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# The Sustainable Products Company

TM

Bringing Clean Food to America's Tables



## Executive Summary

### Management Team

<b>Chandni Joshi</b>	Co-Founder & Chief Operating Officer	B.S. Chemical Engineering, University of Kentucky, May 2017 Ph.D. Chemical Engineering, University of Kentucky, May 2021
<b>Jeffrey Seay, Ph.D., P.E.</b>	Co-Founder & Faculty Advisor	B.S. Chemical Engineering, Auburn University, March 1996 M.S. Chemical Engineering, University of South Alabama, May 2004 Ph.D. Chemical Engineering, Auburn University, May 2008
<b>Ankit Jangid</b>	Chief Manufacturing Engineer	B.S. Mechanical Engineering, Jodhpur Institute of Engineering & Technology, Jodhpur, India, April 2015 Graduate Certificate Lean Systems, University of Kentucky, December 2017 M.S. Manufacturing Systems Engineering, University of Kentucky, May 2018
<b>Landon Mott</b>	Chief Financial Officer	B.S. Chemical Engineering, University of Kentucky, May 2013 Ph.D. Chemical Engineering, University of Kentucky, December 2018
<b>Priyesh Wagh</b>	Chief Process Engineer	B.S. Chemical Engineering, Institute of Chemical Technology, Mumbai, India, May 2012 Ph.D. Chemical Engineering, University of Kentucky, June 2018



## **Introduction**

Every year, US farmers use 1.1 billion pounds of pesticides. This is equivalent to 3.4 pounds of pesticide for every person in the United States. As the pesticide epidemic continues, farmers are using aggressive chemicals to combat insect resistance to existing products. This widespread use and exposure to pesticides is leading to serious health concerns, groundwater contamination and negative environmental impacts. In fact, the existing \$3 billion insecticide market in the US doesn't meet the need for all-natural, non-synthetic pesticides. Hence, on average consumption US citizens are likely to have 29 synthetic pesticides in their body from consumption of various produce.

Often, organic products are seen by consumers as an alternative to synthetic pesticides; however, even organic crops are sprayed with copper-based pesticides. These copper pesticides are dually leading to inflated prices (since they have to be sprayed on average 3.5 times more than synthetic) and soil poisoning, endangering many insect and plant species. Thus, there is a need for wholesome agricultural products that reduce the pesticide footprint on society and environment, especially as demand for clean produce grows.

## **Value Proposition**

Consequently, The Sustainable Products Company's (TSPC) value proposition is to bring clean food to the table by reducing the use of synthetic and copper-based pesticides. The company manufactures completely natural, non-synthetic WiseEarth™ Pest Repellent and WiseEarth™ Soil Additive products that are safe-to-use and biodegradable. These products will further replace existing pest control options that rely on extracted, expensive herb oils and synthetic soaps. Consequently, the demand for all-natural agricultural products is met by while ensuring health and environmental safety, along with competitive prices.

## **Product Descriptions**

The company's products give waste a value by converting biomass, or locally sourced plant waste and agricultural residue – an abundant and renewable resource – into useful products, WiseEarth™ Pest Repellent and WiseEarth™ Soil Additive. These products are applied to crops similar to existing agricultural pest management products. For instance, the WiseEarth™ Pest Repellent is sprayed on garden vegetables and large-scale farming crops, while the WiseEarth™ Soil Additive is mixed in with the soil prior to planting to support plant nutrient and water uptake. The advantage of utilizing these products arises from being harvested based on the earth's natural preservation and protection techniques (hence, the name WiseEarth™), which provides their biodegradable and non-toxic properties.

The effectiveness of these products has been validated by academic and non-profit research. The WiseEarth™ Pest Repellent has numerous benefits as a non-synthetic pest repellent and soil conditioner, acting as a potentially disruptive product to the organic farming community, where access to natural pesticides, herbicides, and fungicides are currently lacking. As a result, it is a breakthrough agricultural solution that supplies the growing demand for clean produce. Published research has validated its various uses in the agriculture sector, and the product is already popular in Southeast Asia and Australia, where it is produced and sold commercially. The goal of TSPC is to introduce this product to the US horticulture market as a predicate of those markets. The company has determined the effectiveness of this repellent on soil parasites



and Japanese Beetles, with ongoing research being conducted on popular garden crops and pests that consume those crops. TSPC's second product, WiseEarth™ Soil Additive, is comprised of microscopic pores which act as pockets for holding plant nutrients and water for longer periods of time. A study at University of Kentucky validated the effectiveness of the Soil Additive by proving a decrease in nutrient losses from water run-off. Therefore, when combined, the WiseEarth™ product line offers farmers complete plant and soil protection.

### **Target Market & Market Analysis**

The target market for the WiseEarth™ Pest Repellent will encompass the small-scale, home-growers market. The overall US insecticide market represents \$3 billion, with \$396 million attributed to small home gardeners and the remainder to the commercial scale farmers, exports, livestock and dairy sectors. The commercial scale agriculture sector has a high barrier to entry, controlled by six giants, Dow, DuPont, Bayer, Monsanto, ChemChina, and Syngenta, supplying the industrial pesticide market. Due to this barrier, the small-scale home gardener market is preferred for an agricultural start-up. In fact, interviews with potential customers and professionals in the agricultural and horticulture fields have indicated the minimal barrier to entry for the home gardening sector and that a natural, safe pest management product will be well received. Hence, the small grower market, which is focused on clean is a relatively open market with limited established non-synthetic insect pest management products, providing the footing that TSPC needs to be successful in its development and sell of WiseEarth™ Pest Repellent and WiseEarth™ Soil Additive.

### **“Go-To” Market Strategy**

Since, the WiseEarth™ Pest Repellent requires registration in each US State before sale, TSPC aims to reach target customers via a steady expansion from western Kentucky region (the location of the company), utilizing effective sales and marketing team, including online marketing through social media and company website. For instance, the first-year will focus on serving the Jackson Purchase and western regions of Kentucky through sales at local home gardening shops, farmers markets and website purchases at [TheSustainableProductsCompany.com](http://TheSustainableProductsCompany.com). The following year, additional sales and marketing experts will be hired to target the remaining region of Kentucky in a similar manner, while registration for neighboring states is applied. As the company grows, expansion to neighboring states and retail home gardening stores will be performed, including Walmart, Home Depot, Lowes, Tractor Supply, Menards, Star Hollow Farms, Field Day Family Farm, Bon Vivant, Moore Farms & Friends and Red Hills. At this phase, online sales through Amazon and eBay will also be performed. After successful penetration of the home gardening market in retail and neighboring states, the company will subsequently apply for registration and expand to the southeast farming regions of the US, followed by a national expansion. At this level, the company will outsource distribution of online sales (from company website, Amazon and eBay) to Amazon fulfillment services, managing distribution of retail sales via biweekly and monthly orders. Conclusively, by targeting both the online and offline shopping community, TSPC is likely to reach various types of agriculture and horticulture consumers for the WiseEarth™ product line.

### **Industry Competitors & IP Strategy**

The current competition for TSPC lies in Southeast Asia and Australia, where 2-3 companies are manufacturing a similar agricultural product on small-scale. Since, these companies are outside



of the U.S., they are disadvantaged with high shipping costs (charging the American consumers almost double the price of TSPC's product), and available only online at Amazon. Consequently, TSPC will be the first to market the all-natural pest management product both in retail and online stores in the U.S. TSPC is additionally able to offer reduced prices due to process efficiency, faster production and improved condensation technique, ensuring high product yield through the production method utilized. The current WiseEarth™ product line consists of both diluted and concentrated WiseEarth™ Pest Repellent, sold at \$15.99 and \$34.99, respectively for a 16 oz. bottle, and WiseEarth™ Soil Additive, sold at \$24.99. The diluted Pest Repellent product is ideal for smaller growers, while the concentrated product makes 15 diluted bottles, targeted for the larger, half-acre to acre scale growers. These prices are compared to \$25.63 and \$48.00 for diluted and concentrated pest repellents products respectively of the company's competition, along with \$29.95 for competitor soil additive prices.

Moreover, as a team of engineers, the company's management team is working to establish a process for enhancing the efficacy of the WiseEarth™ Pest Repellent to adhere to the plants better, reducing frequency of application and costs further. This method will comprise of the addition of a natural binding agent, preventing easy run-off of the pest repellent via rain or watering of crops. After successful testing in laboratory setting, the company will patent the invention, securing the intellectual property.

### **Financial Overview**

TSPC will manufacture the WiseEarth™ products for the home gardening market utilizing plug-and-play addition of pilot-scale reactor chambers and condensers, based on product demand increase. This will allow TSPC to produce and market to the small-scale grower market for multiple years in Kentucky and neighboring states before requiring upsizing to industrial-scale for national expansion. Since plug-and-play expansion is cheaper than starting with industrial-scale equipment, the saved capital will be reallocated to sales and marketing, a crucial step for the success of the business in its initial years.

In the initial years, purchase of the first plug-and-play process equipment will be conducted via Phase I & Phase II Small Business Innovation Research (SBIR) grants as well as Kentucky SBIR matching funds, providing capital for research & development and start-up production. The pilot scale, plug-and-play reactor and condenser unit is priced at \$80 thousand, with the remaining funds allocated to facility development, purchase of packaging equipment and marketing. The aim for the first year is capturing 0.10% of the \$369.6 million home gardening market, with an expansion to entire Kentucky in second year leading to 0.39% market share. These shares are relatively low due to the low population density of the state. Therefore, in year 3, doubling production from the existing pilot-scale process by operating two batches per day, more than doubles market share to 0.98% as expansion to additional states, online and retail outlets continues. Later in this year, another pilot-scale process equipment will be purchased for 4<sup>th</sup> year operation, or expansion to southeast US gardeners. Lastly, the 5<sup>th</sup> year industrial scale reactor and condenser unit for nationwide expansion are priced at approximately \$300 thousand, funded by angel investors in the previous year. Since the funding for year 5 is starting in year 4, the company's pre-money evaluation is based on performance up to year 3, or \$1.56 million, providing investors 19.2% company share with a return on investment by the end of year 5 of 7.75%. Summary of these financials are provided in Figure 1. The company's exist strategy is acquirement from industrial agricultural firms, such as Dow, DuPont, or Monsanto in year 6.



## **Team & Future Goals**

As a team of chemical, mechanical and manufacturing engineers, TSPC is skilled to ensure that the business operates at highest efficiency and the company's products offer the best quality. In addition, the team has backgrounds in R&D (including 4 years of product development), business finances, marketing, supply chain management, process & equipment design, and communications. To facilitate this work, the company has applied for a non-diluted SBIR grant and is seeking external funding from friends & family, including local, small investors. Thus, if initial funding is obtained, TSPC is poised for success and growth. Furthermore, a global demand for WiseEarth™ products exists as population grows to replace increasing amounts of synthetic chemical pesticides used on crops. Hence, WiseEarth™ Pest Repellent and WiseEarth™ Soil Additive will be transformative, helping meet the need for effective pest management solutions without endangering the global ecosystem or public health.