Front Porch Series – Fast Facts

Title: **Soil to Bloom: Soil Health and Fertility in Lavender Farming from the Ground Up**

Event Date: Thursday, February 8, 2024, Supporting slides, Fast Fact Summary, and the recording by clicking here.

Featured Presenter: **Patrick Freeze, Ph.D., Director, Research & Development, Soil/Soil Health Testing, Ward Labs, Inc.**

Facilitators: USLGA Education & Research Committee, Barbara Cesiro & Mary Pilotte

Tech Support: Exec. Director Michele Hyson

Event Goal: Ensuring one's farm has the correct and productive soil health to grow lavender can be a daunting task. Dr. Patrick Freeze of Ward Laboratories Inc. (www.wardlab.com), a Fulbright scholar specializing in soil science, health, and remediation, offers both the technical details and practical tips for helping your soil support ideal lavender production.

Terms used during the event:

- **Bio stimulants**: According to biostimulant.com, bio stimulants are products that stimulate plant nutrition processes, independent of the product's nutrient content.
- **Core**: A sample of soil, excavated from the ground as a "plug" or core, at a depth of 6-8", utilized to evaluate soil health and fertility.
- **Cover Crop**: A term to describe the planting or sowing of seeds/plants whose expressed purpose is to condition or amend the soil. Different seeds/plants will support different soil improvements. Many cover crops are used with annual type plants such as corn and soybeans. Mustard and buckwheat are common cover crops.

- **Soil health indicators**: indicators referred to when testing soil health, such as: Active Carbon - (POM)Particulate Organic Matter; Permanganate Oxidizable-C (POX-C); 24-hour CO2 Respiration; Water-extractable Organic Carbon; Infiltration rate, etc.
- **Soil fertility**: The amount of nutrients contained in the soil (i.e., nitrogen, ph., salts…)
- **Soil health**: The soil function capability (aggregate stability, carbon/nitrogen cycling, available food for beneficial microbes).

Key Points Summary:

- Soil health and quality are based on three items of it make up: physical attributes, chemical attributes, and biological attributes. See the slide deck for greater details on each attribute, and how what you do to your soil falls into each category.
- There are two objectives accomplished by conducting soil testing: 1) Fertility, and 2) Soil health.
- ***Pro Tip*-** Preparing soil before planting lavender is key: Physical prep: good draining with course soil texture Chemical prep: elemental sulfur to lower the pH (~ 800 - 1000 lbs./acre to drop soil 1 pH point) or add lime (or sulfur) if to raise the pH (determined from soil test and buffer pH).
- Overfertilization is shown to decrease germination and oil quality, while increased carbon inputs is positively correlated with increased profits.
- Maintaining soil in its beneficial condition is ideal **as any techniques that till the soil effectively "tear down the well-built house," and you must start all over again.**
- ***Pro Tip***-Its best to add lime in the SPRING when temperatures are 50deg., 1-2 weeks before planned planting.
- ***Pro Tip***-Work with a reputable lab to work out a plan for evaluating your soil, BEFORE sending your soil for testing. That plan will include how many cores to extract, across your acreage. On average, one might expect to dig 10-15 cores /10 acres, to allow a lab sufficient soil for evaluation.
- **It is best to have soil tested annually,** such that proper amendments can be added only as needed, keeping costs down for unnecessary treatments. This also allows you to track improvements over time.

- **Regenerative farming technics** have demonstrated significantly fewer pest problems and reduced the need for costly inputs like insecticides. The use of decomposing plant matter as a source for carbon inputs is one example of this approach at work.
- The weather associated with climate changes seems to be adding to plant stress (via extended droughts), altering flowering cycles and essential oil profiles (temperature fluctuations), and increasing soil erosion (soil degradation). **However, certain genotypes have demonstrated a 10-12% increase in essential oil production** when exposed to temperatures slightly above their optimal growing conditions. Further, **varieties 'Rapido' (L. angustifolia) and 'Sumian' (L. x intermedia) identified as best candidates for cultivation under intense drought** conditions. increased
- The use of bio stimulants have been found to **improve essential oil yield per plant by 11% to 49%, offsetting heat stress.**
- ***Pro Tip***-Consider **soil fertility indicators** carefully, when focused on cultivating lavender f**or specific oil profiles**.

Q&A Summary:

Q: **Bio stimulants have a great favorable impact, but what about the input costs?**

A: Costs of bio stimulant inputs vary, but they can be developed DIY, by following some simple instructions/formulas found online. Kelp, B vitamins, humic acid, yucca extracts, etc. are examples of familiar bio stimulant elements.

Q: **How best to control live pests such as moles/mice/gophers?**

A: Will explore some resources and share.

Other Session Notes: Attendees – 54

Bio Stimulants:

https://www.youtube.com/watch?v=SasH-PaLA8w