

**CONTRIBUȚII PRIVIND STABILIREA METODEI DE PROGNOZARE A
CULESURILOR MELIFERE ÎN VEDEREA RENTABILIZĂRII STUPĂRITULUI
PASTORAL**

**CONTRIBUTIONS TO THE ESTABLISHMENT OF THE PROGNOSIS
METHOD OF MELLIFEROUS GATHERING IN VIEW TO MAKE MORE
EFFICIENT THE PASTORAL BEEKEEPING**

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Cuvinte cheie: hibrizi; floarea-soarelui; caracteristici melifere

Key words: hybrids, sunflower, melliferous characteristics.

SUMMARY

The current work depicts the results of researches on the melliferous capacity on a variety of 4 sunflower hybrids cultivated over 5 periods, under the conditions of the southern part of Romania, (15 km North-East from Bucharest) and under the climate conditions of 2008. The studied sunflower hybrids were: Fleoret OR, Melodi, Sunko and Arena. By the cultivation over different periods it was intended that the flowering period to overlap periods with different climatic conditions, so to determine the melliferous potential in the hybrids studied in different climate conditions and to note the way in which that vary according to the climate conditions. Under the climate conditions of 2008, potential honey yield in sunflower hybrids, studied over different sowing periods, ranged between 31,5 kg/ha and 90 kg/ha. This large variation has been determined especially by the climatic condition. Among sunflower studied hybrids, Sunko hybrid proved to have a good honey potential.

MATERIALS AND METHODS

Researches on the melliferous capacity in sunflower hybrids were carried out in field trials over the year 2008. These researches were established on a reddish preluvosol located at 15 km from Bucharest on a North-East direction. The experiments were placed within the Moara Domnească trial field pertaining to the Phyto-Technical Department of the Faculty of Agriculture within the University of Agronomic Sciences and Veterinary

Medicine Bucharest. They were part of researches carried out within the research project no. 106/2005, a CEEEX grant.

The objective of these researches was to study the melliferous potential in 4 sunflower hybrids (Fleuret OR, Melodi, Sunko and Arena), cultivated at different calendar periods (sowing periods).

By sowing at different periods it was intended that the flowering period lap other periods with different climate conditions, so that to determine the melliferous potential in the studied hybrids over different climatic conditions and to observe the variation of this potential according to climate conditions.

Each experimental plot measured 21sqm, resulted from 6 rows of plants cultivated at a distance of 70 cm between rows and a row length of 5 m. The experimental designs have been located using the method of dividing plots by 2 factors (the sunflower hybrid and the sowing period).

The quantity of secreted nectar per flower was calculated using the capillaries method, the most employed method in researches. The nectar sugar content was measured using the refractometer.

Parallel to nectar analysis the number of flowers/inflorescence was determined, respectively the number of plants/ha in order to calculate the number of flowers/ha.

The potential honey yield /ha was calculated using the following formula:

$$M = \frac{Sn \times Cn \times D \times Nf \times Np}{100.000.000} \times 1,25$$

Where: M = potential honey yield (kg/ha);

Sn = nectar secretion (mg nectar/flower);

Cn = nectar content in sugar (%);

D = flowering duration of a flower (days);

Nf = number of flowers /inflorescence;

Np = number of plants/ha;

1.25 = quotient of sugar transformation in honey

RESULTS AND DISCUSSIONS

Over the first period, the observations and melliferous determinations were made during peak flowering, which corresponded with the period 26 June and 01 July 2008. The average nectar quantity secreted by a flower in 24 hours (table 1) ranged from 0,46 mg/flower (in Fleuret OR hybrid) to 0,88 mg/flower (in Melody hybrid). The nectar sugar content ranged 29,34% (in Arena hybrid) and 43,75% (in Melody hybrid), and the potential honey yield varied from 35,22 kg/ha (in Fleuret hybrid) to 66,02 kg/ha (in Melody hybrid).

Over the 2nd period, the observations and melliferous determinations were made during peak flowering, which corresponded with the period 2 – 4 June 2008. The average quantity of nectar secreted by a single flower in 24 hours varied from 0,33 mg/flower (in Melody hybrid) to 0,53 mg/flower (in Sunko hybrid). Potential honey yield varied from 41,12 kg/ha (Melody hybrid) to 63,99 kg/ha (Melody hybrid).

Over the third period, researches on the melliferous capacity in sunflower hybrids were carried out during peak flowering that corresponded with the period comprised between 10-14 July 2008. During this sowing period, the nectar sugar content per flower was lower compared to the first and second period, namely, the quantity of nectar produced by a flower in 24 hours varied from 0,4 mg/flower (Melody hybrid) to 0,48 mg/flower (Arena hybrid). Over the third period, the nectar sugar content reached higher average values compared to the first two periods, ranging from 39,07% (in Arena hybrid) to 64,29% (in Fleuret OR hybrid). Though nectar sugar content was higher, the weak nectar secretion per flower has affected the potential honey yield per ha, being smaller compared to the other studied periods. This proves that the factor greatly influencing honey yield is the nectar secretion of flowers. Potential honey yield varied from 45,05 kg/ha (Melody hybrid) to 52,65 kg/ha (Arena hybrid).

Over the fourth period, researches on the melliferous capacity in sunflower hybrids were carried out during the peak flowering, between 14 and 30 of July 2008. Nectar secretion of flowers in 24 hours ranged from 0,4 mg/flower (in Fleuret hybrid) to 1 mg/flower (more precise to 0,74 mg/flower, in Melody hybrid). During the fourth period, the nectar sugar content was the lowest, below 60%, ranging from 56,11% (in Sunko hybrid) to 58,11% (in Fleuret hybrid). The very good nectar secretion of flowers had a positive influence on the potential honey yield, ranging between 41,15 kg/ha (in Fleuret hybrid) and 70,99 kg/ha (in Melody hybrid).

Over the fifth period, researches on the melliferous capacity in sunflower hybrids were carried out during the peak flowering, between 1 and 5 of August 2008. The nectar secretion per flower in 24 hours ranged from 0,66 mg/flower (in Fleuret hybrid) to 1,03 mg/flower (in Melody hybrid), and nectar sugar content varied between 27,83% (in Arena hybrid) and 46,4% (in Fleuret hybrid). Potential honey yield varied between 51,35 kg/ha (in Fleuret hybrid) and 74,67 kg/ha (in Melody hybrid).

Water deficit diminished nectar secretion and increased its sugar content, while water supply improved nectar secretion, and decreased the sugar content. Potential honey yield is firstly determined by the quantity of secreted nectar and then by the nectar sugar content.

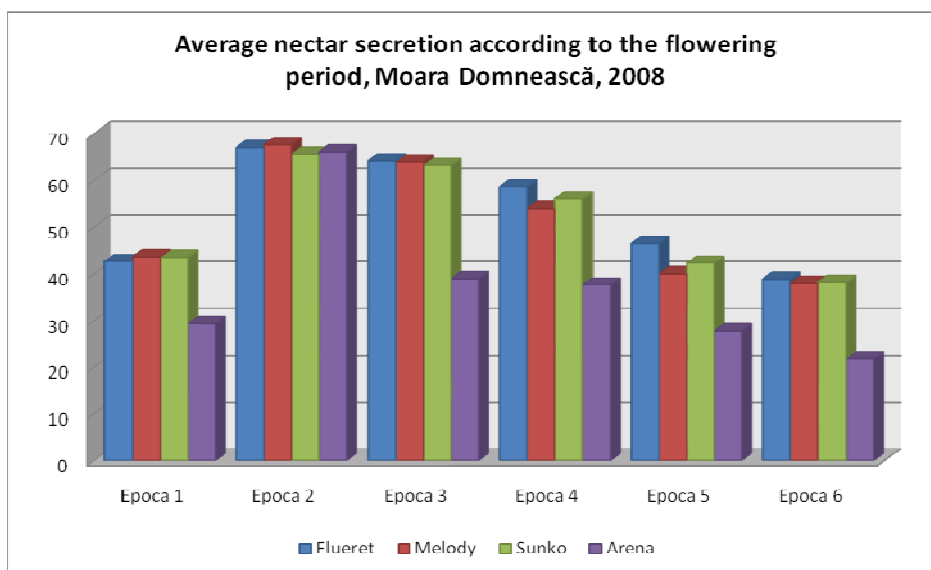


Fig. 1 Average nectar secretion according to the flowering period

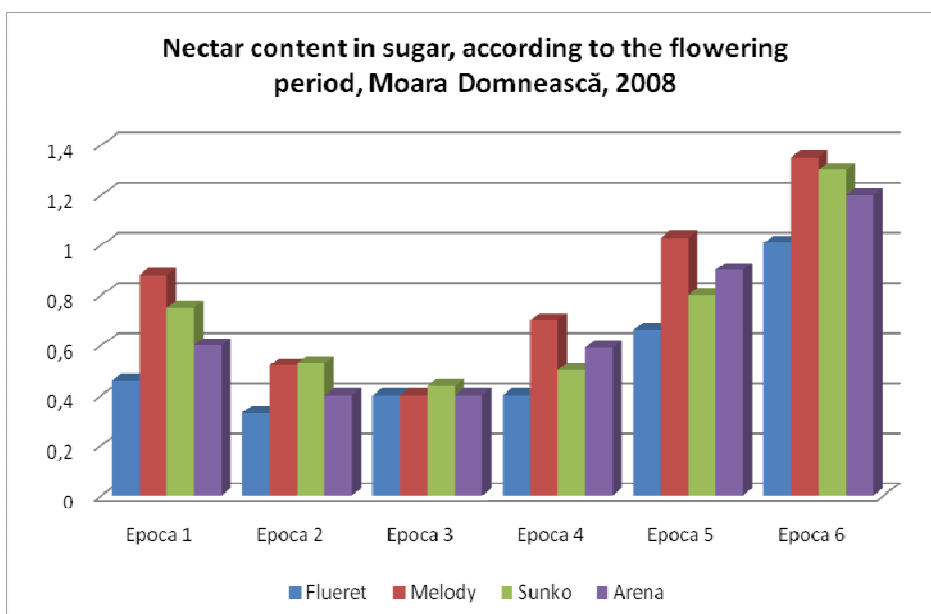


Fig. 2 Nectar content in sugar, according to the flowering period

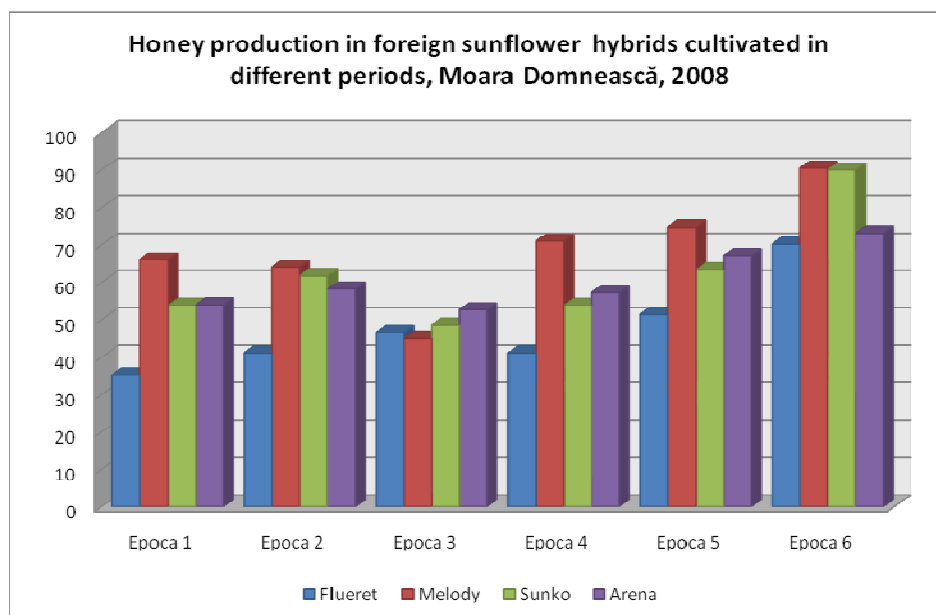


Fig. 3 Honey production in foreign sunflower hybrids cultivated in different periods

CONCLUSIONS

1. Under the climate conditions of 2008, potential honey yield in sunflower hybrids, studied over different sowing periods, ranged between 35,22 kg/ha (in Fleuret OR hybrid) and 74,67 kg/ha (in Melody hybrid).
2. Water deficit diminished nectar secretion and increased its sugar content, while water supply improved nectar secretion, and decreased its sugar content.
3. Potential honey yield is firstly determined by the quantity of secreted nectar and then by the nectar sugar content, the severe water leading to the smallest potential honey yields.

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CONTRIBUȚII PRIVIND STABILIREA METODEI DE PROGNOZARE A CULESURILOR MELIFERE ÎN VEDEREA RENTABILIZĂRII STUPĂRITULUI PASTORAL

În cadrul prezentei lucrări sunt prezentate rezultatele cercetărilor efectuate cu privire la capacitatea meliferă la 4 hibrizi de floarea-soarelui semănați la 5 epoci diferite, în condițiile din sudul României (15 km față de București, pe direcția nord-est) și în condițiile climatice ale anului 2007. Hibrizii de floarea-soarelui studiați au fost următorii: Fleoret OR, Melodi, Sunko și Arena. Prin semănatul acestor hibrizi la diferite epoci s-a urmărit ca fenofaza de înflorire să se realizeze în diferite condiții climatice, astfel încât să se determine potențialul melifer al acestor hibrizi în diferite condiții climatice și să se surprindă modul de variație al potențialului melifer în funcție de condițiile climatice. În condițiile climatice ale anului 2007, producția potențială de miere la hibrizii de floarea-soarelui studiați la diferite epoci de semănat a variat între 13,6 și 52,6 kg/ha. Acest interval larg de variație este determinat în special de condițiile climatice diferite din perioada de înflorire. Dintre hibrizii de floarea-soarelui studiați, hibridul Sunko s-a dovedit a avea un potențial melifer ridicat.

Cuvinte cheie: hibrizi; floarea-soarelui; caracteristici melifere.

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