MODERN INTENSIVE OLIVE CULTIVATION

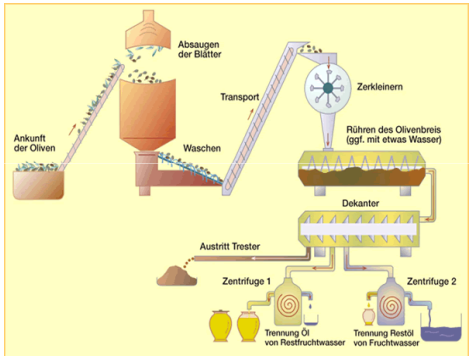
AUGUST 09

VALSECO

CONTENTS

1. THE CONCEPT

- ✓ **Plantation of olive groves with densities adapted to the potential resources of the farm/businessman**
- ✓ **Production of extra virgin olive oil from plantations with a high level of mechanization**
- ✓ **Driving the development of the Spanish-International market for oil offering high quality oils and a high price/quality ratio**
- ✓ **The creation of an industry that is closely linked to the farm, which makes it possible to ensure quality and traceability of the product (the company *Aceites de pago*)**
- ✓ **Viable alternative to traditional cultivation**
- ✓ **Higher profitability than that obtained with other traditional alternatives (corn, beets, tomatoes)**
- ✓ **Lower consumption of natural resources (fertilizers, water)**
- ✓ **Positive environmental impact**



2. VALSECO AND ITS MAJOR PROJECTS

- **Valseco is engaged in agro-industrial projects based on the cultivation of olives, nuts, pistachios and Paulownia.**

- **Valseco is driving the search for investor partners seeking those who meet the following criteria:**

  - **Interested in improving their rural farming enterprise**

  - **Interested in investing in agribusiness**

  - **Seek a management company and alliances to carry forward the implementation, maintenance and operation of the Project**

  - **Share the idea of innovation in this sector, based on investor effort and natural resources to produce the goods, products and services demanded by today's society with a higher yield of value added for their professional effort and investment**

  - **Seek profitability based on the real productivity of projects that work without major fluctuations, or financial bubbles that give rise to unexpected consequences due to changes in the world economy.**

3. VALSECO-COTEVISA

VALSECO:

- **Function:** Extensive experience in Project implementation.
  Supplies, consulting and maintenance of plantations, own technology
- **Operations:** First plantings carried out in Toledo in 1995
- **Market:** Spain. Exportation in the future
- **Surface area:** Own facilities: Office 400 m2. Warehouses 2.000 m2, laboratory, experimental farms
- **Collaborations:** Spanish Universities for R&D&I
  Madrid Schools of Agricultural Engineers and Albacete School of Agronomy Engineering

3. VALSECO-COTEVISA

COTEVISA:

- **Function:** Production of in vitro plants
- **Operation:** More than 2 million plants annually
- **Market:** Spain. Exportation in the future
- **Surface area:** 66,000 m2 of nurseries and hothouses
  2,000 m2 of laboratories and offices
- **Collaborations:** Spanish Universities for R&D&I
  Agricultural and Forestry Schools

4. THE OLIVE TREE (BOTANICAL CHARACTERISTICS)

- The olive tree (*olea europea*) is a tree that belongs to the botanical family of *Oleaceae*, and within this family, it is the only species with edible fruit

- Its principal characteristics are as follows:

  - **Its leaves** are dark green on the face, with a characteristic sheen due to the presence of a thick cuticle and whitish on the underside, simple, with a lanceolate shape and smooth edges, It is a perennial tree, and the leaves usually live for two or three years.

  - **Its flower** is very small

  - **Its trunk** is thick and the bark greyish

  - **Its fruit** is the olive, a small ovoid drupe, very bitter tasting, yellowish green in colour, an oily flesh once it becomes ripe with a pit that contains its seed

4. THE OLIVE TREE (HISTORY)

FROM REMOTE ANTIQUITY UP UNTIL THE TIME OF THE GREEKS:

- Certain historians assert that the olive tree originated in Persia, others claim the Nile valley, while still others assert that it came originally from the Jordan valley. Most believe, however, that it originated in ancient Mesopotamia, whence it spread to other countries. Once thing we can say with certainty is that its cultivation is thousands of years old.
- The cultivation of olive trees to obtain olive oil began in the Palaeolithic and Neolithic periods (5,000 to 3,500 B.C.) in Crete, although the first written documents on olive oil are comprised of Minoan tablets that provide the most substantial archaeological testimony on the importance of olive oil in the court of King Minos for the Cretan economy 2,500 years B.C.
- In Egypt 5,000 years ago olive oil was already in use to illuminate temples, and the Egyptians were the first civilization to extract oil by the natural mechanical processes on which today's methods are also based. In cooking it was already in use as a dressing on lettuce. Also common were baths with perfumed oil and from 980 to 715 B.C. the placement on mummies of wreaths of olive branches which are found in the tombs of the pharaohs. The olive tree took hold and spread throughout Europe from East to West, with groves dating back to remote antiquity in Pontus, Mytilene and Armenia.
- Starting in the 16th century B.C., the Phoenicians disseminated the olive tree in the Greek isles, and the 14th through 11th centuries B.C, throughout the Greek Peninsula, where its cultivation increased until it achieved major importance in the 4th century B.C. when Solon promulgated decrees to regulate its cultivation.
- Greeks, Phoenicians, Romans, Jews, Arabs, Spaniards and other people trading on the shores of the Mediterranean were the ones who undertook to disseminate the cultivation and uses of the olive. It is not known with certainty if at that time they already knew of all of its virtues, but there are indications that they were aware of some of its benefits.
- Greece availed itself of the olive tree's extraordinary merits, and it became the most widely cultivated tree, protected by severe laws, one of which prescribed the punishment of banishment and confiscation of all personal property of whomever might dare to uproot more than two olive trees.
- According to mythology, in the dispute between Pallas Athena and Poseidon for patronage of the nascent city of Athens, Poseidon with a blow of his trident brought forth a horse, beautiful, strong, swift and agile, while Pallas Athena with her spear brought forth an olive tree "of which not only would the fruit be good to eat, but it would also give an extraordinary liquid that would serve as food for men rich in flavour and energy, to soothe their wounds and endow their metabolisms with vitality, able to provide a flame to illuminate the night time..." It was also the symbol of peace, victory and life. It was considered a tree of fertility so that women slept on its leaves and in its shade when they wished to be with child. The wood of the olive tree was used for carving statues of the gods, sceptres of kings, tabernacles and instruments of combat for heroes.
- The Greeks would introduce the cultivation of the olive tree into Italy, where it easily took hold. Thus, starting in the 6th century B.C., it was propagated throughout the Mediterranean basin, moving on to Tripoli and Tunisia, the island of Sicily, and from there, to southern Italy. It is said that it made it to Italy during the reign of Lucius Tarquinius Priscus, legendary king of Rome, (616 to 578 B.C..), although there are those who believe that it arrived in Italy three centuries earlier before the fall of Troy. Once in Italy, it spread swiftly through the north, from Calabria to Liguria.

4. THE OLIVE TREE (HISTORY)

FROM THE ROMAN ERA UNTIL THE DISCOVERY:

•Rome also took part in these customs. The first region that cultivated the olive tree on a large scale was Sicily, and the olive trees of Agrigentum soon became famous making use of the cultivation schemes of the Greeks. According to tradition, Romulus and Remus, descendants of the gods and founders of Rome, first saw the light of day under the branches of an olive tree.

• Among the Romans, the "oleum," or oil, was looked upon more as a luxury than as a staple for everyday life, and thus at first it was not distributed among the common people, so that an underground commerce sprang up for those eager sought to get it, for since the peasants were given the oil obtained from olives of poor quality, it meant that their oil in general was of a high gradation and also poor quality. The upper classes ascribed to olives the secret of their beauty, and used it for the care of their complexion and their hair.

• The boundaries of property were marked by olive trees. In the Iberian peninsula the existence of olive trees dates back to prehistoric times, with olive pits having been found in the Neolithic deposits of El Garcel. During the Roman dominion, Hispania already had a considerable number of olive trees bearing fruit. With the taxes accruing from possessions and the oil that Rome received on this account, the cultivation of olive fell into a period of decline under the Empire. The abundance of the oil received as taxes was so great that olive cultivation was finally abandoned. As of the 2nd century, Rome was obliged to import its oil from Spain. After the third Punic war, olive cultivation underwent a major expansion in southern Spain (Baetica) and spread towards the centre and the Mediterranean coast of the Iberian Peninsula.

• The oil arriving from Hispania was very highly regarded. To foster the major transactions in oil that were taking place, the emperors exempted anyone engaged in the private oil business from having to pay any taxes. The shipment of oil was sent on the "navi oleari" or oil ships, which unloaded their merchandise in Ostia whence it was conveyed to Rome.

•Cultivation in Spain increased substantially, especially in the Guadalquivir valley during the eight centuries of Hispano-Arabic civilization. The Arabs introduced their varieties into the south of Spain and influenced the dissemination of cultivation to such an extent that the Spanish letters in the words *aceituna* (olive), *aceite* (oil) or *acebuche* (wild olive tree) have an Arabic root; for example, the Spanish Word *aceite* comes from the Arabic *al-zait* which means, "olive juice," which was so esteemed by Moslems that its praises are found even in the Koran. (24,35)

• In the time of the Catholic Monarchs, "gazpacho" with oil and vinegar already comprised a basic part of the diet of Extremadura and Andalusia. With the Discovery (1492), Spain brought the olive to the Americas. From Seville the first olive trees departed for the Antilles and then to the mainland. It was introduced mainly over the course of the 16th and 17th centuries in Peru, Chile, Argentina and Mexico. Today it can be found in California and in different parts of South America.

4. THE OLIVE TREE (OVERVIEW OF THE TRADITIONAL OLIVE GROVE)

RECENT TIMES:

- At present, the **country with the most olive trees** is Spain (more than 300 million olive trees), followed at a great distance by Greece and Italy, while not far behind them are Tunisia, Turkey and Syria.

- Spain ranks first in **world production** of olive oil**,** with an annual average output of 700,000-800,000 tons, reaching as high as 1,000,000 tons in recent campaigns and exceeding this level by a wide margin in the campaign of 2001-2002 with a yield of 1,300,000 tons. It also **ranks first in world exports**.

- At the national level, the largest volume of olive oil production is found in Andalusia (approximately 80%), followed by Castile La Mancha (6-7%), Extremadura (5%) and Catalonia (4%), with the rest (4%) being accounted for mainly by the Community of Valencia and Aragon.

- **In Spain, the ownership of olive groves is quite dispersed, that is, there is a large number of people with small and medium-sized growing operations, often located in low productivity areas.** This means that in most cases the revenues earned from sales of olives are no more than a modest help to owners, who seek to keep their farms which have often been handed down within the family over generations**.**

4. THE OLIVE TREE (MODERN CULTIVATION OF OLIVE GROVES – ADVANTAGES)

Intensive olive grove cultivation with underground watering system – five years old

Intensive planting. Surface area of 80 hectares

Pedro Hormigos (Sales Manager of Valseco)

Mechanized harvesting.

5. THE VALUE CHAIN

PRODUCTION FACILITY FOR IN-VITRO CULTIVATION

INTEGRAL PROJECT

FARM MANAGEMENT, PLANNING, IMPLEMENTATION, MAINTENANCE, TECHNICAL SUPERVISION

SALES AGREEMENTS

5. THE VALUE CHAIN (VALSECO-COTEVISA)

- Model facility for technology of in Vitro propagation
- Agreements with Spanish Universities for R&D&I
- Differentiated experience in the implementation of planting projects
- Team at facility for maintenance and technical supervision in project management

5. THE VALUE CHAIN (FARMERS)

- The current agricultural model in Europe is coming to an end (subsidies, PAC reform, sustainability, etc.)
- Farmers must seek alternatives for cultivation
- The modern cultivation of olive grove is a profitable solution that is built solidly on a product (extra virgin olive oil) with great potential for growth and consumption in the world
- Traditional cultivation in Spain is exhausted as an economic model, as are the current structures of production based on marginal cultivation of low productivity and high harvesting costs, with the fragmentation of plantations
- The modern cultivation of olive groves makes it possible to achieve greater profitability than any other crop, (revenues – annual costs = 2500-3500 Euros), with a high degree of mechanization and professionalization of management obtaining optimal production of high quality with a good quality/price ratio.
- Entry into production begins from the third year of plantation
- Investment is subject to subsidies for facilities and equipment (which varies among the different autonomous communities)

5. THE VALUE CHAIN (OLIVE OIL EXTRACTION-SALE)

- Implementation of olive oil extraction at the farm or integration with the extraction operation of the group (this decision will depend on the surface area of the project, investment capacity, and other elements)
- Harvesting is conducted with equipment that is subcontracted or in which Valseco has a share
- The processing and packaging of the oil is carried out under strict processing protocols (AENOR certification)
- Commercial agreements for participation in different phases of the operation
- Possibility of contracting of services for own brands, packaging, etc.

7. BUSINESS MODEL

- Investment plan
- Projection of earnings
- Maintenance of plantation
- Results

ECONOMIC MODEL-MODERN INTENSIVE OLIVE CULTIVATION

DATA FROM THE FARM:

FARM:
OWNER: MODEL: STANDARD
FECHA ESTUDIO:

SURFACE TO TRANSFORM:		10,00	HECTARES	VARIETY	SURFACE	FRAMEWORK	DENSITY	Nº PLANTS
No. TREE/HECTARES	1.250			Arbeq/Chiq.	10,00	4x2	1250	12500
No. TOTAL TREES	31.250							

YEAR		PLANTATION										
ADMISSION FEE		YEAR 0	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6	YEAR 7	YEAR 8	CUMULATIVE	CUMULATIVE
INTENSIVE OILIVE WITH ARBEQUINA//CHIQUITA												
Expected production per tree		-	-	-	6	7	8	9	9	9	9	57
Production provided by Ha		-	-	-	7.500	8.750	10.000	11.250	11.250	11.250	11.250	71.250
Total fram production		-	-	-	75.000	87.500	100.000	112.500	112.500	112.500	112.500	712.500
Price expected	€uros / Kg	0,42	0,42	0,42	0,42	0,42	0,42	0,42	0,42	0,42	0,42	0,42
Harvest Value	€uros	-	-	-	31.500	36.750	42.000	47.250	47.250	47.250	47.250	299.250
TOTAL INCOME PRODUCTION SALE		-	-	-	31.500	36.750	42.000	47.250	47.250	47.250	47.250	299.250
INVESTMENT												
Projects and studies:	105											
Study and design:	60											
Soil Study S.I.S.												
Standard soil survey	45											
Installation of irrigation:	2.500											
Air irrigation installation												
Surveys and water harvesting												
Pumping Equipment												
Filter Head												
Fertigation												
Electrical installation:												
Electrical installation project												
Electric line and box C.B.T.	INTENSIVE PRICE/HA											
Planting: (Average price per hectare)	8.146	8.146										
Preparatory Work		250										
Organic amendment		120										
Land preparation. Refining		50										
Marking of the plantation		438										
Opening of furrows		438										
Vitro plant> 50 cm 1,5 l		2.813										
Protector		375										
Tutors		975										
Plantation workers and entutorado		2.688										
Total investment per hectare	10.751											
Total investment to transform plot	107.505	107.505										
MAINTENANCE COSTS:												CUMULATIVE
Total Maintenance Costs plot	15.750	-	- 15.750	- 15.750	- 20.250	- 20.250	- 20.250	- 20.250	- 20.250	- 20.250	- 20.250	- 173.250
BALANCE:												
Income-maintenance costs		-	- 15.750	- 15.750	11.250	16.500	21.750	27.000	27.000	27.000	27.000	126.000
Income-maintenance-Investment Expenditures		- 107.505	- 15.750	- 15.750	11.250	16.500	21.750	27.000	27.000	27.000	27.000	18.495
Return on implementation € / Ha		- 10.751	- 1.575	- 1.575	1.125	1.650	2.175	2.700	2.700	2.700	2.700	1.850

* We believe a life for these plantations 20 years
* Results depend on the data on cultivation techniques, design, price of production factors annual rate of production and mechanization of operations
* We do not consider price of land, loss of income or capital gains

MAINTENANCE COSTS OF PLANTING

DATA FROM THE FARM

FINCA:	MODEL	
OWNER:	MODEL	
STUDY DATE:	JUNE	2009

PROCESSING AREA:		10,00	HECTARES
No TREE/ HA	1.250		
No. TOTAL TREES	31.250		

VARIETY	SURFACE	FRAMEWORK	DENSITY	Nº PLANTS
Arbeq./chiqu.	25	4x2	1250	31250

		PLANTATION	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6	YEAR 7	YEAR 8	YEAR 9	YEAR10
	AÑO	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
MAINTENANCE COSTS												
INTENSIVE WITH OLIVE ARBEQUINA / CHIQUITA												
Total Maintenance Costs plot	15.750	-	15.750	15.750	20.250	20.250	20.250	20.250	20.250	20.250	20.250	20.250
Maintenance costs have	1575		1575	1575	2.025	2.025	2.025	2.025	2.025	2.025	2.025	2.025
Pesticides, fertilizers, herbicides and fert	325		325	325	325	325	325	325	325	325	325	325
Maintaining irrigation facilities	125		125	125	125	125	125	125	125	125	125	125
Pruning and training entutorado	255		255	255	255	255	255	255	255	255	255	255
Tillage	180		180	180	180	180	180	180	180	180	180	180
Clearing and pruning chipping	120		120	120	120	120	120	120	120	120	120	120
Energy consumption and irrigation fee	495		495	495	495	495	495	495	495	495	495	495
Direction and technical assistance	75		75	75	75	75	75	75	75	75	75	75
Nutritional Control	-		-	-	150	150	150	150	150	150	150	150
Harvester and harvesting costs	-		-	-	300	300	300	300	300	300	300	300
OLIVE TOTAL MAINTENANCE COSTS	**15.750**	**-**	**15.750**	**15.750**	**20.250**	**20.250**	**20.250**	**20.250**	**20.250**	**20.250**	**20.250**	**20.250**

Comment:

* This is an estimate of the costs estimated to be planting from implantation
* They are valued as external services, all tasks performed by the means of exploitation

8. FORMULAS FOR EXPLOITATION

- Leasing of farm for a period of 20 years
- Joint exploitation, with the issue of shares based on capitalization of the project
- Contracting of Services, through contracting of planning, technical management, maintenance
- Capital investment in the business. Profitability of 15%.