



## Customizing possibilities of Croatian apiaries for organic production of honey regarding of the type of beehive

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### ABSTRACT

*The EU Regulation (2092/91) concerning the organic-biological agricultural production gives also a standards for the organic-biological production of honey. This Regulation sets a highest requests to the beekeepers regarding the type and construction of beehive, and for the ecological approach in the curation of bees using natural substances and biotechnological methods. The large variety in types of beehives is an obstacle towards to cheaper and efficient constructive adaptability of beehives for the organic-biological production. Although there are many different types of hives at Croatian apiaries, with large differences in parameters, the Albert-Žnidaršič (AŽ) with 49%, and Langstroth (LR) hives, with 45% prevails. Among these hive types there is a significant portion of hives characterised by no-standard parameters. More than hundred different parameters for the beehives are known in the EU countries, so, Apimondia recommends promotion of LR and Dadant parameters as a standard. It is obvious that by an effective constructive adaptability the organic-biological honey production is possible only on 40% of beehives in Croatia.*

(Keywords: beehives, beekeeping, organic production)

### INTRODUCTION

Chance for complete success of Croatian agriculture lays in development of the ecological production of various agricultural products. Great areas without heavy industries, less use of protection resources in agriculture and large wastelands are good prerequisite for development of ecological agriculture and eco-tourism. Apiculture as a specific agricultural cattle raising production could adapt to the standards of organic-biological production faster then other cattle raising productions. To stimulate apiculture to that direction, first of all it is necessary to educate interested bee-keepers and adjust beehives to the standards of ecological production. Certification and assured sale of such honey product like this is unavoidable upgrade of every production and of apiculture and organic-biological production too.

### MATERIALS AND METHODS

The base of work is information's gathered through surveying of bee-keepers. This survey was done in Slavonija and Baranja region in co-work with apiculture associations. That research enfolded all apiculture associations in sub regions and bee-keepers are selected by the cluster sample (Czaja and Blair 1995).

### Size of the sample

According to the informations from Croatian Apiculture Alliance in Slavonija and Baranja region there are 1642 bee-keepers. A sample from 157 bee-keepers represents 9, 56% of a total number of bee-keepers from this two sub regions who makes a 24, and 4% of national apiculture.

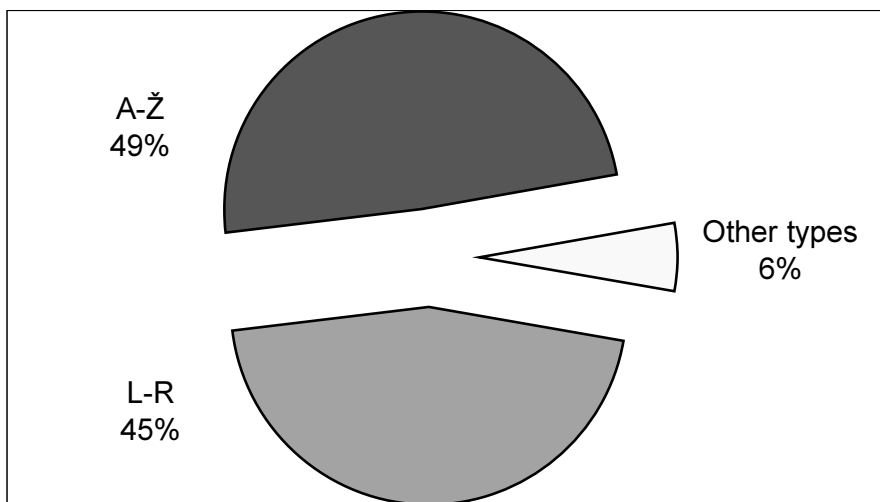
## RESULTS AND DISCUSSION

### Types of beehives in use

In Croatian apiaries we merely are finding two types of beehives: AŽ and LR beehives. Other types like: Farrar's, Dadant-Blat's, prickled beehives and some other are less in use. Their number is 6% (*Figure 1*).

**Figure 1**

**Beehive types in surveyed regions**



*Resource: Survey list*

AŽ beehives are found at 56.7% bee-keepers. There are 31.8% AŽ apiaries from total sample. Average number of AŽ beehives on Croatian apiaries is 49. A mixed apiaries with dominant AŽ and smaller number of LR beehives is 15 or 9.5% of the total sample. 5.8% of the total of AŽ beehives is non standard dimensions and the number of this beehives moves from 4-78 unites per apiary which we find in 9 beehives or 5.7% beehives in sample.

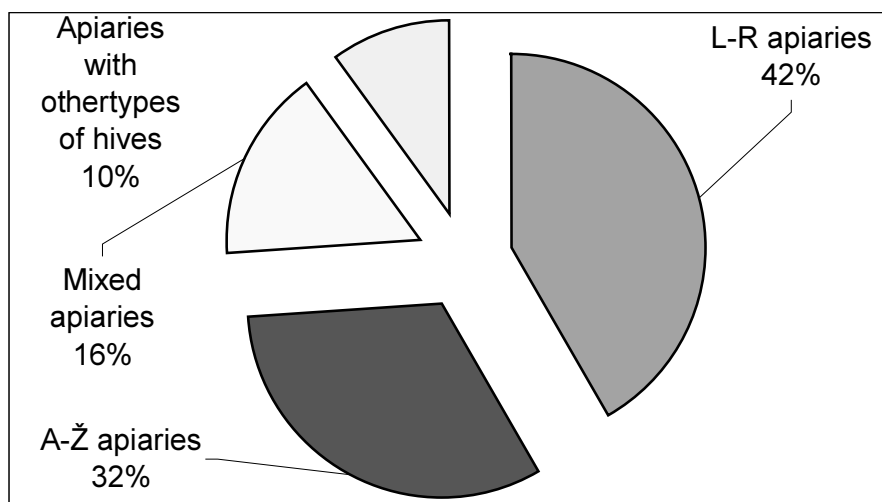
LR beehives are present among 65.6% bee-keepers. Total of LR apiaries samples is 41%. Average number of L-R beehives is 38. A mixed apiaries with dominant LR and smaller number of AŽ beehives is 10 or 6.4%. Total number of LR beehives is 8.5% with non standard dimensions and their number is 15-80 per apiary, 7% beehives in sample.

Equal number of AŽ and LR apiaries makes 3.8% of the total sample.

Other beehive types: Farr's, Dadant-Blat's, prickled and others beehives are in possession of 10% of bee-keepers of the total sample. These types of beehives are placed by the other beehives and they are dominating 4.5% in number. Their number is between 10-116 units for one apiary. Various types of beehives are placed on apiaries in Slavonia and Baranja. AŽ types or LR types cover only 74% of the sample. Area that counts 15.9% of LR and AŽ types counts large number of non-standard beehives. Maximum number of other types of beehives makes 116 units per apiary which shows that they are there for economical reasons and not for emotional (*Figure 2*).

**Figure 2**

**Types of apiaries regarding of the hive type in researched regions**



*The source: Survey*

The condition of hives in researched regions was good according to 77.2% bee-keepers. In 11% cases, they said it was bad. Most common cause of bad condition bee-keepers claimed its age and not keeping. 8.9% of them claimed their hives were in excellent condition. Only 2.9% bee-keepers rated their hives are in very bad condition.

**Stationary and moveable apiaries**

Stationary bee-keepers in surveyed regions move their hives up to 5 times a year. Most of bee-keepers (61.5%) move their hives twice a year. 18.5% of them moves their hives once a year, 4.4% doing so four times a year and only 1.3% moves three times a year. Percentage of bee-keepers who moves 5 times a year is 14% of the total number of moveable apiculture.

Regardless of the relatively big number of pasture in surveyed regions we can say that stationary apiculture prevails, because only 45.23% hives are actively moved in moveable apiculture. The structure of the hives in moveable apiculture non-directly, but clearly shows both, level of mechanization and technological level of moveable apiculture in surveyed regions. In this kind of apiculture dominates AŽ hives: 64.6%. So,

for moving apiculture, bee-keepers using pavilion beehives, trailers, buses, containers, trucks and similar (*Table1*).

**Table 1**

**Moving references, hive type and number of pastures on which they move to**

Number of pastures in one year	Type of hive			Total		
	L-R	A-Ž	Other	Total	% of moveable hives	% of the total number of hives
1	861	1025	85	1971	49.5	22.4
2	-	125	15	140	3.5	1.6
3	40	50	-	90	2.3	1.0
4	-	406	-	406	10.2	4.6
5	318	966	90	1374	34.5	15.6
Total	1219	2572	190	3981	100.0	45.2
%	30.6	64.6	4.7	100	Total of hives: 8 800	

*The source: Survey*

## CONCLUSIONS

In Croatian apiaries dominates AŽ and LR beehives, and a quarter of them is mixed regarding the type of hive. Some of them are non-standard size, which makes significant barrier in adjustment this beehive on organic-biological production.

AŽ hives dominates in moveable apiculture. Most number of hives moves at least ones a year and number of moving rise up to 5 times a year. As AŽ hives moves mostly by pavilions, we can say that there is low use of mechanization during moving hives.

Only 40% of total beehives are standard size LR hives. Since Apimondie recommended promotion of Dadant and LR sizes, we also suggest adjustments of Croatian beehives for organic-biological production.

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