



Financial Feasibility and Market Analysis of Poultry Litter Ash Fertilizer Granules

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Introduction

In this fact sheet, a feasibility analysis of poultry litter ash granules (0-24-24, NPK; Figure 1) is discussed. The financial and market feasibility of a new enterprise is an important set of analyses that should be conducted well before any purchasing of equipment. The information contained in this fact sheet are based on many assumptions from a single case study, but may prove useful to poultry operations considering similar fertilizer co-products. In the following sections, the financial and market feasibility of such products will be discussed. Finally, several recommendations will be proposed for such fertilizer products.

Financial Feasibility Analysis

Three separate analyses were performed to assess the financial feasibility of a poultry litter ash fertilizer granule enterprise. Specifically, an enterprise budget analysis, a cash flow analysis, and a return-on-investment analysis. The findings were as followed:

From the enterprise analysis, it was found that 0-24-24 fertilizer granules composed of poultry litter ash is potentially profitable for home garden markets. Assuming one is able to obtain \$0.75 per pound of granules, the enterprise would garner approximately \$41,765.63 in revenues. The variable costs would be \$31,460.46 and fixed costs would be \$2,366.71. This would garner an annual profit of \$7,938.46. Based on the total costs, the breakeven price per pound of granules is \$0.61.

Cash flow analysis helps to determine the timing of cash inflows and outflows for a specific time-period. The results of the cash flow analysis in Year 1 show that the enterprise would produce a loss (negative profit). This is expected as the cash outflows (costs) from the initial investment in the equipment and the operating expenses far exceeds potential revenue. By the end of Year 3, the investment starts to return a positive profit, which indicates that the initial investment cost of the equipment has been repaid. At the end of Year 10, the cumulative profit is expected to be approximately \$54,700.35. Net present value indicates a positive return on investment, which means that it is profitable. The rate of return is



Figure 1. Ash pellets from poultry litter.

approximately 14.11% per year. The payback period on the equipment investment is about 2.5 years.

Market Feasibility Analysis

The home flower and vegetable garden market is a growing market that is worth approximately \$3 billion dollars across the entire United States. There is significant potential for poultry litter ash granules to enter this market and be competitive.

From a recent analysis, the assumed wholesale price of a pound of poultry litter ash fertilizer granules is \$0.75. This price is based on the composition of the fertilizer as compared to most other fertilizers in the market. Specifically, a 0-24-24 blend of nitrogen (N), phosphorus (P), and Potassium (K) is rare in the market. All competing products have some percentage of nitrogen. The product with the lowest percentage of nitrogen was organic bone meal with 3%. The average retail price per pound of competing products is \$2.43 with the cheapest competitor option at \$0.30 and the most expensive competitor option at \$3.70 per pound.

With the proper marketing/information campaign this could fill a hole in the current offerings of the home garden fertilizer market. This fertilizer can take the position that phosphorus promotes root growth in plants, and that potassium enhances individual bloom/fruit quality. Thus, this fertilizer product could fit a very specific position of being used for small (home) flower and vegetable gardens.

Consumers are trending toward more environmentally conscious products and discussing the potential of reducing excess nitrogen in local watersheds should be a focus of any marketing campaign.

Another promotional piece to include on the bag is the farm story. Consumers, especially millennials, are more concerned about supporting local enterprises. Farm stories directly on products have been a growing part of local agricultural marketing and has shown to increase demand. There are few, if any, local fertilizer producers and this could be a promotional strategy that will be the most effective.

Research suggests that 77% of U.S. households have a garden and that there are approximately 105,480,101 households throughout the country. Therefore, the average annual fertilizer expenditure for those households with a garden is approximately \$36.94. If it is assumed that the average annual fertilizer purchase is 15 pounds, then consumers are paying an average of \$2.46 per pound of fertilizer. Note, this is retail expenditure and not wholesale. Also note, that this does not separate out the type of fertilizer or the purpose of the fertilizer. If it is assumed consumers purchase 50 pounds of fertilizer every year, then the average cost per pound is \$0.74, which is close to the price assumed in the financial analysis.

Recommendations

- With the vast number of unknowns still about potential retail marketability, it is recommended to contact several potential retailers to determine their willingness to sell the product.
- If the desire is to promote and sell the product directly from the farm, appropriate marketing costs in the range of \$5,000-\$20,000 per year would need to be accounted for in the financial feasibility analysis.
- Other options besides producing the fertilizer granules would be to transport the ash to a landfill, attempt to sell the ash as a fertilizer product, or outsource the granule production.

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