



This project is co-funded by the European Union and the Republic of Turkey

TRUMAP Project

Networking and Dialogue on Black Truffles and Medicinal and Aromatic Plants in
Turkey and Spain

REPORT OF THE FIELD TOUR IN SOUTHWEST TURKEY

15 - 16 June 2016



Partners:

Forest Sciences Centre of Catalonia (CTFC) and
Yaşama Dair Vakıf (YADA Foundation)



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Introduction

This report is part of the project TRUMAP – Networking and Dialogue on Black Truffles and Medicinal and Aromatic Plants (MAPs) in the southwest of Turkey and northeast of Spain.

The project aims at fostering the production of Black Truffles and MAPs, as alternative crops and wild collection models, to support rural development in the regions of Mugla, Denizli (Aegean Region) and Antalya (Mediterranean Region).

It strives to establish strong links and a high level of cooperation between stakeholders from these Turkish regions and from the Spanish region of Catalonia, to stimulate the exchange of knowledge and experiences concerning the sustainable production (cultivation and wild collection), transformation and trade of these Non-Wood Forest Products, to identify the main obstacles for the development of these sectors, and to jointly find solutions to address them.

With greater understanding of European processing and marketing requirements as well as cultivation/collection practices, the Turkish stakeholders involved in these sectors will be able to develop appropriately their agroforestry system and seize economic opportunities.

The project is under the Civil Society Dialogue IV, a programme bringing together civil society organisations from Turkey and the EU around common topics, to exchange knowledge and experience, and to build a sustained conversation between the organisations.

The Programme is co-financed by the European Union and the Republic of Turkey under the Instrument for Pre-accession Assistance (IPA)

Project details

Project Coordinator: Forest Sciences Centre of Catalonia (Spain)

Partners and Countries: Yaşama Dair Vakıf (Turkey)

Duration: 15 months

Locations of Action: Catalonia (Spain), Antalya, Denizli, Muğla (Turkey)

Budget: 160.426,04 Euro

Objectives of the field trips

These field trips were planned and organised with the aim of enhancing the dialogue and exchange between Turkish and Spanish stakeholders through direct encounters at several sites representative of both sectors, MAPs and black truffles, in south-western Turkey.

Methodology

This activity was first planned as two program visits (one for black truffle and another for MAPs) to meet with the existing companies, producers and research entities that are currently dealing with these products in Mugla and Denizli, Antalya and/or surrounding areas. However, since several Turkish stakeholders were interested in both products, it was decided to join both visits as one. The main methodology of the Study visits was observational.

These Study visits were addressed to entrepreneurs, producers and technicians from the regions of focus (about 32 people) but also from other Turkish regions (about 8 people); 6 members of the Spanish associates were also invited to join the Study visits.

One bus was chartered, departing Antalya, with about 33 people (20 Turkish stakeholders, 6 Spanish stakeholders, 4 CTFC staff and 3 YADA staff) and followed a route designed for visiting entities dealing with MAPs and truffle businesses and companies. An interpretation service was provided for all activities. In addition, YADA Foundation and CTFC staff provided translation when necessary. The field trip activities took place over 2 days from Antalya to Denizli, and later to Fethiye. Then, the Spanish members returned home and Turkish stakeholders and YADA staff joined to develop a workshop to discuss impressions and opportunities in the Black Truffles and MAPs sectors.

Field trips overview

Dates: 14-17 June 2016

Locations: Antalya, Denizli and Fethiye, southwest Turkey

Organization: Yada Foundation, with the support of Forest Sciences Centre of Catalonia

Participants:

From Turkey:

YADA Foundation: Hande Kösek (Technician), Ayşe Pınar Gürer (Project Manager), Yildiray Lise (NGO DKM-Doğa Koruma Merkezi).

18 Turkish stakeholders from several public and private entities: Mehmet Erden (Talya Herbal), Oğuz Öztürk (Morlab), Nazım Şekeroğlu and Sevgi Gezici (ATABDER), Şükrü Durmuş, Hatice Demirbaş, Ergün Hoyraz (Civil Servants Union of Agriculture, Forestry, Husbandry and Environment Sectors); Saadet Tuğrul Ay (BATEM-Batı Akdeniz Agricultural Research Institute), Niyazi Uluçoban, Murat Masun, Hasan Hüseyin Bozkurt, Müjdat Gezer and Mert Tansuğ (TRÜF&DER), Özgür Balcı, Galip Çağtay Tufanoğlu (General Directorate of Forestry), Gürol Gezer, Onur Kurluk (Era Agriculture) and Emir Demirsoy (Demirsoy Agriculture).

From Catalan region:

CTFC staff: Eva Moré (MAPs expert), Christine Fischer and Daniel Oliach (Truffles experts), David Solano (Director of International Affairs, Coordinator), Marta Rovira (Project Manager).

Catalan Stakeholders: Eva Segura (Bernauerherbes), Àlex Mases (Parcs de les Olors, Linyola), Tània Giró (Consultant in Forest Management and Truffles & Inotruf), Joan Estrada (Inotruf + LIFE Association of Truffles) and Miquel Carrillo (Aromis).

Summary of the visits

FIRST DAY, 15.06.16

Visit 1: Company TALYA ERBAL, Antalya

Visit 2: Batı Akdeniz Tarımsal Araştırma Enstitüsü (BATEM), Agricultural Research Institute, Ministry of Food, Agriculture And Livestock, Antalya

Visit 3: Natural Truffle site in Acıpayam, district of Denizli province

Meeting for introducing the participants

SECOND DAY, 16.06.16

Visit 4: MAPs inventory visit, Fethiye Forestry Operation Directorate

Visit 5: Lavender and truffle sites, Demirsoy Agriculture, 30 kilometers from Fethiye

Visit 6: Lavender and truffle sites. Distiller. Demirsoy Agriculture, Göcek

VISIT 1: COMPANY TALYA ERBAL, ANTALYA

The Talya company produces derivatives from herbs on an industrial scale for pharmaceutical, culinary and cosmetic purposes, located in two separate buildings.

In the first building the first steps in processing the material is carried-out: extraction of seed oils (pomegranate, laurel, sesame, apricot, Nigella etc.) by cold pressing and production of plant essential oils (oregano, rosemary, lavender, eucalyptus, etc.) with a water steam distiller. We could observe the steam boiler (400-600°) and condensation tank.

In the second building three types of extractions are made: solid, liquid or semi-liquid. These include derived oils and gels, shampoos, creams and pills.

The raw material is purchased from groups of harvesters or intermediaries. Almost everything comes from gathering wild material, except for some crops such as lavender.

All the products are certified by ECOCERT.

Many of their products are sold to the international markets including those in Germany, Asian and former Soviet Union countries and North America.

The Talya company provided a thorough explanation and observation of their processing centre. Their representatives were available for our questions, and as part of their hospitality, they presented the participants with a sample herbal infusion and a gift bag of sample products.



Presentation of the Talya company activities / YADA



Talya company staff / Carrillo, M.



Participants to the visit in Talya company / YADA

VISIT 2: BATI AKDENİZ TARIMSAL ARAŞTIRMA ENSTİTÜSÜ (BATEM)

In our visit to BATEM we observed six laboratories where the analysis of important plant and herb characteristics are made including: acidity, sugar components, organic acids, components of aroma, antioxidant activity, as well as freeze drying processes.

Among the devices here are: Fitters Clevenger distillation, Soxhlet extractor, gas chromatograph (for analyzing essential oils composition), spectrometer and liquid chromatograph of high resolution or *HPLC* (High Performance Liquid Chromatography) to analyze other types of substances.

Members of the CTFC discussed the level of resources of the laboratories, with respect to laboratory equipment (each valued at 50-60,000 euros), installation facilities, personnel and even cars.

They have a botanical garden with a sample of aromatic plants from around the world. Many species of *Thymus* and *Origanum* are called “Kekik”, so it is important to identify them.

We also visited the greenhouses where they grow herbs (sage, stevia), and, finally, several outdoor irrigated sites with aromatic plants (project BEWS-Biodiversity and Wild Edible Plants).

The Turkish government has made a significant investment in this laboratory, which is the largest of its kind in Turkey. The aim is to characterize and enhance the aromatic medicinal plants in the country focusing on many endemic species.

In the garden with the collection of the most important MAPs (local and others), they have greenhouses to make cuttings, fields to keep mother plants and make products (with geothermal mesh), and additional areas where agronomic research is conducted such as doses of fertilization and irrigation.

They are currently doing a trial with the Morlab company to enhance the plant (*Origanum onites* / *Salvia triloba*) for cosmetic uses.



BATEM nursery / Carrillo, M.



BATEM MAPs plantation / YADA



Participants in the visit to BATEM / YADA

VISIT 3: NATURAL TRUFFLE SITE IN ACIPAYAM, DISTRICT OF DENIZLI PROVINCE

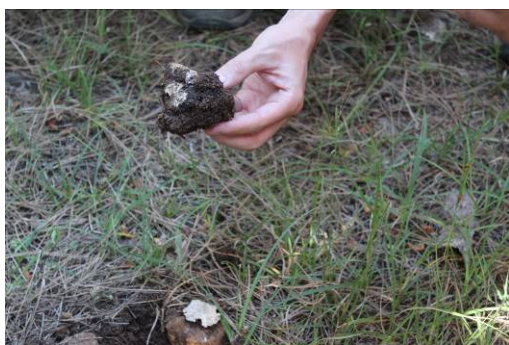
The Natural Truffle Site is an area of 25 ha managed by the Department of Non-timber Products from the General Directorate of Forest of Denizli. A metal fence protects it. However, wild boar may still enter occasionally.

We visited two different areas: the first was 18 ha of *Pinus brutia* forest, and the second was a cultivation site of 7 ha with a plantation of *Quercus robur* seedlings inoculated with *Tuber aestivum* with the intention of creating truffle cultivation areas for demonstration and truffle production.

Due to the number of visitors, trained truffle dogs could not work because of the stress caused by the presence of many persons. So the truffle hunters visited this site in the morning with the dogs and marked several points where truffles could be found. During the visit, truffle hunters looked at various marked places and located fresh summer truffles, *Tuber aestivum*.

In the area of truffle cultivation, CTFC experts and Spanish stakeholders discussed with Turkish actors, appropriate planting methodologies and quality of the mycorrhizal plant. The results of planting oak inoculated with truffle can give the first truffles after 4-5 years, but it is normal to come into production 10 years later. The effectiveness is never 100%, with many soil, environmental characteristics and management practices influencing the success of truffle production.

Among the medicinal and aromatic flora present in the area we observed: *Hypericum perforatum*, *Stachys sp.*, *Juniperus oxycedrus*, *Teucrium polium*, *Teucrium chamaedrys*



Summer truffles / YADA.



Discussing plantation methodologies / YADA



Checking plantation methodologies / YADA



Participants in the visit to natural truffle site in Acipayam, district of Denizli Province / YADA

MEETING FOR INTRODUCING THE PARTICIPANTS

At the end of the first day, and once the group of participants was complete, including those who joined the group in the last visits, we held a meeting for introducing all attendees. Each participant introduced him/herself and explained a little bit on his/her work, activities, interest and motivation in the field of truffles and medicinal and aromatic plants.



Meeting for introducing all participants / Carrillo, M.

VISIT 4: MAPS INVENTORY VISIT, FETHIYE FORESTRY OPERATION DIRECTORATE

Accompanied by government officials, foresters, rangers and operators, Catalan and Turkish delegations visited an area of Mediterranean forest of *Pinus brutia* near Fethiye. This is a forest where trees are growing straight and tall. Forest fires have been prevented for many years, and since this is public forest, tree removal is very minimal and highly protected.

The aim was to demonstrate and discuss the forest activities carried out in Turkey, taking this area as an example. Sustainable control, inventory of herbs, and fire fighting measures were explained.

The plot 406, from 9 ha to 220 meters above sea level was visited. It is part of a set of 1,100 ha where aromatic herbs may be found.

Technicians work with the local population and herb pickers to get information on the markets. Sampling plots were set out, of approx. 2x2 meters, to study the density, reproduction and evolution of the selected herbs.

The Turkish Forest Service representatives made a demonstration of sampling, according to an inventory sheet of non-wood forest products.

These programs of planned and sustainable forest use began in 2011. They use a manual that serves as a guide.

Aromatic and medicinal species observed in the forest: *Origanum onites*, *Satureja thymbra*?, *Laurus nobilis*, *Nerium oleander*, *Salvia fruticosa* (*S. triloba*), *Cupressus sempervirens*, *Myrtus communis*.



MAPs inventory visit, Fethiye Forestry Operation Directorate / Carrillo, M.



MAPs inventory visit, Fethiye Forestry Operation Directorate / Carrillo, M



Sampling plots of approx. 2x2 meters



Discussing inventory methodologies / Carrillo, M.

VISIT 5: LAVENDER AND TRUFFLE SITES, DEMIRSOY AGRICULTURE, 30 KILOMETERS FROM FETHIYE

The company Demirsoy Agriculture of Mr. Emir Demirsoy has recently started its activities in producing truffle-inoculated seedlings with their nursery launched 5 months ago. Six months ago they established a summer truffle (*Tuber aestivum*) plantation with seedlings from a Denizli nursery. Support for the reparation of these seedlings was provided by truffle experts from CTFC, with a technical visit made by Christine Fischer.

The mycorrhized plant nursery was first visited. Innovative container for plants are used made of plastic and with holes, watered by drip. Each plant is watered individually to prevent the spread of fungus or disease.

We then drove to the truffle plantation, where six months ago plantings of lavender / lavender (*Lavandula angustifolia* var. *Sevtopolis*) and seedlings of *Quercus robur* seedlings with *Tuber aestivum* were planted intermixed in the same site. It is a fenced plot, surrounded by forests where wild truffles have been collected.

The plantation area covers 15 hectares. Some monumental oaks were retained, on the advice of Christine Fischer. The owners plan to create an ecotourism project on this site. Two water deposits have been constructed which consist of dugout ponds (covered with plastic to reduce summer evaporation loss), which are fed by underground drainage pipes that drain the entire site that collects significant water at times of heavy rainfall. For irrigation, they use 200 km of tubes

The soil has a high clay content and to improve its structure they have added gravel, which has been mixed with the surface layers of the original soil.



Mycorrhized plant Nursery of the company Demirsoy Agriculture / CTFC



Mycorrhized plant, Demirsoy Agriculture Co. / CTFC Turkish and Catalan stakeholders / CTFC



Demirsoy Agriculture Lavander and Truffle site, near Fethiye / Giró T.



Participants in the visit to Demirsoy Agriculture Lavander and Truffle site, near Fethiye / YADA

VISIT 6: LAVENDER AND TRUFFLE SITES, DEMIRSOY AGRICULTURE, GÖCEK

Some of the technicians drove to another site near Göcek where Mr Emir Demirsoy has a small plantation of lavender (*Lavandula x hybrida*) together with *Tuber melanosporum* with mycorrhized oak. The plantation is on a slope of 30-40%, which must be worked with the mule.

They have a small stainless steel distillery, with direct fire that heats a layer of water that turns into steam. Here we observed the distillation of lavender and the final process of separation of essential oil and water.

The plantation also has a few hives to produce honey.



Demirsoy Agriculture, lavender and truffles site in Göcek / CTFC



Demirsoy Agriculture, Small stainless steel distillery in Göcek / CTFC



Hives to produce honey in the lavender and truffle plantation / CTFC

Conclusions

Following the objectives of the project and the Civil Society Dialogue Programme, the visit tour focused on connecting stakeholders from Turkey and Spain in the truffle and MAPs sectors by opening opportunities for exchange of experiences and ideas.

The dialogue was active and fruitful with the collaboration of many stakeholders, and enthusiasm to talk and discuss themes of mutual interest. Moreover, the participation of multi-stakeholders (private and public actors) contributed to enrich the discussions. We shared information and ideas.

Some stakeholders already knew each other from previous collaborations. This visit was fruitful for them to deepen in their mutual collaboration and see new opportunities for joint projects.

During the visits, the stakeholders could:

- Meet each other face to face
- Know experiences in different countries
- Spanish stakeholders could see Turkish plantations and installations
- See that truffles and MAPs sectors are in development

After the visits and exchanges, some possibilities of collaboration arose:

- Collaboration in themes of quality control of the inoculated plant produced in Turkey (truffles)

- Monitoring of plantations (truffles and lavender)
- Connection between stakeholders working with same products, for instance, saffron.
- Application of the MAPs production economic model based on elaboration of products from Catalonia; and tourism which is well-developed in Catalonia, also interested several Turkish stakeholders.

In general, the assessment of the visits by the many participants has been very positive. This provides a good point to start for further successful relationships in the upcoming visits in Spain.

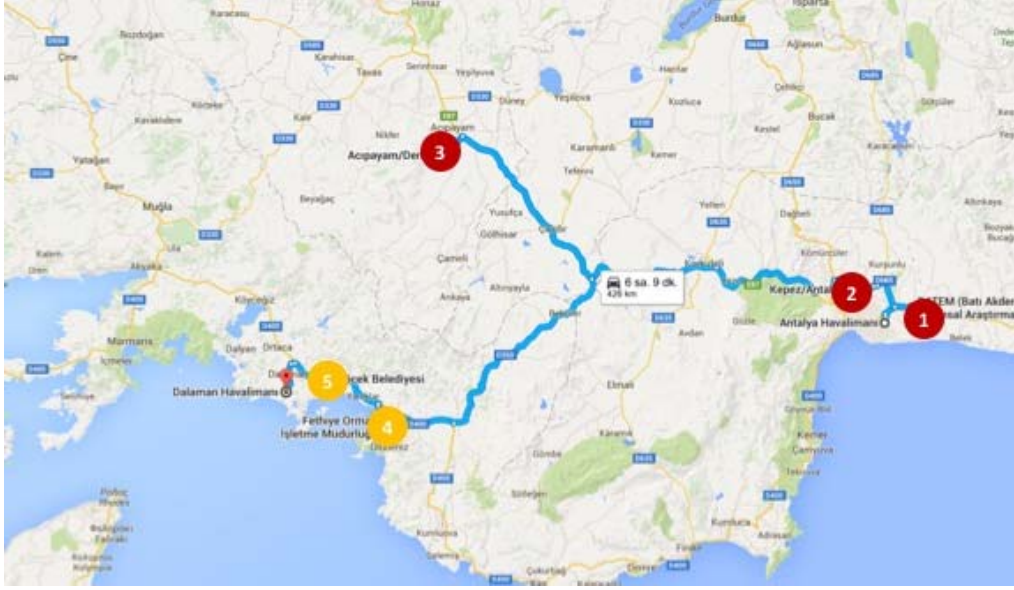
An important result of these first field trips is the good climate of communication between the various members of both the CTFC and the invited companies. .

Given the exchange of knowledge and awareness of areas of expertise of the many participants, the possibility for future collaborations is now open.

ANNEX I – AGENDA FOR STUDY VISITS

A.2. CAPACITY BUILDING AND PARTICIPATORY ACTIVITIES WITH AND FOR MAPS AND BLACK TRUFFLE PRODUCERS IN SOUTH WEST TURKEY	
Day 1 (14.06.2016)	<ul style="list-style-type: none"> ➤ Arrival to Antalya (from Barcelona Airport (BCN) to Antalya Airport (AYT)) ➤ Dinner at Hotel ➤ Accommodation: Antalya
Day 2 (15.06.2016)	<ul style="list-style-type: none"> ➤ 8:00 – 9:00 Breakfast at hotel ➤ 9:30 – 10:30 Talya Herbal visit ➤ 11:00- 12:30 BATEM visit ➤ 13:00 – 16:30 Travel to Denizli, Acipayam (2.5 hours, included lunch box) ➤ 16:30 – 19:00 Visiting truffles natural site (in Acipayam, district of Denizli province) ➤ 20:20 Dinner at Denizli, Acipayam ➤ Travel back to Fethiye (2 hours) ➤ Accommodation: Fethiye
Day 3 (16.06.2016)	<ul style="list-style-type: none"> ➤ 9:00-10:00 Breakfast at hotel ➤ 10:00 – 12:00 MAPs inventory visit (Fethiye Forestry Operation Directorate) ➤ 12:30 – 13:30 Lunch at Fethiye ➤ 14:00 – 16:00 Visiting lavender and truffle sites (30 kilometers from Fethiye) ➤ 16:00- 17:00 Free time for discussion (consideration of study visits) ➤ Back to hotel ➤ 20:20 Dinner at Fethiye
Day 4 (17.06.2016)	<ul style="list-style-type: none"> ➤ Departure to Barcelona (from Dalaman Airport (DLM) to Barcelona Airport (BCN)) (CTFC & Spanish stakeholders) ➤ Workshop (2 separate sessions in the same workshop) in Fethiye (only Turkish participants) ➤ Lunch at Fethiye
Day 5 (18.06.2016)	<ul style="list-style-type: none"> ➤ Return to Istanbul/Ankara from Fethiye (Turkish team)

Study Visits Road:



ANNEX II – LIST OF PARTICIPANTS

From Turkey:

ID	NAME/SURNAME	COMPANY
1	Mehmet Erden	Talya Herbal
2	Oğuz Öztürk	Morlab
3	Nazım ŞEKEROĞLU	ATABDER
4	Sevgi GEZİCİ	ATABDER
5	Şükrü Durmuş	Civil Servants Union of Agriculture, Forestry, Husbandry and Environment Sectors
6	Hatice Demirbaş	Civil Servants Union of Agriculture, Forestry, Husbandry and Environment Sectors
7	Ergün Hoyraz	Civil Servants Union of Agriculture, Forestry, Husbandry and Environment Sectors
8	Saadet Tuğrul Ay	Batı Akdeniz Agricultural Research Institute
9	Niyazi Uluçoban	TRÜF&DER
10	Özge Ergüler	Antalya Regional Directorate of Forestry
11	Fatih Saygın	
12	Murat Masun	TRÜF&DER
13	Hasan Hüseyin Bozkurt	TRÜF&DER
14	Müjdat Gezer	TRÜF&DER
15	Özgür Balcı	General Directorate of Forestry
16	Galip Çağtay Tufanoğlu	General Directorate of Forestry
17	Gürol Gezer	Era Agriculture
18	Onur Kurluk	Era Agriculture
19	Mert Tansuğ	TRÜF&DER
20	Emir Demirsoy	Demirsoy Agriculture
21	Ayşe Pınar Gürer	YADA Foundation
22	Hande Kösek	YADA Foundation
23	Yıldıray Lise	DKM

From Spain:

ID	NAME/SURNAME	COMPANY
1	Eva Moré Palos	CTFC
2	Christine Rose Fischer	CTFC
3	David Alejandro Solano Grima	CTFC
4	Marta Rovira Pérez	CTFC
5	Daniel Oliach Lesan	LIFE Association of Truffles
6	Eva Maria Segura Escudè	Bernauherbes
7	Alex Mases Xifré	Parc de les Olors
8	Miquel Carrillo Giral	Aromis
9	Tània Giró Bartra	Inotruf
10	Juan Maria Estrada Castaño	Inotruf, LIFE Association of Truffles

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