



Increasing lavender production and oil producers through the use of hoop housing and soil amendments

2010 Proposal

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Summary/Abstract

The purpose of this grant project is to research the effects of hoop housing and soil amendments to increase winter survival rates and spring harvest in all lavender varieties, especially in oil producing varieties.

Objectives/Performance Targets

Peaceful Acres Lavender Farm is a sustainable, certified organic lavender farm and wellness center located in Martinsville, OH. The farm is located on 10 acres. We are currently growing one acre of lavender, which sustains roughly 2000 plants of nine different varieties. One half acre is in its fourth year of growth, with the other half acre in its third year.

Lavender is considered a highly sustainable crop because it does not rely on pesticides and little fertilizer to grow after the 3rd year. Lavender is an 8-10 year perennial. Currently we are independently researching our one acre of lavender. Our beds are raised 18 inches and the soil has been amended with two heaping handfuls of limestone gravel, 10% creek sand, 10% Organic mulch and 75% clay soil tilled in. This acre consists of the following varieties: "Angustifolia" Nana, Lady, Rosea, Twickle Purple, English, Hidecote, and Munstead. We currently have two 100-foot test beds of "Lavandula" Grosso, which is our largest variety oil producer. These preliminary trial beds have shown a slight increase in growth leading us towards more research.

Peaceful Acres produces several organic/natural body care products and handcrafted lavender items. We generate revenue by selling our products, dried lavender, and culinary lavender at our gift shop on the farm and at farmers markets, special events, wholesale to gift shops, restaurants, health food stores and online sales. We also host regular farm tours, wellness retreats, educational workshops and an annual Summer Solstice Lavender Festival every June where we share all of our experiences with other farmers and consumers interested in growing lavender.

Peaceful Acres is also in the process of constructing an Earthship, a sustainable structure built utilizing recyclables. We organize, host, and facilitate regular community workshops on green building methods along with alternative lifestyles through reducing, reusing and recycling consumer goods. By summer 2011, Peaceful Acres will be 100% sustainable off the grid with full utilities.

Lavender prefers dryer root system for ideal growing conditions. Poor yields and low survival rates exist in lavender for our region due to the Midwest humid and moist conditions, which causes death by root rot. This is especially true in oil producing varieties. The ability to grow oil producers is also slim due to cold winters in our region. During winters, the oil within the plant is susceptible to freezing, causing die back and greatly reducing yields. This problem is essential to our farm because we are a specialty lavender dedicated farm interested in increasing current yields and increasing the likelihood of extracting pure essential oils in Ohio.

To test solutions to the problem, we will be experimenting with two different soil amendments for drainage. Proper drainage reduces root rot. These amendments will include gravel limestone, creek sand and oyster shell added to the current clay soil conditions. Additionally, we will be experimenting with controlling growing conditions by low hoop housing through the winter months. The proposed project will be a one-acre planting of lavender comprised of 34 100-foot-rows, utilizing 50 to 60 lavender plants per row depending on maturity size of the variety. Different growing conditions will include hoop housing lavender during winter months with and without soil amendments.

Our problem addresses a surmounting issue with the poor yields and low winter survival rates due to winter injury on lavender crops, especially the oil producing variety *Lavandula* "Grosso". Recent conversations with other lavender farms in the Midwest and interested future commercial lavender growers also reflect that this is an ongoing problem for many growers in the Midwest causing hesitation to move forward into commercial lavender production. In a review of our preliminary observational data from 2010, we have subjectively noted that the use of wind breaks, and raised beds had dramatically increased oil levels in harvested plants as well as greatly reduced winter injury of lavender. While testing one single row cover results had damaging effects from the cover breaking valuable lavender stems and reduced overall growth and oil production.

Peaceful Acres farm would like to expand on the 2010 trials, scaling up our experiment to include two different projects, hoop house-covered vs. non-covered lavender fields. Each experiment will compare three treatments. The first is a tilled mixture of 35% #57 limestone, 15% creek sand, gravel (1/2" to 1" size) and 50% clay soil. The second test beds will consist of a mixture of 35% #8 limestone (1/8 inch to 1/4 inch size), 15% creek sand and 50% clay soil. The third bed will include no soil amendments (control), using a randomized planting scheme with three replicates per treatment group.

We aim to definitively understand and demonstrate the benefits of the use of soil amendments and hoop houses to other lavender growers, as we have not found any significant work in this area in our background research. Protocols for our experiments will be designed and written under the guidance of Brad Bergferd of the Ohio State University Extension South Centers.

Our aim is to gain an understanding of the beneficial contributions of soil amendments and the use of hoop houses. Although our subjective research already suggests that soil amendments and use of raised beds and covers are excellent production methods for lavender production, we are curious about the potential impacts of these treatment methods that may result in the improvements in plant vitality and production.

The use of monitoring equipment, the HOBO U30USB Data Logger-U30 (Solar Powered) would allow us to

monitor critical environmental variables.

Data collection will occur three times each week during the harvest period during the course of the experiment. Rain events will provide water to the plants and in the event of a long drought (as our soil has high clay content), watering will occur once every 11 days via drip irrigation on a standard treatment for each row.

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