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### Comparison of different valuation methods in land consolidation studies

Tayfun Çay<sup>\*1</sup>, Musa Nehir Sözen<sup>2</sup>

<sup>1</sup> Konya Teknik University, Faculty of Engineering and Natural Sciences, Surveying Engineering, Konya, Türkiye

<sup>2</sup> Kastamonu University, Ihsangazi Vocational School, Department of Architecture and Urban Planning, Kastamonu, Türkiye

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Valuation  
Number of parcel values

#### Abstract

One of the most important tools to increase productivity in rural areas is land consolidation. Land consolidation has laid the foundations for in-field development services and sustainable agricultural structuring while reducing agricultural costs. Valuation is one of the most important stages of the land consolidation works carried out intensively in the world and in Turkey. Land valuation is a large-scale land valuation process within the project area. The valuation process of land consolidation studies in Turkey has been carried out using different methods. These methods can be listed as the method specified in the Law No. 3083, the new valuation method, the method specified in the Land Consolidation Regulation and the method specified within the scope of the law amendment made on February 7, 2019. In this study, the land consolidation project carried out in 2012 in Yuvalak village of Tefenni district of Burdur province was selected as the sample area. Different valuation approaches in land consolidation projects in Turkey have been applied in our sample project. As a result of the examination, it was observed that many parcels were classified in different degree classes according to different valuation methods.

#### 1. Introduction

In order for Türkiye to be able to compete with the world in the agricultural sector, it is necessary to provide the expected benefit from the investments made in rural areas. The ability to bring agricultural innovations to agricultural areas depends on the correction of the disorder in agricultural structures (Yıldız 1983). Sustainable agricultural practices are of great importance in terms of protecting agricultural lands and other natural resources and transferring them to future generations (Çukur et al. 2008). Land Consolidation (LC) ranks first among the structural problems of our agriculture sector that await improvement (Sönmez et al. 2005). In addition to being technical projects, land consolidation works are also social projects due to the sense of belonging of the landlords (Demiraslan et al. 2019). Land grading is the process of determining the values of lands. The criteria of land grading are a process based on the interpretation of the productivity, qualities and topography of the land (Gündoğdu et al. 2003). In order for EC studies to be carried out in a healthy way, a fair rating is required.

#### 2. Method

In this study, the LC project, which was built according to the new rating method in the Yuvalak Village of the Tefenni District of the Burdur Province, was re-rated according to the Law No. 3083, according to the Land Consolidation Regulation and according to the regulation made in 2019. While making the rating process, the data used in the new rating method was used.

##### 2.1. Implementation Area

The LC project was carried out by the General Directorate of Agricultural Reform in Yuvalak Village in 2012 "Figure 1-a". The data used in the study were obtained from the relevant administration. Rating studies were carried out according to the new rating method of the Law No. 3083.

##### 2.2. Grading studies according to Yuvalak Village land consolidation regulation (ATT)

The soil score in Yuvalak village was calculated using the formula  $100 \times TP / 40$ . Soil map was created as in

\* Tayfun ÇAY

(tcay@ktun.edu.tr) ORCID ID 0000 - 0002 - 4661 - 5583  
(musanehirsozen@kastamonu.edu.tr) ORCID ID 0000 - 0003 - 1326 - 370X

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Figure 2. All parcels in the application area were given 10 points as efficiency points. In the project made according to the new rating method, up to 20 points are given as location points.

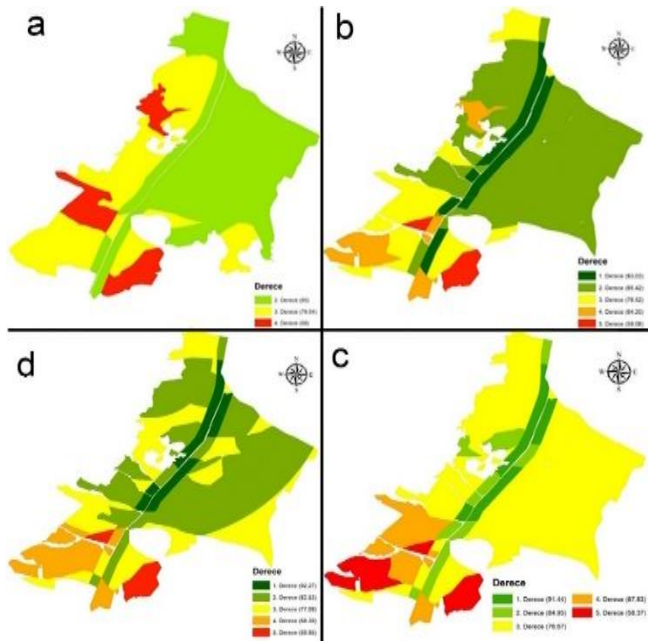


Figure 1. Yuvalak Village Rating Maps

Burdur-Antalya highway passes through the middle of Yuvalak plain. For this reason, roadside lands were given up to 10 points. Parcels close to the village center were given up to 10 points and a maximum of 20 points were given in total (R.G., 1982). Since location points can be given up to 20 points according to ATT, location points are taken into account without changing them as in the map in the figure “Fig. 2”. As a result of the calculations, the rating map was formed as in “Fig 1-b”.

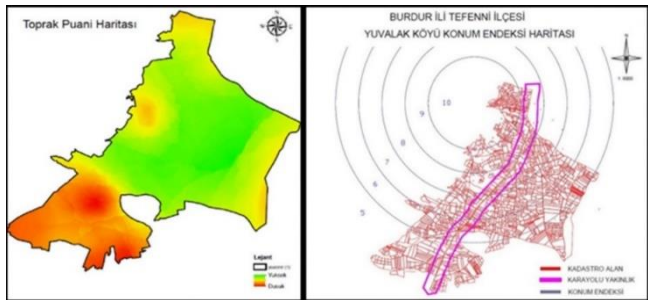


Figure 2. Yuvalak Village Soil Index / Location Index Maps

### 2.3. Yuvalak Village Rating Studies According to the Law No. 3083

While determining the current prices in the study area, up to 100 points are given considering the proximity to the road and the village (TRGM, 2005). While determining the soil index (TE), the scores given in the new grading method were calculated with the  $TE \times 100 / 40$  equation, and the parcel value numbers (PDS) were calculated by scoring up to 100 points “Figure 1-c”.

### 2.4. Rating study according to the LC and TIGH implementation regulations published in 2019

When calculating the parcel index according to the regulation, the soil index score is applied at a rate of 60%, and the score related to location and other characteristics is applied at a rate of 40%. Soil indices in Yuvalak village EC studies are given up to 40 points (R.G 2019). Soil index was calculated with the formula  $TE \times 60 / 40$ . In order to calculate the location score, the score was calculated according to the proximity to the main road with the formula  $15 \times \text{road score} / 10$ , and the location score was calculated by adding the score of proximity to the village center. The other feature score was created by calculating the commission score  $\times 15 / 10$  formula. The rating map is as in “Figure 1-d”.

### 3. Results

Different grading methods applied in Turkey to date have been applied to our exemplary project, Yuvalak village LC project. In the grading study carried out according to the new grading method, it is not in the 1st Degree, but there is an area of 55.65 ha according to the law numbered 3083, 83.34 ha according to the ATT and 58.63 ha according to the regulation published in 2019. According to the grading study carried out according to the law numbered 3083, while the 3rd degree areas are dense, the 2nd degree areas form the density according to other methods.

Table 1. Table of Area Changes According to Different Grading Methods (ha)

	New Rating Method	According to the Law No. 3083	Land Consolidation Regulation	LC and TIGH Implementation Regulations Published in 2019
1.Degree	55.65	83.34	58.63	58.63
2.Degree	452.35	65.47	508.64	416.37
3.Degree	300.59	565.22	160.02	259.49
4.Degree	101.47	98.53	72.92	50.39
5.Degree		69.54	29.49	69.53

Yuvalak Village LC project block 146 is mapped according to 4 different grading methods and shown in Figure 3.

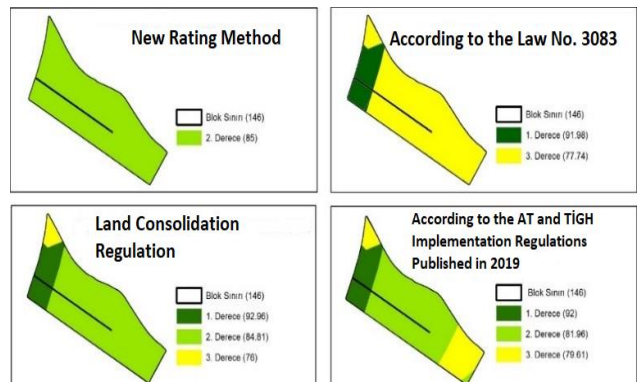


Figure 3. Block Number 146 Grading Maps

According to the new grading method, the entire block is seen as 2nd Degree. In the rating map made according to the law numbered 3083, the majority of the block numbered 146 was calculated as the 3rd degree, and the part of the main road was calculated as the 1st degree with the location points. In the rating map made according to ATT, 1,2 and 3 degree areas are seen. It was formed in 3 different degrees according to the implementation regulation published in 2019.

#### 4. Conclusion

In order to make the rating studies more sensitive and fairer, different approaches have been developed in our country so far. According to the law no. 3083, projects were carried out according to the new rating method, according to the ATT and with the latest law amendment on February 7, 2019. The grading process was applied to Yuvalak village LC study with these methods. As a result of the study, rating maps were examined. As a result of the analysis, it has been observed that some parcels are in different grade classes according to the grading method. While some regions are calculated as 2nd Degree according to the new rating method, they are calculated as 1st Degree according to other methods. In the sample block numbered 146 of Yuvalak village, the effect of different approaches in rating methods on the rating map is shown in the figure. When analyzed spatially and formally, it is seen that different approaches in rating studies cause great changes in rating maps. It is thought that the different calculation of PDS numbers will have a positive or negative impact on the businesses of some parcels during distribution. This shows how important rating studies are.

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