Eucalyptus Holding Ltd
Planting the future

CONTRACTUAL AGRICULTURE PROPOSAL

Why Eucalyptus?

The selection of the specific species of *Eucalyptus Globulus* is based on the many advantages it offers when cultivated in Mediterranean climates such as the Greek one. Eucalyptus has a rapid growth rate, is very adaptable and gives a high biomass production, making the first choice internationally for the production of biomass, bio energy and paper.

Some advantages of Eucalyptus farming include:

- Flexibility for the investor as harvesting takes place every few years
- High production of biomass
- Can be harvested all year round
- High energy value
- Can be cultivated in low quality land and not necessarily only by farmers
- Minimal environmental impact as very few fertilizers are required
- Low irrigation requirements
- Contiguous regrowth throughout the year

Land suitability – Geological and Environmental Assessment

Eucalyptus grows well and easily adapts to many different environments in Greece. However, before plantation, assessment of the surrounding environment at each location is carried out in order to ensure the conditions are correct and help decide whether any intervention is required to facilitate the plantation and growth.

Some of the parameters that are examined before plantation are:

- Rainfall
- Altitude: flat area are preferable
- Area: a minimum area of 5,000 m^2 is required
- Land gradient
- Minimum, maximum and average temperatures
- Seasonal temperature profile: area where the temperature is often lower than -5 ^oC are avoided
- Trace elements
- Salinity: Our Company offers certified Eucalyptus species that are resilient to high salinity levels
- Calcium concentration

- Watering options
- Water stagnation during rainfall
- Extreme weather conditions (hail, snow, etc.)

Selected species

Our company cooperates with the largest and most prestigious companies with decades of experience in eucalyptus propagation and cultivation.

The Eucalyptus Globulus seeds are provided from Australia. They are certified for their germination and productiveness and we propagate them in our greenhouse in Western Greece.

We also import 2nd generation seedlings and clones from the Spanish company ENCE. From the greenhouse the seedlings are transported to the plantation site.

By importing various species we can develop crops in various locations and conditions in Greece by taking advantage of the characteristics of each species. The different species our company offers are:

Eucalyptus Species	Material
Eucalyptus Globulus Blue Gum	2nd generation clones / 4th generation certified seeds
Eucalyptus Polybractea	Certified seeds
Eucalyptus dunnii	Certified seeds
Eucalyptus Nitens	Certified seeds
Eucalyptus Deglupta	Certified seeds

Plantation planning

Initial Assessment

The first stage in planning the plantation is a visit to the site. During the visit, our agriculturalists assess the various conditions at the site, the surrounding environment, nearby activities (other farms, industries, etc.), any limitations and a sample of the soil is taken.

Soil analysis

If the first inspection is positive, the next step involves a soil analysis. The sample is tested for trace elements, macro elements and overall quality. At this stage it is decided if any intervention is required to assist the growth, like fertilizer application etc.

Having collected all necessary information about the soil and surrounding conditions and any special requirements unique to each piece of land, the process continues with ground preparation and plantation.

Land preparation

If the soil analysis shows a lack of certain elements, e.g. nitrogen, a suitable fertilizer is applied to the ground before plantation. Alternatively, if the deficiency is not very important, fertilizer can also be applied after plantation.
The ground is then plowed to a depth of 40 cm and in straight rows.

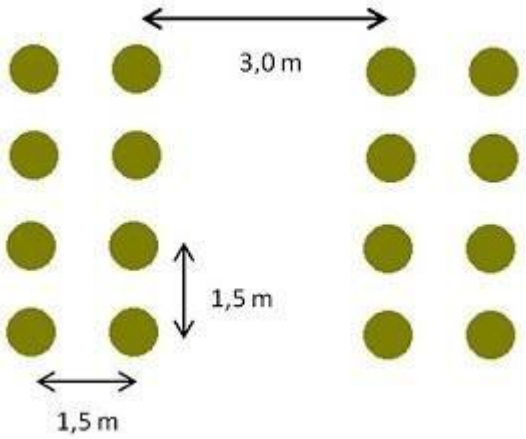
Plantation

Planting of the seedlings can be done mechanically or manually depending on the type of plantation which will be followed. In large areas the plantation is done with an automated planting machine.

The design of the plantation is chosen based on the amount of trees per m^2 that are selected, the Eucalyptus species and surrounding conditions. Plantation density ranges from 2,800 to 7,000 trees per hectare and can be done in two ways:

Sparse plantation

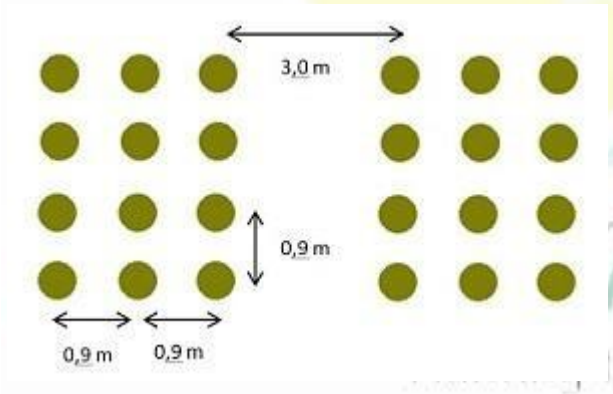
The trees are planted in double rows. A distance of 1.5 m is maintained in between the trees and the rows have 3 m of space between them.



**This is a suggested method which may change depending on the number of trees to be planted.*

Dense plantation

In this method rows of triple rows are used. The distance between trees is 90 cm and the rows have a space of 3m between them.



The 3m spacing between rows helps the better management of the plantation as it facilitates the movement of personnel and machinery.

Harvesting times

Three schemes are suggested for harvesting based on the requirements of every investor – farmer:

2 year harvesting

The trees are harvested every 2 years giving faster profits. The trees are cut 10 cm from the ground.

5 year harvesting

The trees are harvested every 5 years giving slower but larger profits. The trees are cut 10 cm from the ground. The development of the trees is not the same every year and it increases after 3 – 5 years.

10 year harvesting

The 10 year harvesting scheme can be applied to a sparse plantation with a maximum of 5,000 trees per hectare. This method returns much higher incomes since the development rate of the trees is much faster after 3 – 5 years. This type of harvesting is used for hilly areas.

Note: The first harvest occurs 2 years after plantation and can be postponed up to 12 months in order to ensure the proper development of the trees' roots and the success of the plantation throughout the 20 year period.

Removal of leaves

Every 6 months, or whenever necessary, leaves are removed from the trees in order to improve their growth rate. The remaining leaves are an important byproduct and are used for oil extraction. Eucalyptus oil production is a rapidly growing field in Greece with significant economic benefits.

Crop monitoring / Fertilization / Maintenance

After plantation, Eucalyptus conducts monthly controls of the crops in order to examine and record the development of the trees and take any necessary actions to improve their growth.

After the first year of monitoring the crop and based on the collected data, it can be decided whether or not it is necessary to take any measures to assist the crop, like the use of fertilizers.

Fertilizers are used in order to ensure the correct amount of nutrilens and elements in the ground that will cover for the nutritional needs of the trees.

The cultivation of these crops follows ecological methods, with respect to the environment and the planet. There is no use of chemicals, pesticides or any form of intense fertilizer use. Our company resorts in such methods only when ultimately necessary.

Brief time frame

The development of the crop needs to be carried out in the following steps as suggested by our company:

- Site assessment
- Soil analysis
- Site preparation (plowing, fertilization if necessary, etc.)
- Plantation of selected eucalyptus species (fertilization may occur at this stage) Monitoring of the crops' development and application of measures

Provided Services

Our company provides the following services for Contracual Farming:

1. Preliminary site assessment
2. Provision of seedlings
3. Transportation and plantation of trees
4. Harvesting at planned periods
5. Leave removal
6. Monthly monitoring and crop supervision
7. Consulting throughout the programme (troubleshooting, controls)

Extra services our company offers include:

1. Soil analysis (sampling, laboratory test)
2. Site preparation
3. Installation of waterin systems
4. Watering, whenever necessary
5. Fertilization, whenever necessary
6. Supply of fertilizers and soil enhancers
7. Prevention of diseases

Any type of intervention to the crop and its development must be made by our company or with its consulting.

Incomes

The produced incomes depend on the amount of planted trees, the harvesting method, the selected species of Eucalyptus and the soil characteristics.

A good indication for the investment is for a flat site, where up to 8000 trees/hectare can be planted, the generated income is 17,000 €/hectare at every harvest (2 year harvesting period).

The contracts between the investor and Eucalyptus are for a 20 year period and for a fixed price of 45 € per dry ton (dry mass is estimated at 50% of the harvested product).
The following table contains some indicative values of incomes for different plantation sizes:

Trees / ha	Income/ha
	2 year harvesting
8.000	17.000 €
7.000	15.000 €
6.000	13.000 €
5.000	10.500 €
4.000	8.500 €
3.000	6.500 €

Our company remains at the disposal of the investor throughout the entire investment period, providing technical and consulting services, crop monitoring and intervention on crop development when deemed necessary.

The excellent returns on the investment combined with the minimal amount of work required from the investor and the safe environment provided by our company create a complete, very profitable and attractive proposal for every investor.

Trees/ha	CAPEX (€)	Income / ha after 2 years (€)	Annual income (€)
8,000	9,600	17,000	8,500
7,000	8,400	15,000	7,500
6,000	7,200	13,000	6,500
5,000	6,000	10,500	5,250
4,000	4,800	8,500	4,250
3,000	3,600	6,500	3,250

ROI
88,54%
88,54%
88,54%
88,54%
88,54%
88,54%

ha	CAPEX (€)	Income after 2 years (€)
100	960,000	1,700,000
200	1,920,000	3,400,000
300	2,880,000	4,500,000
400	3,840,000	6,800,000
500	4,800,000	8,500,000
1,000	9,600,000	17,000,000
5,000	48,000,000	85,000,000
10,000	96,000,000	170,000,000

A recent acquisition of 300ha in Northern Greece is available for investment so that plantation can begin. Terms and conditions will be discussed after expression of interest.