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# THE RELATION BETWEEN CLIMATE AND AGRICULTURE IN DANUBE VALLEY

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**Abstract:** *The work includes analysis of natural and geographical elements of the Danube floodplain, the correlation between these elements and their interpretation. In this regard, the work was conceived as a unitary character of the area at the confluence of the Olt River with Vedea River - Plain Boianului. The area has high availability for agriculture, good yields being recorded today this is due to the conditions of receiving the geographic. The purpose of this paper is to present data on agricultural development of the area.*

**Keywords:** *agriculture, cereal plains, dunes, Danube Valley,*

## INTRODUCTION

In the evolution of geographical knowledge of the Romanian the sector of the Danube Valley can identify several stages closely linked to economic historical phases experienced by the region crossed by the river. The first stage is that of Antiquity, characterized by 'economic development of the Geto-Dacian and economic expansion Greek shores of the Black Sea, followed by the expansion of economic and political life of the Roman Empire on a wide expanse north of the Danube Valley, have gave rise to historians and geographers from this time to know and describe the appearance and mouth of the river in those days, the practice residents, the appearance of towns and villages. "

During this period, the Danube is known under different names such as: "Histros", "Hister", "Ister" (after the exit of the gorge Carpathian) west of the gorge one of the most used names represent the Celtic origin 'Danubis. The inferior sector using the name of "Donaris" Daco-Roman designation of origin. It is assumed that this would be derived from the current name of the river Danube.

From the eighteenth century in cartographic and geographic notes appearing Romanian contributions. It can be mentioned made here the Romanian Cantacuzino country map.

An important role was played G. Vâlsan author makes an analysis of the terraces of the Danube valley, highlights the problem of the river courses and keeping the terraces, the anticline question axis Varna- Rusciuc possibility of continuing high Burnas Plain.

For researching microforms relief plains and meadows, is eloquent the work climatic influences in 1917 by G.Vâlsan in which how are made depression by subsidence in loess and dunes, by wind in sand.(Ielenicz, 2005)

The River Danube has a length of 2860 km and a basin 805300 km<sup>2</sup> (8% in Europe) aimed generally west-east, but has larger deployment in the middle and lower sector.

For this study was selected an area between the junction of Olt and Vedei in southern Romania, the Boian Plain.(fig 1)

## MATERIALS AND METHODS

Characterization of alluvial and fluvial relief minor river bed

Meadow is the latest part of the Danube Valley, formed by the action of complex lateral erosion and accumulation of the river under the influence of raising the general trend and oscillations Holocene riverbed usual levels and flows.(Posea, 1974)

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The lowest level of relief - the meadow is dominated generally by top terraces. It develops more on the left side of the river thus contributing to the overall asymmetry of the valley. On the right Danube is better developed floodplain downstream of Turnu - Magurele up to the Lake Suhaia. Along the studied sector, the strip of meadow is maintained without interruption left Danube of variable width (from 1 to 14 km). The meadow in Turnu Magurele has a width of about 4 km, the same thing happening in the locality Fantanele. A width of only 3 km is recorded in Zimnicea town and a little higher value contained 5-7 km in Năvodari and Vișoara villages. The absolute altitude of Danube flood plain is between 20-22 m in Turnu Magurele and average slope is 0.05%. (Ujavari, 1972) Meadow consists of a combination of sand banks, abandoned branches, depressions permanently or temporarily occupied by water.

In the village Zimnicele, strip meadow near the river is very low and flat, having a width of 400-500 m. To the north is a series of longitudinal sand banks height (compared with low meadow) 3-4 m. Floodplain before arranging in the years 1960-1961, it was completely under water and sand banks were emersed.

In the Fantanele – Zimnicea is very smooth, agricultural cultivated and crossed by canals for irrigation. Danube valley is the anthropic unit within Teleorman county. This is due to embankment work, drainage. It was gone from directing complex natural development phase according to the economic component.

Grasslands occupy small areas and are mostly degraded due to excessive use. The dikes for protection are unfinished concrete slabs that cover large areas are unprotected, especially at the mouth of the river Argeș, there is the phenomenon of water excess in these areas. In the area they have been strengthened dykes which are subject to permanent erosion caused by the river Argeș. In these situations there is a danger that the dams are destroyed and localities remain without protection in the event of flooding.

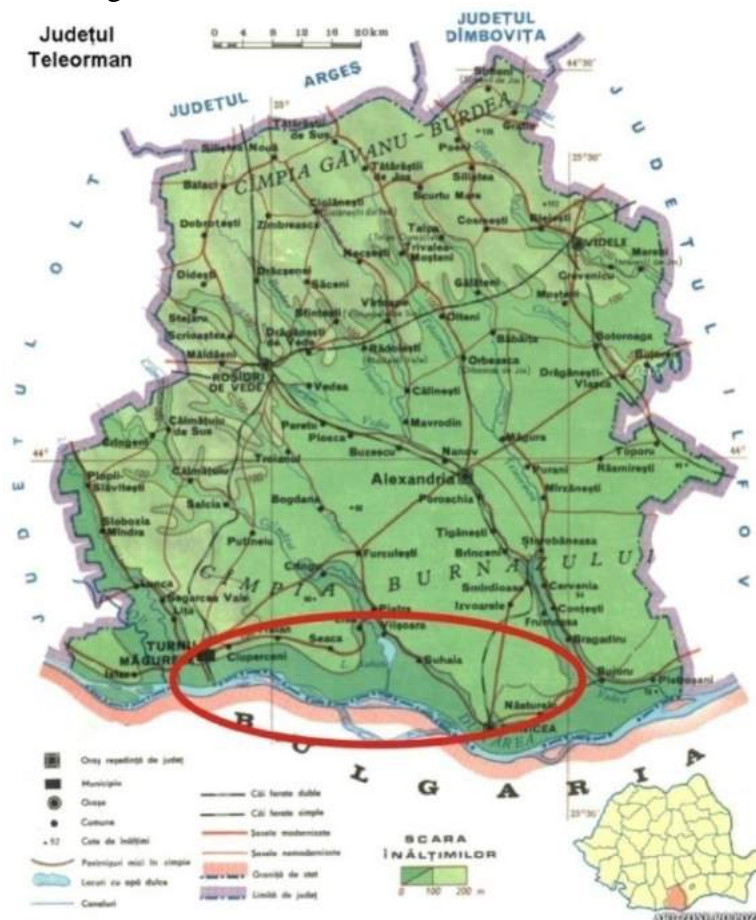


Fig 1. Map of the study area

The floodplains and terraces were and still are subject to changes due to destructive action and constructive contribution to the river and major tributaries. There are also important and slope processes, compaction processes that are recorded on the bridge of the terraces.

Danube direction changes recorded structural and tectonic conditions related to the foundation and the general conditions of the transaction process development paleogeographical valley.

#### Climate

The Danube Valley climate is temperate continental corresponding processes specific atmospheric circulation of the south-eastern Europe and solar radiation regime in the mid-latitudes.

In general, the climate in this area is characterized by long, dry and hot, with long blue and cold winters, owing to the frequency continental air masses from the east and northeast, low precipitation, with heavy rains during summer.

The average duration of sunshine exceeds 2200 hours, radiative and thermal balance is the highest in the valley of the Danube.

The region is dry continental air masses intersection with tropical origin in south and south-west of the continent and the oceanic air masses

Through its work, modifying human society has an impact on climate. Most times, interventions were made on the environment have not considered all the consequences that would arise from such activities.

Deforestation is one of the earliest human intervention exerted on the environment has negative effects (high winds, soil degradation).

The areas in the Danube Plain, by damming and drainage works have been transformed into agricultural land development processes that lead to changes in weather (some parts can become dry).

Due to its geographical position, the Danube valley benefits from low precipitation. Such lands have been and are irrigated. A climatic effect caused by irrigation occurs during periods of warmer when high air humidity and heat consumption mitigates latency maximum daily temperatures.

Table 1 Absolute extreme air temperatures and date

Station	Absolute min temperatur	Date	Absolute max temperature	Date
Zimnicea	-23,7°C	8 february 2005	42,6°C	24 june 2007
Turnu Măgurele	-20,6°C	December 1997	42,7°C	july 2000

Source: *Stația Meteorologică Zimnicea și Turnu –Măgurele*

Except climatic factors, which have a decisive role in causing floods. Floods are favored by a number of characteristics of the riverbed such as banks asymmetry coefficient of tortuosity and meanders and degree of development of the minor bed.

Overall, the bank remains non-flooded sand bank, is affected only very large floods, such as those in 1897, 1907, 1942 and 1962. (Ujavari, 1972)

Surfaces and flood damage varies depending on whether the flood, flood levels of amplitude and position along the Danube floodplains.

As a result of work carried out mostly embankment of the Danube floodplain was removed from the flood. Through the dam creates premises for expanding irrigated crops and in the floodplain, unfit for agriculture, natural woody vegetation has been replaced by plantations stand. A number of lakes were drained and were arranged as fish bossiness.

## RESULTS AND DISCUSSION

### Agriculture

In the Teleorman District is a subsistence agriculture practiced and semi -subsistence, because the land has high kneading. In the area there are small farms with areas ranging between 1 - 1.5 ha.

The land of Teleorman District has a total area of 578,978 ha and 499,175 ha of agricultural area in 2008.

In Teleorman District are 454 980 hectares of arable land measure in 2008, which was worth 91.15% of the total agricultural situation in 2009 the arable land increased by 377 hectares, totaling 454,603 hectares, which means a share all 91% of the total land area estimated for 2009, according to information provided by Department of Agriculture and Rural Development in Teleorman District.

Pastures represented 7.17% of agricultural land in 2008, 0.17% meadows, vineyards and vine nurseries 1.49% and orchards and nurseries 0.03%.

Uncultivated areas in Teleorman District representing 0.88% of the total land and 1.02% of agricultural land in 2008, and in 2009 the measured surface 3997 ha, with a difference of 1.086 ha the previous year, representing 0.8% of the projected 2009.

The cultivated area in 2008 (367.091 ha, down from the previous year), approximately 97% was full private ownership and major crops, according to statistics were:

- Cereal grains (wheat and rye, barley, oats, corn) 71.2%
- Legumes (peas, beans) 0.3%
- Oilseed crops (sunflower, soybean, etc.) 22%
- Potato 0.4%
- 6.6% of fodder plants,
- Other vegetables 1.8%

Data provided by other county institutions for 2009 included among the major crops and tobacco, 0.1% of the total cultivated area and mustard and coriander but which together accounted for 0.5%. However, among cultures were performed in Teleorman and energy plants, where corn crop It was well represented (25.4%), with rape (8.2%).

All those cultures have been characterized by significant fluctuations in 2009, including culture peas, which recorded an increase of over 25%, rape increased by 15%, and corn, with a decrease more than 10%.

Cultures with the best value for Teleorman District identified through the advisory process conducted locally, was grains, especially corn. Growing large areas of these energy plants in Teleorman County, which determines the appearance of production units bio fuel.

Beekeeping is also an important agricultural area in Teleorman District, which has developed a particular interest, the agricultural production of honey extracted recording outstanding performance after meat production and milk.

## CONCLUSIONS

Analysis of current situation of agriculture in the area allowed the identification of initiatives association, and involvement of public authorities in fostering and encouraging various forms of associativity, including through the development of cross-border cooperation projects internally with Giurgiu, who had resulting in the establishment of associations and cooperatives in Teleorman.

Although the lands are characterized by a high degree of fragmentation, is indicative of further subsistence agriculture, the county has identified a trend in the association. In this sense, local authorities can play an important role in advising and informing small landowners the benefits achieved large-scale agriculture through associative.

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