

POSTER

PRESENTADO AL IV INTERNATIONAL

WORKSHOP EDIBLE MYCORRHIZAL

MUSHROOMS

MURCIA, ESPAÑA

CURRENT STATE AND PERSPECTIVES OF TRUFFLE CULTIVATION IN CHILE

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INTRODUCTION

The establishment of truffle cultivation in Chile began in the year 2002, through an Research Project developed by the Catholic University of the Maule in association with CEAM Foundation of Spain and supported by FIA of Chilean Ministry of Agriculture.

In a first stage of the project technical feasibility was evaluated to introduce and to develop truffle cultivation, analyzing the main agro-climatic factors that determine the cultivation possibilities in our country. Also, mycorrhizal plants propagation was implemented by means of an pilot inoculation process operated under greenhouse conditions. Starting from this project the first mycorrhizal plants have been obtained with *T. melanosporum*, by means of which a net of experimental plantations was established with the objective of developing this crop alternative in our country.

Results of *Tuber mycorrhiza* survival and propagation in truffle orchards allow to obtain indicators that reflect the evolution and behavior of the cultivation until the beginning of the production in Chile.

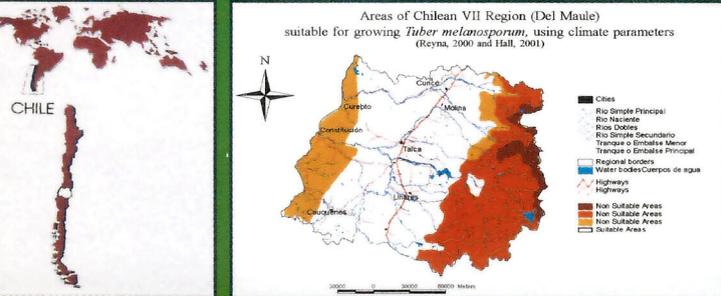


FIRST RESULTS OF *T. melanosporum* ADAPTATION

Survival and propagation of *T. melanosporum* mycorrhiza under field conditions have been successful in most of the plantations settled down in Chile, which indicates that plantation and management techniques have been adequate to maintain the symbiosis with the different host species, also reflecting that this mushroom presents a good initial adaptation to the Chilean climatic and soil conditions. However, some plantations present a high incidence of competitors mycorrhizal fungi, affecting the development of truffle mycorrhiza.

Within main competitors identified in the truffle orchards, *Hebeloma* sp. Appears to be more common, also other basidiomycetes species are without identifying have been find.

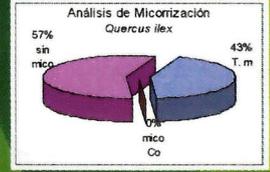
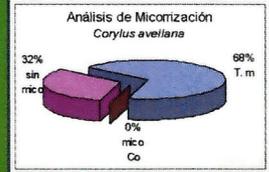
In general, results of Chilean truffles open a promising future for truffle cultivation development like a new agro-forestry alternative. However, still lack to define with more details the ideal conditions for growing *T. melanosporum* in Chile, also to compare the performance of different host species to the truffle production in our country.



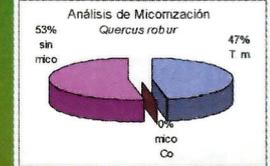
SUITABLE AREAS IDENTIFIED FOR TRUFFLE GROWING

Suitable areas to establish truffle plantations can be located in central southern Chile, mainly some zones located between VII and X Region (33° to 40° S latitude), where climate predominant is a Mediterranean Temperate. Regarding truffle soils requirements, which should have a high pH, possible areas to implant also exists in the Metropolitan Region (Alic. Maipo Valley) and VI Region, where some soils derive of alluvial deposits (sediments) with high content of calcareous material in the profile (pH ranged between 7.5 and 8.0).

However, irrigation necessities in these areas are higher, because must annual rainfall. Between VII and X Region exists areas with a more suitable climate, but without calcareous soils, for this reason, strong lime amendments should be carried out to correct this discrepancy in pH. It is necessary to highlight that truffle cultivation is not very demanding for soil fertility, also *Tuber melanosporum* can grow in a relatively wide range of temperatures and rainfall, including under lessions, this is interesting since plantations can settle down in Andean foothills areas and in marginal soils, not competing for sites with agricultural intensive crops.



EXAMPLE: FIRST RESULTS OBTAINED ON *T. melanosporum* MYCORRHIZATION IN A TRUFFLE ORCHARD LOCATED IN VII REGION OF CHILE.
 The results confirm the activation of *T. melanosporum* symbiosis to climate and soil conditions of central southern Chile.



COMMERCIAL PRODUCTION OF MYCORRHIZED PLANTS IN CHILE

In August 2004 the company Agrobiotruf S.A. has been formed being the first one in Chile in developing a company specialized in the commercial production of truffle mycorrhized plants and consultancy services with the objective of achieving a critical mass of plantations that allows to enlarge the cultivation bases and this way to be able to establish an industry.

After the first year of operation, the company has been able to produce 4.400 mycorrhized plants with *Tuber melanosporum*, which will be distributed between October 2005 and July 2006 by means of a coordinated approach with different producers in different areas of the country. These areas were selected based on previous analysis of climate and soil conditions.

DISCUSSIONS

T. melanosporum and hosts have specific environmental requirements. The selection of suitable tree species for truffle activation must necessarily specific local requirements. It is remarkable that in Chile there are suitable host species with a good ecological adaptation.

For example, naturalized *Quercus* *Q. ilex* and *Corylus avellana* which grow good in central southern Chile. This species is very advantageous since suitable vegetal material is obtained for truffle excelsior and soil peeling.

Chile presents suitable conditions, which could assure us that soil and climate conditions adapted for truffle cultivation can be found in the central southern area, especially where natural precipitation can be supplemented by means of irrigation.

A good opportunity exists to develop truffle cultivation in Chile, as species in our country and the development of control standards that assure the quality of the production.



Domestic Agrobiotruf is developing a certification program with a multiphase program to validate the quality of the produced plants and it has also begun a production of 40.000 truffle plants that will be available for out planting in September 2005. With this work, it is hoped to establish an appropriate surface of 55 hectares of truffle orchards in 2009.

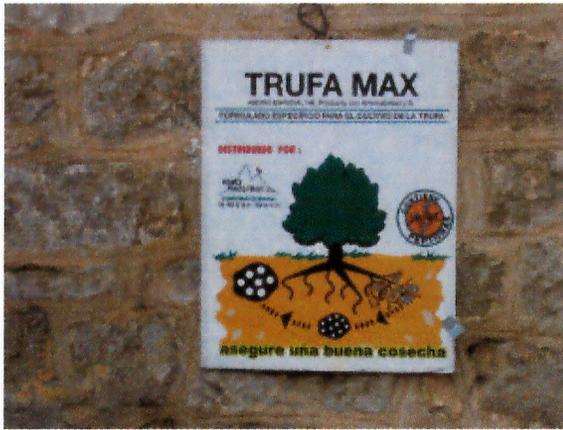
ACKNOWLEDGMENTS
 This work have been supported by the Foundation for the Agricultural Innovation of the Chilean Government together with Agrobiotruf S.A. and Reimones Ombus Ltda.



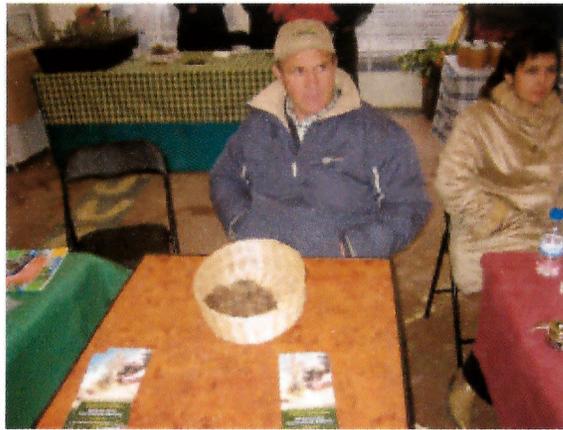
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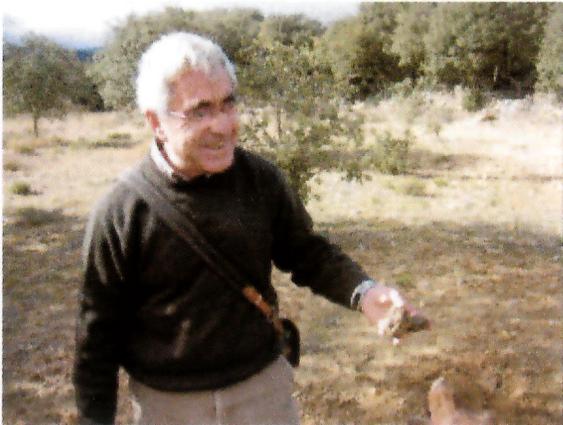
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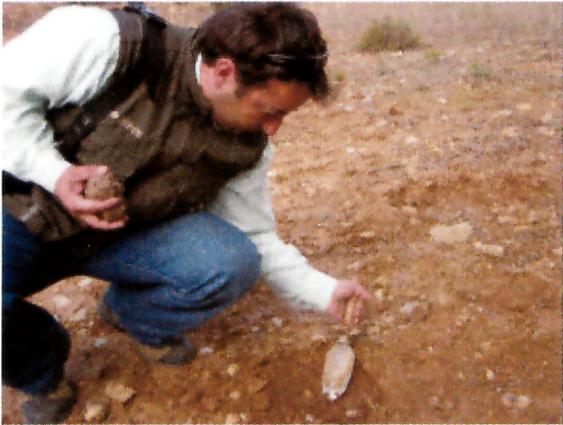
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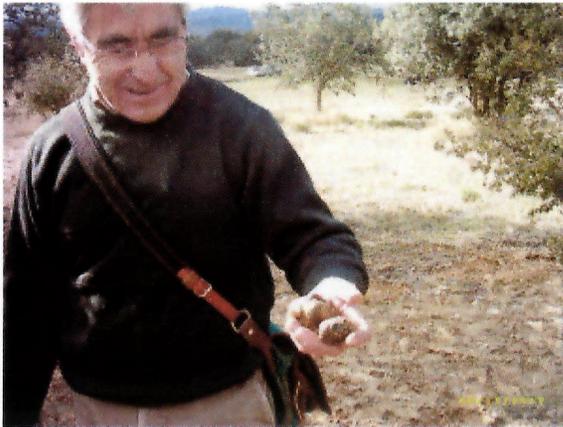
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SET DE FOTOS 3.

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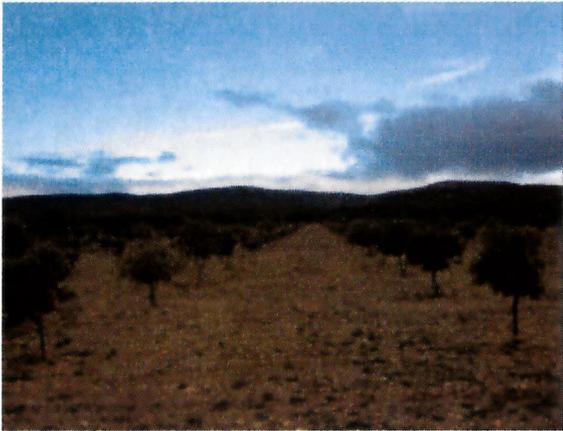
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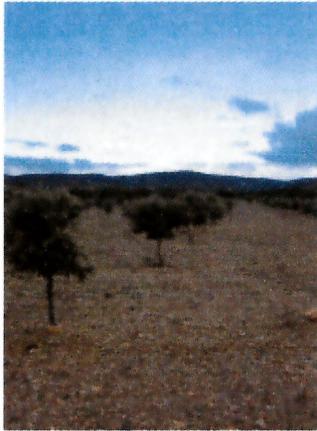
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SET DE FOTOS 4.
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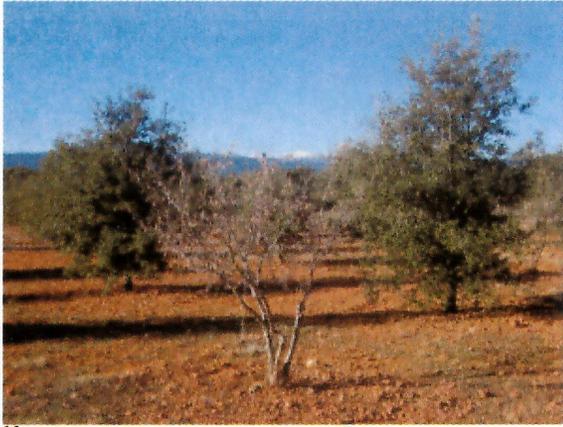
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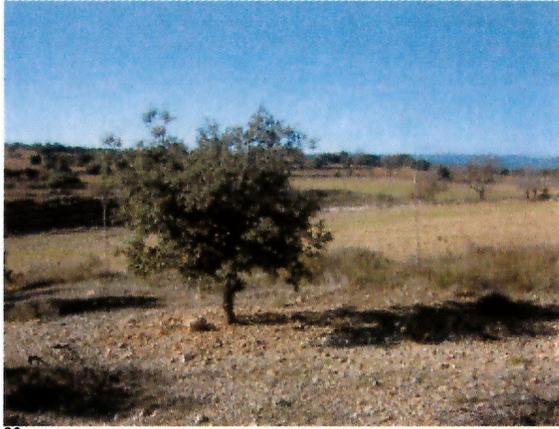
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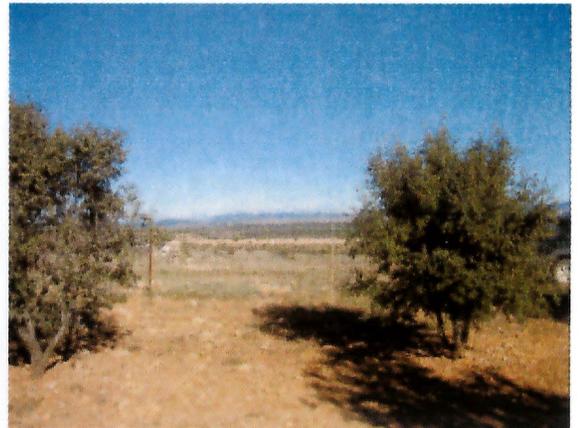
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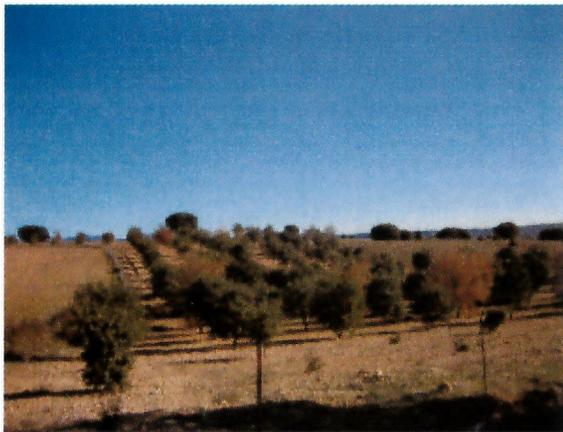
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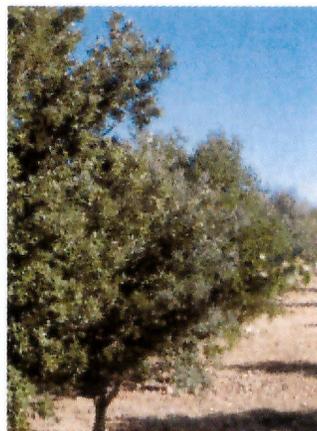
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