

# The elaboration of specific norms used in honeybee colonies breeding program in Republic of Moldova.

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## Abstract

The honeybee from Republic of Moldova (*A. m. carpathica*) was formed in the specific climatic, soil and vegetation conditions from the Carpathian mountains area, spreading also to our country. The main valuable behavioural traits of this honeybee are gentleness, good disease resistance, good wintering abilities and a strong instinct for food storage. On the other hand, the introduction of foreign races or interracial hybrids was proved in many countries as not favourable in terms of production and adaptability. Thus, in order to preserve and improve the autochthonous honeybees population there were established specific norms for colonies evaluation in the selection process and for reproductive biologic material certification. The delivered certificated queens or bee colonies to the beekeepers have an improving effect on the local honeybees from the neighbouring apiaries. The specific norms were established taking also into account the size of the apiaries, which in majorities are of small and medium size. The proposed selection plan is established in conformity with the basic scientific principles in honeybee breeding recommended by literature. The system of queens testing is based on the own performance and progeny performance, assuring thus a better selection process. The selection criteria used in colonies evaluation are largely used in other breeding programs, the main selection criteria being the honey production. The other criteria are evaluated and selected in the breeding population in correlation with the main selection criteria - honey production, which result in a very flexible breeding program. The paper will present these norms that are elaborated in the frame of the national honeybee breeding program, according to the national beekeeping law 70-XVI/ 30.03.2006.

Keywords: honeybee breeding, evaluation criteria, selection norms

## Introduction

- In the Republic of Moldova, beekeeping is one of the oldest jobs to have developed on these lands under favourable natural conditions with regards to climate, relief and vegetation.
- Honey bees have considerable contribution in the agricultural production first of all as result of the pollination of over 150 species of cultivated bee plants, that occupy an important area of the country.
- Beekeeping in the Republic of Moldova produces annually about 2500 tons of honey and important amounts of wax, propolis, pollen, royal jelly as well indigenous queens.
- Thus, it is necessary to have an awareness of the role of bees from the economic, social, ecological point of view and as a generator of biodiversity and support them because the whole society benefits from the social, economic and ecological effects of beekeeping.

The number of bee colonies in the Republic of Moldova there are 100 thousand colonies of *Apis mellifera carpathica*. Of these, 95% are in the private sector, this being the distribution similar to the one in the previous system also.

At present, beekeeping as a branch of live-stock farming, may register a real development, a sustainable development only in a market economy and within a European context.

## THE PURPOSE AND PRIORITIES OF THE BEEKEEPING DEVELOPMENT PROGRAMME

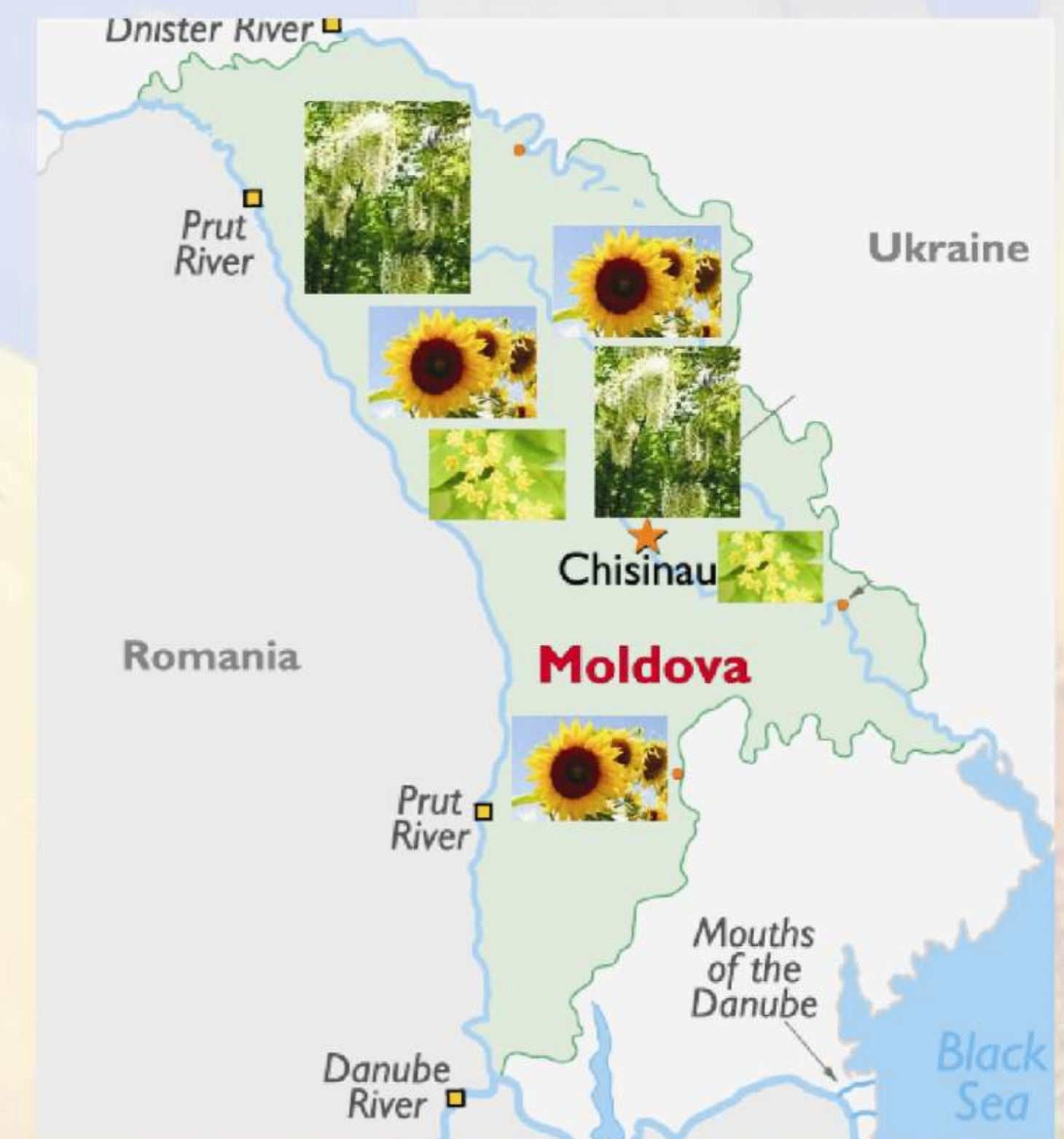
The main purpose is the development of sustainable and profitable beekeeping, that should be competitive on foreign and domestic markets:

- To draft and adopt legislation on beekeeping.
- To create the structure of the Beekeepers' Association of the Republic of Moldova.
- To set up a computer and marketing centre for beekeeping at country level.
- To set up a special laboratory at EU certified standards to test the quality of honey and of other bee products.
- To create a honey processing centre.
- To develop the national standard for honey and the other bee products.
- To create and legislate a programme for bee improvement in the Republic of Moldova and to establish the main research directions.
- To develop an Extension Beekeeping Programme

The honey bees from R. of Moldova, *Apis mellifera carpathica* were formed in specific pedo-climatic conditions and specific melliferous resources.

- The race is characterized by is very gentle, resistance to diseases a good ability to winter and very good hoarding behaviour.
- The transfer of other races in R. Of Moldova (Caucasian, Italian, etc) had as negative consequences in terms of production and other adaptability traits.
- In order to protect the local bee there were elaborated norms of evaluation and certification of queens and other multiplication biologic material for genetic improvements and increase the honeybee colonies productivity.
- To elaborate the norms the following aspects were taken into account:
  - The specific of beekeeping in R. of Moldova –the majority of apiaries are medium and small size
  - The scientific principles in honey bee breeding
  - The testing system is done on own performance and offspring of the selected queens.
  - The major selection criteria are very important and objectives of selection and generally are the same with other evaluation programs from other countries:

- The economic –honey production, have the biggest economic value in the selection index.
- Concomitantly other important traits are to be evaluated: behavioural, morphological and adaptability to diseases and pedoclimatic conditions in R. of Moldova are being evaluated and fixed in the selected population.
- The norms were elaborated as Zootechnical Norms for honeybee colonies evaluation and biologic material certification in conformity with the Beekeeping Law in R. of Moldova no. 70-XVI / 30.03. 2006.



- The surface: 33.700 km<sup>2</sup>
- Population: 4.359.000
- Population Density: 49 inhabitants/km<sup>2</sup>
- Capital: Chisinau, 665.000 inhabitants

## The evaluation of honey bee colonies is done on the following traits:

- a) breed purity;
- b) honey production;
- c) development of honey bee colony in spring;
- d) ability to winter;
- e) brood viability;
- j) resistance to diseases;

The minimal requirements for colonies scores and classification

The score	Honey production	Development of honey bee colony in spring	Ability to winter	Brood viability	Resistance to diseases
5	> 30	> 95	> 90	> 90	> 90
4	25- 30	75-95	85-90	70-90	85-90
3	20- 24	50-74	75-84	50-69	80-84
2	15- 19	25-49	65-74	30-49	75-79
1	< 14	< 25	< 65	< 30	< 75

Classification of bee colonies

Honey production	Development of honey bee colony in spring	Ability to winter	Brood viability	Resistance to diseases	Class
<i>minimal Score</i>					
5	5	5	5	5	Elite-record
5	4	4	4	5	Elite
5	4	4	4	4	I
4	3	4	4	4	II
4	2	3	3	3	III