

## LAND USE IN THE PERIMETER OF TOWN PODU ILOAIEI

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**Key words:** Bahlui hydrographic basin, land use, arable, agricultural-town, pastures, hayfields, forest, vineyards, orchards, Podu Iloaiei research station.

**Cuvinte cheie:** bazinul hidrografic Bahlui, utilizarea terenului, oraș agricol, pășuni, fânețe, fond forestier, vii, livezi, Stațiunea de Cercetări Podu-Iloaiei.

### **ABSTRACT:**

**The way of land use in the perimeter of town Podu Iloaiei.** Podu Iloaiei is situated in the south part of Jijia Plain, in Bahlui hydrographic basin. The relief is predominantly sculptural, followed by the accumulation relief. There are quaternary and basarabian sediments/deposits. The climate is temperate-continental with dryness nuances which contributed to the growth of forest steppe vegetation. The hidrography is represented by Bahlui river and its main tributary: Bahluet. Pedological layer is influenced by the particular factors and processes of pedogenesis of Podu Iloaiei. There are spread types of soil from the following soil classes: cernisols, fluvisols, protisols and anthrosols.

Podu Iloaiei perimeter didn't have a spectacular evolution concerning its target. Its use is predominantly agricultural(83%), no matter the period studied(before and after 1990) or its recently rural-urban administrative structure. We may speak, in this case, about the existence of an agricultural-town. Many lands of Podu Iloaiei research station were taken over after 1990, by local entrepreneurs who preserve the modern techniques of land use, inherited from it. More than that, it feels the pressure of Iasi city, which determined some lands to get real interest.

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Podu Iloaiei territory is situated in the south part of Jijia plain (Moldovian Plain-after Bacauanu), at the junction of Bahlui with Bahluet. The maximum height is not over 180m, significant being some relief forms which together with the variety of soils formed on it, leads to a diversification of land use. In this way, the combination of cuestas reverses and foreheads.

So, on the cuesta reverses where cernisols has a great development, the main way of land use is the tillable/arable one. In exchange, on the cuestas foreheads appear soils less developed, with different erosion degrees and systems of landslides. From the point of land use, in these areas appear less qualitatively pasture, from the point of productivity, but there are also, areas with tillable lands. Another significant relief form is that of planes (Bahlui Plane, Bahluet Plane) over which are grafted the aluvisols and the main use is that of pastures and hayfields.

Lithological layer is represented by quaternary meadow deposits (Bahlui Plane, Bahluet Plane) and terrace deposits (Bahlui and Bahluet terraces). For

Basarabian deposits significant are Cryptomactra clays spread on the slopes affected by different erosion degrees: Spranceana Hill, Henci Hill, Holm Hill, Tableland Hill, Scobalteni Hill, Rapagau Hill, Dudan Hill and Cositeni Hill. Basarabian reservoir, often contain soluble salts, which appear as saline efflorescences on the slopes and high mineralization springs.

The specific climate is temperate-continental with dryness nuances, with an annual mean temperature of 9.2°C and annual mean rainfalls of 550 mm.

The specific vegetation is the forest-steppe one, where great quantities of biomass offers high qualitative organic rests which are intensively transformed and included in the bioaccumulation process. Forest-steppe pastures intense anthropical modified are formed by *Festuca vallesiaca*, *Festuca pseudovina*, *Stipa lessingiana*, *Poa bulbosa*. They occupy the eroded slopes or affected by landslides and the great part of Bahlui Plane, being improper for agriculture crops.

Podu Iloaiei spontaneous forest vegetation is formed by reduced clump of forest which cover the slopes from the right side of Bahlui Valley and Bahluet Valley, between the villages Cositeni and Holm. These clumps of forest are formed by: oak (*Quercus robur*), (*Quercus pubescens*), false acacia (*Robinia pseudoacacia*), lime (*Tillia tomentosa*). These ones offer a good protection of the slopes affected in the past by landslides and erosion.

The hydrography is represented by the Bahlui river and its main tributary Bahluet. Other secondary tributaries are: Scobalteni, Harpasessti and Totoiesti. There are many fish ponds and an accumulation lake on Bahluet river.

The specific pedogenetical factors of Podu Iloaiei perimeter, together with the pedogenetic processes contributed to the development of the following soil classes: cernisols class (calcic cernozems, haplic cernozems, proxicalcaro-calcic cernozems and epicalcaro-calcic cernozems) spread on Bahlui terraces, Bahluet terraces, on plateau areas, on the forehead of terraces, on slopes with a certain degree of erosion: Cositeni Hill, Scobalteni Hill, Holm Hill; hydrisols class-mollic gleysols spread, in special, in Bahlui plane; protisols class with fluvisols, which occupy the bottom the narrow valleys (Cositeni stream), the alluvial fans (the alluvial fan of Totoiesti stream-Bahlui plane), on coluvial glacises as well as in the great part of the alluvial plains surface: Bahlui plane. Also, in protisols class, we include Entiantrosols, too. These ones are developed on anthropogen materials. Haplic regosols which belong to Anthrisols class, are spread on the slopes affected by erosion: Scobalteni Hill, Rata Hill, Hartopul Mare as well as in soils complexes.

Although in 2005 Podu Iloaiei village was proclaimed town, in its great part, it preserves its predominantly agricultural use. The territory didn't have a spectacular evolution concerning its target. We may consider, in this case, about an *agricultural town*.

From the entire surface of 4857 h land, 4001 h (83%) have agricultural use: 62.5% tillable, 11% pastures, 7% hayfields, 2% vineyards and 0.3% orchards.

Non-agricultural lands are represented by: fund forest 3.3%, wetlands and reed 7.1%, roads and railways 3%, yards and buildings 3.9%, non-productive lands 0.2% (figure 1).

Land use in the perimeter of town Podu Iloaiei

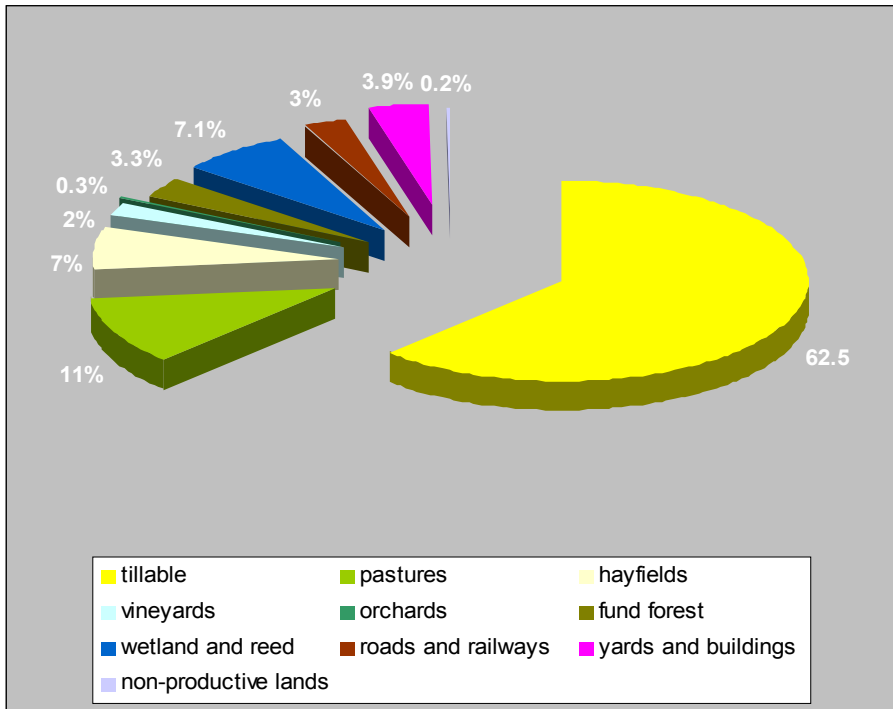


Fig. 1. The way of land use in the perimeter of the town Podu Iloaiei in 2007 (after Direcția de Statistică Iași).

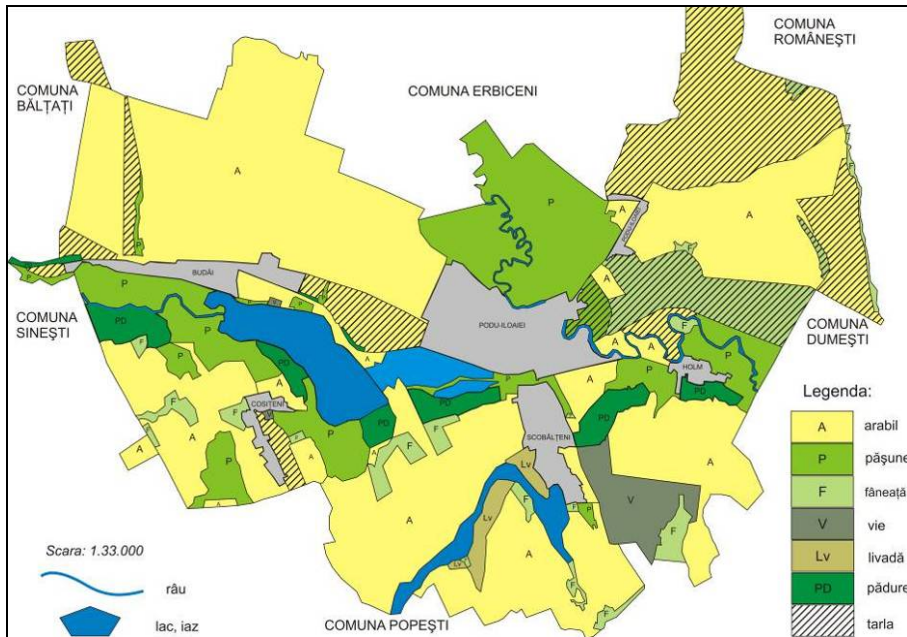


Fig. 2. Podu Iloaiei land use map (remake after O.C.O.T.A, Iasi).

The distribution of Podu Iloaiei land fund may be seen on the map of Land use (figure 2). Considering the map representation, tillable lands occupy Bahlui and Bahluet terraces, interfluvs and some splopes affected by different degrees of erosion: Scobalteni Hill, Cositeni Hill, Dudan Hill, Rapagau Hill. On certain areas, the present owners kept the old sites realized by Podu Iloaiei Research Station (figure 3).



**Fig. 3.** Tillable land near Scobalteni.

The pastures and hayfields are spread, in special, in Bahlui and Bahluet flats. Economically speaking, they register low productions and are quantitatively inferior. Also, they aren't uniformly spread during the vegetation period (figure 4).

The vineyards occupy a great surface of Scolbateni perimeter and shorter areas of vineyards can be seen near Budai and Cositeni. The orchards are wide developed near Scolbateni ponds (figure 5).

The average and overall productions are varying, being influenced by weather conditions. In the great years it can be obtained high productions, as area productivity and biological seed material potential requires.

Technological land clearing are the main factor in orchards surface modifications.

Nowadays prevail the following fruit tree species: plum trees (54%), apples (13%), sweet cherry, sour cherry (9.2%) and pear trees (8.5%).



**Fig. 4.** Pasture in Bahlui flat.



**Fig. 5.** Apple orchard near Scobalteni.

The forests are owned by Ocolul Silvic Iasi. Because of the great number of non-productive lands from non-agricultural perimeter (10,6 ha) and of a certain agricultural land complex degradation processes (erosion, landslides, gullies) which affect almost 40% from it, it is taken into consider the expansion of forest

anti-erosional perimeters and the recovery of non-productive lands through restocking on a great surface of land. Some of these damaged lands were restocked with false acacia (figure 6).



**Fig. 6.** False acacia plantation near Podu Iloaiei lake.

Referring to water exploitation, according to cadastral evidence, there are almost 349 ha of water mirror, in administrative territory: Podu Iloaiei accumulation lake, Badai pond-1 ha, safely exploited, Cotul Soselei pond-0.20 ha, safely exploited, Dorosceni hatchery, Dudau pond, dudau hatchery, Podu Iloaiei fish nursery, Scobalteni fish pond, Scobalteni pond (figure 7). These ponds and hatcheries are under the administration of some private company.

Podu Iloaiei Research Station had an important contribution to the development of modern land use techniques, especially before 1990, when its land surfaces were larger than now (figure 8).

In the above picture we can observe the discrepancy between the Podu Iloaiei Research Station lands appliance and the individual owner's divided lots. The observations concerned with the evolution of land surfaces use follow the period 1960-2007, divided into two another periods, because of the type of property: before 1990- state's property and after 1990- private property. After 1990, a significant part in lands quality degradation had it the deficient application of the Law 18/1991, which foresaw the effective attribution of lands on the old sites. This thing leads to the appearance of some lots orientated with long side on the line with the great tilt, being against of the most elementary prevention and erosion control rules. Also, lands division in small and even very small lots and the lack of a rational agricultural exploitation roads scheme lead to the deterioration and even the dissolution of some soil erosion control systems,

which consisted in: grass strips, stripe crops, side slope terraces or protection crops.

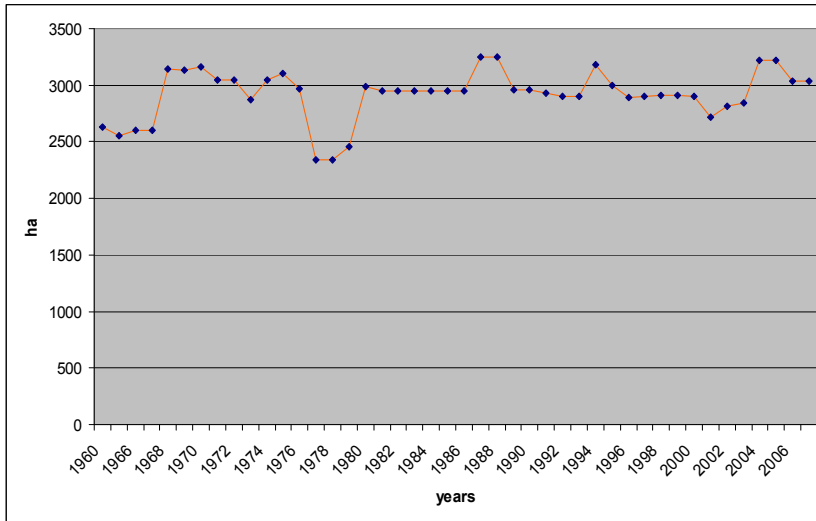


**Fig. 7.** Scobalteni pond.

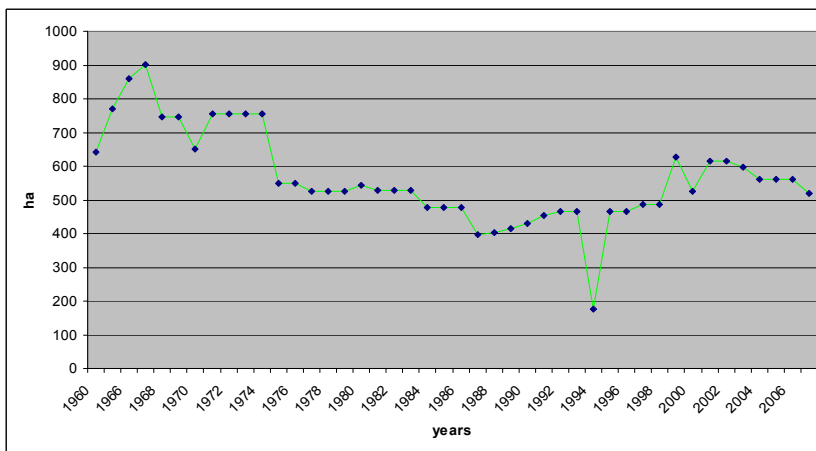


**Fig. 8.** Podu Iloaiei Research Station's Scobalteni experimental field (*source A.P.I.A.*).

Even though, land use knows relative little modifications, the owners keep, in their majority, its initial target, inherited before 1990.



**Fig. 9.** The evolution of Podu Iloaiei tillable surface in period 1960-2007 (after Direcția de Statistică Iași).



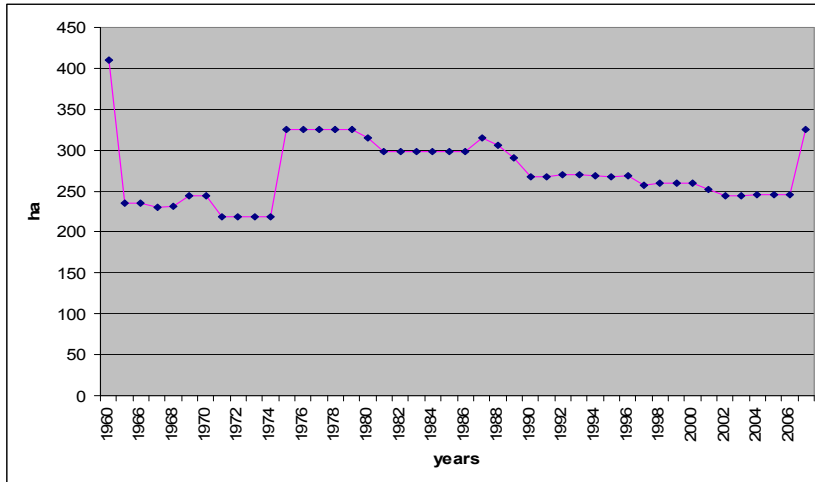
**Fig. 10.** The evolution of Podu Iloaiei pasture surfaces in period 1960-2007 (after Direcția de Statistică Iași).

In what concerns tillable use (figure 9) it can be observed a surface increase till 1968, followed by a stagnation period, and between 1977-1979 a lowering. After 1990, the surface remained relatively constant, diminishing, in exchange, the quality because of fragmentation. To the quality modification contributed the law 18/1991, which had a series of negative consequences on agricultural use.

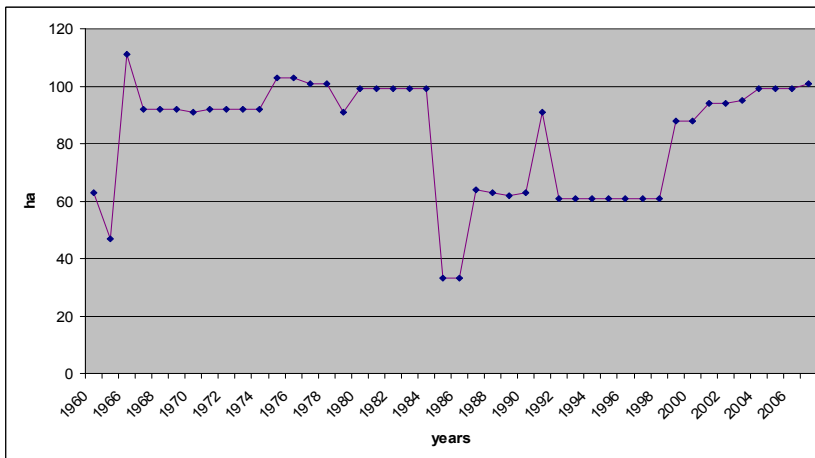
The pastures progressively decreased (figure 10), and in hayfields case, after 1976 their surface remained relatively constant (figure 11). Pastures productions are very diminished, prevailing more the graminaceas( *Festuca*,



*Cynodon*, *Stipa*, *Bromus*) and less perennial leguminous plants, which are the most valuable crops fodder.



**Fig. 11.** The evolution of Podu Iloaiei hayfield surfaces in period 1960-2007 (after *Direcția de Statistică Iași*).



**Fig. 12.** The evolution vineyards and viticulture nurseries in period 1960-2007 in Podu Iloaiei (after *Direcția de Statistică Iași*).

The vineyards and viticultural nurseries visible increased in 1967 and in period 1985-1986 decreased. After 1998, they mark a progressive increase (figure 12). Some areas covered with orchards and fruit-growing nurseries registered fluctuations, but after 1998 it may be observed a great orchard surfaces diminution, as it can be seen in the figure 13.

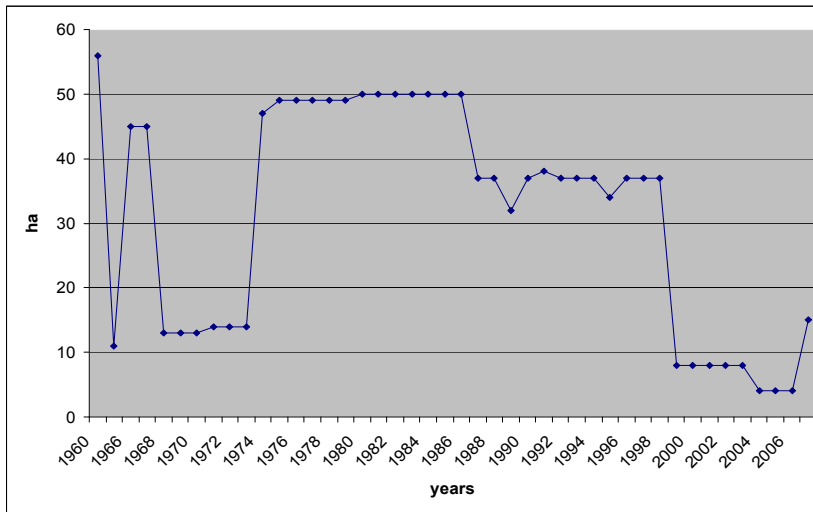


Fig. 13. The evolution of Podu Iloaiei orchard and fruit-growing nuresery surfaces in period 1960-2007 (after Direcția de Statistică Iași).

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