



The University of Georgia

Center for Agribusiness and Economic Development

College of Agricultural and Environmental Sciences

Landscape and Nursery Utilization of Composted Manure

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LANDSCAPE AND NURSERY UTILIZATION

Composted Manure

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Introduction

The Georgia poultry and egg industry accounts for 46 percent of the total value of the top 10 commodity groups sold in Georgia in 2004. Total farm gate value of the Georgia poultry and egg industry for 2004 was \$4,750,925,309 with the broiler industry contributing % 79.6 of the value. The annual live broiler productions in 2004 was approximately 1.6 billion birds. The broiler industry produces about 2.5 pounds of manure per bird for an annual production of 2,000,000 tons.

Problem

For many years Georgia poultry producers for many years have traditionally disposed of their poultry manure by spreading it on crop and pasture lands. The producers are able to sell their manure to area farmers as a fertilizer product. Rural areas are experiencing ever increasing development as Georgia's population continues to grow and cities expand to meet the housing needs. In addition, new manure management plans limit the amount of manure that can be applied to a producer's land. As a result, there are fewer acres of agricultural land available for spreading excess poultry manure.

Resourceful individuals and businesses have attempted to utilize poultry litter as a feed ingredient for cattle as well as an input in methane gas production. The cost of transporting a ton of broiler litter/manure ranges from \$8 to \$15 per ton. Several entrepreneurial efforts in the past have attempted to produce a marketable soil amendment product containing poultry manure or a pelletized composted product.

Methodology

The Center for Agribusiness and Economic Development (CAED) developed an in-depth survey instrument to collect information on potential manure products. The survey instrument was designed to collect information on current use of manure based and other soil amendment products. The CAED developed a list of nurseries and landscape businesses across Georgia. A sample of these businesses was contacted for participation in the study. The in-depth analysis approach is different from typical survey analysis in that the respondent and the interviewer have a conversation about a particular subject. The interviewer has a set of general questions to ask but has the flexibility to explore ideas that arise in the interview in more detail. As a result, the total number of completed interviews is small and may not represent the business population. However, it does provide some useful insight into the industry and what they are looking for in manure based products.

A total of twenty-seven (27) businesses (nurseries and landscaping companies) was asked a series of questions to gauge their level of knowledge, use, and willingness to pay for manure-

based soil amendment products. The breakdown of the respondents can be found in Table 1. Thirty-six percent (nine) surveyed were plant and tree nurseries while 64%, 18 were landscape firms.

Current Usage of Manure-Based Products

The respondents were first asked if they currently utilize any manure-based products in their operation. The majority of the respondents (73%) reported they currently do not use manure or manure-based products in their operation. Interestingly, none of the nurseries reported using manure-based products compared to 62% of landscaping firms. One-quarter of the landscapers reported they currently use manure-based products in some aspect of their operation. This may be attributed to the fact that landscapers are more likely to use manure-based products because of lawn preparation for homes. However, the manure-based products used by landscapers ranged from pure manure to being one of several ingredients in a soil amendment blend. Thirteen percent of the respondents reported they were not qualified to answer the question.

Table 1. Current Use of Manure-based Soil Amendment Products				
Type of Firm	Portion	No	Yes	No Response
Nursery (n=9)	36%	100%	0	0
Landscape (n=18)	64%	62%	25%	13%
Total (n=27)	100%	73%	15%	12%

The respondents that are not currently using a manure-based product were asked why they choose not to use this type of product. Approximately, one-third of the nurseries and 44% of the landscape firms provided no answer. One-third of the nurseries and a quarter of the landscaping firms reported they would use a manure-based product if it were available. One-third of the nurseries said manure-based products were not utilized due to customer objections and concerns of a potentially offensive odor. Interestingly, only 13% of the landscapers do not use manure-based products because of odor concerns.

Table 2. Reason Given for Not Using a Manure-based Product				
	Response			
Business	No Response	Did Not Fit Their Business	Lack of Supply	Perception/Odor
Nurseries	32%	0	32%	34%
Landscapers	44%	19%	24%	13%

Current Uses

All of the respondents are currently using some form of a composted pinebark medium product. Landscapers and nurseries were procuring soil amendment products from local retailers, directly from manufacturers, and mixing their own, (Table 2). A third of the landscape firms custom mixed their own soil amendments as well as custom mixing for other firms. Over half (53%) of the landscapers purchased their compost directly from local retailers while 13% purchase their products directly from custom mixers or manufacturers. In contrast, 55% of the nurseries purchase their custom mix compost products directly from manufacturers.

Source of Compost				
Business	Retailers	Manufacturers	Produce Own	No Response
Total	33%	33%	4%	30%
Landscape	53%	13%	33%	0%
Nursery	18%	55%	0%	27%

Available Commercial Products

Typical commercial products used in the nursery/landscape industry, are **Nature's Helper**, **Nature's Choice**, and **Earth Food**. The ingredient list contained in a 2 cubic foot bag of Nature's Helper reveals common products: peat, pine nuggets, mini nuggets, mulch, top soil, organic humus, cow manure, pine shavings, saw dust, and cypress mulch.

Miracle Grow packaged a similar 2 cubic foot package, comprised of 60% sphagnum moss, peat, coconut husk, composted bark, a wetting agent, and fertilizer with NPK ratios of .15-.05-.10. Miracle Grow produces a number of other combinations of the above recipe but containing non-specific manure products.

Scotts brand soil amendment products contain similar ingredients: peat, forest products or composted sphagnum moss, peat moss, a wetting agent, and fertilizer. **Jungle Growth** in 2 cubic foot package contains moss, perlite, vermiculite, a secret ingredient and lime. Other competing potting mixes all containing non-specific manure products with fertilization ratios ranging from .15-.12-.09 to .20-.22-.20. In addition to these blended products, there are composted manure products like Black Hen and Black Cow currently available.

Firms Using Manure-based Products

The survey results found that only 15% of the respondents utilize manure-based soil amendment products, and all of these firms were landscapers. None of the nursery operators interviewed reported using a composted manure product. Interestingly, the majority of the landscapers who use manure-based products reported purchasing these products at local retail establishments. A few of the landscapers reported purchasing bulk, custom- mixed composted products directly from the manufactures (Table 2).

The custom-mixed recipe consisted of composted manure with peanut hulls, top soil and black cow, green leaf and black cow manufactured by Vita Green Inc. A another custom mix consisted of 50% top soil, 25% composted broiler manure and 25% wood chips. When asked why they chose to use manure-based products responses were “ Better results with flower beds,” “ There was a great demand from homeowners, It (manure) is better than other soil amendment products” and “Best for bedding plants.

Value in Manure-Based Products

Those firms using manure-based products were asked “ **In your opinion, are manure-based products worth more, worth less, or the same as other soil amendment?** Sixty percent of the respondents indicated that manure-based products are worth more than other soil amendments. Another twenty percent of the respondents indicated that manure-based and other products should be similarly priced while another 20% of the respondents offered no opinion or did not know.

Respondents that provided an answer to the question involving value of manure-based products were then asked the question, **What if any do you think are the benefits of using these manure-base products?** “Table 4 below shows that one- third of the firms believe that the fertility of manure -based products is better for plants. Another one third of the respondents felt the organic nature of manure was beneficial. Others responses include: “I don’t know... never worked with compost.” A few of the firms that were positively biased toward using a composted product mentioned several additional requirements. Convenience, ease of handling/ bagging the product was mentioned by a number of the respondents.

Table 4. Benefits of Using Manure Based Products			
Better Fertility	No Difference	Best Organic Material	No Opinion
33%	8%	33%	25%

A majority of the respondents (63%) felt their use of manure-based products is expected to increase. Interestingly, none of the respondents indicated their use of manure-based products is anticipated to decrease.

Thirteen of the survey participants were asked, **“What, if anything would you like to see added to a composted poultry litter product to increase your use of the product?”** Approximately one third of the respondents were not able to provide a response, which is attributed to lack of knowledge of the subject, or not qualified to answer this question. The two thirds that did provide information on what they would like included in a composted product offered a variety of comments. For example, “Nothing”; “I will mix my own compound”; “Sand and composted poultry manure”. One operator had a precise recipe of one third sand, one third composted manure and one third humus and some form of lime. Most of the other respondents wanted to continue with the pinebark-based soil amendment products but with composted poultry as a prominent natural fertilizer. Several operators called for a manure and peanut hulls recipe or manure and sand.

Respondents were asked: **Imagine that a compost product with the characteristic you described was available on the market and was competitively priced. How likely would you be to use the product?”** Most respondents (6% somewhat likely - 67% very likely) responded positively to manure product usage. Only 11% indicated they would not likely use, plus 17% somewhat unlikely to use of manure-based soil amendment products. This is very encouraging and provides a strong incentive for businesses to contact nursery operators and landscaping companies and develop specific compost products to meet their needs.

Table 5. Likelihood To Use Manure-Based Products		
Likelihood of Purchasing	Nurseries n=(9)	Landscapers n=(18)
Very unlikely	8%	11%
Somewhat unlikely	12%	17%
Somewhat likely	4%	6%
Very likely	46%	67%

Anticipated Usage of Manure-based Products

Nearly two-thirds (63%) of the firms interviewed indicated they anticipate their use of manure-based compost products to increase over the next year. Thirty-seven percent of the respondents indicated their use will not change. Interestingly, none of the respondents indicated that they would decrease the use of these products. This suggests that the respondents that utilize manure based compost products are satisfied with their performance.

To produce a product that meets the needs of consumers, the respondents were asked what if anything could be added to manure-based compost products to increase their performance. The respondents appeared to want the compost mixed with pine bark, sand, or peanut hulls. Many of the respondents indicated that they make their own compost products and would be purchasing the composted manure products to mix with their own ingredients to obtain a product that meets their specific needs. The respondents reported that they have their own recipes and would use the composed manure as an ingredient.

Soil Amendment Usage

The respondents were asked on two occasions about the volume of soil amendment products they use in their operations. Twenty respondents or 81 % were able to provide an estimate of the quantity of soil amendment product used. The soil amendment products were a 40 lb. bagged product, a small bulk product measured in cubic feet or cubic yards, and large bulk products measured in tons. Table 6 provides information on the current usage as reported by the firms. The 5,072 total tons used by the 22 firms came to an annual average of **230* tons per firm**.

Table 6. Soil Amendment Usage			
Units	Current Usage	Tons	Average Tonnage Per Firm (22 firms)
Cubic Yards	5,043	2,283	103 Tons
Bags (40lb.)	8,810	177	8 Tons
Bulk Ton	2,612	2,612	118 tons

Product Packaging Preferences

The landscape industry appears to prefer bagged products. Bagged products are more convenient and easier to store than bulk products. However, nurseries prefer to purchase bulk quantities of soil amendment products. This information is critical in developing a product that will meet the needs of a targeted consumer. Given the information in Table 7, it would be more difficult to market bulk products to landscapers than a bagged product. The opposite is true for nurseries.

Table 7. Proportions of Firms and Type of Product Need				
TYPE FIRM	BAGGED	CUBIC YARD	TON	TOTAL BULK
Landscape (n=18)	61%	7%	32%	39%
Nursery (n=9)	14%	71%	15%	86%

Prices

The information in Table 8 provides insight into the retail market for bagged prices. These prices were gathered from national and local retailers operating in the Athens area. These prices should be used as a guide for determining the price of a new manure-based soil amendment product and are subject to variation outside the area.

Table 8. Retail Prices of Soil Amendment Products				
	Composted Bark Mixes		Composted Manure Mixes	
Outlet	Retail	Blender	Retail	Retail
Unit	Bagged	Bulk	Bagged	Bagged/Bulk
Cubic Yard	\$44.87	\$28.71	\$59.27	\$56.25
Ton	\$99.00	\$63.81	\$131.27	\$125.00

Conclusion

This inquiry began with the knowledge of an abundant supply of raw broiler litter produced in the state of Georgia. For decades broiler litter has been utilized by growers on their pasture land and pasture land of their neighbors. With the intrinsic value of raw litter no more than the replacement cost of its nitrogen content alternative utilization methods should be explored and exploited. This research has collected information from landscapers and nurseries to gauge their acceptance, use and demand for improved manure-based soil amendment products.

Seventy-three percent (Table 1) of the respondents do not use any form of a poultry manure-based soil amendment product. When the respondents were asked why they are not using composted manure-based products, one-third of the nurseries and 24 % of the landscapers said there was not an available supply. In addition, the issue of odor has to be addressed if a manure-based product is to be successfully introduced into the market.

In conclusion, nearly half of the respondents indicated they would be interested in purchasing a compost manure-based product if it were readily available and odor was not an issue.

The Center for Agribusiness and Economic Development



The Center for Agribusiness and Economic Development is a unit of the College of Agricultural and Environmental Sciences of the University of Georgia, combining the missions of research and extension. The Center has among its objectives:

- ▶ To provide feasibility and other short term studies for current or potential Georgia agribusiness firms and/or emerging food and fiber industries.
- ▶ To provide agricultural, natural resource, and demographic data for private and public decision makers.

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