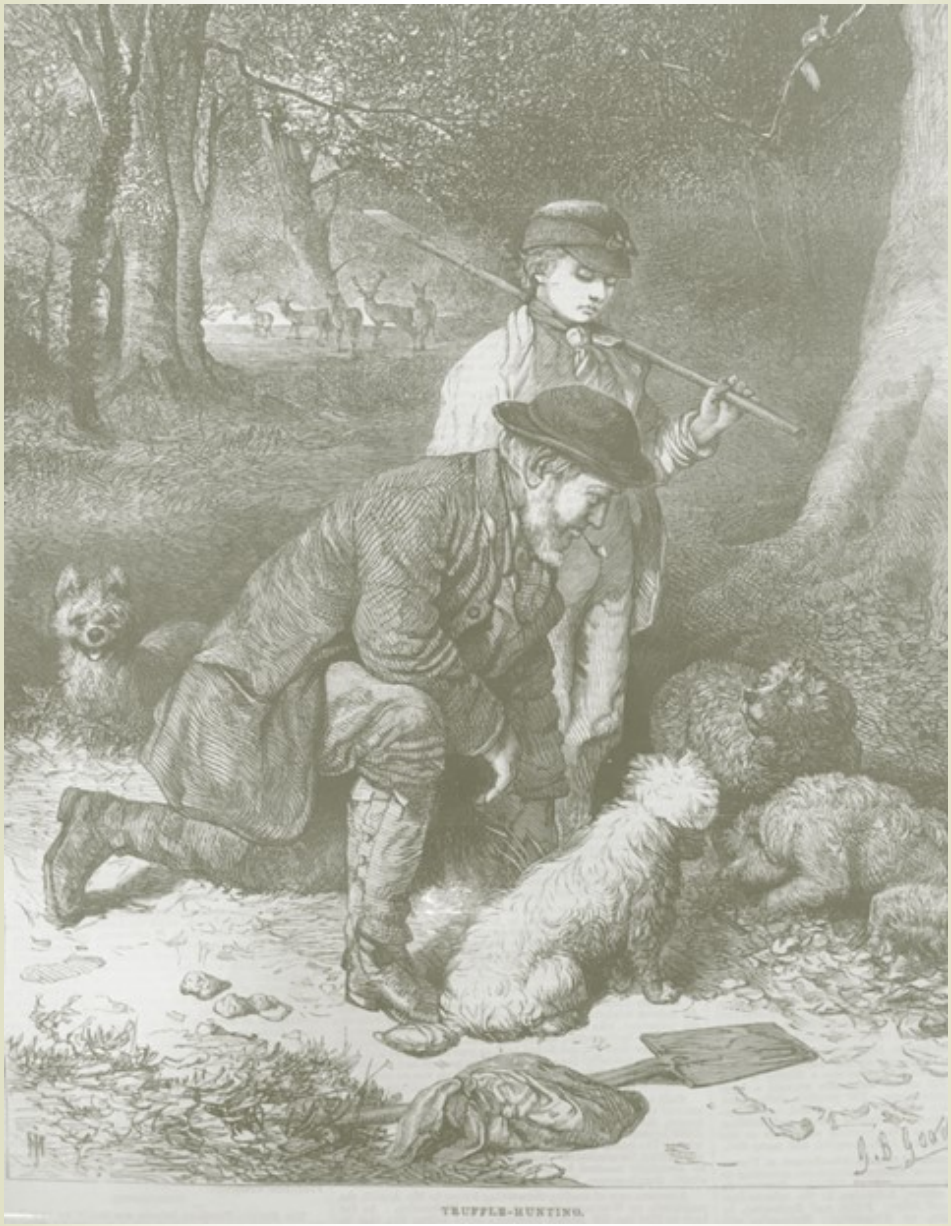
501(c)3 organization

# North American Truffle Growers' Association

## Quarterly Newsletter

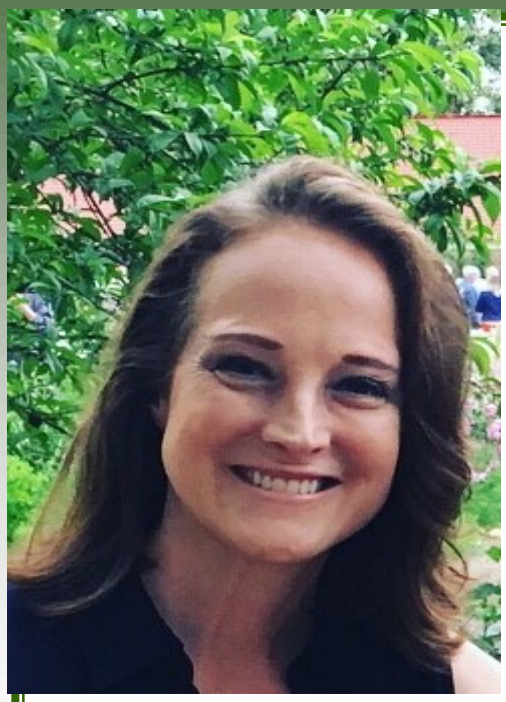
## Autumn 2018



TRUFFLE-HUNTING.

NATGA neither supports nor endorses any specific nursery, growing methods or approaches, business model or technology related to trufficulture. We endeavor to bring to the membership the breadth of knowledge available from multiple sources from which each member can choose. Membership by a nursery, scientist, vendor, etc. does not imply endorsement by NATGA.

# A Letter From the President



Hi all!

If you have received my recent email you now know that the venue for our winter meeting has changed to Charlottesville, Virginia from Asheville, North Carolina. I apologize for any confusion this may have caused. We are still looking at an excellent conference will the same outstanding line-up of speakers. The dates are the same as well. February 1, 2, and 3 2019.

DON"T FORGET- ELECTIONS FOR PRESIDENT, SECRETARY, AND TREASURER WILL BE OCCURING THIS FEBRUARY!

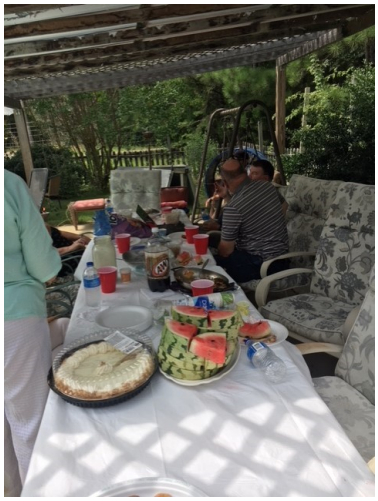
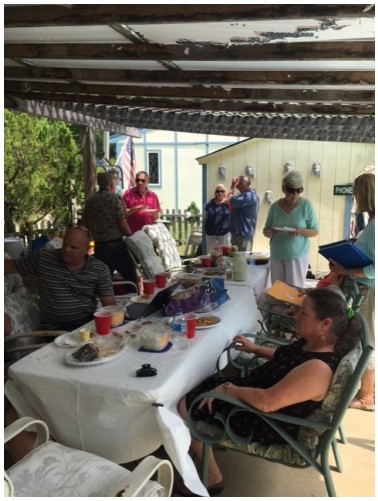
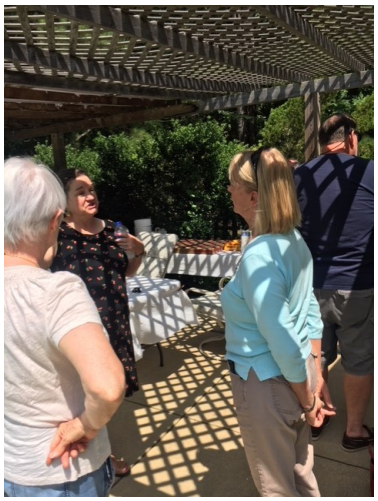
The Executive Committee hope that all of our members are safe and sound after the terrible storms that have ripped through North Carolina, Georgia, and Virginia. You have all been in our thoughts.

- Olivia Taylor

# Your Executive Committee

**President—Olivia Taylor  Vice President- Vitaly Baron**
**Secretary—Miriam Skinner  Treasurer- ?**

# Summer Meeting 2018

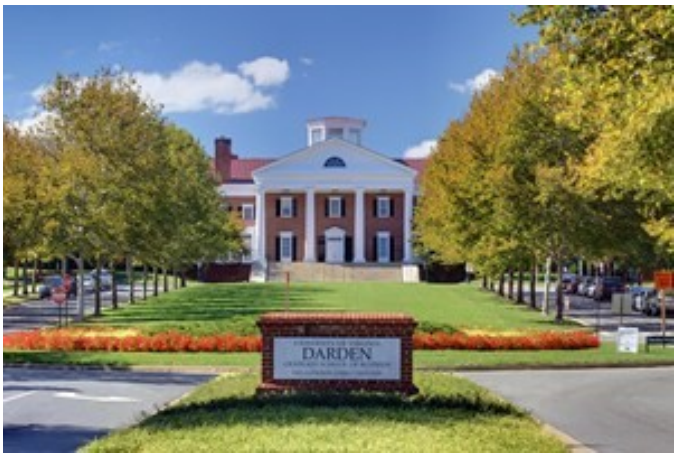





Many thanks to the Garlands for graciously hosting this year's summer meeting and pot luck. The attendees did some needed catching up and feasting on the delicious offerings contributed by all in attendance. The luncheon was followed up by a pleasant tour of the Garland's truffle orchards.

The brief business meeting covered an update on the winter conference planning, which as you all know has changed again, the truffle dog database, and the need for a new NATGA treasurer.

It was lovely to see all those who attended and thanks to all especially the Garlands, for such a great meeting and pot luck.

# Winter Conference 2019




**When:** February 1-3

**Where:** Darden School of Business

Charlottesville, Virginia

## Featuring:

Gavin Booth of Australian Truffle Traders

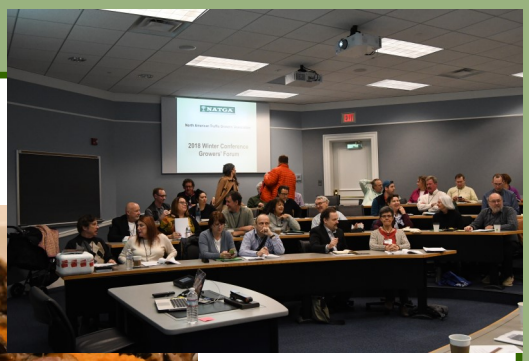
Marcos Morcillo of Micologia Forestal and Aplicada

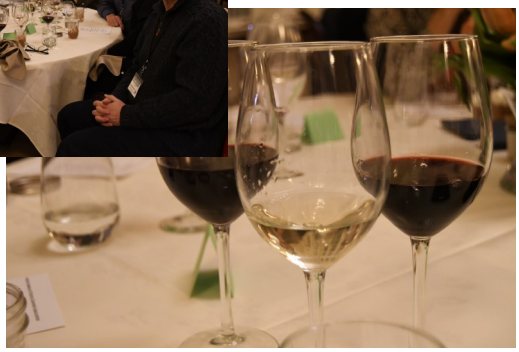
Dr. Gregory Bonito

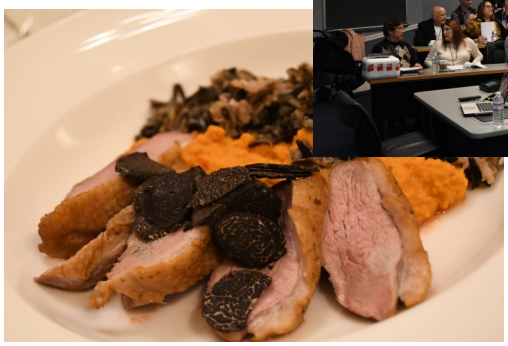
Dr. Inga Meadows

And more!

Register on the NATGA Website







# North American truffle Growers Association Annual Winter Conference and Truffle Dinner

**Friday: Truffle Dog training workshop and Competition:** Includes Snacks and Beverages

NATGA Members TBD

Non-Members TBD

**Meeting:** Includes Friday night reception, Saturday meeting with coffee service, Lunch, and Sunday morning MArketplace

| | | |
|---|---|---|
| NATGA members | $150.00 per person | $150.00 x #people |
| Non-members | $250.00 per person | $250.00 x #people |

**Truffle Dinner:** Optional Saturday evening (incl. tax & gratuities, not alcohol)

| | | |
|---|---|---|
| NATGA Members | $80.00 per person | $80.00 x #people |
| Non-members | $100.00 per person | $100.00 x #people |

**Weekend all-inclusive package** (all events, but excluding accommodation and Dog Training Workshop)

| | | |
|---|---|---|
| NATGA Members | $230.00 per person | $230.00 x #people |
| Non-members | $350.00 per person | $350 x #people |

**Note**: Please advise any food allergies.

**Breakfast is included and available in the Dining Hall**

Accommodations will be at the Inn at Darden with queen bed only @ $125 per night for double accd.plus 10.3% tax. Please call (434) 297-7384 & identify themselves by providing NATGA Conference. No pets allowed. Rooms will be held for the NATGA conference until January 02, 2019.

## Register Online!

# Sponsors Needed!

## North American Truffle Growers Association Annual Winter Conference

## February 1-3, 2019




The North American Truffle Growers Association is a 501-C3 non-profit organization dedicated to the education of both our members and the public on the agricultural and culinary world surrounding the elusive and highly prized mushroom, the truffle.

Because NATGA is a non-profit organization it relies entirely on its membership dues and sponsorships to hold its wildly successful Winter Event. Sponsoring this event is as beneficial to the sponsor as it is to NATGA.

| Package | Cost | Benefits |
|---|---|---|
| Bronze Package | $150 | 1 year of advertisement in the quarterly NATGA newsletter |
| Silver Package | $200 | 1 year of advertisement in NATGA newsletter and advertisement on the new website |
| Gold Package | $350 | 1 year of advertisement in the NATGA newsletter, the new website, an advertisement in the official Winter Event Announcement in January, and an opportunity to promote your business at the Event |
| Platinum Package | $500 | All of the above and two seats at the truffle dinner on Saturday March 3rd, 2018 |

ecome a sponsor today!

Sponsorship Packages

# Truffle Dog Training Workshop and Fun Competition with the Truffle Dog Company

On the Friday morning before the upcoming winter conference there will be a truffle dog training workshop and fun competition held in Crozet Virginia just outside of Charlottesville.

If you are interested in registering your dog for this event please let me know. The number of participants will help determine the cost. There are several dog friendly hotels in Charlottesville to accommodate your dog while you attend the conference.

Please let me know soon if you are interested

Olivia

# The latest in truffle science

## SOIL pH, NUTRIENTS AND TRUFFLES: ADDITIONAL RESEARCH ON THE INFLUENCE OF SOIL CONDITIONS ON TRUFFLES AND PECAN TREES

Summary By- Ray Prince

This newsletter follows up on the topics of the Spring and Summer 2018 newsletters which discussed the importance of calcium to hyphae development and the possibility of co-cropping with pecan trees (*Carya illinoinensis*) serving as a host for a variety of truffle species. This newsletter reports the results of a study of 25 different orchards in Florida and Georgia by Zai-Wei Ge, Timothy Brenneman, Gregory Bonito and Matthew E. Smith (2017).

**SUMMARY:**

The authors point out that the only important commercially-cultivated nut trees known to form ectomycorrhizas (ECMs) both in orchards and natural woodlots – and, therefore, to provide an opportunity for co-cropping - are chestnuts (*Castanea* spp), hazelnuts (*Corylus* spp) and pecans. Nevertheless, information about the factors affecting truffle formation on pecan trees, especially, is limited (FN1). The study examined the influence of certain "edaphic" factors on the composition of ECMs - including truffles - in pecan orchards and adjacent woodlands. The authors conclude that in both of these types of sites the abundance of pecan truffles (*T. lyonii*) and other ectomycorrhizal fungi was influenced by the levels of potassium (K), Calcium (Ca), magnesium (Mg), manganese (Mn), phosphorus (P), zinc (Zn), and soil pH, but not organic matter. Pecan truffle abundance, in particular, was influenced by soil pH.

**DETAILS:**

<u>Sampling method and statistical analysis:</u>

The study sampled 76 pecan trees from 25 orchards and 15 naturally-occurring trees in adjacent woodlands within 100 meters of any orchard's boundaries. The native trees were either oak (*Quercus*) or hickory (*Carya*) varieties. Eight inch soil cores including both soil and roots were taken from beneath the drip line of the trees. Standard soil tests were used for the soil analysis to determine the level of edaphic factors in the samples. Morphological and DNA analysis of the root tips followed a method similar to that described by Smith (2007). Primer pairs ITS1F and ITS4 were used to amplify the fungal internal transcribed spacer (ITS) region. Because of superior accuracy, the ITS1 sequence reads were chosen to be clustered into 520 operational taxonomic units (OTU). Each OTU could apparently contain several ECM species. Of the 520 original, 424 OTUs were excluded for being singletons (based on a single sequence), chimeric or otherwise flawed. The remaining data set of 96 OTUs was then subjected to a series of statistical tests, including simple linear regression, to estimate the individual

effects of the edaphic factors on ectomycorrhizal composition.

# Science continued. . ....

**RESULTS :**

The most frequently detected Basidiomycota in pecan orchards was *Scleroderma* (34 of the 76 pecan trees) while *T. lyonii* was the most frequently detected Ascomycota (22 of the 76 pecan trees). In general Basidiomycota species were more plentiful in pecan orchards than Ascomycota species. Among Ascomycota, tuber species were dominant.

Native trees from nearby woodlots contained many of the same ECMs as found in the orchards although not necessarily in the same proportion. No significant statistical difference was found to exist between the number of different (diversity of) ECMs on pecan trees in the orchards and the oak and hickory trees in adjacent woodlots.

Fungal composition of pecan orchards was significantly correlated to K, Ca, Mg, Mn, P, Zn and soil pH. Organic matter (OM) had no detectible effect. Among the significant factors, soil pH was the most significant factor affecting ECM composition with a higher soil pH increasing the presence of some species and decreasing the presence of others.

Concerning pecan truffles, the relative abundance of *T. lyonii* (and all Tuber species) was greater at sites with slightly acidic to basic soils (pH 6.6-7.3) compared to sites with more acidic soils (pH 5.1-5.5). Among nutrients, the level of K, Ca, Mg, and Mn significantly affected the abundance of *T. lyonii* (and all Tuber species) while P and Zn did not.

**COMMENTS:**

Unlike this report, several researchers have found nitrogen (N), P and OM to be significant factors influencing the composition of ECM communities, especially in forests (Fox 2013). This difference with the conclusions of previous studies may be because practically all commercial pecan orchards tend to apply a high level of N and P to the trees and to control organic matter through mowing or herbicide application. From a statistical point of view, a lack of sufficient variation in its value can result in a given factor being estimated to be statistically insignificant when it really is important. That may be the case in this study.

It is also worth noting that the available levels of several nutrients (e.g. P, Mg) are correlated with soil pH. The presence of multicollinearity among the independent variables can result in inaccurate estimates of the individual influence of each factor.

FOOTNOTE

FN 1: Bonito et al. (2011), for example, reported that the distribution of the pecan truffle could not be associated with any particular factor. Bonito et al. (2012) reports growing un-inoculated pecan seedlings in soil from producing pecan orchards. Only a few seedlings were colonized by *T. lyonii* spores. It was not clear, however, whether this result was because the spore inoculum of the pecan truffle was localized or not very abundant.

REFERENCES


Bonito G, Brenneman T, Vilgalys R, "Ectomycorrhizal Fungi Diversity in Orchards of Cultivated Pecan (*C. illinoinensis*; Juglandaceae)" *Mycorrhiza* (2011) 21: 601-612

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Fox MD, Tackaberry LE, Drouin P, Bergeron Y, Bradley R, Massicotte HB, Chen HYH "Microbial Community Structure of Soils under Four Productivity Classes of Aspen Forests in Northern British Columbia" (2013) *Ecoscience* 20:264-275

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Smith ME, Douhan GW, Rizzo DM, "Intra-Specific and Intra-sporocarp ITS Variation of Ectomycorrhizal Fungi as Assessed by rDNA Sequencing of Sporocarps and Pooled Ectomycorrhizal Roots from a *Quercus* Woodland. *Mycorrhiza* (2007) 18:15-22.

# Truffle Dog Database Application

Now available on the website! Register your trained truffle dog with NATGA . NATGA is developing a database of trained dogs local to growers who do not have dogs of their own. This of course is voluntary

## NATGA Trained Truffle Dog Application

### Owner Information

Owner(s) Full Name _____ Date _____
*Last* *First* *M.I.*

Address _____
*Street Address* *Apartment/Unit #*

_____
*City* *State* *ZIP Code*

Phone _____ Email _____

Company Name (if applicable) _____ Active Member of NATGA (if yes, since)_____

Certification/ License(s) held associated w canine training or search related activities _____

Willing to travel? YES ☐ NO ☐

If yes, please list max distance or areas willing to travel _____

### Dog(s) Information

Dog Name _____ Age_____

Breed _____ Neutered/Spayed/Intact (please circle which applicable)

Trained on truffles? YES ☐ NO ☐ Variety of truffle(s)_____

Years trained _____

Experience searching truffiere(s)? YES ☐ NO ☐ If yes, please explain _____

Other pertinent info regarding this dog _____

# Reminder of Science Course in Spain in May

PDFs for all up coming Spanish truffle courses are attached to this Newsletter

## From Mycorrhizae To Truffles: Laboratory And Field Course For Quality Control In the Establishment and Management Of Black Truffle Plantations

This course will provide an opportunity to learn a well-tested method for the evaluation of *Tuber*-inoculated seedlings in a laboratory setting, and to work directly with mycorrhizae and truffles of several species of *Tuber*. It is designed to present techniques and methodologies to ensure plant quality for truffle seedlings, using microscopic and molecular tools. Additionally, this course includes selected field trips to demonstrate technology for establishing and maintaining the mycorrhizal symbiosis for the long-term production of truffles.
Research carried out over the past 25 years in Spain will be presented. Specifically, we will discuss irrigation, weed control, soil management, monitoring of truffle plantations prior to production, and the role of tracking the mycelial expansion and *Tuber* mating types. We will present the most comprehensive reports of pest and diseases in truffle plantations in Spain, and the latest technology for post-harvest protection of truffles.
Participants completing this course will have an opportunity for hands-on work with mycorrhizae at the microscope, field visits to working plantations and research sites, and conversations with truffle cultivation experts and professional truffle farmers in Spain.

We propose a 1-week intensive program for the following dates: **May 13-17, 2019.** Places are limited to 12-14 persons to provide a quality teaching-learning experience. We would assist travelers to make plans to arrive from Barcelona to Lleida on May 12, with return to Barcelona on May 17.

I will let you know the cost for participation when the final program details have been confirmed.

Christine R. Fischer
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Consorci Centre de Ciència i Tecnologia Forestal de Catalunya (CTFC)
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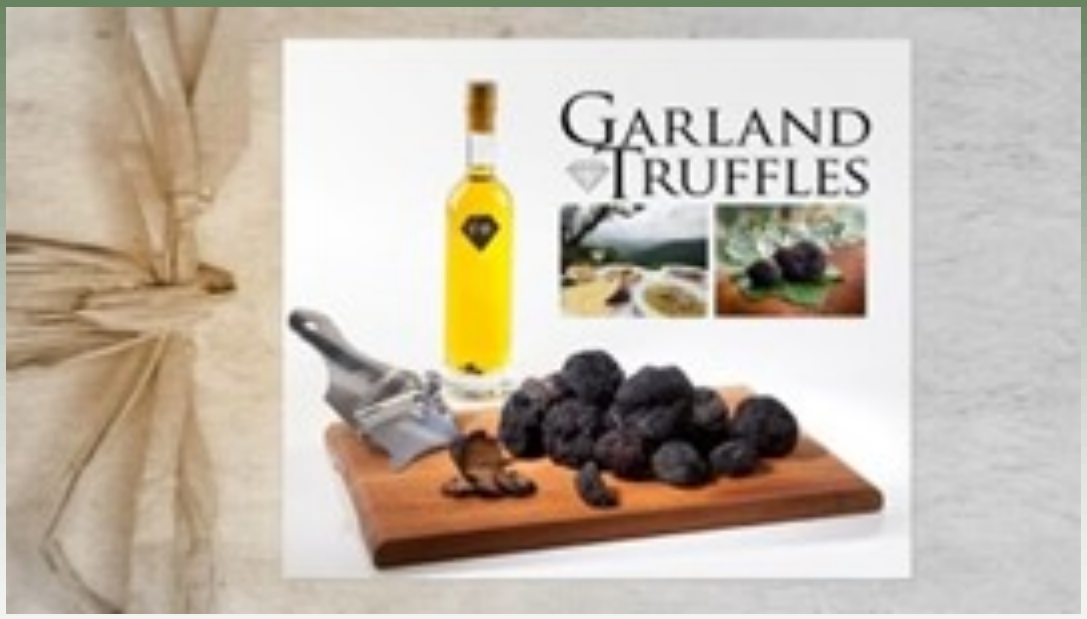
# And Now A Word From Our Sponsors

Le Clos de la Rabasse
Virginia Truffles

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*Blue Skies Farm*

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