MELIFEROUS VALUE OF SUNFLOWER HYBRIDS (HELIANTHUS ANNUUS L.) IN ROMANIA

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Summary

Sunflower hybrids are endowed besides their increased seed and oil yielding ability by a high meliferous capacity fact which determines the increasement of their degree of attractivity to bees and the achievement of a natural polination.

Starting from this consideration the breedworkes, the cultivators and farmers are interested in the creation of hybrids with superiour seed and oil yielding ability as well as with a high meliferous value. This, the meliferous value of the newly created hybrids overlaps by 26-1o8 % that of the hybrids cultivated before.

Introduction

Sunflower is cultivated in Romania on a area of about 5oo thousand hectars, being recognized as an important source for oil and vegetal protein for satisfying the mankind's requierments in food and at the same time being an excelent meliferous source for bees nourishing and growth, while ensuering 4o % from the annual honey production.

That is why, the breedworkes, the cultivators and the farmers are mutually interested in the creation of new sunflower cultivars and hybrids, with both a high seed and oil yielding ability and an important degree of attractivity thus ensuering a saturated polination.

Working material and method

The present paper surveys the study on the meliferous ability of 15 sunflower hybrids which were the object of an experimental and trial selection, in correlation with the other selection criteria which are being used into production since 1973 till now. Record cultivar, cultivated on wide land areas was taken as control.

The value of the meliferous ability was established by

determining the nectar quantity secreted by each flower in 24 hours through the capilaro-refractometric method. The glucidic indice used represents the ratio between the nectar quantity and the sugar concentration expressed in mg/flower sugar. Each datum represents the average on 25 samples. In order to determine the honey production per hectar the number of flowers on the calotide and on plant per hectar was considered.

The degree of attractivity for bees was determined due to the visiting frequency (the number of bees on the capitulum and minute reported to the mean visiting duration on in seconds).

Besides establishing the meliferous value, biometrical measurements were performed on the floral tube and the ring of nectariferous glands which where compared with the nectar secretation and the degree of attractivity to bees.

Results and discussions

Honey production achieved on the hybrids studied overlaps by 26-108 % the control, with the exception of hybrids F 52, F 301 and F 206 which registered unsignificant increases.

By comparing the data in tables 1 and 2 it is noticed that sunflower hybrids with the highest nectar secretion have an increased degree of attractivity to bees. This correction is also showen in graph no.1.

Biometrical measurements carried out on some floral elements show a corelation between the size of the ring of nectariferious glands and the nectar secretion and also between the lenght of the floral tube and the degree of attractivity to bees. In comparison with the lenght of honey bee trump (*Apis melifica*) which is of 6.46 mm, the length of the floral tube in the hybrids under study ranges between 4.8 to 5.5 mm allowing the bees to collect the nectar.

Conclusions

- Romanian sunflower hybrids register superiour values of the meliferous ability, the most valuable from this point of view being: Festiv, Select, Felix, Super, Florom 328, F 59, Florom 401, Fundulea 80, Fundulea 53 and Fundulea 90, which achieve honey productions of 50-80 kg/ha.

- The degree of attractivity to bees of the sunflower hybrids is closely connected to the nectar secretion, the highest values, being registered in hybrids with a high meliferous ability.

Table 1

Meliferous value of sunflower by hybrids

No.	Hybrid	Nectar quantity mg/flower	Sugar concentr. %	Glucidic indice (sugar) mg/flower	Honey yield kg/ha	%
1.	Record (mt)	o,54	64	o,3456	38,8	1oo
2.	Fundulea 52	o,66	54	o,3564	4o,o	1o3
3.	Fundulea 53	o,74	6o	o,444o	49,9	128x
4.	Fundulea 9o	o,78	56	o,4368	49,1	126x
5.	Fundulea 3o1	o,64	55	o,352o	39,6	1o2
6.	Fundulea 8o	o,82	57	o,4674	52,5	135x
7.	Fundulea 59	o,98	61	o,5978	67,2	173xx
8.	Fundulea 3o5	o,6o	67	o,4o2o	45,2	116x
9.	Fundulea 82	o,96	59	o,5664	63,7	164xx
1o.	Fundulea 2o6	o,66	57	o,3762	42,3	1o9
11.	Felix	1,16	58	o,6728	75,6	195xx
12.	Super	1,o8	58	o,6264	7o,3	181xx
13.	Select	1,18	6o	o,7o8o	79,6	2o5xxx
14.	Florom 328	1,1o	58	o,638o	71,7	184xx
15.	Festiv	1,22	59	o,7198	8o,9	2o8xxx
16.	Florom 4o1	1,oo	57	o,57oo	64,1	165xx

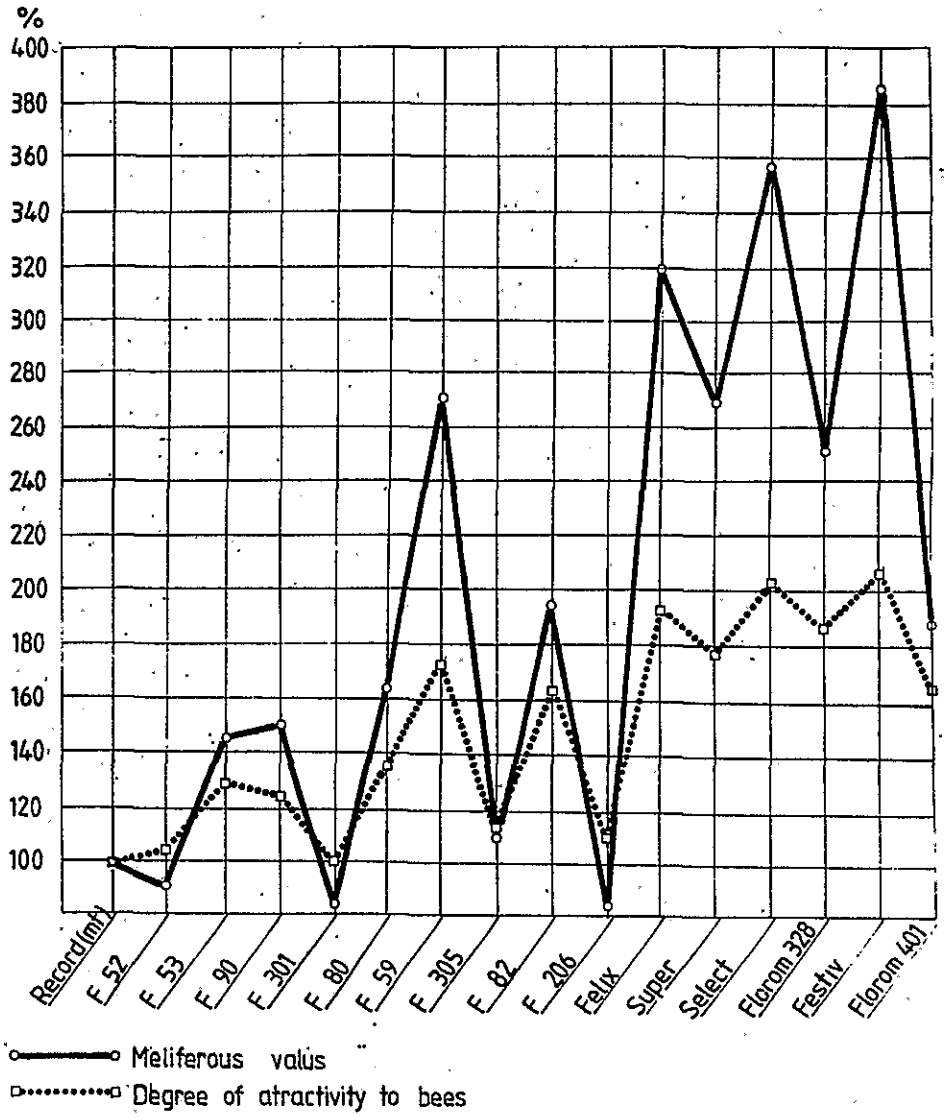
Table 2

Degree of attractivity of bees in sunflower hybrids

No.	Hybrid	Glucidic indice	Visiting frequency indice	Atractivity degree	%
1.	Record (mt)	o,3456	7,4	2,55	1oo
2.	Fundulea 52	o,3564	7,o	2,49	97
3.	Fundulea 53	o,444o	8,4	3,72	146x
4.	Fundulea 9o	o,8368	8,7	3,8o	149x
5.	Fundulea 3o1	o,352o	6,6	2,32	91
6.	Fundulea 8o	o,4674	8,9	4,15	163xx
7.	Fundulea 59	o,5978	11,8	7,o5	276xxx
8.	Fundulea 3o5	o,4o2o	7,o	2,81	11o
9.	Fundulea 82	o,5664	8,9	5,o4	197xx
1o.	Fundulea 2o6	o,3762	6,5	2,38	93
11.	Felix	o,6728	12,2	8,2o	321xxxx
12.	Super	o,6264	11,1	6,95	272xxx
13.	Select	o,7o8o	13,o	9,2o	36oxxxx
14.	Florom 328	o,638o	1o,2	6,5o	254xxx
15.	Festiv	o,7198	13,8	9,93	389xxxx
16.	Florom 4o1	o,57oo	8,6	4,9o	192xx

Graph 1

Correlation between meliferous value and degree of attractivity to bees in sunflower hybrids



- The nectariferous ability of the hybrids is correlated with the size of the nectariferous glands ring size.

- The length of the floral tube in sunflower hybrids of 4.8-5.5 mm is inferiour to that of the honey bees trump (6.46 mm), allowing to collect easily the nectar and this achieving a corresponding polinations.

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