

Sunday the 4th of February

Complete day at MicoLab's facilities (10:00 to 19:00 hours)
Basic concepts, plantation assessment and establishment

- Basic concepts (3 hours):

- What is truffle farming?
- Fungal biology: fungi, truffles, mycelium and mycorrhizae, the brólé
- Truffle species used in truffle farming around the world, characteristics, basic agricultural needs and viability
- The host species used in truffle farming (trees and bushes), characteristics and viability in field conditions
- Black truffle, *Tuber melanosporum*, ecology, helper bacteria
- Productive and life cycle, of *Tuber melanosporum*, sexuality
- Why do truffle plantations stop producing?
- Mycothizal contamination progress in black truffle plantations

- Previous assessment on plantation viability (2 hours):

- Climate: temperatures, rainfall and their annual distribution
- Soil: basic parameters, nutrient levels, nutrient correction, field sampling
- Water availability and basic needs for irrigation
- Previous crop and forest contamination
- Plant selection: tree species, plant age, plant quality
- Bibliography and on-line information sources

- Plantation establishment (2 hours):

- Previous steps: correction of soil parameters and fungal contamination
- Soil preparation
- Establishment: planting season, pattern (spacing), planting, protectors

Monday the 5th of February

Complete day at MicoLab's facilities (10:00 to 19:00 hours)
Common failure points, annual task calendar, pruning, weed control and tillage, irrigation (part I)

- Conclusions: basic failure points in truffle plantations (1 hour)

- Annual calendar for plantation tasks (1.5 hours)

- Weed control and tillage (1.5 hours)

- Objectives
- Tasks depending on plant age and type of soil, machinery and tools used
- Tilling the brólé: why, when and how

- Pruning and shade control (2 hours)

- Techniques and aims based on plant age
- Pruning young plants
- Pruning older plants, factors that may influence decision-making
- Climatic factors that condition pruning options
- Mulches and other techniques to provide summer shading

- Irrigation I (1 hour)

- Objectives and aim in each plantation phase
- Moments, frequency and basic tips depending on targetted needs

Tuesday the 6th of February

Complete day at MicoLab's facilities (10:00 to 19:00 hours)
Irrigation management, Spanish wells, pests, diseases and other damage factors

- Irrigation II (2 hours)

- Irrigation emitters, pros and cons. Emitter selection
- Irrigation system design and other important devices for irrigation

- Spanish wells and spore field inputs (2.5 hours):

- Definition, pros and cons and how they operate
- When and how to do spore inputs with substrate
- Manual and mechanical options
- The substrate
- Techniques used to add the spores and how to prepare the inoculum
- Reinoculations: in which situations are they useful? How to do them?
- Inoculum quality control

- Pests, diseases and other damage factors in truffle plantations, by María Martín Santafé (2.5 hours):

- Do truffle plantations really have big phytopathological enemies?
- The importance of assessing the real need for pest and disease control in the plantation
- Agents of tree damage
- Truffle pests: flies and the truffle beetle (*Leiodes cinnamomeus*)
- Damage prevention and control

Wednesday the 7th of February

Complete day at MicoLab's facilities (10:00 to 19:00 hours)
The economics of a truffle plantation, truffle dog training, final conclusions

- The economics of establishing and running a truffle plantation, by Ricardo Forcadell Pérez (2.5 hours):

- Initial investment needs
- Management financial needs in each phase
- Cost and benefit analyses
- Financial yield

- Truffle dog training, by Alba Herranz (2 hours):

- Characteristics of the canine sense of smell, olfactory memory
- Selecting a future truffle dog
- Definition and stages of dog socialization
- What it is and how to achieve motivation in working dogs
- How do dogs learn? Classical and instrumental conditioning
- Smell association: direct and by reward
- Animal welfare

- Final conclusions and group discussion

Thursday the 8th of February

Field trip, practical trainings in Teruel: dog training, traditional plantation management

9:30 to 20:00 hours plus hotel stay overnight in Teruel

- Truffle search with dogs and dog management in truffle plantations, with Alba Herranz (morning, in Cella)

- Field visit: Traditional management of high yield truffle plantations with the plantation owner and farmer (afternoon, in Sarrión)

Friday the 9th of February

Field trip, practical trainings in Teruel: intensive management, machinery, marketing

9:30 to 20:00 hours

- Field visit: Implantation and intensive management of highly technified truffle plantations, with machinery demonstrations

Demos on machinery and techniques for tilling, weed control and Spanish wells, explanation of the irrigation design, with Ricardo Forcadell and César Vaquero

Demo on the management of a linear trenching machine to do Spanish wells plus results in combination with drip irrigation, by Marisa Esteban and Jesús González (morning, in Monreal del Campo)

- Truffle menu at lunch time in Bar Teruel (In Teruel city)

- Field visit: Mytruff facilities for truffle marketing and export. Explanation of facilities needed for truffle preparation for exportation and quality differentiation and selection, by Cosme Martínez (afternoon, in Teruel)

The Schedule and timings for the whole training course may vary slightly depending on the group members' needs

Lectures, field visits and demos by

Luz Cocina Romero
Agricultural Engineer
CEO at MicoLab

María Martín Santafé
PhD in Forest Engineering
Researcher at the AgriFood
Institute of Aragon (CITA)

Ricardo Forcadell Pérez
Forest Engineer
Technical Manager at Mytruff

Alba Herranz
Dog training specialist
CEO at Alba Herranz
Adlestramiento Canino

César Vaquero
Agricultural Engineer
CEO at Globaltek,
Irrigation and Engineering

Marisa Esteban
Truffle Farmer
President of the
Young Truffle Farmers'
Association of Teruel

Jesús González
Agricultural Engineer
Truffle Farmer
Machinery designer

Cosme Martínez
Science degree in Pharmacy
Manager at Mytruff

Price and additional information

The **price** of the course is **2.950 €**. In Spain taxes are not applied to training courses.

The price includes:

- Bound notes on all the concepts explained during the course
- Lunch meals of the five days of the course
- Snacks and drinks in between lectures at MicoLab's facilities
- Roundtrip rides in a private bus from MicoLab's facilities for the two days of field trips
- Individual room for Thursday night in a four star hotel in Teruel

In order to book the course, a 900 € down payment has to be made by bank transfer. The remaining amount has to be paid maximum by the 26th of November, 2023. After this date, if the remaining amount hasn't been paid, the deposit and the reserved place will be lost.

If by the 10th of December of 2023 a minimum of 6 students haven't applied for the course, it will be cancelled and the full amount paid will be returned to all students.

All students get an official invoice and a training certificate signed by Luz Cocina Romero (Agricultural Engineer with a master's Degree on Education, and accredited teacher by the Spanish Education Ministry).

A maximum of 18 students are allowed per course.

The lectures on Monday, Tuesday and Wednesday will take place at **MicoLab's facilities**, located in:

Avda. Corts Valencianes, 75 bajo izda
46530 Puzol (Valencia Province, Spain)

On Sunday the 11th of February (one day after the farming course) there will be a technical training on microscopy applied to truffle farming for a maximum of 9 students. If interested, contact MicoLab.

For more info, please, contact us:

info@micolab.com

+ 34 665 911 457 (phone calls or WhatsApp)

International course on TRUFFLE FARMING PLANTATION ESTABLISHMENT AND MANAGEMENT HARVESTING AND MARKETING

Basic concepts, planting, pruning, tilling and irrigation,
Spanish wells, dog training, pests and diseases,
financial needs and yield, product trading,
truffle selection (marketing qualities), field trips

4th-9th of February, 2024

Schedule, contents and
additional info

