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EVALUATION OF THE SUNFLOWER COLLECTION FOR ITS COMBINING ABILITY (1)

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The Institute of Plant Industry's collection numbers nearly 1 000 samples of cultivated sunflower (*H. annuus* L.) gathered from all 5 continents of the world.

About 60 % of the collection was gathered in the Soviet Union. Many samples are of ancient form, now not to be found.

With the development of heterosis breeding, there arrived the necessity to evaluate the material of the collection for its combining ability level, to provide the new trends in breeding with valuable initial material.

The Institute of Plant Industry has carried out this work since 1965. Topcross method was mainly used by us, based on chemical castration of the plants by gibberellin. Elite variety Peredovik served as standard. Three replications were made. The registration plot area amounted 11.75 m². Varietal populations and intervarietal F₁ hybrids were used as testers. As an example data on testers for 1971 is given (tabl. 1).

Yield level of F₁ hybrids

(Cuban experiment station, VIR, 1971)

Tester	Number of hybrid combinations (with given tester)	Yield per centner ha.		% to average standard	
		Average	peak	Average	peak
Armovirets	26	24.2	20.5 - 27.3	95	81 - 108
(Pioneer Sibiri x Cernanjanka 66)	42	24.5	18.1 - 27.3	96	71 - 108
(Cernanjanka 66 x Majak)	42	24.8	20.7 - 28.2	98	84 - 111
Sputnik	44	26.0	20.7 - 29.1	102	82 - 125
Smena x A-1813	50	24.4	19.0 - 29.7	96	75 - 117
Armavirskii 1813	30	26.1	24.3 - 28.1	103	93 - 111
Smena	6	25.6	24.5 - 28.8	101	97 - 106

(1) Le texte complet de cette conférence ne nous étant pas parvenu, nous reproduisons ici le résumé.

As a result of 6 year research following conclusions can be made :

- 1 - As a rule two years of investigating hybrid combinations are enough to obtain trustworthy data.
- 2 - 6 - 8 % of investigated sunflower samples has good combining ability.
- 3 - Self pollinated lines derived from varieties with good combining ability also possessed good combining ability.
- 4 - Inheritance of combining ability was good.
- 5 - Hybrid combination yielding 20 - 25 % more seeds than the standard varieties were obtained.