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Guidelines and requirements for the introduction of a new Miracle-Gro® product.

Product Technical Name: MG#224
Product Marketing Name: Plant Wizard®

Prepared by Product Development Unit for the review of Consumer Gardens Business Group's senior management.

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Executive Summary

The *Plant Wizard* is a convenient, mess-free alternative for consumers that prefer to use powdered fertilizer on their household plants. The system is all-inclusive in that it features dispensing, measuring, and mixing fertilizer all within one single "wand."

This all-in-one system will fill an unmet need in the marketplace for a convenient and mess-free fertilizer product. Thorough market research and analysis revealed that consumers are willing to pay more for the *Plant Wizard* than for existing products because of its value-added features. The product's primary market is defined as household plant owners and avid gardeners that currently use powdered fertilizer, but who are displeased with the product's design.

Potential sales for this new product are estimated at $42.7 million in the first year of production and can increase the Scotts Company market share by 3%. The NPV analysis at a 15% discount rate revealed a $28 million net present value over the next five years.

The Product Development Team believes the *Plant Wizard* will become a highly procured product. The team will be responsible for the planning, execution, and supervision of this project at both the development and ramp up stages

The Product Development Team strongly recommends the *Plant Wizard* for development and production.

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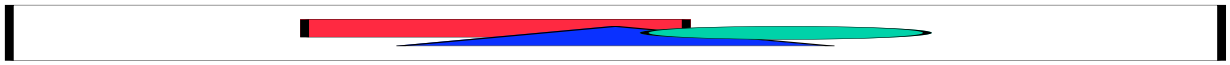


1. Mission Statement

The *Plant Wizard* team's vision is to create a new method of fertilizing household plants that will allow gardeners to neatly, easily, and precisely measure and apply powdered fertilizer in one convenient step. More specifically, the team set out to create a Miracle-Gro® brand extension that addresses unmet customer needs, increases the product's current market share, and offers the Scotts Company a higher profit margin.

The product's primary market is defined as household plant owners and avid gardeners that currently use powdered fertilizer, but who are displeased with the product's design, or lack thereof. The secondary market is new plant owners and other people who have not fertilized plants in the past due to the inconvenience of the current products on the market.

The primary assumptions for this project are the following:

- New product will utilize the existing Miracle-Gro® powder
- Product Design and Development Team is an existing unit within the Scotts Company's Consumer Gardens Group

Stakeholders in this project include purchasers, users, manufacturers, distributors and resellers, the Scotts Company executives, and the members of the Product Development Team.

2. Customer Needs Analysis

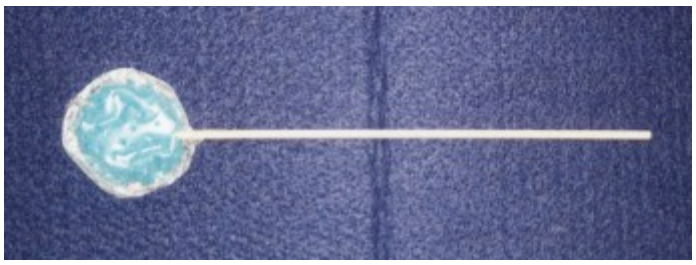
Customer surveys revealed that the three most desired traits of household plant fertilizers are 1) convenience, 2) mess-free, and 3) precise measurement. Our research also revealed that the majority of consumers prefer the powdered method form of Miracle-Gro®. (Please see Appendix A for sample survey)

Customer Survey Results

Question 1 Interpreted Result: More people fertilize less frequently
Question 2 Interpreted Result: More people use powder than any other type of household plant fertilizer.
Question 5 Interpreted Result: In order of importance, people look for the following in their fertilizer: convenience, mess free, ability to measure precisely, environmental friendly. Of least importance was the package format (loosely defined) and the quantity.
Question 6 Interpreted Result: People have the most problems with stains and spills, followed by inconvenience and stickiness.
Question 7 Interpreted Result: The most important changes consumers want to see in their fertilizer, in order of most important to least important, are that it measures exactly, dispenses easily and is cheaper.

3. Product Description

The *Plant Wizard* is a convenient, mess-free alternative for consumers that prefer to use powdered fertilizer on their household plants. The system is all-inclusive in that it features dispensing, measuring, and mixing fertilizer all within one single "wand." The product's features eliminate the usual mess and stains that result from coming in contact with the fertilizer (blue in color), and the need for an object to mix the fertilizer with water.



3.1. Non-Technical Product Overview

Product Description

- The *Plant Wizard* consists of 24 disposable pre-measured wands for fertilizing household plants. The package count of 24 wands was chosen to address the needs of the average household plant owner that fertilizes once or twice a month. (Each package represents a 6-12 month supply of fertilizer, depending on the number of plants owned.)
- Each wand consists of a round, water permeable[1] plastic pouch attached to a wooden stick.
- Each pouch contains 0.22 oz or 1 teaspoon of Miracle-Gro powdered fertilizer, the commonly prescribed measure for household plants per one gallon of water.
- Pouches are attached to a wooden stick used for stirring the fertilizer into the water. Since they are made of wood, sticks are biodegradable or recyclable.
- The outer packaging consists of a vacuum-sealed round cardboard can, giving the *Plant Wizard* a long shelf life. It also comes with a plastic lid for resealing after opening.

Product Features

- The *Plant Wizard* cuts the number of steps involved in the household plant fertilizing process from 3 (scooping, dumping, stirring) to 1 (stirring).
- The *Plant Wizard's* pre-measured pouches of fertilizer prevent measurement errors that result in under- and over-fertilizing.
- The wand format is an all-in-one system that eliminates the need for separate measuring and stirring devices.

[1] Throughout this contract book the description of the pouch as water permeable refers to the fact that the plastic the pouch is made of, polyethylene, is covered with tiny holes, allowing water to mix with and dissolve the fertilizer. Polyethylene is not water permeable without the holes.

- The wand format is also mess free, as it eliminates the need for gardeners to come in direct contact with the fertilizer.
- The *Plant Wizard's* re-sealable can prevents moisture from altering fertilizer consistency.

3.2. Technical Product Overview

Packaging

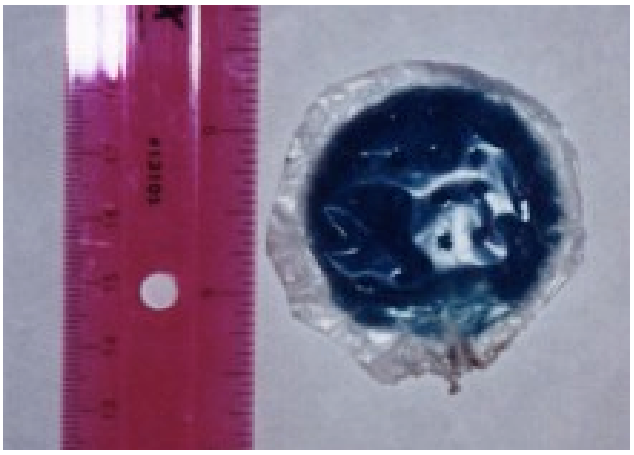
Outer Packaging – The *Plant Wizard* is sold in round cardboard cans (8 _ inches in height, 4 inches in diameter) containing 24 individually wrapped wands. The can is vacuumed sealed with aluminum-laminated plastic to prevent humidity from entering the container while it is transported to and kept on store shelves. In addition, the can has a reusable plastic cap that protects the wands from moisture penetration once users have opened the package.

Inner Packaging – The 24 wands are individually packaged in small, unsealed bags, made of thin, recycled plastic (similar to the free ones offered at supermarkets in the produce section). The purpose of the inner packaging is to further protect unused pouches from coming in contact with any water or humidity during usage and storage.

Wands

Pouches – They are round (1_ inch in diameter) and hold exactly 1 teaspoon of powdered Miracle-Gro® fertilizer. Pouches are made of water permeable polyethylene. The polyethylene is permeable because it is covered with tiny holes that are necessary in order for the fertilizer to easily dissolve in water.

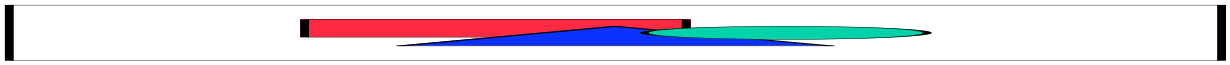
In a completed wand, pouches are penetrated by the stick via one of the existing holes and are further secured by melting a small section of the pouch to the stick



Sticks – The *Plant Wizard* wands include wooden sticks 8 inches in length and 1/8 inch in diameter. This length and strength were chosen after a series of tests and customer surveys were conducted, indicating the required strength of the wood and the ideal length for easy mixing.

3.3. Performance Specifications (Initial, Revised, Final)

The initial performance specifications for the *Plant Wizard* were derived from customer needs prior to the selection of the product concept. As a result, the initial and final performance specifications differ in many ways.



Initial Performance Specifications: (Please see Appendix B for a table of Initial Specs)

The initial performance specifications were based on the following customer preferences, in order of importance:

- The product is easy to use and mess free.
- The number of steps required to mix and apply fertilizer is kept to a minimum.
- The product operates as one, simple system.
- The product is easy to store and prevents the fertilizer from getting "gunky".
- The system includes a reminder of when to fertilize.
- The fertilizer dispenser product can be used with many types of powdered fertilizers.

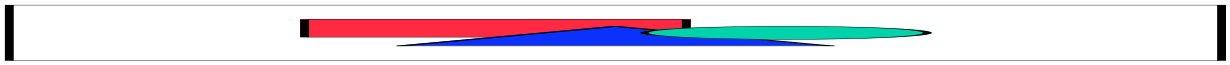
Revised Performance Specifications: (Please see Appendix C for a complete table)

After considering many options the *Plant Wizard* Development Team decided on the concept that met as many customer needs as possible, while minimizing the costs to the Scotts Company. Having a clear product concept enabled the team to add more metrics to each need statement, making the product specifications more comprehensive and concise. At the same time, some of the initial specifications became obsolete (i.e. ability to use system with a variety of powdered fertilizers) as the product design team further defined their goals and target market.

Final Performance Specifications: (Please see Appendix D for a complete table)

The *Plant Wizard's* final performance specifications reflect the final product, and illustrate that many trade-off decisions were made to maximize customer satisfaction and minimize production costs. For example, in the revised specs the design team was considering using a "fancy" reusable stick that gardeners would have to attach to the pre-measured pouch. It was thought that the reusable stick would cut down on the amount of waste, thus appealing to environmentally conscious gardeners. In the end, it was decided that the wooden, disposable stick was a better option. The trade off was that the fancier reusable stick would add another step to the process for the end-user and would require additional time and money to develop. These costs were not worth the benefit of eliminating waste, especially since the disposable stick is biodegradable.

Another trade-off example is the absence of a mechanism to remind gardeners when to fertilize. The first prototypes did contain a "flag system" that gave gardeners the option of writing the date last fertilized on a small flag at the end of each stick. The gardener could then break off the flag and insert it into the dirt of their plants, reminding them of when they should fertilize. While such as system was part of the initial performance specifications, customers' responses to the prototype proved that this feature was unnecessary. The design team decided that the flag system was not worth the extra manufacturing costs that it would entail. Therefore it was removed from the final prototypes.

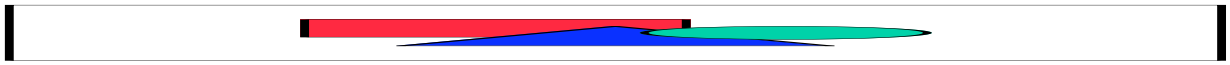


3.4. Prototype Testing

After the first production run of *Plant Wizard* prototypes, the Product Development Team conducted a series of tests to ensure that the product met the revised performance specifications. The wands were tested for resistance to humidity (these test results were used to determine the product's packaging), durability, neatness of the process, and ease of use.

The following table is a list of tests performed and the corresponding results:

TEST	DESCRIPTION	RESULTS	PASS/FAIL
Humidity Test 1	Two wands were left out on counter for 3 days on a piece of white paper.	At the end of the 3rd day a small amount of blue residue leaked from the pouch.	Fail
Moderate Humidity Test	Eight wands were left in ~35% humidity conditions in different packages (in pairs of two) for 5 days:	The more sealed the package, the better the fertilizer withheld its original consistency and the less messy the wands were.	Mixed (see below)
	Two in cardboard box	At the end of the 5th day, blue residue was on white paper and the fertilizer was a little "gunky".	Fail
	Two in sealed can	At the end of the 5th day no blue residue in the can and the fertilizer pouches were still dry and "fluffy".	Pass
	Two in plastic bags (1 sealed, 1 unsealed)	Very small (immeasurable) amount of blue residue in the unsealed bag, but pouch was still dry. Sealed bag was perfectly dry and no blue residue.	Mixed
	Two in open air	Both wands left blue residue on the white paper.	Fail
Extreme Humidity Test	One wand was subjected to high levels of humidity (100%) and high temperatures for two consecutive hours in a rice cooker.	The fertilizer bled all over the place and the wand became unusable.	Fail
Tug Test	The pouches of each wand were tugged to see if they were securely attached to the sticks. (This test was performed when the pouched were attached w/tape)	Some of the pouches (just under half) could be pulled off the sticks.	Fail
Drop Test	Wands were dropped both separately and when they were inside a can.	Both the individual wands and the packaged ones were unharmed after hitting the floor.	Pass
Mess Test	The whole process was performed and users wiped hands with a white, wet paper towel.	There was no fertilizer on the paper towels after hands were wiped.	Pass
Dissolve Test	Wands were stirred into water in a clear container.	Fertilizer dissolved and none remained in the pouch after stirring.	Pass
Stir test	Wands were stirred into water in 5 different sizes of watering cans and with different water levels.	Sticks were durable and did not break, however in the largest watering can (2 gallons) the stick was not long enough unless the can was at least _ full.	Mixed
Ease of Use	Ten customers tested the *Plant Wizard* without instructions.	No customers had problems or had to ask how the wands were to be used.	Pass



3.5. Test Implications

Based on the prototype tests, it was determined that the packaging of the *Plant Wizard* wands would have a significant impact on their ability to sustain humid environments, and consequently the ability for pouches containing fertilizer to remain mess free. The can packaging was chosen, as well as the unsealed individual plastic wraps. Both the can and the bags showed positive results during testing and received positive feedback from customers. This combination proved to prevent humidity from altering the consistency of the fertilizer, keeping the wands arid and pleasant to use. The combination of both the individual plastic bags and the can was deemed necessary because numerous customers expressed their concern of spoiling the entire batch by pulling wand out with wet hands.

The tests also showed that the sticks would not be long enough for ALL watering cans if the cans were not full of water. The product design team decided not to lengthen the sticks at this time, as longer sticks would require taller packaging which would lead to more retail shelf space as well as increased shipping costs.

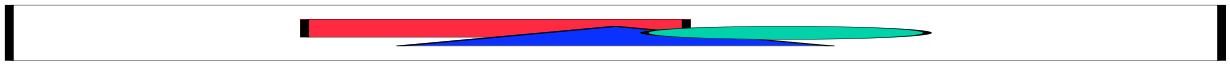
The design team did, however, decide to make changes to the way in which the pouch was attached to the stick. It was decided that the pouched came off too easily when the adhesive method was used, and that if they came off during the fertilizing process or when the wand was being pulled out of the can, it would be considered a negative product feature. The product design team tested various methods of attaching the pouch to the stick, and found that melting a plastic "tail" (left when the pouches were trimmed) to the stick was the strongest method. The Tug Test was re-run, with wands constructed using the melting method. The results were positive.

The *Plant Wizard* tested well in all other areas, and it was decided that with the aforementioned adjustments, the design was viable and met performance specifications.[2]

4. Customer Assessment of the Prototype

Customer feedback of the *Plant Wizard* prototype was overwhelmingly positive. Ten customers were surveyed and asked to rate the *Plant Wizard* in comparison to their current method of applying powdered fertilizer to household plants. (Please see Appendix E for sample of the Customer Feedback Survey.) In order to make an accurate assessment, each customer tried one or two wands and went through the survey questions with a Design Team representative.

[2] For further discussion of potential design updates please refer to Risks Section



The following table represents customers' ratings of the *Plant Wizard* in comparison with their current method:

	Much Better	Somewhat Better	Same	Somewhat Worse	Much Worse
Messiness	8	2	-	-	-
Ease of Use	10	-	-	-	-
Convenience	9	1	-	-	-
# Steps Required	6	4	-	-	-
Helping remember to fertilize	2	3	5	-	-

Customers were also asked a series of open-ended questions regarding their assessment of the product. Again, responses were overwhelmingly positive, and customers had some excellent suggestions for future product developments. Customers' likes, dislikes, and suggestions are listed below:

Likes

- No need to use a spoon or anything extra to stir.
- Easy to use.
- No mess for indoor houseplants' fertilizing.
- Convenience.

Dislikes

- Sticks seem like they would come out easily.
- Not sure that I would use the flag on the end to remind myself to fertilize.
- Sticks should be longer.
- Produces a lot of waste, environmentalists may not like it.

Suggestions

- Use an individual wrap on each stick.
- Make sure the package is resealable.
- Could also create this for other Miracle-Gro® products like the African-Violet food.
- Sell them along with the regular box to start.
- Figure out a way to make the package smaller.

5. Marketing & Competitive Analysis

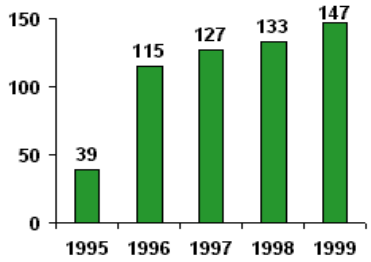
More than 30 million people use Miracle-Gro® every 7 to 14 days to grow bigger, better plants, flowers, and vegetables every year. As Miracle-Gro® founder and Scotts Vice-Chairman Horace Hagedorn puts it, "Miracle-Gro® doesn't have customers – it has fans!"

5.1. Company Overview

The Scotts Company is the world's leading supplier and marketer of consumer products for do-it-yourself lawn and garden care. Consumer awareness in the U.S. of the Scotts Company's Miracle-Gro® brand outscores the nearest competitor in its categories by several times.

5.2. Achieving Growth: Product Extensions

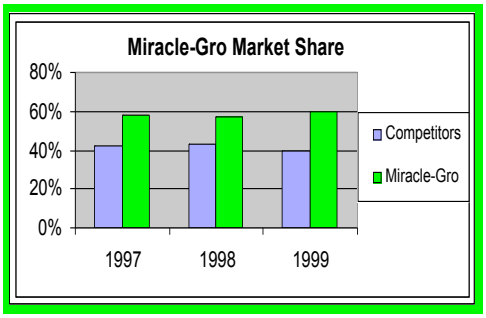
It is a stated goal of the Scotts Company to achieve an annualized growth rate of 6% to 8% in their Consumer Gardens group, the group responsible for Miracle-Gro® home garden products. (In 1999, the Consumer Gardens group's sales represented 9% of the company's total sales.) The strategy for achieving this goal, as stated in the 1999 Annual Report, is "grow the Miracle-Gro® brand, grow the category, grow the Miracle-Gro® brand some more."



Consumer Garden Group Sales Growth, Led by Miracle-Gro®.

In $US millions

With this mandate, the Consumer Gardens Group Product Development team has been researching further Miracle-Gro® product extensions. Miracle-Gro® built its category-leading share to 60 percent in 1999, up 3 points. This growth was due in part to the two new products introduced in 1999: Miracle-Gro Fertilizer Spikes® for trees, which earned a 33% market share in its first year, and Miracle-Gro Bloom Booster®, which established Miracle-Gro® in the bloom-enhancing niche of the plant food market. Product extensions are key to growing sales and gaining market share in the future.



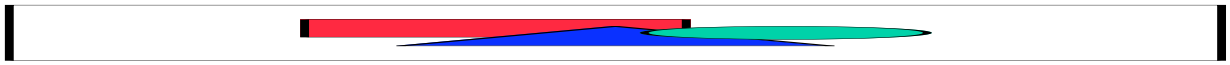
Consumer research has shown that Miracle-Gro's® reputation is strongest where it is associated with plant food products. Therefore, we have focused our efforts on brand extensions that address unmet consumer needs in the plant food market.

5.3. Why Plant Wizard Disposable Fertilizer Wands?

"Scotts will drive Miracle-Gro's® growth by introducing new products and packaging, as well as determining the feasibility of different product forms that improve the ease and frequency of Miracle-Gro® use.
-- Scotts Company Presentation to Shareholders

1) There is still opportunity to grow the household plant fertilizer market. Consumer research shows most consumers apply Miracle-Gro® only in the spring. However, for best results, Miracle-Gro® should be applied every 7 to 14 days throughout the growing season. Consumers need a product that is easy to apply frequently.

2) The Scotts Company believes that while educating consumers on the benefit of frequent applications should help grow Miracle-Gro®, growth will most likely come from new and improved products. Products that allow consumers to easily and conveniently care for their gardens once the initial enthusiasm of spring gardening wears thin are desirable. New and improved products could also capture market share away from competition.



3) The *Plant Wizard* addresses the unmet needs of gardeners who prefer Miracle-Gro® fertilizer in its powdered form, but who dislike the mess associated with the traditional scoop and bag method. Cannibalizing sales of existing Miracle-Gro® products would result in a higher profit margin per unit sold.

4) The ease and attractiveness of the *Plant Wizard* may encourage people who do not normally fertilize to do so. People may keep a can at the office, in small urban apartments, and other places where plants are found but consumers do not take the time to fertilize. Attracting new users would increase the market size.

5.4. Market Niche

The aging U.S. population is in our favor. U.S. population trends from the 1990 census indicate that consumers over the age of 40, who represent the largest group of lawn and garden product users, will grow by 28% from 1996 to 2010. As the Baby Boomer generation ages, it is reaching the stage of life where gardening is an important leisure activity.

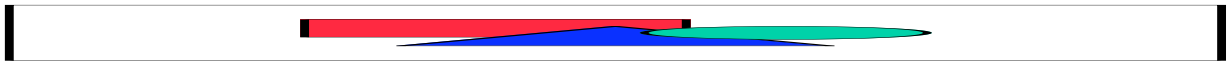
Supporting these trends, the 1998 - 1999 Lawn and Garden Trends survey of the National Gardening Association found that 1997 and 1998 represented "the first time in recent history that lawn and garden sales have seen a double-digit increase two years in a row." New products such as the *Plant Wizard* are poised to capture the attention of consumers in an already favorable marketplace.

5.5. Description of Competitive Products – Internal and External

In the Consumer Home Garden market, there are several brands competing with Miracle-Gro. There is little differentiation among the brands (Miracle-Gro®, Schultz®, Peter's®) in terms of chemical content and available fertilizer forms. We have identified three methods of home fertilizing that are common across all brands: liquid, powder and fertilizer sticks. These three methods compete among themselves.

Liquid
We learned that those using the liquid appeared content with that method, mostly due to convenience. Liquid entails using a liquid dropper and does require the use of an outside stirring device.

Fertilizer Sticks
The fertilizing stick method requires the gardeners to use the enclosed plastic aerator (plastic stick) to literally dig a hole for the fertilizing stick. The fertilizing stick is then inserted in the dirt, where it is effective for 30-60 days (more frequent feedings in the spring). Another stick is inserted after that period of time. This method involves the mess of digging and inserting the stick. Additionally, if the plant is a small one, the consumer may need to break off the stick to suit the needs of that particular plant. The stick proves a problem for smaller plants that may not have adequate space for the sticks and may result in burning of the plants over time.



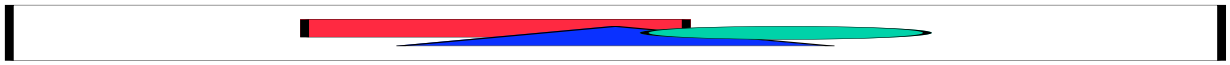
Powdered Fertilizer – Old Method
While we have ascertained that the old method of using powdered fertilizer results in three main steps, we also have to consider other details involved. Not only do gardeners have to dig in the messy plastic bag to find the small scoop, their hands come in direct contact with the blue, carpet- and hand-staining fertilizer. They must use their own device to mix the fertilizer. This then requires cleaning and rinsing of the scoop and the mixing device. If they do not take the time to dry the scoop, they place the still-wet scoop into the plastic bag, which transforms the fertilizer into a gunky substance over time. The cardboard box associated with the powdered fertilizer provides no barrier for humidity, also causing the fertilizer to change in consistency over time. The entire fertilizing process with this system takes up to a minute and a half, including the time to wash your hands.

The *Plant Wizard* takes on average 40 seconds to use, due to its one-step methodology. And although liquid and stick users appear to be loyal to their respective methods, it is probable we will also see some switchover to powder with the launch of our new product.

5.6. Comparative Benchmark

Our comparative benchmark includes the different general methodologies represented by the various brands. The different methodologies detailed below are used by a majority of the companies, including Miracle-Gro®.

	Features	Application (in Seconds)	Degree of Mess	# Steps	Ease/Accuracy of Measuring	Price
Miracle-Gro Sticks	Easy-to-use, spike form *Feeds continuously for 30-60 days*	60	High – Hands in direct contact with dirt to dig hole and insert stick	3	Low – Burns plants over time due to constant contact with stick; multiple sticks	Multiples of 12 for $1.78, 1-2 year supply ***single plant basis***
Schultz' Liquid	Handy dropper bottle ***Feed every time you water***	35	Low – Liquid may drop/spill	2	Medium – Accurate if done correctly	$4.99 (12 oz.) for one year supply
Spectrum Group Peter's Plant Fertilizer (Powder)	Available in 11 sizes starting at 8 oz ***Feed every 7-14 days***	60	High – Blue stains on hands and powder spillage	2	Low - Uncertainty in measuring due to clumpiness, no way to level off fertilizer	$5.49 (1 _ lb package) for one year supply
Plant Wizard	Convenient one-step method *Feed every 7-14 days*	40	Low – No mess, no direct contact with fertilizer	1	High - Individual pre-measured packets	$5.59 for six-twelve months supply



In the comparative benchmark our product stands out as number one in terms of mess-free, ease/accuracy of measuring, number of steps, and is second only to the liquid in application time. The product is more expensive in terms of price/ounce, probably most closely compared to the fertilizing sticks, depending on the number of plants in the household. However, we are marketing this product based on the value-added of being the most convenient system available, providing no mess in one simple step.

Faithful powdered-fertilizer users revealed they would be willing to pay an average of $2-3 more for a more convenient product. They are willing to spend more even if the quantity sold is less, given the life of the fertilizer in its current state. Also, by selling a 6-12 month supply, the $2-3 more consumers will pay is in no way perceived as a financial burden as they are only buying the product once or twice a year. And in fact, since research shows that customers are only fertilizing in the spring, such that the money they are spending to buy more bulk fertilizer may actually go to waste if leftover fertilizer can no longer be used due to humidity effects.

5.7. Positioning Relative to Competitors: Setting the Standard

In aided awareness tests, 99 percent of gardeners recognize the Miracle-Gro® brand. In garden fertilizers it is followed by two other Scotts brands, Scotts® and Miracid®. The nearest competitor plant food brand, which is number four in the category, has less than 40 percent recognition!

While we believe that the *Plant Wizard* disposable fertilizer wands will cannibalize sales from existing Miracle-Gro® products for houseplants, we expect sales to increase our total market share by 3%.

5.8 Recommendation

Miracle-Gro® sets the standard for home gardening products. As a result, we believe it is important to be the **first to market with brand extensions that address unmet consumer needs**. Although we believe that some cannibalization of current Miracle-Gro® products will occur, we believe that the *Plant Wizard* fertilizer wands will garner a unique market. We believe a far-reaching "pull" campaign should be launched for the *Plant Wizard*, in line with frequent and accurate fertilizing of household plants. This campaign would most likely come through ads to women's magazines and special promotions. The *Plant Wizard* could be placed in packages of powder Miracle-Gro® for the three months prior to hitting the stores as a teaser campaign. In-store displays could also be used as part of a "push" marketing strategy.

7. Manufacturing Process

7.1. Manufacturing the Prototypes

To fully test the *Plant Wizard's* durability and usability the product design and development team decided to produce a physical comprehensive prototype. After a series of rough prototypes,

the team developed the 'ideal' design and manufactured dozens of prototypes on two separate occasions.

On the first 'production run' (Nov. 9, 2000) the team manufactured 18 wands. The purpose of this early batch was to have enough wands to test several packaging concepts and expose the pouches containing fertilizer to different levels of humidity (See section on testing). This early batch was also used during the final survey, in which potential consumers were asked to use the prototypes and evaluate the product's performance.

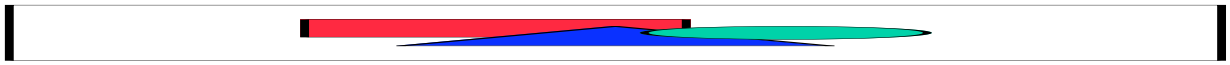
The second and final 'production run' was held on November 19, 2000 and resulted in 32 wands. It incorporated feedback from the customer surveys. As a result, the option of having a 'reminder flag'[3] at the end of each stick was eliminated. The 'flag' did not meet with sufficient customer support to warrant higher production costs at this stage of our venture (We are considering potentially re-incorporating this idea in future product improvements).

The November 19th production of the final prototype consisted of three main processes: making the wands, the internal packaging and the external packaging.

Making the wands consisted of the following steps:

1. Measuring and cutting 'Success Rice' plastic packets into 2 x 2 inch rectangles.
2. Measuring 1 teaspoon of Miracle-Gro® (MG) powder.
3. Placing the cut plastic rectangle on to a hot plate (from a household coffee pot).
4. Pouring the measured MG on the plastic and folding it in half, forming a square.
5. Sealing the plastic by pressing a round vitamin cap around the powder MG.
6. Cutting around the sealed circle, removing the corners of the original square shape – except for one.

[3] The 'reminder flag' consisted of a small label attached at the top of each wand's stick on which the user could write down when he/she should next water a given plant. Then they would break that piece of the stick off and insert into the plant's soil.



7. Inserting the skewer stick through the left over corner and through one of the existing holes in the plastic pouch.
8. Melting (with an open flame) the extra plastic of the left over corner around the stick.

Making the internal packaging consisted of the following steps:

1. Cutting medium sized plastic bags into 3 x 12 inch rectangles.
2. Folding the rectangle in half.
3. Placing the folded rectangles in between two pieces of paper.
4. Ironing over the piece of paper to seal edges of folded rectangle.
5. Leaving an opening for the inserting the finished wand.
6. Inserting 24 wands into 24 completed small bags.

Making the external packaging consisted of the following steps:

1. Removing the bottom the can (potato sticks cylindrical cardboard can).
2. Covering the can with a Miracle-Gro® look-a-like cover.
3. Placing 24 wands in the can.
4. Re-attaching the bottom of the can.

7.2. Manufacturing in High Volumes

Outsourcing Decision

We will outsource the production of both forms of packaging, the plastic bags and the outer can, but assembly of the final product will be done internally.

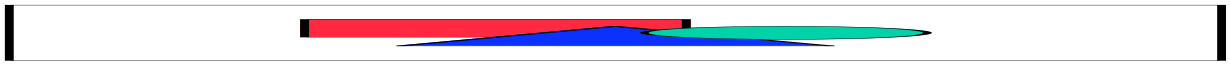
In-House Production

The wands will be manufactured in house. *Plant Wizard* will be manufactured via a fully automated manufacturing process. Existing facilities will be used.

Raw Materials: Industrial size sheets of permeable polyethylene and 8" long wooden skewer sticks will be purchased from vendors. The vendors chosen use regrind polyethylene and recycled wooden sticks – making product environment friendly and less costly. In addition, the polyethylene vendor has agreed to sell the sheets with drawn squares of 2 by 2 inches for standardized sizing. The powdered fertilizer will be received from Scott's nearest Miracle Gro® warehouse.

Plant layout: Workstations in the manufacturing plant will be arranged along the assembly line. These workstations will include the cutting station, the fertilizer disbursement station, the preliminary assembly station (for addition of sticks and top strip of polyethylene), the heat sealer station, the second cutting station, the quality control and final assembly station.

Manufacturing Process: The manufacturing of pouches involves the following process. A roll of clear permeable polyethylene (100" x 100 ft) is placed onto an assembly line. A 100" x 4" strip is cut and pushed along the assembly line until it positions itself under fertilizer dispenser. The fertilizer dispenser is a 100" x 5" "pan" with 100 valves through which fertilizer is pressure pumped. The dispenser approximates the polyethylene strip and disburses equal portions of



fertilizer (0.22 oz/1 table spoon) in the middle of each of the pre-drawn squares (2" x 2"). The strip proceeds to the next station where the sticks are placed mirror-like. The fertilizer and stick filled polyethylene sheet is covered with another one of the same side. Once the dispensing and covering is performed the platform is moved to the hot plate station of the container.

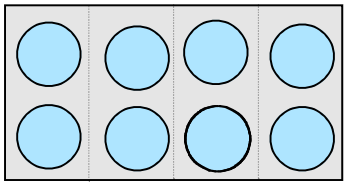
At the hot-plate station the sheets are heat sealed, i.e. plastic sheets are joined by controlled application of heat and pressure to the area. The heat sealer is designed so that it seals only in between the fertilizer placements by pressing a 1.75”dia. round plastic mold over the fertilizer. With the fertilizer secured into a sealed circle, the large sheets are transferred to the cutting station. At the cutting station the large sheets are first cut into long strips along the edge of several squares

At the end of each set of wand-making stations are packaging stations consisting of internal, external and shipping packaging. Internal packaging consists of inserting wands into small individual plastic bags – mainly used to protect the pouch from humidity and coming in contact with other wands. This process is combined with automatic and manual quality-control mechanisms. External packaging involves inserting a set of 24 wands into tall cardboard cans, sealing them, and covering with plastic lid. Finally to get the product out to market, cans are packaged into 75 units wooden crates and shipped to the various retailers

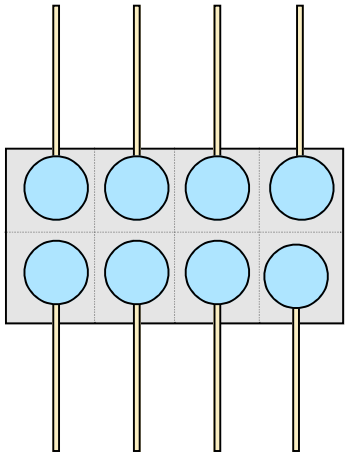
Schematic Manufacturing Process

1. Cutting 100 inches by 4 inches polyethelene rectangular

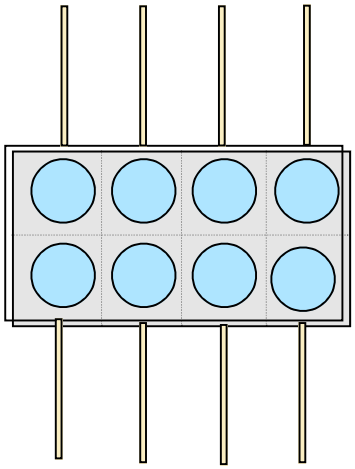
2. Adding fertilizer



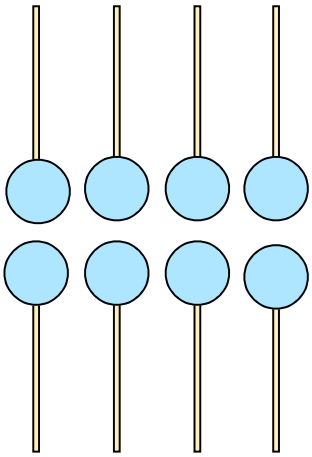
3. Placing the sticks



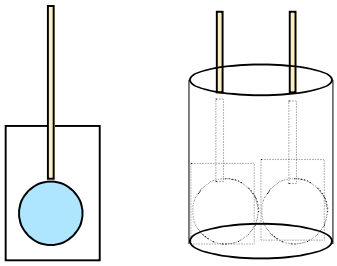
4. Covering with another polyethelene rectangular and heat sealing



5. Cutting in individual wands



6. Placing each wand in an individual bags and 24 wands in the outer can



7.3. A Bill of Materials

The production runs and consequent rough estimation of purchasing or fabrication costs resulted in the following Bill of Materials:

Component	Average ($) per can	% of Total
2 _" x 6" inner bag teal green 1000 per/case	0.06	4.6
8 _" tall, 4" in diameter round cardboard can	0.28	21.5
100" x 100ft clear permeable polyethylene/roll	0.02	1.5
8"Wooden Skewers/1000 per/case	0.20	15.4
Fertilizer	0.30	23.1
Assembly at $8/hr/per can	0.12	9.2
Overhead at 33% direct cost	0.32	24.6
Total Cost	**1.30**	**100.0**

The estimated total cost of each can with 24 wands would equal our target cost and will provide for Scotts' gross profit margin of 76% when *Plant Wizard* is sold in the owned outlets and 61% is sold through a retailer.[4]

8. Economic Analysis

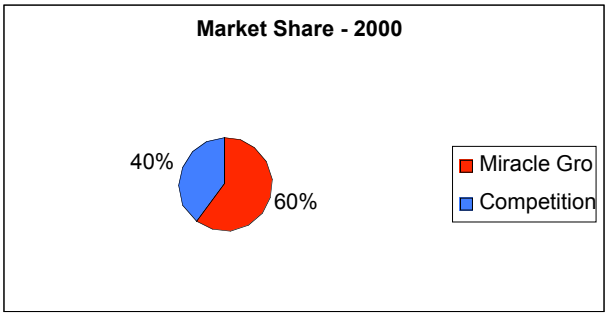
8.1. Overall Market Prospective and Scotts' Market Share

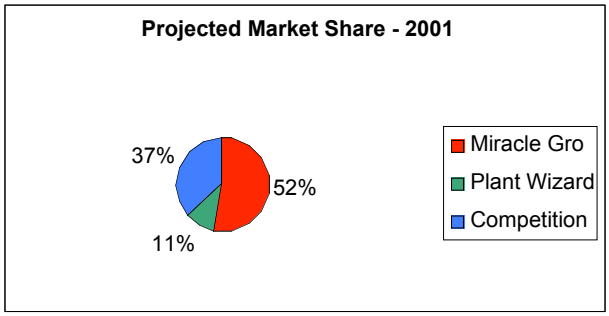
As leisure gardening continues to increase, the demand for effective and convenient ways to fertilize gardens and household plants becomes more and more evident. The fertilizer market has grown substantially, from a base of approximately $20 million in 1988 to an estimated $320 million in 1996. Scotts Company predicts the domestic market to reach $1.7 billion by 2000 and the global market to approach $3.5 billion. Demographics are also very favorable to the company's business. The baby boomer generation is entering the peak gardening age bracket (45 –54 years old) and this group is more likely to spend money on lawn and garden activities. These favorable market trends will increase the likelihood of the *Plant Wizard's* success. Consumers are expected to come from three areas: existing Miracle-Gro® consumers, competitor consumers and new fertilizer users.

After a 3% growth in market share in 1999, Miracle-Gro enjoys approximately 60% of the market for home fertilizers. Estimated market share of the *Plant Wizard* is partly based on the popularity and sound reputation of the Miracle Gro name, but also on historical data of previous product introductions. Management has estimated that during the first year, the *Plant Wizard* will cannibalize 15% of Miracle-Gro powder sales and will capture an additional 3% of the

[4] The self-owned system of distribution permits eliminating distributors from a chain.

market by expanding the Miracle-Gro category. In total, the *Plant Wizard* will garner 10.6% of the total fertilizer market increasing Miracle-Gro® total market share to 63%.





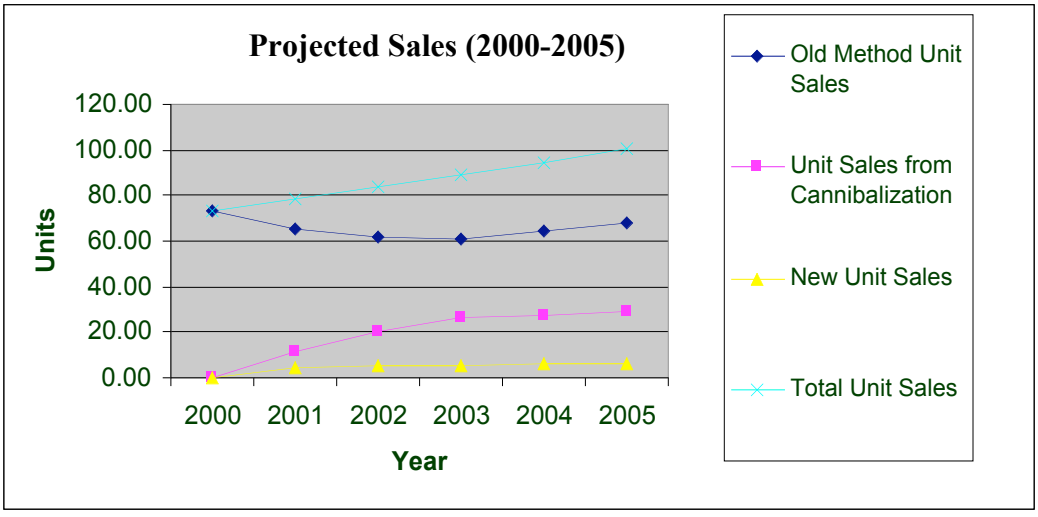
8.2. Sales Projections and Price

Miracle-Gro® provides Scotts Company with approximately 9% of total revenues. Scotts' total sales for 1999 were $1.6 billion with $147 million were specifically from Miracle-Gro® sales. MG has experienced consistent sales growth with last year accounting for a growth of 11%.

Unit Sales Projections (Conservative Estimate)

	Year 1	Year 2	Year 3	Year 4	Year 5
Estimated units sold	*0*	*12.7 Million*	*22.5 Million*	*28.6 Million*	*30.4 Million*
Percentage increase due to cannibalization	*X*	*15%*	*25%*	*30%*	*30%*
Percentage increase due to new customers	*X*	*6%*	*6%*	*6%*	*6%*

While management believes that the total garden market will grow by approximately 6%, sales for the *Plant Wizard* will exceed this average growth because of cannibalization. The economy is moving toward convenience and therefore it is expected that at least to some degree the Plant Wizard will replace traditional Miracle-Gro® plant food sales.



Selling price
While management recognizes that pricing is not the most important variable in the purchase decision according to customer surveys, they realize that it can have a considerable impact on consumer decisions. Therefore, management has decided to price the *Plant Wizard* at a $3.35 wholesale price giving Scotts a 61% profit margin. This would put the *Plant Wizard* in the competitive pricing range of existing Miracle-Gro® fertilizer. As seen in the following table, the cost of $1.30 (Please refer to Bill of Materials, Pg.19) and the wholesale price of $3.35 allows for a profit margin of $2.05. This margin of 61% exceeds the 29% profit margin of the old Miracle- Gro® product.

Price of the Plant Wizard per unit sales

	Old Product	Plant Wizard
Scott's Total Cost	$1.29	$1.30
Wholesale Price	$1.82	$3.35
Retail Price	$2.99	$5.59

61% PM

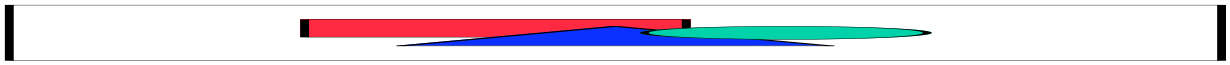
8.3. Time and Costs

Development Time[5] and Costs
The development time is estimated at one year, starting in December 2000. This process will allow the first month of mass production to be in December 2001, allowing Miracle-Gro® to capture higher sales during the spring months. Projected development time is sufficient due to the simplicity of the product and the accumulative knowledge of Scott engineers. We have allocated two engineers (one product engineer and one process engineer), each for the duration of nine months. Estimated yearly salary per engineer is $70,000 and thus cost to the company will be $105,000 in total. Packaging, i.e. the bags and the canister, will be outsourced so there will be no initial development costs. Other materials necessary for the allocated development period are estimated to be $30,000 with total cost of $135,000.

Ramp Up Time[6] and Costs
Ramp up time is planned to begin September 2001, lasting until the end of November 2001. The main costs for ramp up are adapting production machinery and the salary of the process engineer. Machinery costs are estimated to be $114,000 and engineering costs to be $17,500 for the designated ramp up period ($70,000 per year). The total cost then is $131,500.

During this time management is planning on producing 40% of the projected quarterly sales for the first year of production. Projected sales (outlined below) are 12.7 million units for the first year of production leaving 1.27 million units to be produced initially. At a cost of $1.30 per unit this initial cost will be $1.6 billion.

[5] For development time please refer to Appendix F
[6] For ramp-up schedule please refer to Appendix F



Marketing Costs
Marketing costs for the Scotts Company in 1999 were $189 million as opposed to the 1998 figure of $104 million. This increase of $85 million in advertising and promotion is attributed to Scotts' introduction of two new fertilizer products. The marketing costs allocated to the *Plant Wizard* are expected to be the following.

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
$0	***$10 million***	***$5 million***	***$3 million***	***$3 million***	***$3 million***

Discount Factor
The discount rate for the opportunity cost of capital for the Scotts Company has been determined to be 15%.

Sensitivity Analysis
According to the attached spreadsheet (Please see Appendix G), analyzing best-and worst-case scenarios, the project shows a positive Net Present Value (NPV) over the next five years under both scenarios.

Best case scenario: While cannibalizing existing Miracle-Gro powder sales, the Scotts Company simultaneously increases unit sales by capturing an additional 3% of the household plant fertilizer market. In this case the NPV equals $28.8 million (15% discount rate).

Worst case scenario: Only cannibalization of Miracle-Gro powder sales. The NPV in this case is $10.3 million (25% discount rate).

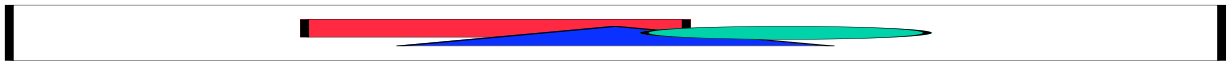
9. Risk Analysis

Information regarding the future economic performance of the product and the plans and objectives of the Product Development Team are forward-looking in nature. Actual results could differ from the forward looking information in this contract book, due to a variety of factors including, but not limited to:

- Technical Risks
- Market Risks

9.1. Technical Risks

- In the preliminary prototyping testing, the solubility rate was evaluated as "pass" but the team believes that this time can be improved from 7 seconds to 4 seconds. This will require testing different permeation techniques for the pouch's material.
- The preliminary specifications made by the marketing department asked for changes regarding the packaging format. Although not an absolute requirement, a tighter, rectangular packaging would reduce the amount of damage caused by transportation and storage. Additionally, this would increase retailer's acceptance of the product due to less



required shelf space. Although re-formatting of the package is not considered a complex technical task, it may present certain problems and delays in scheduling.

- Although none of the elements of the new product entail specific technical expertise, the disbursement system will require extensive machine tooling. This process could necessitate more financial resources than initially estimated.

In order to maintain profit margins, sustain production, and add production capacity on a timely basis, the Product Development Team plans to ensure prompt delivery of resources and facilitate the exchange of information between product and process engineers for faster turn-around. The team is ready to outsource packaging, as launching the product before the growing season is essential to capture the highest sales.

9.2. Market Risks

Specific Market Risks

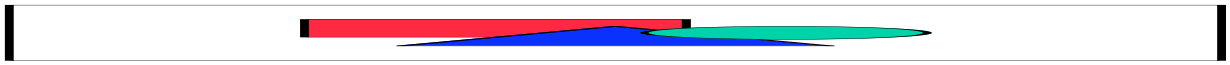
- The surveys strongly indicate that our customers would like to see a convenient and mess-free product and customer assessment of the prototype was extremely positive. However, there is the possibility that customer needs were not expressed clearly.
- The public may perceive the product as unsafe.
- Even though the Scotts Company has the biggest share of the overall household plant fertilizer market, given the highly competitive nature of the business, other companies could come out with similar (or better) products or infringe on the trademark.

To mitigate these risks the company will perform another survey at the beginning of December so that adjustments can be introduced early on in the development process. There will be improvements on the initial version of the *Plant Wizard* to ensure that Miracle Gro® maintains high market share (please refer to section on further development plans). The Scotts Company will also conduct broader usage & attitude studies.

General Market Risks

- As with other garden-related businesses, demand can be affected by weather patterns. Additionally, the *Plant Wizard* will be principally sold in the second and third quarters of the company's fiscal year. Both of these factors may undercut projected sales.
- The Scotts Company will distribute a significant percent of the *Plant Wizard* to a handful of retailers, most notably Home Depot, Wal-Mart, Lowe's and K-mart. The loss of any one of these or other key customers could have a significant impact on the sales.
- Other risks include environmental and public health regulations and the continued customer acceptance of the chemical products used.

To overcome these general market risks, the Product Development Team will guarantee the projected timing of the initial sales to begin December of 2001. Regarding the retail and regulations risks, these are being successfully dealt with on a higher level within the Scotts Company.



10. Further Development Plans

Further development plans are subdivided into two categories: the adjustment of the beta prototype so that it can be ready to the ramp-up and actual production (December 2000-August 2001).

Possible plans

- Gradual conversion of all Miracle-Gro® home gardening products into wands, where applicable. See Appendix G for complete list.
- Increase/decrease the amount of fertilizer per wand, i.e., tablespoon-size pack.
- Sell wands in multiple size or variety-pack packages.
    - Packs of 12, 36, etc.
    - Variety of fertilizer types in a sampler pack
- Make wand environmentally friendly by using all biodegradable products.
- Find additional use for stick, making the product more environmentally friendly. This could include, for example, a variation on the one-inch, easy-to-break-off flag that can be inserted into the plant's dirt, reminding gardeners of last fertilization.