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Investment analysis for establishing olive groves in Yugoslavia

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The deficiency in the production of olive oil and table olives in Yugoslavia and the availability of a fund to improve such production has resulted in the conclusion that the improvement of olive production should be a priority for long term agricultural planning in this country.

The successful implementation of such a programme is based on the need for intensifying olive production through increasing the productivity of old olive groves and establishing new, intensive plantations. In this regard, there are two basic factors, one technical-technological and the other organizational-economic.

This paper will deal with the economic aspects of olive production, the objective of which has been defined in the scientific project on *The Economics of Olive Production* which started in 1984 and continued until 1986 when the first phase of the investigation was finished. The basic objectives of this research include:

- a) an analysis of the investments necessary for establishing olive groves;
- b) an analysis of the costs involved in maintaining olive groves during the non-productive period when no fruit is produced; and

c) an analysis of the production costs, including price of the per unit product and overall economic efficiency.

We chose the newly established olive grove of the "Agropogon" Ulcinj company as that which offered the best conditions for this analysis. This 50 ha grove was established as a pilot project as part of the "Experimental Demonstration Project for the Improvement of Olives and Olive Oil in Yugoslavia". In the framework of this plantation, trials were done to determine the most favourable olive cultivars (out of a total of 16), planting density and the quantity and timing of mineral fertilizer application.

The plantation is in the community of Ulcinj which is located between 41°15' latitude north and 16°47' and 17°15' longitude east. There are high light levels (2,556 hours of sunshine) and high temperatures (5,700 thermal degrees above 10°C for the period from March 8 to December 5).

As we have already pointed out, the first task of this project was "the analysis of the amount of investment needed for establishing olive groves". It is true that the investments in these olive groves began in 1980 before the beginning of our investigation. Nevertheless, due to the good records of relevant data that were kept, we were in a position to determine previous investment activities and use them for our analysis.

We also had data on the type of investments and their amount in current prices, but a total would not have given a realistic picture as there was a somewhat higher rate of inflation in Yugoslavia during the period of observation. For this reason we decided to present the survey of the investment activities according to years and, at the end, in the form of a table showing the amount and structure of investments needed for establishing one hectare of olive groves.

Timetable of investments by year:

1. Activities in 1980

- a) Preparatory work
- b) Establishment and maintenance of olive groves
- c) Fence building
- d) Supervision costs

2. Activities in 1981

- a) Establishment and maintenance of olive groves
- b) Establishment and maintenance of wind-breaks
- c) Purchase of equipment and mechanization
- d) Supervision costs

3. Activities in 1982

- a) Establishment and maintenance of olive groves
- b) Wind-break maintenance
- c) Supervision costs

4. Activities in 1983

- a) Olive grove maintenance
- b) Wind-break maintenance

5. Activities in 1984

Olive grove maintenance:

- material costs
- use of tractors and services
- labour and taxes
- administrative costs.

6. Activities in 1986

Olive grove maintenance:

- material costs
- use of tractors and services
- labour and taxes
- administrative costs.

In 1985, the olive trees started to bear fruit so that the cost of their production, including protection and harvesting, had to be incorporated. But such an analysis is part of the second phase of our work which will not be discussed here.

Investment activity and structure

1. In the annual investment activities survey the activities dealing with land reclamation and irrigation were not presented but were given in the total investments survey. This requires a short explanation.

The reclamation work was completed before the establishment of the olive grove which, from the technical-technological and economical aspect, is seen as the only correct solution. A drip irrigation system was constructed based mainly on the needs of the olive trees that were already planted.

2. The establishment of the plantations was done over a three year period which we considered to be unfavourable even though most of the planting was achieved during the first year. It would be better if this had been done entirely during the first year. The planting and maintenance of the trees were satisfactory at the technical-technological level.

3. A complex analysis of the investment rate is not possible at the moment. Its economic justification will be the subject of another analysis once full production is reached. An analysis of the investment breakdown is, however, now possible. From the data presented, it is obvious that the largest portion of the investment was for the establishment and maintenance of the plantation (47.7 %), reclamation (18.78 %) and irrigation (15.84 %). Special attention should be paid to reclamation since it can vary considerably, as opposed to establishment and irrigation costs which can vary but not significantly. There are regions in Yugoslavia where olive groves can be established without any reclamation work but other regions require substantial reclamation investments which can be up to two to three times higher than those noted in our project. That is why soil preparation for planting (depending on the topography) and the need for reclamation can be crucial factors in the determination of the profitability of investments in olive production.

Table 1 : Investment levels needed for establishing 1 ha of olive groves

	Description	Dinars	\$	%
1.	Preparatory work	427,000	948	6.63
2.	Establishment and maintenance	3,072,000	6,826	47.70
	Year 1	1,656,000		
	Year 2	320,000		
	Year 3	415,000		
	Year 4	333,000		
	Year 5	348,000		
3.	Reclamation and roadworks	1,209,000	2,686	18.78
4.	Irrigation	1,020,000	2,266.7	15.84
5.	Mechanization	106,000	235.6	1.65
6.	Fencing	234,000	520	3.63
7.	Organization	19,000	4.2	0.30
8.	Project development and revision	139,000	308.9	2.16
9.	Overall supervision	213,000	473.3	3.31
	Total	6,439,000	14,300	100.00