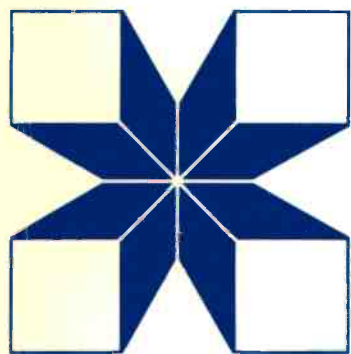


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OIL CROPS: SESAME AND SUNFLOWER SUBNETWORKS

PROCEEDINGS OF THE JOINT SECOND
WORKSHOP HELD IN CAIRO, EGYPT,
9-12 SEPTEMBER 1989

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Esta serie incluye ponencias de reuniones, informes internos y documentos técnicos que pueden posteriormente conformar la base de una publicación formal. El informe recibe distribución limitada entre una audiencia altamente especializada.

**OIL CROPS:
SESAME AND SUNFLOWER SUBNETWORKS**

**Proceedings of the Joint Second Workshop
held in Cairo, Egypt, 9-12 September 1989**

Edited by
Abbas Omran
Technical Adviser, Oil Crops Network



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Scientific and Organizing Committee
Dr Abbas Omran
Dr Badr A. El-Ahmar
Dr Eglal Rashed

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FOREWORD

In September 1989, the Sunflower and Sesame subnetworks held their bi-annual meetings in Cairo, Egypt. The meetings were well attended and papers, presented in these proceedings, provide a very informative overview of some of the cropping systems, management practices, production constraints and research highlights for both crops in several countries.

Chronic edible oil deficit is a major problem facing many developing countries in Africa and Asia where most countries are forced to import large quantities to satisfy the requirements of their growing populations. With the present rates of population increase and the improvement of nutrition standards it is likely that the consumption of edible oil will rise over the years, increasingly drawing on scarce foreign exchange for the importation of this vital food staple. For this reason, several countries have opted to increase self-sufficiency in edible oil.

Production deficits are due to a number of factors, among which neglect in oilcrops research, in both developed and developing countries has been a major one. This is particularly true for minor crops such as sesame. In the context of the IDRC oilcrops network, initiated in 1981, the interchange of information and the sharing of results between scientists have proved to be very useful and beneficial for the generation of scientific knowledge and the stimulation of research in this important area. It is hoped that conclusions and recommendations of this meeting will stimulate further research and development in the future.

A second important reason for limited national production has been the exceptionally low levels of world prices for oils and fats in the 1980's and the comparative advantage of importation over production for developing countries. The description of a case study using a system's approach to analysis the Vegetable Oil/Protein System of Kenya has stirred much interest during the Cairo meetings and it is hoped that similar work can be carried out in other countries in the future.

The Cairo meetings will also unfortunately be remembered as the one which has witnessed the diagnosis of the fatal disease of late Dr. Hiruy Belayneh, Chairman of the Brassica Subnetwork. We will all regret his absence.

On behalf of IDRC and of all participants, I would like to thank the Government of Egypt for its hospitality, the organizers for the excellent arrangements and all those who contributed to the success of these meetings by their presentations and discussions.

Eglal Rached,
Senior Program Officer,
IDRC, Cairo

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TRENDS AND STRATEGY OF SUNFLOWER PRODUCTION IN PAKISTAN

Masood A. Rana

As an oil crop, sunflower was introduced in Pakistan during the early 1960's and its commercial cultivation began in 1965. It persisted on a negligible area till 1970. For the first time, in 1971, its area exceeded 500 ha. As an average of 10 years (1970/71-1979/80), area under sunflower was only 312 ha and showed a negative growth rate of -1.26% per annum, Table 1.

Table 1. Area, production and average yield of sunflower in Pakistan, 1970/71-1988/89.

Year	Area ('000 ha)	Production ('000 tone)	Average Yield (kg/ha)
1970-71	670	482	719
1971-72	1250	873	698
1972-73	776	486	626
1973-74	516	246	477
1974-75	569	259	455
1975-76	483	228	472
1976-77	389	188	483
1977-78	37	35	946
1978-79	479	311	649
1979-80	592	355	600
1980-81	4679	3492	746
1981-82	7235	5855	809
1982-83	8132	6313	776
1983-84	8459	6803	804
1984-85	9592	7789	812
1985-86	19800	17600	889
1986-87	48500	37800	779
1987-88	56850	42570	749
1988-89	33387	36378	1071
Annual growth rate (AGR)*	36.6	29.9	0.05
AGR**	24.6	36.7	4.28

* Calculated on the basis of eight years, 1980/81 - 1987/88.

**Calculated on the basis of nine year, 1980/81 - 1988/89.
Source: Agricultural Statistics of Pakistan, (1987) and personal communication with the Ministry of Industries.

Realizing the increasing edible oil deficit in the country, the Government of Pakistan established a Seed Division in the Ghee Corporation of Pakistan (GCP) in 1979, with a clear cut mandate of promotion and procurement of non-traditional oil crops (sunflower, soybean and safflower). As a result, a quick increase in the area of sunflower took place upto 1987-88 and attained a high annual growth rate of 36.6%. However, in 1988-89 the area suddenly dropped to 33,980 ha as compared to 56,850 ha of 1987-88 and registered 40.2% decrease.

At present, as an average of the last 5 years, about 76.9% of the total area under sunflower is cultivated in Punjab, 23.2% in Sind and 0.9% in NWFP, Table 2. In 1984/85, about 51.1% of the total area was planted in Punjab and increased to 77% in 1988/89 showing a more rapid growth of sunflower cultivation in Punjab than other provinces. Area in Punjab and Sind is nearly equally distributed in the cotton and rice growing regions.

About 3,490 tons of sunflower were produced in 1980/81. It increased rapidly and reached to about 37,800 tons in 1986/87, with an annual growth rate of 40.5 %. It is expected to obtain about 12,000 tons of refined sunflower oil from the produce of 1988/89 (assuming 33% oil recovery) and thus, sharing 3.7% of the total national production of edible vegetable oil.

The growth rate of 0.05% upto 1987/88, Table 1, indicates that the average yield of sunflower has remained virtually stagnant. But, due to favorable climatic conditions and small acreage, the

Table 2. Province-wise area and production of sunflower, 1980/81 - 1988/89.

Year	Area (ha)					Production (tons)				
	Punjab	Sind	NWFP	Baluchistan	Total	Punjab	Sind	NWFP	Baluchistan	Total
1980-81	2634	1961	84	-	4679	1701	1777	14	-	3492
1981-82	4314	3655	66	-	7235	2522	3321	12	-	5855
1982-83	4324	3734	74	-	8132	2916	3382	15	-	6313
1983-84	4448	3941	70	-	8459	3214	3576	13	-	6803
1984-85	4908	4621	63	-	9592	3572	4204	13	-	7789
1985-86	13819	5911	70	-	19800	12191	5394	15	-	17600
1986-87	40575	7800	125	-	48500	30777	6942	81	-	37800
1987-88	42490	13760	600	-	56850	36153	5917	420	-	42570
1988-89	25900	6880	607	-	33387	31940	3892	546	-	36378

Source: Agricultural Statistics of Pakistan, (1987) and personal communication with the Ministry of Industries.

average yield of the country during 1989, reached to 1071 kg/ha which probably will drop down again if the area increases next year. Like all other oilseed crops, average yield of sunflower is also much lower in most of the countries. It is mainly due to:

- i) lack of high yielding varieties for different agro-ecological zones,
- ii) Inadequate adoption of improved agronomic practices,
- iii) lack of application of necessary inputs,
- iv) damage by insect, disease and birds, and
- v) lack of suitable machinery for planting, harvesting and threshing which accounts a lot for obtaining high yields by incurring least cost of production.

Nevertheless, the future of sunflower in Pakistan seems to be very bright. The results of experiments indicated that average yield as high as 4,000 kg/ha could be obtained under optimum management conditions. Commercial planting, where farmers were provided proper inputs and practiced interculturing, got yields upto 3,500 kg/ha. This confirmed the possibility that high yields of sunflower could be obtained by applying proper inputs and timely field operations such as

thinning, hoeing, earthing up, etc.

The reasons for sudden drop in area of sunflower during 1988/89 were:

1. Absence/scarcity of private sector in the market for the procurement of sunflower crop.
2. Farmers had problems in selling their produce to GCP due to strict procurement standards and insufficient field staff. Mode of payment was also defective which delayed getting of cash against the cheques issued to the farmers by GCP.
3. High temperature (41-47° C) at the time of blooming results in low yield and disease spread which discouraged the farmers (our existing commercially grown hybrids are not high temperature tolerant).
4. Floods during September 1988 damaged the cotton and paddy crops in areas which were ideal for sunflower. Due to early removal of the damaged crops, the flooded areas became available for planting wheat in October. Wheat was planted on larger areas which squeezed the sunflower crop.
5. Sunflower growers opted to grow maize because of the increase in

maize procurement price from Rs. 85 to 120 per 40 kgs.

6. Other crops such as moong, mash, melons and tobacco gave a tough competition to sunflower because of its poor performance in the previous year, 1987/88.
7. In most of the cotton tract, canal water was not available at the time of seed bed preparation due to which some willing farmers also failed to plant sunflower. and
8. Decline of traditional dealing of selling the sunflower seed on credit, GCP sold the seed to the farmers on cash payment.

Strategy for the year 1990 to increase area

1. An area target of 95,000 ha has been set.
2. Seed will be sold on credit.
3. Support price of sunflower has been increased from Rs. 177 to Rs. 205 per 40 kg.
4. Short- and medium-term loans will be provided to farmers to purchase logistics, and
5. Private sector will be encouraged to operate in the market for the procurement of farmers' produce. Thus, an incentive of Rs. 5.0/ 40 kg has been announced for delivering the produce from the farm gate to the Government procurement centers.

Long-term strategy

- National Commission for Agriculture (NCA) studied the oilseed

deficit situation in the country and identified oilseed production as priority area, which needs immediate attention for improvement.

- NCA set targets of 772,000 and 1,075,000 ha to increase area under oilseed crops in the 7th Five-Year Plan, 1988/92 and the year 1999/2000, respectively, Table 3.
- A seven-year (1989/90-1996/97) project on oilseed, "National Oilseed Development Project (NODP)" has been approved by the GOP to achieve a substantial increase in the production of oilseeds (particularly non-traditional oilseed crops) and reduce import of edible oil.
- Under NODP, areas of thrust would be to improve research, seed production and extension services for oilseeds.
- Credit facilities will be provided to the farmers to grow more oilseeds, and
- Existing oil extraction efficiency will be increased by rehabilitation of crushing plants.

Table 3. Oilseed targets for area, average yield, edible oil production and import.

Area Yield Production	Target		Growth rate (%)		
	Benchmark 1987-88	7th plan	1999/ 2000	7th plan	1999/ 2000
Area ('000 ha)					
Total oilseeds	565	722	1075	6.4	5.6
Non-traditional oilseeds	70	227	450	26.5	16.6
Average yield (kg/ha)					
Non-traditional	900	1100	1620	4.1	5.0
Production of oil incl. cotton seed ('000 tonne)	440	660	1020	8.5	7.3
Import					
Self-sufficiency ratio (%)	37	45	51	1.6	2.1

Source: Report of the National Commission on Agriculture, MINFAC, March, 1988.