



**EUROPEAN UNION  
VINEYARD REGISTER IN  
CONTINENTAL PORTUGAL  
Implementation of the  
Vineyard Register in the  
Demarcated Regions of  
Douro, Encosta da Nave and  
Varosa**

**Client:** Instituto de  
Financiamento e Apoio ao  
Desenvolvimento da Agricultura  
e Pescas (IFADAP) / Instituto  
do Vinho e da Vinha (IVV)

**Date:**  
1994/1997

Work carried out by the CEEN  
Consortium comprising COBA,  
S.A., team leader, Endeme F2,  
Lda., Novotecni, S.A. and  
Eptisa, S.A



**OBJECTIVES**

Preparation of a EU-based "Exploitation" register, able to be incorporated in a two data base GIS - alphanumeric and graphic – in order to be possible to indifferently consult both data base, concerning the municipalities or part of them of the Viseu, Guarda, Vila Real and Bragança districts where the Douro and Nave and Varosa Demarcated Regions are located, with an overall area of 52000 ha.

**DESCRIPTION**

The following tasks were performed within the preparation of the vineyard register:

- i) Execution of a photogrametric flight covering a total area of about 700.000 ha that included the areas under study;
- ii) Preparation of 1:2000 ortho-photomaps, corresponding to a precise division of the 1:25.000 Military Maps and covering all areas on which vineyard parcels were identified (2500 ortho-photomaps);
- iii) Location and delimitation of all vineyard parcels, based upon amplified 1:2000 photographs;
- iv) Visit to all vine parcels, in order to confirm, delimit and assess physiographic and agronomic characteristics of all parcels, and enable the preparation of individual registers for each parcel;
- v) Identification of farmers and preparation of forms, in order to organize different parcels cultivated by the same owner;
- vi) Transfer of registered information on amplified photos and confirmed on-site to the ortho-photomaps;
- vii) Design and loading of alphanumeric and graphic databases;
- viii) Public presentation of results obtained for confirmation and eventual correction by farmers;
- ix) Correction of database errors identified in the public presentation and edition and delivery of databases organised according to municipality divisions;
- x) Upon delivery to the last municipality, consolidation of data contained in all municipality databases in order to have one unique operation register for each identified management unit, independently of the geographic dispersion of parcels through different municipalities.





**DEVELOPMENT/PRINTING  
OF A SET OF ORTHO-  
PHOTOMAPS**

**Client: INGA – Instituto  
Nacional de Intervenção e  
Garantia Agrícola**

**Date:  
2000 / 2001**

**Works carried out in  
association**

**OBJECTIVES**

- Development of a digital ortho-photomap database at a 1/5.000 graphic scale with a spatial resolution of 0,5 m, involving 326 1/25.000 military maps sourced by the Geographical Institute of the Army (IgeoE) (some 5.216.000 ha).
- Updating of graphic data contained in the Parcel Identification System (PIS) through vectorization and numbering of all land parcels modified by the Regional Authorities during the campaign undertaken for updating the land parcel registers, renumbering of all land parcels recorded with the PIS, in order to obtain a sequential number within each block starting at 001, included, and by establishing a relationship between the initial and final numbering systems, and the production of graphic charts pertaining to final MDB format.CAD files.
- Preparation and processing of all information required for printing the PIS digital ortho-photomaps in analogical format, covering the total area of Continental Portugal.
- Implementation of automatic quality control methods.

**METHODOLOGY**

- Slide Production and Scanning;
- Control Points Setting-up;
- Aerotriangulation by Blocks
- Assessing of the Digital Terrain Model (DTM);
- Ortho-correction of image;
- Printing of ortho-photomaps in photographic paper, based on 1999/2000 ortho-mapping



**IMPLEMENTATION OF THE  
OLIVE GIS PROJECT**

**Client: INGA – Instituto  
Nacional de Intervenção e  
Garantia Agrícola**

**Date: 1999/2001**

**Work carried out in  
association**



The work was carried out in the areas under the jurisdiction of the Beira Litoral and Beira Interior Agricultural Regional Authorities.

**OBJECTIVES**

- Collect all data pertaining to the olive-tree cadastre and respective inter-connection of the several work components with other sectors that benefit from national and European aid;
- Identify, characterize and georeferentiate all parcels with olive-trees, as well as the olive trees included in the agricultural areas of farmers that apply for financial aid in the olive-oil sector, or that intend to do so in forthcoming campaigns;
- Capture required data in order to determine the olive and olive-oil production potential at national scale (in order to guarantee a better financial regime to the olive-oil sector), and in order to correctly quantify the effective area occupied by olive-tree at national scale, simplify the entire management and candidature processes, and more effectively control the financial aid received;
- Determine the following data: total number of olive trees and respective agricultural surface; georeferentiation of land parcels and respective olive-trees; identification of farmers responsible for each land parcel; agronomic characterization of the olive orchard and of the soil where they grow;
- Management and control of financial aid requests, using one unique georeferentiation database with 1/10.000 mapping precision, similarly to the Vineyard Geographic Information System, in order to reach compatibility between the various simplified cadastres.

**DEVELOPMENT PHASES OF THE OLIVE GIS PROJECT:**

- Computer analysis of blocks and land parcels associated to permanent olive and vine crops, crossing of information with the database pertaining to financial aid applications in the olive-oil sector, quantification and definition of olive-tree and vine blocks with areas smaller than or equal to 10 ha;
- Screen photo-interpretation of olive-tree land parcels that have not been identified and delimited and remaining land parcels with olive-trees;
- Georeferencing of identified olive-tree land parcels, photo-interpretation and interviews with farmers, counting of olive-trees in each parcel;
- Production of mapping at the most convenient scale (1/2:500; 1/5.000 e 1/10.000) resulting from office interviews;
- Preparation of interview forms previously filled-in with data obtained from photo-interpretation, as well as with information contained in Regulation nr. 2276/79 of the EEC Commission;
- Execution of an exhaustive field inventory, whenever the office information differs from the information supplied by the farmer;
- Correction of parcel limits and final preparation of the National Olive Database;
- Integration of graphic and alphanumeric data obtained within the simplified Vineyard and Olive Cadastres into the Parcel Identification System (PIS). Final review of block boundaries, final numbering and final estimation of block and parcel areas;
- Quality Control;
- Preparation and loading of the Olive GIS;
- Production and issue of individual documents to all farmers participating in the system





**REMOTE SENSING  
CONTROL OF SURFACE  
SUBSIDIZED ARABLE LAND  
AND FORAGE AREAS IN  
PORTUGAL  
CAMPAIGNS:  
2002/03  
2003/04  
2004/05  
2005**

**Client:** INGA – Instituto  
Nacional de Intervenção e  
Garantia Agrícola

**Date:**  
2002, 2003, 2004 and 2005

**Work carried out in  
association**

**DESCRIPTION:**

This work, carried out for the “*Instituto Nacional de Orientação e Garantia Agrícola*” (National Farming Orientation and Assurance Institute) in association with the European Union, involved aerial and/or spatial remote sensing in order to control the Requests for Compensatory Aid within the Integrated Management and Control System (SIGC), namely arable, forage and other agricultural areas that benefit from Community Grants financed by FEOGA and from National Grants, namely subsidies for production of tobacco, dry forage, textile crops, leguminosae for hop and certified seeds. It also involved control of Crop Surfaces and Patterns (at Exploitation levels) of land parcels declared for effects of Compensatory Aids and Agro-Environmental Measures and verification of Access Conditions and Good Agricultural Practices associated to these Subsidies within the Rural Development Programme (RURIS), implemented through the Portuguese legislation.

The declaration system, namely georeferenciation of crop parcels registered for purposes of Compensatory Grant was based on the Parcel Identification System (PIS) and respective parcel numbering and mapping, as foreseen by the European Legislation.

Within the joint-venture, COBA was responsible for expeditious field visits to 50% of the controlled land parcels in the southern area of the Tagus river, as well as for the ortho-rectification of satellite images, namely LANDSAT (5 images), SPOT (17 images) and IRS (9 images) corresponding to 6 control sites totaling approximately 1.200.000 ha.

