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# USER GUIDE

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## PROGREEN-FM

### Anaerobic Composting of Broiler Chicken Manure – Dry Preparation Method



Chicken and eggs are an essential part of our everyday diets. But, have you ever considered what happens to the chicken manure that comes with poultry farming? Chicken manure has an unpleasant odour and attracts flies, which causes serious sanitary problems. Luckily, many studies have shown that chicken manure is rich in nutrients and organic matter contents. Moreover, composted chicken manure is an excellent soil amendment, when applied correctly. The current methods for composting chicken manure are dated and ineffective. What we offer is PROGREEN-FM, an easier, quicker and more economical solution to composting chicken manure.

The increasing demand of chicken meat has prompted more poultry farming with consequent effects on increased utilization of organic wastes as fertilizers (Dikinya and Mufwanzala, 2010).

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## Introduction

After years of research, our company has developed and patented an innovative way of composting chicken manure— anaerobic fermentation in NWP-assigned bulk bags. Our method allows the

**“The nutrients released after the biological breakdown of the soil organic matter supply the nutrients essential for plant growth in organic farming.”**

decomposition and conversion of chicken manure to a well-stabilized soil amendment to occur inside a NWP-assigned bulk bag. This not only mitigates the spreading of unpleasant odour, but also helps facilitate handling, storage and transportation. The anaerobic bacteria found in PROGREEN-FM are able to convert nitrogen- and sulphur-containing compounds contributing to unpleasant odour within 10 days, and biologically break down unstable compounds inhibiting crop growth, as well as macronutrients, within 21 days. PROGREEN-FM is our way of contributing to the development of a more sustainable agricultural system.

- CHANG, CHUNG AND TSAI, 2007

PROGREEN-FM must be applied according to a specific procedure developed by our R&D Team, in order to maximize the rate of composting and minimize the rate of odour evolution.

## Materials

For 1 tonne of broiler chicken manure (with bedding materials):

- PROGREEN-FM: 10 kg
- Water: 200 - 230 L (depending on the water content of the broiler chicken manure)
- NWP-assigned bulk bag (25 kg per bag): 40 units

## Equipment

- Tillers (e.g. cultivators)
- Backpack sprayer
- Estate sprayer
- Packaging equipment (or manual labour)
- Vacuum pump
- Heat sealer

## Instructions

1. Use a tiller to loosen up broiler chicken manure
2. Use a backpack sprayer to evenly apply 5 kg of PROGREEN-FM to broiler chicken manure
3. Use an estate sprayer or an in-house spraying system to evenly apply 100 L of water to treated broiler chicken manure
4. Use a tiller to turn treated broiler chicken manure
5. Repeat Steps 2. to 4.
6. Pack treated broiler chicken manure in NWP-assigned bulk bags
7. Vacuum and heat seal the bulk bags
8. Store for 21 days (if the average temperature is below 15°C, must extend composting time to 4 to 5 weeks)



The composting of chicken manure can convert unstable material to a well-stabilized, humified substance (Warman and Cooper, 2010).



Image 1. Using a tiller to turn broiler chicken manure and bedding materials to ensure even application of PROGREEN-FM



Image 2. Evenly applying 100L of water onto treated broiler chicken manure



Image 3. Manually packing treated broiler chicken manure into NWP-assigned bulk bags



Image 4. Hot sealing NWP-assigned bulk bags

## Notes

- Store in shady areas; avoid sunlight and rain
- Store indoors in low-temperature regions (average temperature below 15°C); must extend composting time to 4 to 5 weeks
- Before heat sealing, press as much air out of the NWP-assigned bulk bags as possible; may use a twist tie instead if a heat sealer is not available
- Observe for 12 to 24 hours after sealing. Because the composition of broiler chicken manure varies geographically, may need to cut a hole in the corner of the NWP-assigned bulk bags if excessive gas evolution is noticeable
- Initially, apply the same amount of composted chicken manure to your land, as with chicken manure; will notice immediate improvement in soil productivity. Adjust the application rate according to the planting and harvesting schedule and desired crop yields

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