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Comparative Economic Analysis of Hybrid V/S Conventionalsunflower Production Sindh Pakistan

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Abstract
Sunflower is one of the four most important annual crops in the world grown for edible oil. In Pakistan although it was introduced as an oilseed crop 40 years back but its expansion in acreage and production is fluctuating due to various production and socioeconomic constraints. The comparison of total income gained, total costs associated and profit gained from two sunflower activities. Higher income (155401 Rs.), higher costs (98677 Rs.) and higher profits (56724 Rs.) were gained in sowing hybrid sunflower but conventional sunflower gave poor results lower income (75372 Rs.). Lower costs (57939 Rs.) and very low profits (17433 Rs.) were recorded. The question of higher cost of cultivation existed, and was confirmed, mainly because of high seed cost and not corresponding reduction in pesticide cost.
Keywords: Sunflower, edible oil, conventional, hybrid, Pakistan

1. Introduction

Sunflower (*Helianthus annuus L.)* is an annual plant native to the Americas. It possesses a large inflorescence (flowering head), and its name is derived from the flower's shape and image, which is often used to depict the sun. The plant has a rough, hairy stem, broad, coarsely toothed, rough leaves, and circular flower head. The heads consist of many individual flowers which mature into seeds, often in the hundreds, on a receptacle base. The major oilseed crops include sunflower, canola, rapeseed & mustard and cottonseed. The total availability of edible oil in 2009-10 was 2.9 million tons. Local production of edible oil was 662 thousand tons which accounted for 23 percent of total availability in the country, while the remaining 77 percent availability was ensured through imports. During the year 2010-11 (July- March), a quantity of 1.7 million tons edible oil/oilseeds worth US$ 1.65 billion has been imported. The local production in 2010-11 is provisionally estimated at 696 thousand tons. Total availability from all sources is thus reduced to 2.35 million tons so far (GOP, 2011).

Sunflower is one of the four most important annual crops in the world grown for edible oil. In Pakistan although it was introduced as an oilseed crop 40 years back but its expansion in acreage and production is fluctuating due to various production and socioeconomic constraints. Its seed contains 35-55% oil contents. Research work on this crop has shown that there is great potential of growing it under all the soil and climatic conditions in rain fed as well as irrigate farming system in different agro-ecological zones. The areas of adaptation for this crop are in the cotton belt (Vehari, Lodhran, Bahawalpur, Umarkot) and rice growing areas of Sialkot and Badin in Punjab and Sindh, respectively. The crop is grown in spring as well as in autumn. The average yield in Pakistan is 1.3 tons/ha. Almost 99% area is under hybrids imported by different multinational seeds companies. However, local hybrids are also available and area under them is increasing with the time. It has good prospects as intercrop with sugarcane, if suitable hybrids and production technology is available. During 2000-01, the area was 58998 ha and increased to 319743 ha in 2008-09 with production of 420487 tons and per hectare yield of 1315 kg Sunflower is an important oilseed crop and is successfully grown under different climatic conditions of the country, i.e., in the warm and harsh conditions of southern part of the country to mild and cool climate in the north. It has great potential to bridge the gaps between the production and consumption of edible oil (PARC, 2009).

Oilseed crops have a central significance in food and economy with reference to Agriculture. There is a severe shortage of edible oil in Pakistan. Due to increase in human population the demand of edible oil is mounting whereas production of edible is decreasing every year. The native edible oil production does not match the rising demand of population. During 2010, the consumption of oil and fats was 13 kg per capita per year. The local production from all sources has been raised up to 0.680 million tons, which accounts for 24% of domestic necessity of edible oil while the remaining 76% is met through imports. Pakistan is spending billions of rupees on the import of edible oil, which is a major drain on shrinking economy of the country. During 2009-10 (July-March) 1.246 million tons edible oil was imported by casting 77.78 billion rupees. Rapeseed and mustard oil is not used as regular cooking oil due to occurrence of elevated erotic acid and glucosinolates and therefore cannot be used more than 5% in oil branding for ghee manufacturing. In order to overcome the prevailing

circumstances, there is an ominous need to increase per acre yield of non-conventional oilseed crops. Like soybean, sunflower and safflower crops are facing problem due to their poor adaptation and various crops specific and policy issues. Soybean and Safflower make a contribution of only less than 1 % (Bilal *et al.* 2013).

Sunflower is grown on approximately 550,000 to 600,000 acres in the Sindh province. Farmers get better returns on it as compared to wheat support prices whose procurement and purchase are cumbersome for farmers to follow. Usually, per 40kg of sunflower is sold for Rs2000 to Rs2, 200 and at times at a rate as high as Rs2, 500 to Rs3, 000. If growers get 12-15 mounds of sunflower per acre with relatively lesser farm inputs including irrigation water, they feel comfortable. However, they believe that per acre yield can be improved significantly. Agriculture department's figures show that 341, 641 tones of sunflower production were achieved from 266,964 hectares in 2010. But then production dropped in 2011 the when lower region of Sindh suffered heavy rains and water couldn't be drained out on time. About 187,379 tons of production was achieved in that year as the crop was shown on 188, 663 hectares. The provisional figures of 2012 season indicate that crop was grown on 143,631 hectares, and so far 150,140 tones of production have been reported. Some officials claim that this year they received complaints about quality of seed and its price that may affect per acre yield (Shah *et al.* 2013).

Objectives:

1. To find out socioeconomic factors of Hybrid and Conventional sunflower growers in district Badin Sindh.
2. To determine production costs, physical productivity and net return of Hybrid and Conventional sunflower in study area.
3. To identify the issues and suggest the policy measures for sustainable Hybrid and Conventional sunflower production.

3. Methodology

The study was conducted through primary data collection from growers of sunflower from district Badin. This study focuses on the sunflower yield and its compare the financial gains from two sunflower activities (Hybrid V/S Conventional sunflower).

3.1.Data Analysis Techniques

To determine the contributions of the important variables in the sunflower production process, the Cobb-Douglas from of production function was finally estimated because of the best fit of the sample data. After different trials runs, variable was ultimately selected to explain the production of hybrid sunflower and the conventional sunflower farmers. Cares were taken to avoid multi co linearity. The general model was specified comprehensively in such a way that it could explain adequately the production process of the hybrid sunflower of both types of farmers. To explore the input-output relationship of hybrid sunflower production, the selected Cobb-Douglas production model, in its stochastic from May expressed as:

$Y = X_1^{\beta 1}, X_2^{\beta 2}, X_3^{\beta 3}, X_4^{\beta 4}, X_5^{\beta 5}, X_6^{\beta 6}$

$Y = f (X_1^{\beta 1}, X_2^{\beta 2} \ldots X_n^{\beta 6}$

The Cobb-Douglas Production function was linear zed by transforming it in to the following double log or log linear form so that it could be solved by the least square method:

$\text{Log } Y = \beta_1,\beta_2 \ldots \beta_n \log (X_1,X_2 \ldots X_n)$

Where:

$X_1, X_2, X_3 \ldots X_n$ = Cost of production Process specified all costs was categories after field visit.

$\beta_1,\beta_2,\beta_3 \ldots \beta_n$= Slope/ impacts/issues/ Constraints on sunflower production.

Of course then was intercept of the Cobb-Douglas production function which was determined after analysis of the data.

3.2.Farm Costs Analysis

The farm costs analysis is based on hybrid and conventional sunflower production. The result of this study was providing for the comparison of total costs and returns of hybrid sunflower with conventional sunflower. Total costs consist of expenditure from the profit and loss account (fixed costs and variable costs etc.). For the estimation and calculations, following procedure is adopted to examine the profitability of hybrid as well as conventional sunflower.

3.3.Total Revenue

Total revenue is the total money received from the sale of any given quantity of output. The total revenue calculated by taking the price of the sale times the quantity sold.

Total revenue = price x physical productivity (Biz 2002).

3.4.Total Costs
A total cost is the sum of the fixed cost and total variable cost for any given level of production.
Total cost fixed cost + total variable cost

3.5.Total fixed costs
Total fixed costs are the costs they do not change with the level of production. For example, water charge, Govt. Land Taxes.

3.6.Total Variable costs
Total variable costs are the costs that change in direct proportion to changes in volume. Variable costs can be avoided by not producing.

3.7.Profit
Profit is the excess of receipts over the spending of business during any period
Profit = gross income – expenses

4. Results
The general objective of study was to find out the yield gap of hybrid and conventional sunflower crop. They get greater benefits from hybrid sunflower crop than other sunflower growers. However certain elements influence the yield of sunflower crop. Two types of sunflower activities were performed in the study area. Most of the farmers focused to adopt hybrid sunflower; they get greater benefits from hybrid sunflower than conventional sunflower. Distribution of respondents with socio-economic variables and the influence of these socio-economic variables on the production of hybrid and conventional sunflower are discussed here.

4.1.Age
Table: 1 Respondents distribution according to age group in the study area

Age Group	Hybrid Sunflower		Conventional Sunflower	
	No. Respondent	Percentage	No. Respondent	Percentage
Up to 35	10	33.33	07	23.33
36 to 45	07	23.33	09	30.00
Above 45	13	43.33	14	46.67
Total	30	100.00	30	100.00

Table-1 depicts that 33.33% Hybrid and 23.33% conventional sunflower farmers were belonged to age group up 35 years, while about 23.33% Hybrid and 30.00% Conventional farmers belonged to age group 36-45 years. About 43.33% Hybrid and 46.67% Conventional farmers' belonged to age group above 45 years.

4.2.Family Size
Table: 2 Respondents distribution according to family size in the study area

Family Size	Hybrid Sunflower		Conventional Sunflower	
	No. Respondent	Percentage	No. Respondent	Percentage
Below 4	5	16.66	4	13.00
5-7	12	40.00	8	26.66
8-10	10	33.33	11	36.66
Above 10	3	10.00	7	23.33
Total	30	100.00	30	100.00

Table-2 shows that hybrid sunflower there were 16.66% were less 4 members, 40.00% were 5-7 members, 33.33% were 8-10 members' family size out of 30 farmers. Only 10.00% were above 10.00% members family size while in case of conventional sunflower were 13.00% Were less 4 members, 26.66% were 5-7 members, 36.66% were 8-10 member family size. Only 23.33% were above 23.33%.

4.3.Education Level

Table: 3 Respondents distribution according to education level in the study area

Education Level	Hybrid Sunflower		Conventional Sunflower	
	No. Respondent	Percentage	No. Respondent	Percentage
Illiterate	07	23.33	14	46.67
Primary-middle	10	33.33	12	40.00
Matric	05	16.67	05	16.67
Collage-University	07	23.33	03	10.00
Total	30	100.00	30	100.00

Table-3 reveals that 23.33% hybrid and 46.67% conventional sunflower farmers were illiterate, while about 33.33% hybrid, 40.00% of conventional sunflower farmers was primary-middle level of education. The 16.667% farmers of hybrid sunflower, 16.67% farmers of conventional sunflower were matriculation. 23.33% hybrid and only 10.00% of conventional sunflower farmers were have collage-university education.

4.4.Marital Status

Table: 4 Respondents distribution according to marital status in the study area

Marital Status	Hybrid Sunflower		Conventional Sunflower	
	No. Respondent	Percentage	No. Respondent	Percentage
Single	08	26.67	11	36.67
Married	19	63.33	17	56.67
Divorced	1	3.33	1	3.33
Widow	2	6.66	1	3.33
Total	30	100.00	30	100.00

Table-4 shows that in hybrid there were 26.67% were single marital status, 63.33% were married marital status, and 3.33% were widow and 6.66% ware divorced. While in case of conventional sunflower farmers were 36.67% were single marital status, 56.67% were married marital status, and 3.33%were widow, and 3.33% were divorced.

4.5.Farm Size

Table: 5 Respondents distribution according to farm size in the study area

Farm Size	Hybrid Sunflower		Conventional Sunflower	
	No. Respondent	Percentage	No. Respondent	Percentage
Small (8-10 acres)	8	26.66	9	30.00
Medium(10-15 acres)	16	53.33	14	46.66
Large(above -15 acres)	6	20.00	7	23.33
Total	30	100.00	30	100.00

Table-5 shows that hybrid sunflower there were 26.66% small farm size, 53.33% were medium farm size, 20.00% were large farm size out of 30 farmers. While in case of conventional sunflower was 30.00% small farm sizes, 46.66% were medium farm size, 23.33% were large farm size out of 30 farmers.

4.6.Farming Experience

Table: 6 Respondents distribution according to farming experience in the study area

Farming Exp:	Hybrid Sunflower		Conventional Sunflower	
	No. Respondent	Percentage	No. Respondent	Percentage
5-10	4	13.33	8	26.66
11-15	7	23.33	10	33.33
16-20	10	33.33	7	23.33
Above 20	9	30.00	5	16.66
Total	30	100.00	30	100.0

Table-6 shows that hybrid sunflower growers having the experience of (5-10) years were recorded 13.33%, farmers having experience (11-15) years were 23.33% , farmers having experience (16-20) were recorded 33.33% and having experience above 20 years were 30.00% out of 30 farmers. Conventional sunflower growers having the experience of (5-10) years were recorded 26.66% farmers having experience (11-15) years were 33.33%, farmers having experience (16-20) were recorded 23.33% and having experience above 20 years were 16.66% out of 30 farmers

4.7.Farmer Status

Table: 7 Respondents distribution according to farmer status in the study area

Farmer status	Hybrid Sunflower		Conventional Sunflower	
	No. Respondent	Percentage	No. Respondent	Percentage
Owner	15	50.00	12	40.00
Tenant	8	26.66	11	36.66
Owner cum Tenant	7	23.33	7	23.33
Total	30	100.00	30	100.00

Table-7 shows that hybrid sunflower there were 50.00% were owner ship, 26.66% were tenant farmers and 23.33% were owner cum tenant respondents. While in case of Conventional 40.00% were owner ship, 36.66% were tenant farmers, and 23.33% were owner cum tenant respondents.

4.8.Information

Table: 8 Respondents distribution according to information sources in the study area

Source of information.	Hybrid Sunflower		Conventional Sunflower	
	No. Respondent	Percentage	No. Respondent	Percentage
Relatives	13	43.33	30	100.00
Media	03	10.00	-	-
Seed Dealer	09	30.00	-	-
Ext. Deptt:	05	16.66	-	-
Total	30	100.00	30	100.00

Table-8 shows that hybrid sunflower there were 43.33% were getting information about hybrid sunflower from Relatives, 10.00% were from media, 30.00% were from seed dealer and 16.00% were getting information about hybrid sunflower from extension department while in case of conventional 100.00% were getting information about conventional sunflower from relatives and tradition.

4.9.Sunflower Varieties Planted

Table: 9 Area Percentage under different sunflower varieties in study area

Hybrid Sunflower			Conventional Sunflower		
Varieties	Respondent	Percentage	Varieties	Respondent	Percentage
Hyson-33	11	36.66	F-18	9	30.00
Hyson-39	14	46.66	HO-1	16	53.33
Hyson-40	2	6.66	4421	5	16.66
Hybrid-894	3	10.00	-	-	-
Total	30	100.00	-	30	100.00

Table-9 shows that hybrid sunflower varieties under cultivation from hybrid group were 36.66% of Hyson-33, 46.66% Hyson-39, 6.66% Hyson-40 and 10.00% Hybrid-894 varieties were cultivated. The area of conventional varieties found on farmer's field were 30.00% area of F-18, 53.33% HO-1 and 16.66% of 4421 varieties were cultivated.

4.10.Planting Time

Table-10 Respondents' distribution according to planting time in the study area

Month	Hybrid Sunflower		Conventional Sunflower	
	No. Respondent	Percentage	No. Respondent	Percentage
January	22	73.33	11	36.66
Feb	8	26.66	19	63.33
Total	30	100	30	100

Table-10 shows that hybrid sunflower there were 73.33% respondents planted in month of January and 26.66% were in February. While in case of conventional sunflower 36.66% respondents were planted in Month of January, 63.33% were in February.

4.11.Planting Method

Table: 11 Respondents distribution according to planting method in the study

Planting Method	Hybrid Sunflower		Conventional Sunflower	
	No. Respondent	Percentage	No. Respondent	Percentage
Ridges	17	56.66	09	30.00
Furrow	13	43.33	21	70.00
Total	30	100.00	30	100.00

Table-11 proves that hybrid sunflower farmers who had sown sunflower crop with ridges were found 56.66%, while furrow sowing hybrid sunflower were found 43.33%. Conventional sunflower farmers who had sown sunflower crop with ridges were found 30.00%, while furrow sowing were found 70.00% the sunflower.

4.12.Seed Rate

Table: 12 Respondents distribution according to seed rate kg per acre in the study area

Seed Rate (Kg) acre	Hybrid Sunflower		Conventional Sunflower	
	No. Respondent	Percentage	No. Respondent	Percentage
2-2.50	30	100.00	-	-
3-3.50	-	-	30	100.00
Total	30	100.00	30	100.00

Table-12 illustrates that farmers growing hybrid sunflower who had used seed rate (2-2.50) kg per acre were 100.00% and conventional sunflower who had used seed rate (3-350) kg per acre was 100.00%.

4.13.Irrigation Source

Table: 13 Respondents distribution according to Irrigation Source in the study area

Irrigation Source	Hybrid Sunflower		Conventional Sunflower	
	No. Respondent	Percentage	No. Respondent	Percentage
Canal	30	100.00	30	100.00
Tube well	0	0.00	0	0.00
Canal + Tube well	0	0.00	0	0.00
Total	30	100.00	30	100.00

Table-13 shows that in hybrid sunflower as well as in conventional sunflower all most 100 percent respondents were using canal water source of irrigation.

4.14.Use of Fertilizers

Table: 14 Respondents distribution according to fertilizer application in the study area

Fertilizers (Bags)	Hybrid Sunflower		Conventional Sunflower	
	No. Respondent	Percentage	No. Respondent	Percentage
0-2	6	20.00	4	13.33
2-3	14	46.66	15	50.00
Above 3	10	33.33	11	36.66
Total	30	100.00	30	100.00

Table-14 gives an idea about the fertilizer usage of the respondents according to hybrid and conventional sunflower fields, from total of 60 farmers growing hybrid sunflower had used fertilizers (0-2)-bags per acre were 20.00%, while 46.66% had used fertilizers (2-3) bags per acre and 33.33% farmers had used fertilizers above 3 bags per acre. Conventional sunflower had used fertilizers (0-2)-bags per acre were 13.33% while 50.00% had used fertilizers (2-3) bags per acre and 36.66% farmers had used fertilizers above 3 bags per acre.

4.15.Total Fixed Costs:

Table: 15 Total Fixed Costs of Hybrid and conventional Sunflower in the study area

Total Fixed Costs (Rs/Acre) Per Acer	Hybrid Sunflower	Conventional Sunflower
Land Rent	10122	10122
Land tax	95	95
Water charge	208	208
Total	10425	10425

Table-15 shows that the total fixed cost was 10425.00 Rs/Acre in hybrid sunflower and total fixed cost was 10425 Rs/acre in conventional sunflower. Total fixed cost includes Land Rent, Land tax, and water charges

4.16.Total Variable Costs

Table: 16 Total variable costs of two Sunflower activities in the study area

Total variable Costs Expenses	Hybrid Sunflower			Conventional Sunflower		
	Quantity	Price/Unit	Total	Quantity	Price/Unit	Total
Labour (No.)	15	200	3000	15	200	3000
Seed (Kg)	2-2.5	2100	4200	3-3.5	367	1101
Fertilizers Urea	2	1750	3500	1	1750	1750
Fertilizers DAP	1	4200	4200	1	4200	4200
Harvesting cost (No.)	8.5	617	5241	5.05	565	2855
Total	--	-	20141	---	--	12906

4.17.Total Costs

Table: 17 Total Cost associated with Sunflower activities

Total Cost	Hybrid Sunflower	Conventional Sunflower
Total Variable Cost / Acre (Rs.)	20141	12906
Fixed cost / Acre (Rs.)	10425	10425
Total Cost/Acre (Rs.)	30566	23331

Table-17 shows the total costs per acre associated with the production of cotton. Total costs are the sum of total variable costs and total fixed costs.

Total Costs = Total Variable Costs + Total Fixed Costs

Total costs per acre in hybrid sunflower sown were greater than the other two activities that were recorded 30566 rupees and the total costs incurred in conventional sunflower were for lower (about 41 % lower) than hybrid sunflower. Sown were 23331 rupees. Prices were still amply high for adopters of hybrid sunflower to make considerable gains in net income.

4.18.Profit Gains

Table: 18 Profits / Gains from two Sunflower activities

Varieties	Yield/Acre (Mound)	Price/ Mound (Rs.)	Income/Acre (Rs.)	Total Cost/ Acre (Rs.)	Net Profit/ Acre (Rs.)	BCR
Hybrid Sunflower	22	2300	50600	30566	20034	1.52
Conventional Sunflower	18	2300	41400	23331	18069	1.29

Table-18 shows the total yield obtained by the farmer per acre, price of the sunflower per mounds, income gained by the farmer per acre, per acre total input costs associated with the production of sunflower and net profit (economic profit) gained per acre. On an average higher yield was obtained in hybrid sunflower sown 22 mounds per acre and conventional cotton yield was low only 18 mounds per acre.

Price gained per mound was almost the same in three cotton activities. Income gained per acre in hybrid sunflower was 50600 rupees, and income gained from conventional sunflower was only 41400 rupees. Higher profit of 20034 rupees was observed in hybrid sunflower; while 18069 rupees was obtained in conventional sunflower. BCR (Benefit Cost Ratio) shows the return on per rupee invested. Introduction of hybrid sunflower showed significant farm-level benefits.

4.19. Sunflower Yield Comparison of two sunflower activities

Average yield comparison obtained from two sunflower activities. Early growers of hybrid sunflower in were taking the highest yield 24 mounds per acre, and conventional sunflower growers were obtaining 19 mounds per acre that is low yield. Conventional sunflower gave poor yield 5 mounds/acre. There was 26.31 percent increase in hybrid sunflower yield while 5.07 percent increase was found in comparing with conventional sunflower. Percentage increase in the yield 26.31 percent of hybrid sunflower than conventional sunflower is similar to the results. The productivity increase was significant that 26.31 percent more yield with the introduction of hybrid sunflower.

4.20.Comparison of Total Income received and Total Costs

Farmers were growing hybrid sunflower have received larger income and conventional sunflower growers. It is

clear from the figure that hybrid sunflower farmers have received (50600 Rs.) imposing higher costs (30566 Rs.) and conventional sunflower farmers got (41400 Rs.) costing (23331 Rs.). The application of hybrid sunflower increased the income from agriculture for farmers and also improved the households' livelihood.

4.21.Income, Total costs and Profit by sunflower Activities (Rs. / Acre)

The comparison of total income gained, total costs associated and profit gained from two sunflower activities. Higher income (155401 Rs.), higher costs (98677 Rs.) and higher profits (56724 Rs.) were gained in sowing hybrid sunflower but conventional sunflower gave poor results lower income (75372 Rs.). Lower costs (57939 Rs.) and very low profits (17433 Rs.) were recorded. The question of higher cost of cultivation existed, and was confirmed, mainly because of high seed cost and not corresponding reduction in pesticide cost.

5. Conclusions and suggestions

This study was carried out to compare the economics of Hybrid and Conventional Sunflower based on the field survey in the Sunflower cropping zone of Sindh. The information was collected from selected Hybrid and Conventional Sunflower growers. The data was collected through personal interviews. Number of analytical techniques has been used to access comparative economic analysis of hybrid v/s conventional Sunflower production i.e. farm cost analysis, Net Return analysis; gross margin analysis.

Major findings are the differences in production cost between hybrid and Conventional Sunflower, which were Rs.98677.00 per acre of Hybrid and Rs.75372.00 per acre of Conventional Sunflower. Major differences in hybrid Sunflower production cost are related to higher seed prices, slightly higher land management costs. The result indicates that significant increase in output of hybrid Sunflower production is related to the higher yield potential of hybrid Sunflower was 24 mound per acre as compared to Conventional Sunflower was19 mounds per acre while market price of both was same i.e. 2300Rs/mound for Hybrid Sunflower and 2300Rs/mound for Conventional Sunflower.

Present study clearly indicates that Hybrid Sunflower farmers were increasing farm yield and farm profit compared to Conventional Sunflower. Hybrid Sunflower production offers farmers an excellent aid in better managing production, gross margin and increase net returns, as well as reduces net return variability from year to year, to the farming operation. However, the analysis shows that hybrids have contributed very minimally to the improvement of Sunflower yield.

Therefore, it is suggested that to adopt more and more Hybrid Sunflower, through which farmers should be increase the production, gross margin and increase net returns. Farmers were unaware of proper combination of inputs and sowing time they either underutilized the inputs or over utilized and sow seed either very early or late of the season. For the promotion of Hybrid Sunflower following strategy should be adopted.

- There is a need for Sunflower research programs. The scientists should make efforts for the own Hybrid Sunflower varieties, because of Hybrid Seed was imported which is expensive for farmers.
- Improper use of sowing method for sunflower crop, get for highly yield.
- Improper and water shortage made disturbance in Sunflower production, Government should provide irrigation water in proper way and timely.
- If sunflower growers use the traditional variety, they have must be made a Honey bee colony in his sunflower field for get high production.
- Advising proper combination of inputs to the farmer and giving subsidy on the inputs will result in enhanced per acre yield of Sunflower.
- Sunflower Farmers can be enhanced by the adoption of Hybrid Sunflower.
- Government should provide subsidies on fertilizers and pesticides and other micro nutrients.
- Farmers face the marketing problems. Government should make adequate policies and farmers must be involved while making these agricultural policies.
- There is need of proper guide to farmers about Hybrid Sunflower so Government should provide and activate researchers and extension department for proper guideline of farmers.

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