

STUDY REGARDING THE HONEY-BEARING POTENTIAL GIVEN BY FORESTRY AREA OF CASIMCEA FORESTRY DISTRICT, TULCEA COUNTY

M.G. Dolis^{1*}, Șt. Lazăr¹, C.E. Nistor¹, C. Șonea²

¹University of Agricultural Sciences and Veterinary Medicine Iasi, Romania

²National Agency for Breeding and Reproduction in Animal Husbandry, Balotești, Ilfov County, Romania

Abstract

Investigations carried out during 2000-2012, at the level of forestry fund owned by Casimcea Forestry District, which have a surface of around 7,929 ha, shown that this one offers special conditions for development of beekeeping activities, having a honey-bearing potential of around 675,625 kg. This potential is given mainly by the forestry species with honey-bearing features, such as linden and acacia, which have a share in the forest structure of 13.06% (1,035.94 ha), respectively 11.39% (903.33 ha). Therefore, in pastoral, in the area could be brought 16,259 bee families to capitalize harvesting at acacia, at which the estimated potential is around 301,110 kg (44.57% from the total potential of the forests), respectively 11,395 bee families during linden harvesting, where, estimative, the potential is around 276,330 kg (40.9% from honey-bearing potential of the forestry district).

Key words: bees, beehives pastoral, potential, flora

INTRODUCTION

In Romania, beekeeping has a millennial tradition, bee products are highly appreciated, both internally and internationally, due to their outstanding quality.

Level of development of beekeeping, register significant variations from one area to another, both in terms of production capacity (number of bee families) as well as production levels.

Determination of honey-bearing potential of an area can provide a plus of knowledge, resulted in two main directions: increase welfare of beekeepers and social environment in which they work on one hand, and on the other hand supporting and protecting the natural environment.

Contribution to the welfare of the population consists in development and presentation of landmarks in the quantitative and qualitative growth of technical and economic results of apiaries.

On one hand, research of this kind indirectly participate in supporting and stimulating the natural environment, because

the bee maintained by man, tends to become the main constantly pollinator and of entomophile spontaneous flora.

Basically, this research aimed at help the beekeeper to develop his activity, because he represents an important player for socio-economic and natural environment in which it evolves.

MATERIAL AND METHOD

Research was carried out in the forestry area of Casimcea Forestry District.

The area in which is located Casimcea Forestry District was an excellent study material for this paper, both the abundance and diversity of wild flora existing in the forest, as well as the natural conditions which characterizes it.

Investigated forestry area covers a surface of about 8781 ha and through the species they contain, have a highly beekeeping interest (tab. 1).

Solving the objectives of this paper required the use of complex methodologies, specific of a honey-bearing balance drawing [1-5], which requires:

*Corresponding author: mariusdolus@yahoo.com

The manuscript was received: 18.04.2013

Accepted for publication: 25.07.2013

- identification of honey-bearing species in the area and the share they hold in forest structure;
- estimating the honey-bearing potential of the area;

- optimizing the number of bee families in order to achieve a rational and efficient beekeeping.

Table 1 Structure of productive units from Casimcea Forestry District

Production unit	Surface (ha)		Subunits management		Composition (%)
	total	forest	nomenclature	surface (ha)	
U.P.I. MÂNDRA	1175.2	1097.6	S.U.P. „A”	897.0	50 STB, 15 GO, 15 TE, 10 FR, 10 DT
			S.U.P. „Q”	100.4	100 SC
			S.U.P. „K”	40.7	68 GO, 15 STB, 7 TE, 10 DT
			S.U.P. „M”	59.5	65 STB, 10 GO, 3 TE, 22 DT
U.P.II. RĂZBOIENI	3239.6	2645.0	S.U.P. „A”	1623.3	45 STB, 20 STP, 5 TE, 15 FR, 15 DT
			S.U.P. „Q”	366.3	100 SC
			S.U.P. „M”	655.4	30 STP, 10 STB, 20 SC, 10 TE, 30 DT
U.P.III. CAVACULA	1475.5	1312.9	S.U.P. „A”	799.0	50 STB, 10 TE, 10 AM, 30 AJ
			S.U.P. „Q”	282.4	100 SC
			S.U.P. „M”	231.5	35 STB, 10 SC, 15 MJ, 15 CR, 3 TE, 22 DT
U.P.IV. FÂNTÂNA MARE	2890.9	2873.7	S.U.P. „A”	2388.7	40 GO, 25 TE, 15 FR, 20 DT
			S.U.P. „K”	46.9	25 GO, 10 TE, 5 FR, 20 CR, 20 MJ 20 DT
			S.U.P. „M”	438.1	30 GO, 14 TE, 10 CR, 7 MJ, 13 CA, 20 DT

STB – Pedunculate Oak; GO – Sessile Oak; TE – Linden; FR – Ash; DT – Various Hardwoods; SC – Acacia; STP – Downy Oak; CR – Oriental Hornbeam; Ca – Hornbeam; MJ –Manna Ash;

RESULTS AND DISCUSSIONS

From the total surface of 7929.2 ha with forest of Casimcea Forestry District, 1035.94 ha (13.06%) are occupied with linden,

respectively 903.33 ha (1.39%) are occupied with acacia, as the only species with real honey-bearing potential (fig. 1, 2).

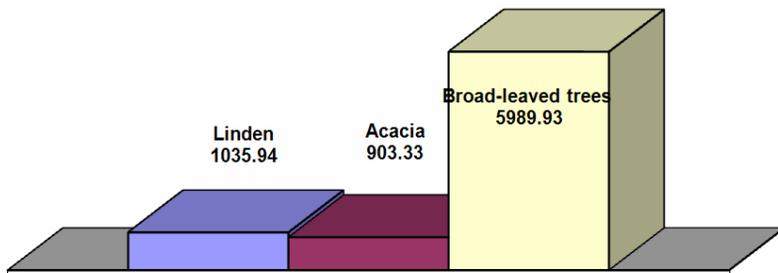


Fig. 1 Surfaces occupied by species with honey bearing potential (ha)

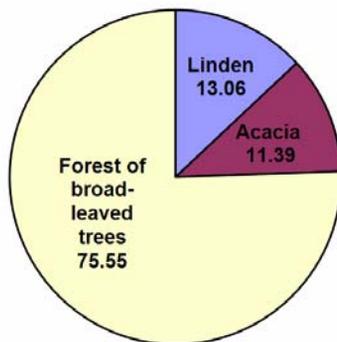


Fig. 2 Share of forestry species (%)

Data on honey-bearing potential of the forests belonging to Casimcea Forestry District were summarized in table 2 (fig. 3, 4).

From the data of this table we notice that, depending on the gathering source, the highest production can be obtained from gathering acacia (44.57%), respectively

linden (40.9%), in fact the only real beekeeping forest species of interest (fig. 5).

It is also notice that the highest production, of over 35%, respectively 31% from total potential productivity can be obtained from Războieni and Fântâna Mare units, which have the largest surfaces of acacia and linden (fig. 6).

Table 2 Gathering honey-bearing potential of forests from Casimcea Forestry District

Production unit	Linden	Acacia	Forest of broad-leaved trees	Total
MÂNDRA	37117.3	33466.7	14000.1	84584.1
RĂZBOIENI	39122.6	165793.3	33348.5	238264.4
CAVACULA	23157.4	101850	13999.1	139006.5
FÂNTÂNA MARE	176933.4	-	36836.6	213770.1
Total	276330.7	301110	98184.3	675625.1

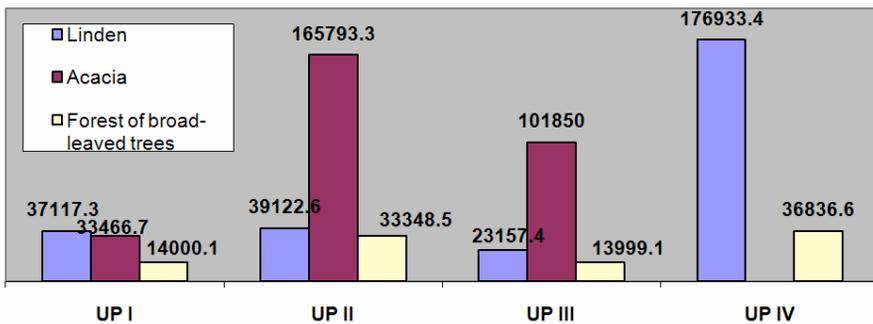


Fig. 3 Gathering honey-bearing potential of the forests from Casimcea Forestry District, depending on the production unit (kg)

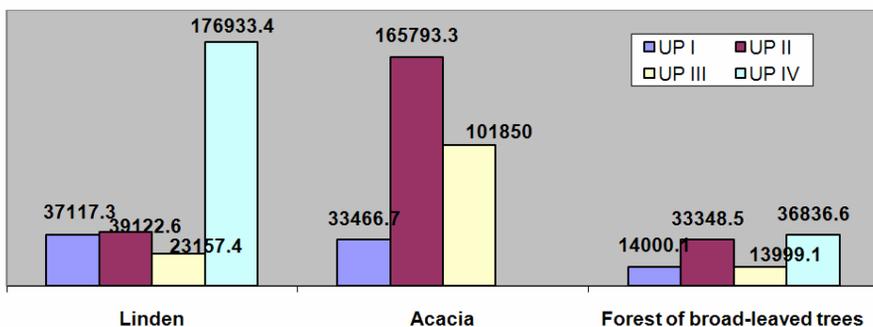


Fig. 4 Gathering honey-bearing potential of the forests from Casimcea Forestry District, depending on species (kg)

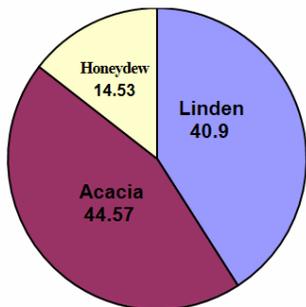


Fig. 5 Share of the gathering sources from Casimcea Forestry District (%)

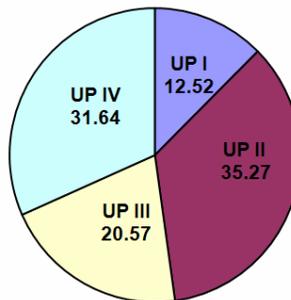


Fig. 6. Share of the gathering honey quantity at level of production units (U.P.) from Casimcea Forestry District (%)

In terms of average productivity per hectare, it ranges from 100.5 kg, in case of Cavacula unit, to 74.4 kg, in Fântâna Mare

unit. On the entire wooded area of the forestry district, average potential productivity is 85.2 kg/ha (tab. 3; fig. 7).

Table 3 Average potential productivity in terms of honey-bearing potential of forests from Casimcea Forestry District

Production unit	Honey-bearing potential (kg)	Surface (ha)	Average potential/ha (kg)
MÂNDRA	84584.1	1097.6	77.1
RĂZBOIEN	238264.4	2645.0	90.1
CAVACULA	139006.5	1312.9	105.9
FÂNTÂNA MARE	213770.1	2873.7	74.4
Total	675625.1	7929.2	85.2

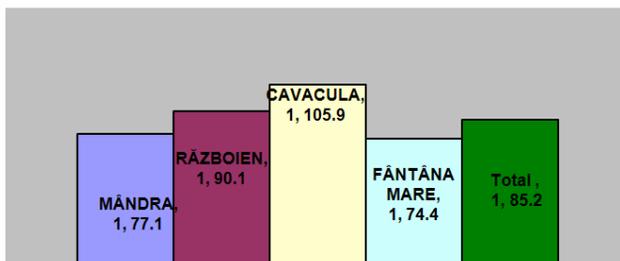


Fig. 7 Average potential productivity in Casimcea Forestry District (kg/ha)

Having in view the large share from the honey-bearing potential of acacia and linden, is necessary for it to be exploited, mainly by pastoral beekeeping.

Regarding the capitalization of the honey-bearing potential of the forests belonging to

Casimcea Forestry District, data were summarized in table 4 (fig. 8, 9, 10).

Forest area of Casimcea Forestry District can sustain up to 5,353 beehives, which could give an average annual output of approx. 25 kg honey.

Table 4 Beehives necessary for optimal exploitation of honey-bearing potential from Casimcea Forestry District

Pastoral beekeeping					
Specification	U.P I	U.P II	U.P III	U.P. IV	Total
Beehives	670	1888	1102	1693	5353
Pastoral beekeeping					
Specification		Linden		Acacia	
		Min.	Max.	Min.	Max.
Beehives	U.P I	835	1531	1405	1807
	U.P II	880	1614	6963	8953
	U.P III	521	955	4277	5499
	U.P. IV	3979	7295	-	-
	Total	6215	11395	12645	16259

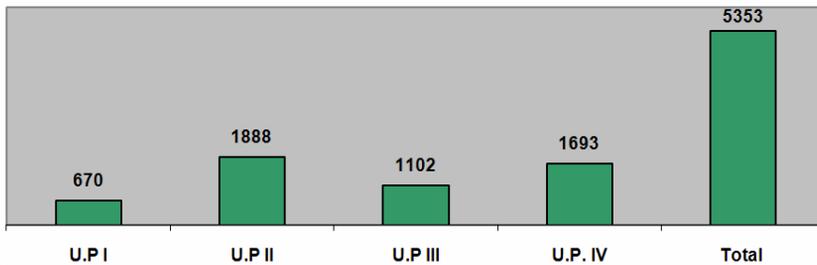


Fig. 8 Beehives necessary for exploitation through pastoral beekeeping of honey-bearing potential in Casimcea Forestry District

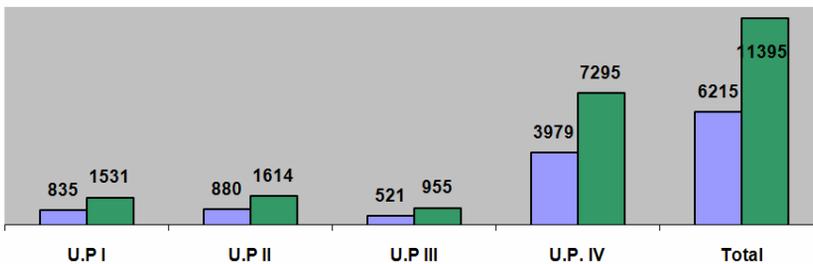


Fig. 9 Beehives necessary for exploitation through pastoral beekeeping of linden gathering in Casimcea Forestry District

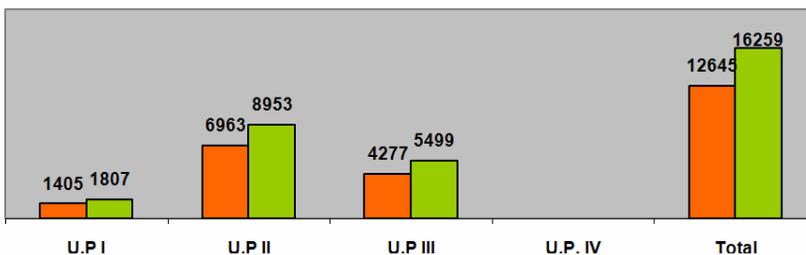


Fig. 10 Beehives necessary for exploitation through pastoral beekeeping of acacia gathering in Casimcea Forestry District

Also, the forest area of Casimcea Forestry District offers excellent conditions for practicing pastoral beekeeping, both at acacia and linden gathering. Thereby the area allows the quartering of up to 16,259 beehives, during the period of acacia gathering, respectively up to 11,395 beehives, during the period of linden gathering.

CONCLUSIONS

Following the carried out study of forest area of Casimcea Forestry District the following conclusions are drawn:

- forests from Casimcea Forestry District are spread on a area of 7929.2 ha;
- forest species of interest are linden and acacia;
- linden has a share of approx. 13.6% in forest structure, covering a area of 1035.94 ha;
- acacia has a share of approx. 11.39% in forest structure, covering a area of 903.33 ha;
- the honey-bearing potential of the forest from Casimcea Forestry District is of 675,625 kg;
- acacia offers a potential of 301,110 kg, respectively 44.57% % from the total honey-bearing potential of the forest from Casimcea Forestry District;
- linden offers a potential of 276,330 kg, respectively 40.9% from the total honey-bearing potential of the forest from Casimcea Forestry District;
- forests from Mândra production unit have a potential of 84584 kg;
- forests from Războieni production unit have a potential of 238,264 kg;

- forests from Cavacula production unit have a potential of 139,006 kg;
- forests from Fântâna Mare production unit have a potential of 213,770 kg;
- average productivity per hectare is 85.2 kg, ranging from 100.5 kg, in case of Cavacula unit, to 74.4 kg, in Fântâna Mare unit;
- in terms of pastoral beekeeping, forest area of Casimcea Forestry District can sustain up to 5353 beehives, which could give an average annual output of approx. 25 kg honey;
- in terms of pastoral beekeeping, during the period of acacia gathering at Casimcea Forestry District can be brought 16259 beehives;
- in terms of pastoral beekeeping, during the period of linden gathering at Casimcea Forestry District can be brought 11395 beehives.

Given the tremendous honey-bearing potential offered by the forests of Casimcea Forestry District, can be recommended with confidence practicing of intensive beekeeping in the area, especially the pastoral beekeeping at acacia and linden gathering.

REFERENCES

- [1] Lazăr Șt., 2002 : Bioecologie și tehnologie apicolă. Ed. Alfa, Iași.
- [2] Lazăr Șt., 2003: Morfologia și tehnica creșterii albinelor. Ed. Terra Nostra, Iași.
- [3] Lazăr Șt., Doliș M., 2004: Apicultură practică. Ed. Alfa , Iași.
- [4] Lazăr Șt., Vornicu O.C., 2007: Apicultura, Ed. Alfa, Iași.
- [5] Mămișor M., Hociotă E., 1978: Baza meliferă. A.C.A. Redacția publicațiilor apicole, București.