

EVALUATION OF EXOTIC HYBRIDS AND OPEN POLLINATED VARIETIES OF SUNFLOWER (HELIANTHUS ANNUUS L.) IN PAKISTAN.

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A variety evaluation programme was started at NARC, Islamabad in 1984 with the objective to find out suitable sunflower hybrids/varieties to grow on commercial scale in different agro ecological zones during two seasons i.e. Spring crop (February-June) and autumn crop (July-October). In Pakistan, two sunflower crops in a year can be grown successfully.

Since 1984 about 140 different sunflower hybrids and open pollinated varieties from different countries (Table 1) viz, USA, Romania, Yugoslavia, Spain, Hungary, West Germany, Australia, Turkey and Bulgaria have been evaluated at different provincial agricultural research institutes by including them in national uniform yield trials (NUYT). It was observed that only a few out of many varieties/hybrids were well adapted and high yielding under different agro ecological conditions of Pakistan.

On the basis of the results obtained from different research institutes, experiments were conducted at NARC to test the 22 promising sunflower varieties during autumn seasons of 1985, 1986, and Spring seasons of 1986 and 1987 (Table 2). Sunflower varieties behaved differently when planted in both seasons (autumn and spring). In spring season they usually took more days for maturity, taller in height, higher yields and disease infestation was less in spring than autumn. It should be pointed out that table show only the results of yield and days to maturity, however, data were recorded for days to flower initiation, days to flower completion, head diameter, hundred grain weight and oil content.

Days to Maturity (DMT): Sunflower hybrids showed a wide range for DMT. During autumn 1985 and 1986 the range was from 76 to 108 days, while during spring 1986 and 1987, it varied from 114 to 132 days (Table 2).

Plant height: The varieties were categorized in to two groups i.e., medium tall and tall. In first group the range varied from 115-132 cm which include Suncross-24, Suncross-140, IH-51, IH-173, Sunbred-265, Sunbred-280 and Do-855. While the group of tall varieties include NS-Condor, NS-Helios, NK-212, NS-Shine, Florem-412, Sunbred-254 and Sunbred-262 with plant height ranging from 147-167 cm.

Seed Yield: During autumn 1985 NS-Condor, Romsun-150 and IH-173 were high yielding varieties with 2038, 1972 and 1882 kg/ha yield respectively. While in autumn 1986 Suncross-140, Suncross-124, Do-164, Sunbred-262 and Sunbred-280 were found promising with the seed yield of 2533, 2494, 2204, 2196 and 2127 kg/ha respectively. The varieties which were found high yielding during spring 1986 are Adalid-8, NS-Condor, NS-Shine, Florem-206 and Romsun-150 having yield of 3591, 3573, 3522, 3495 and 3476 kg/ha respectively. Maximum yield of 2870 kg/ha was obtained in Suncross-140 during spring 1987. The other high yielding varieties in this season were Do-704, Romsun-155, and Sunbred-262 with seed yield of 2743, 2455, and 2283 kg/ha respectively (Table 2).

Table 1. Country of origin with the number of hybrids and open pollinated varieties tested at NARC during 1985 to 1987

Country of origin	No. of varieties		Total
	Hybrid	open pollinated	
USA	31	-	31
Romania	42	1	45
Hungary	16	-	16
Spain	8	-	8
Bulgaria	1	1	2
Australia	10	-	10
Yugoslavia	22	-	22
Turkey	1	-	1
Germany	1	-	6
Total	138	2	140

Table 2. Yield performance and days to maturity of promising hybrids tested during 1985 to 1987 at NARC, Islamabad

Variety	Origin	Yield (kg/ha)				Days to maturity			
		85A	86S	86A	87S	85A	86S	86A	87S
NK-212	USA	1783	3242	1332	1904	78	127	110	118
Sunbred-254	USA	-	2725	1973	2023	-	131	103	123
Sunbred-262	USA	1025	3159	2194	2283	77	131	106	123
Sunbred-265	USA	-	3041	2060	2148	-	128	100	119
Sunbred-280	USA	1359	2900	2127	1697	78	126	106	118
Sunbred-2012	USA	1283	3052	1796	1974	76	132	-	124
Do-164	USA	-	-	2204	2064	-	-	104	114
Do-704	USA	-	-	1995	2743	-	-	103	116
Do-855	USA	-	-	2187	2145	-	-	103	116
Florem-328	USA	1750	3201	-	1785	81	128	-	121
Florem-412	USA	1076	3243	-	1698	80	128	-	121
Florem-206	Romania	1575	3495	-	1739	76	126	-	117
Romsun-150	Romania	1972	3476	2091	2049	78	132	10	120
Romsun-155	Romania	-	3008	2102	2455	-	131	108	119
Adalid-8	Yugoslav	1560	3591	-	-	-	-	-	-
NS-Condor	Yugoslav	2083	3573	-	-	82	124	-	-
NS-Helios	Yugoslav	1683	3013	-	-	81	123	-	-
NS-Shine	Yugoslav	1401	3522	-	-	82	127	-	-
IH-51	Yugoslav	1793	2813	-	-	78	116	-	-
IH-173	Yugoslav	1882	2891	-	-	76	127	-	-
Suncross-140	Australia	-	-	2533	2870	-	-	102	117
Suncross-24	Australia	-	-	2494	2227	-	-	106	117