a mixture of glyphosate and **Digester**, with the **Digester** added at a rate of 4 L/ha. After six weeks there was an obvious visual difference in the paddock (Figure 1). For each treatment area, several plots were assessed for residual oat trash, and the addition of **Digester** to the glyphosate application had increased stubble breakdown by 65% ($P < 0.01$) thereby improving the incorporation of the trash into the soil (Figure 2). Observation of the treated oat trash by microscope showed that it was more broken down (Figure 3) and fibrous with a higher level of saprophytic fungi present on the stubble. Microbiological analysis of the crop residue showed it had higher levels of beneficial yeast species on the treated samples.

This study demonstrates that the application of **Digester** with glyphosate enhances the breakdown of a cover crop.

Figure 1. Impact of Digester on Oat Stubble

Figure 2. Effect of Digester on Oat Stubble Breakdown Pukekekohe 2019

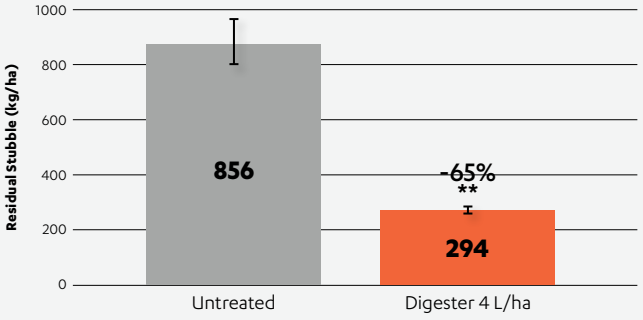
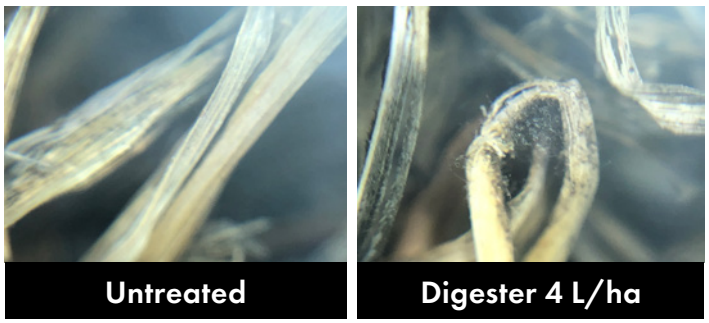


Figure 3. Microscopic view of Impact of Digester on Oat Stubble



Biostart New Zealand 0800 274 524 biostart.co.nz
Biostart Australia 1800 359 559 biostart.com.au

biostart®

2. Improves Asparagus Crop Trash Breakdown

The application of **Digester** has been shown to enhance asparagus crop trash breakdown. Asparagus crops require their vegetative spears to break down during the autumn/winter period. In a recent trial, **Digester** was applied at 4 L/ha to asparagus crop trash before being incorporated into the soil. Five weeks afterwards the asparagus crop trash in the treated area was more decomposed than the untreated area (Figure 4). The breakdown of this crop trash will benefit the yield of asparagus in the following spring.

3. Breakdown of Maize Crop Trash Improves Yield

After the harvest of maize grain crops, significant levels of crop residue remain, often more than 10-12 T/ha. Crop trash remaining in spring ties up soil nitrogen, inhibiting the growth and germination of the next crop. Therefore, it is important that all maize crop trash is broken down quickly over winter, prior to spring planting.

In continued maize cropping, **Digester** has been shown to improve the breakdown of maize crop trash thereby increasing the yield of the next maize crop. In two successive Bay of Plenty trials, Digester was applied at 4 L/ha in July directly on to crop trash from a commercial maize grain crop. The paddock was re-sown in maize the following November and yield was recorded for both the treated and untreated paddocks. In year 1 of the trial, application of **Digester** increased grain yield by 12% (1.4 T/ha; Figure 5a), and in the subsequent year, **Digester** increased grain yield by 8% (1.1 T/ha; Figure 5b).

The rapid breakdown of maize crop trash by **Digester** benefited the yield of the following crop.

Figure 4. Effect of Digester on breakdown of asparagus trash in autumn

Figure 5a. Maize Grain Yield (T/ha) 2012

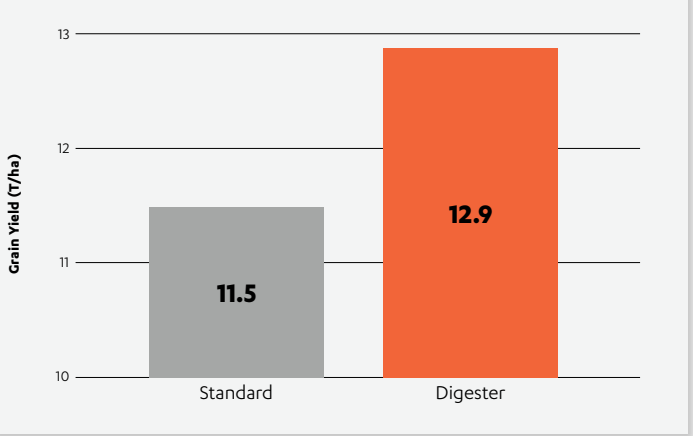


Figure 5b. Maize Grain Yield (T/ha) 2013