

IMPACT OF GOVERNMENT POLICIES ON PRODUCTION OF OLIVE IN PAKISTAN

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ABSTRACT

The olive industry in Pakistan holds significant potential for economic growth and livelihood improvement. However, several challenges hinder its development. Our research explored these challenges and proposed policy recommendations. Key findings include the importance of high-quality inputs (fertilizers, pesticides, etc.), access to markets (both national and international), and effective orchard management. Addressing technical gaps in processing, ensuring adherence to international standards, and maintaining consistent policies are crucial. By adopting a holistic approach, Pakistan can unlock the full potential of its olive sector, benefiting farmers and the economy.

PREFACE

The olive sector in Pakistan provides an excellent and potential opportunity for economic as well as crop diversification, land utilization, and rural development. While the country possesses suitable climatic conditions and fertile land for olive cultivation, its production currently falls short of its true potential. This project explored the challenges hindering the growth of Pakistan's olive industry and proposes actionable policy recommendations to overcome these obstacles.

This research project investigated and relied upon a comprehensive analysis of existing literature, interviews with industry stakeholders, and field studies conducted in olive-producing regions of Pakistan. Our findings highlight the critical factors influencing olive production, including the availability of high-quality inputs, access to domestic and international markets, and the implementation of effective orchard management practices. We further explore technical gaps in olive processing, the importance of adhering to international standards, and the need for consistent government policies to ensure long-term sector growth.

By adopting a holistic approach that addresses these complex and unaddressed challenges, Pakistan can utilize the excellent potential of its olive sector. This, in turn, will empower olive farmers, stimulate economic activity in rural areas, and contribute significantly to the national economy. We believe the insights and recommendations presented in this report will serve as a valuable resource for policymakers, industry leaders, and all those invested in the sustainable development of Pakistan's olive industry.

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ABBREVIATIONS

PAM	Policy Analysis Matrix
NPC	National Protection Coefficient
DP	Domestic Price
EPC	Effective Protection Coefficient
DRC	Domestic Resource Cost
KIIs	Key Informative Interviews
KPK	Khyber Pakhtunkhwa
GB	Gilgit Baltistan
AJK	Azad Jammu & Kashmir
ICT	Islamabad Capital Territory

INTRODUCTION

The agricultural sector in Pakistan plays a crucial role in the country's socio-economic development. In recent years, there has been a shift towards the cultivation of high-value crops, including the olive tree, which has gained substantial attention due to its potential in contributing to the agricultural economy and the livelihood of farmers. Olive cultivation has attracted interest due to its adaptability to marginal and uneven conditions (Jan et al., 2021; Khaliq et al., 2020; Raza et al., 2023).

Pakistan has diverse agro-climatic conditions that favor the cultivation of olive trees, particularly in the provinces of Balochistan, Khyber Pakhtunkhwa, and the Potohar region in Punjab. Recognizing the economic and environmental benefits of olive cultivation, the government has implemented various policies and programs to promote its growth. However, the olive industry in Pakistan is still in its early stages and faces numerous challenges, including limited technical knowledge, inadequate access to quality plant material, and a lack of processing and marketing facilities.

The purpose of this study was to investigate the impact of government policies on the production of olives in Pakistan. The scope of this research involved a comprehensive analysis of the various policy interventions undertaken by the government and their direct and indirect effects on olive cultivation and production. The study also aimed to evaluate the effectiveness and efficiency of these policy measures, identify gaps and loopholes, and provide recommendations for policy improvements. Similarly, it also assessed the policy framework, institutional support, and incentives provided to farmers, as well as the challenges they face in adopting olive cultivation. Furthermore, the study explored the role of government policies in addressing supply chain issues, including olive processing and marketing. Additionally, the research investigated the potential socio-economic and environmental benefits of olive cultivation, such as employment generation, poverty alleviation, and environmental sustainability. The research study aimed to develop a roadmap for the integrated, sustainable, and comprehensive value chain for the olive sector in Pakistan.

LITERATURE REVIEW

The production of olives in Pakistan has witnessed significant growth in recent years, with various regions actively participating in olive cultivation (Ahmad et al., 2023). Estimates indicate that olive production is spread across 125 districts in Pakistan, with Punjab having the largest area under cultivation, followed by Khyber Pakhtunkhwa, Balochistan, and other regions. Additionally, there are 34 olive oil extraction units operating throughout the country, with Khyber Pakhtunkhwa leading in this aspect, followed by Balochistan and Punjab (Jan et al., 2022).

The government has provided subsidies and financial incentives to farmers to encourage the establishment of olive orchards (Raza et al., 2023). These incentives cover various aspects such as the procurement of quality planting material and the installation of irrigation systems. The literature suggest that these subsidies and incentives have played a crucial role in expanding the area under olive cultivation in Pakistan (Riaz & Abdullah, 2022).

The government's investment in research and development activities related to olive cultivation has been significant. This support has led to the development of improved olive varieties and enhanced production techniques (Raza et al., 2023; Sarwar et al., 2023). The dissemination of technical knowledge to farmers has also been facilitated through research and development initiatives (Riaz & Abdullah, 2022). Infrastructure development projects have been initiated by the government to support the olive industry. The establishment of olive nurseries, processing units, and cold storage facilities aims to address the challenges faced by farmers in olive processing and marketing (Ahmad et al., 2022).

Studies have emphasized the significance of policy interventions such as subsidies and financial incentives in promoting olive cultivation (Rana et al., 2022). These incentives have been found to encourage farmers to adopt olive farming and expand the area under cultivation. Moreover, research and development support has been identified as a key component in improving olive production techniques, developing new varieties, and disseminating knowledge to farmers.

RESEARCH METHODOLOGY

To gather primary data related to olive cultivation, a multistage stratified sampling technique was employed. Farmers' questionnaires were filled in different districts to collect information on various aspects of olive cultivation. Key Informative Interviews (KIIs) were conducted with key stakeholders involved in the olive sector, including farmers, nurseries, researchers, academia, and representatives from the oil industry. The information collected through the surveys and KIIs will be analyzed using the Policy Analysis Matrix (PAM) methodology. Detailed results from the surveys will be presented in the final report.

3.1 Data Collection

3.1.1 Farmers' Questionnaires

Farmers' questionnaires were filled in the following districts:

Khyber Pakhtunkhwa: Districts Dir, Kohat, Noshera, Swat, Swabi, Peshawar, Mansera, and Parachinaar.

Punjab: Districts Chakwal, Talagang, Attock, Bahawalpur, and D.G. Khan.

Balochistan: Districts Chagi, Pajgoor, Noshki, Khuzdar, Bela, Mastung, Quetta, Pishin, Chaman, Killa Saifulla, Hernai, Barkan, Kohlu, Musakhail, Loralai, Zhob, and Sherani.

The questionnaires were designed in consultation with subject matter experts and pilot tested to ensure their effectiveness. The data collected through the questionnaires will be analyzed using appropriate statistical techniques.

3.1.2 Key Informative Interviews (KIIs)

Key Informative Interviews were conducted in the following districts:

Khyber Pakhtunkhwa: Peshawar, Lower Dir, Upper Dir, Noshera, Kohat, Mansera, Abbottabad, Swat, and Swabi.

Balochistan: Quetta, Killa Saifulla, Pishin, Khuzdar, Bela, Washuk, Kharaan, Noshki, Chagrin, Musakhail, Loralai, and Zhob.

The KIIs aimed to gather insights from key stakeholders on the challenges and opportunities facing the olive industry in Pakistan. These interviews provided valuable information to complement the data obtained from the farmers' questionnaires.

RESULTS

4.1 Status of Olive Plantation

The status of olive planting in Pakistan reveals a distributed and varied landscape across different regions and provinces.

4.1.1 Balochistan:

Districts: 31

Total Olive Plants: 1,676,477

Total Acreage: 13,193

Balochistan demonstrates a significant presence in olive cultivation with a substantial number of plants and acres dedicated to olive farming. The extensive distribution across 31 districts indicates a concerted effort to promote olive cultivation in the province.

4.1.2 Khyber Pakhtunkhwa (KPK):

Districts: 32

Total Olive Plants: 1,494,626

Total Acreage: 13,489

KPK also showcases a considerable investment in olive planting, with a substantial number of plants and acres. The presence in 32 districts suggests a widespread approach to olive cultivation, reflecting the commitment to boost the olive industry in the region.

4.1.3 Punjab:

Districts: 30

Total Olive Plants: 2,115,975

Total Acreage: 16,107

Punjab emerges as a significant contributor to olive cultivation, boasting the highest number of plants and acres among the provinces. The extensive distribution across 30 districts underscores the province's dedication to the olive sector, potentially positioning Punjab as a major olive-producing region in Pakistan.

4.1.4 Azad Jammu and Kashmir (AJK):

Districts: 10

Total Olive Plants: 126,885

Total Acreage: 957

AJK exhibits a notable presence in olive cultivation, with a substantial number of plants and acres. The concentration in 10 districts suggests a strategic approach to olive farming, aiming to harness the region's potential for olive production.

4.1.5 Islamabad Capital Territory (ICT):

Districts: 1

Total Olive Plants: 96,415

Total Acreage: 816

Although confined to a single district, ICT shows a focused effort in olive planting with a significant number of plants and acres. This concentrated approach may result in high productivity and efficient management of olive cultivation within the territory.

4.1.6 Gilgit-Baltistan (GB):

Districts: 7

Total Olive Plants: 63,296

Total Acreage: 475

GB reflects a modest yet noteworthy presence in olive cultivation, with a distributed number of plants and acres across seven districts. This signifies a targeted effort to integrate olive farming into the agricultural landscape of the region.

4.1.7 Sindh:

Districts: 14

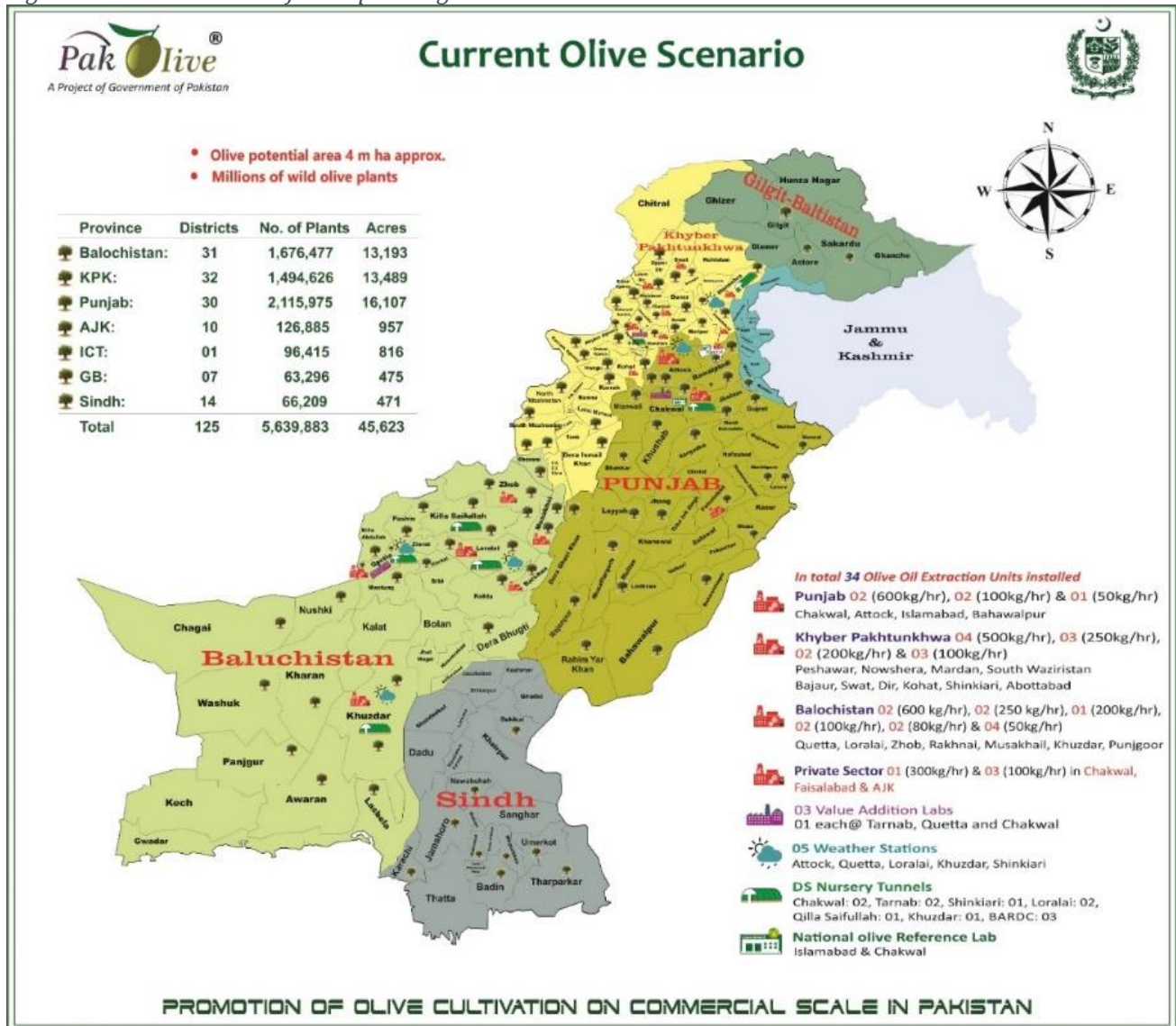
Total Olive Plants: 66,209

Total Acreage: 471

Sindh contributes to the national olive cultivation effort with a substantial number of plants and acres distributed across 14 districts. The presence in multiple districts highlights the province's commitment to diversify its agricultural activities.

In summary, the status of olive planting in Pakistan reveals a diverse and widespread effort across provinces, showcasing a commitment to harness the economic and environmental benefits of olive cultivation. The substantial number of plants and acres in each region indicates a strategic approach to position Pakistan as a significant player in the global olive industry.

Figure 1: Current status of olive planting and extraction units



4.2 Status of Olive Oil Extraction Units

The status of olive oil extraction units in Pakistan indicates a comprehensive effort to establish processing infrastructure across various provinces and sectors.

4.2.1 Punjab:

Total Units: 5

Capacities: 2 units (600kg/hr), 2 units (100kg/hr), 1 unit (50kg/hr)

Locations: Chakwal, Attock, Islamabad, Bahawalpur

Punjab exhibits a diverse range of olive oil extraction units, spread across different capacities and locations. This suggests a concerted effort to establish processing capabilities in key areas, reflecting the province's commitment to the olive oil industry.

4.2.2 Khyber Pakhtunkhwa (KPK):

Total Units: 12

Capacities: 4 units (500kg/hr), 3 units (250kg/hr), 2 units (200kg/hr), 3 units (100kg/hr)

Locations: Peshawar, Nowshera, Mardan, South Waziristan, Bajaur, Swat, Dir, Kohat, Shinkhari, Abbottabad

KPK demonstrates a significant investment in olive oil extraction units, covering a range of capacities and strategically located in various districts. This decentralized approach aims to promote olive oil processing across the province.

4.2.3 Balochistan:

Total Units: 13

Capacities: 2 units (600kg/hr), 2 units (250kg/hr), 1 unit (200kg/hr), 2 units (100kg/hr), 2 units (80kg/hr), 4 units (50kg/hr)

Locations: Quetta, Loralai, Zhob, Rakhnai, Musakhail, Khuzdar, Punjgoor

Balochistan displays a substantial presence in olive oil extraction units, featuring a variety of capacities spread across different regions. This distributed network reflects an effort to integrate olive oil processing into the agricultural landscape of the province.

4.2.4 Private Sector:

Total Units: 4

Capacities: 1 unit (300kg/hr), 3 units (100kg/hr)

Locations: Chakwal, Faisalabad, AJK

The private sector contributes to the olive oil extraction infrastructure with a focus on Chakwal, Faisalabad, and AJK. This involvement indicates a growing interest and investment from non-government entities in olive oil processing.

4.3 Value Addition Labs:

Total Labs: 3

Locations: Tarnab, Quetta, Chakwal

Three value addition labs strategically located in Tarnab, Quetta, and Chakwal signify an emphasis on research and development, enhancing the overall value chain of olive oil production.

4.4 Weather Stations:

Total Stations: 5

Locations: Attock, Quetta, Loralai, Khuzdar, Shinkhari

The installation of weather stations in key locations underscores the importance of monitoring climatic conditions for optimal olive cultivation and oil extraction.

4.5 DS Nursery Tunnels:

Total Tunnels: 12

Locations: Chakwal (2), Tarnab (2), Shinkiari (1), Loralai (2), Qilla Saifullah (1), Khuzdar (1), BARDC (3)

The presence of nursery tunnels in various locations indicates a focus on propagating olive plants for sustained growth and future cultivation.

4.6 National Olive Reference Lab:

Total Labs: 2

Locations: Islamabad, Chakwal

The establishment of a national olive reference lab in Islamabad and Chakwal signifies a commitment to maintaining quality standards and research in the olive oil industry at a national level.

In conclusion, the status of olive oil extraction units in Pakistan illustrates a well-rounded and distributed approach, involving both public and private sectors. This infrastructure, coupled with research facilities and support systems, aims to strengthen the entire olive oil production ecosystem in the country.

4.7 Descriptive Analysis

We have collected data from 160 olive cultivating farmers of three provinces of Pakistan.

Table 1: Province/district wise data collection

Punjab		Balochistan			Khyber Pakhtunkhwa		
Chakwal	Kalar Kahar	Loralai	Killa Saifullah	Killa Abdullah	Dir	Peshawar	Kohat
		Khuzdar	Musakhail	Kachi			
Pindi	Bahawalpur	Nushki	Dukki	Mastung			
Attock							

Table 2: Socioeconomic indicators of olive producers

Variables	Mean	Median	St. Dev	Min	Max
Education (years)	13.26	14	0.36	5	14
Farming olive farming (years)	8.84	8	2.48	1	15
Olive cultivating experience (years)	7.57	8	2.75	1	13
Distance to Agri Market (km)	4.64	4	3.38	2	22
Distance to city	4.5	3	3.38	2	22

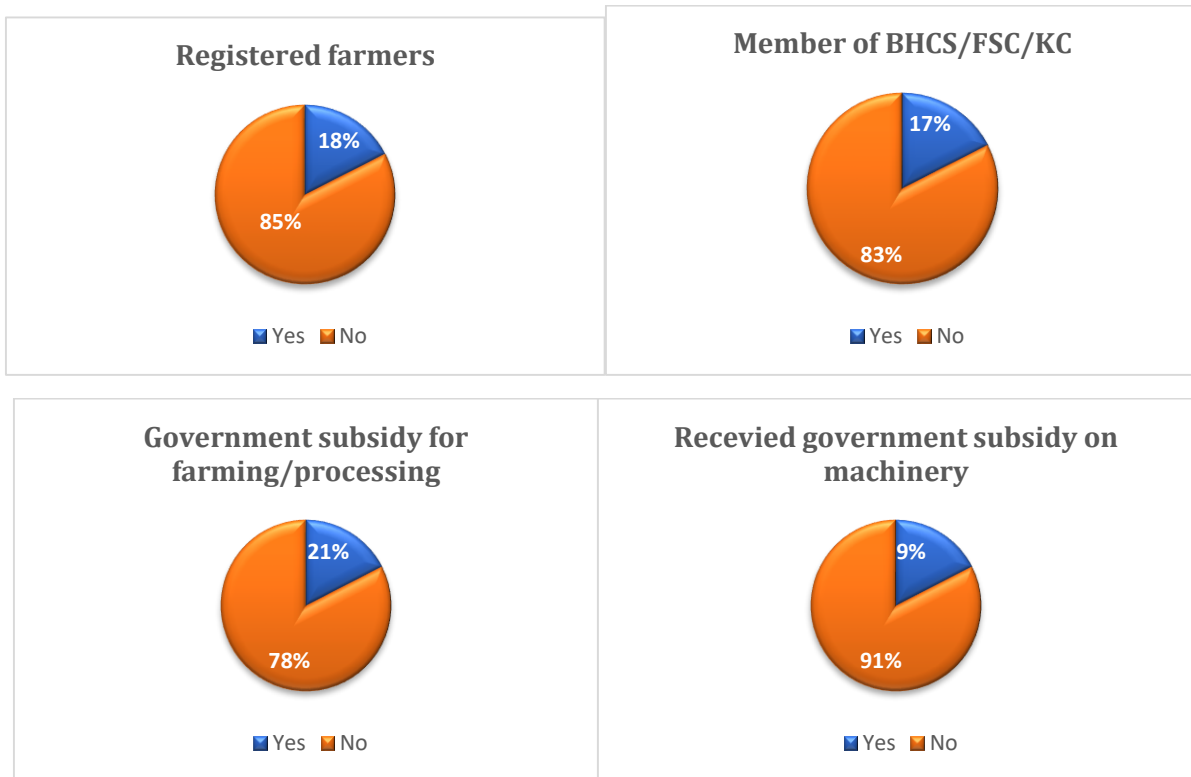
Table 2 describes the socioeconomic characteristics of farmers. It shows that average education, farming experience, olive farming experience is 13.26, 8.84 and 7.57 years respectively in the study area. While the average distance from farm to Agriculture market is 4.64 and from farm to city is 4.5 km.

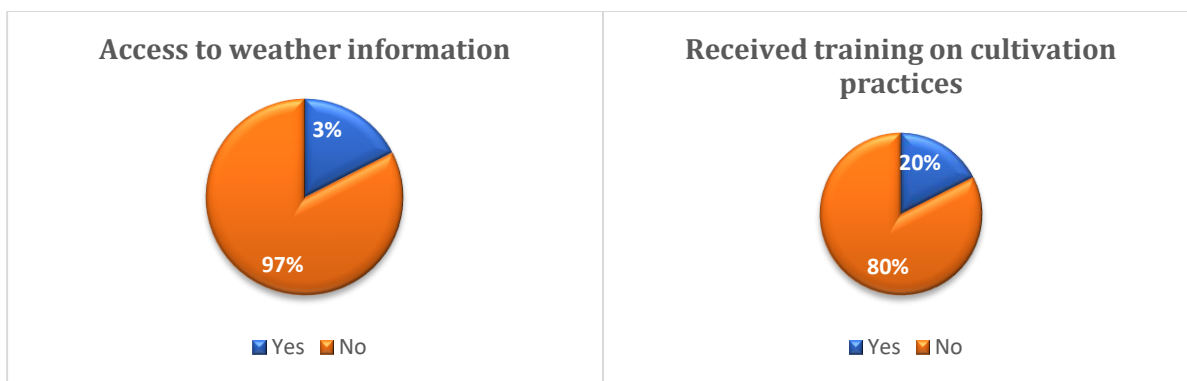
Table 3 : Extension services/access statistics

Services / Access	Yes	No
Registered	32 (18%)	152 (85%)
Member of BHCS/FSC/KC	30 (17%)	149 (83%)
Government Subsidy for Farming/Processing	34 (21%)	125 (78%)
Subsidy on Machinery	14 (9%)	146 (91%)
Access to weather information	5 (3%)	155 (97%)
Received training on cultivation practices	32 (20%)	128 (80%)
Received training on Olive cultivation practices	31 (19%)	129 (81%)

We observed that 18% of the farmers are registered with Agriculture department, and 17% farmers are registered with BHCS/FSC/KC. While 21% of farmers received Government subsidy for farming/processing. 14% of farmers received subsidy on Machinery. Only 5% of farmers have access to weather information. 20% of farmers received training on cultivation practices and 31% of farmers received training on Olive Cultivation practices. (Table 3).

Figure 2: Summary statistics





The agricultural sector in Pakistan has witnessed a notable shift toward high-value crops, including olive trees. These adaptable trees thrive in diverse agro-climatic conditions, particularly in provinces like Balochistan, Khyber Pakhtunkhwa, and the Potohar region in Punjab. Recognizing the economic and environmental benefits of olive cultivation, the government has implemented several policies and programs to promote its growth. However, challenges persist, such as limited technical knowledge among farmers, inadequate access to quality plant material, and a lack of processing and marketing facilities.

Our research aimed to investigate the impact of government policies on olive production. The results revealed strong support for policy interventions: An overwhelming 98% of respondents expressed interest in investing if the government subsidizes 50% of the cost. Similarly, 96% favored investment when processing units (such as oil expellers) are subsidized. A significant 98% would invest if diesel or electricity costs were subsidized, while 95% recognized the importance of subsidies for pesticides, insecticides, and weedicides. 98% were receptive to investing if drought-resistant olive varieties were introduced, and 96% considered improved water availability a positive factor. A good proportion of 98% believed proper training and extension services would encourage investment, and lastly 98% saw crop insurance as a favorable policy intervention (Table 4).

Table 4: Farmers' responses to various policy intervention in olive sector

Policy Intervention	Yes	No
If the government subsidizes 50% of the cost, would you be more likely to invest in olive farming or processing	158 (98 %)	2 (2%)
If the government subsidizes Processing Units (Expeller) would you be more likely to invests in olive farming or processing?	154 (96 %)	6 (4 %)
If the government subsidizes diesel/electricity, would you be more likely to invests in olive farming or processing	158 (98 %)	2 (2%)
If the government subsidizes pesticides/ insecticides/ weedicides, would you be more likely it invests in olive farming or processing	153 (95%)	7 (5%)
If drought resistant varieties are introduced, would you be more likely to invest in olive farming or processing	158 (98 %)	2 (2%)
If water availability is enhanced, would you be more likely to invest in olive farming or processing	154 (96 %)	6 (4 %)
If training and extension services are properly provided, would you be more likely to invests in olive farming or processing	157 (98 %)	3 (2%)
If crop insurance is introduced, would you be more likely to invest in olive farming or processing	158 (98 %)	2 (2%)

We've seen that two of the biggest problems mentioned in relation to olive cultivation are access to water and extension services. High fertilizer, seed, and energy costs are other significant considerations in olive production. In a similar vein, herbicides and seed quality are impeding olive production.

4.8 Farmers' Perceptions

Our research aimed to investigate the impact of government policies on olive production. The results revealed strong support for policy interventions:

4.8.1 Access to High-Quality Inputs:

HIGH-QUALITY FERTILIZER:

Major Issue: 154 respondents highlighted the importance of access to high-quality fertilizer. Ensuring nutrient-rich soil is crucial for optimal olive tree growth and yield.

Minor Issue: 5 respondents expressed concerns, possibly related to availability or affordability.

Don't Know: 1 respondent was unsure about the impact of fertilizer quality.

HIGH-QUALITY PESTICIDES, INSECTICIDES, AND WEEDICIDES:

Major Issue: 140 respondents emphasized the need for quality pesticides. Effective pest management is essential for healthy olive trees.

Minor Issue: 15 respondents raised concerns about pesticide quality.

Don't Know: 5 respondents were uncertain about the significance of these inputs.

4.8.2 Access to Markets:

NATIONAL MARKET:

Major Issue: 149 respondents recognized the importance of a robust national market. Efficient distribution channels and local demand are critical for olive sales.

Minor Issue: 10 respondents indicated minor concerns related to market access.

Don't Know: 1 respondent was unsure about the impact of national market access.

INTERNATIONAL MARKET:

Major Issue: 155 respondents highlighted the significance of international market access. Export opportunities can significantly boost the olive industry.

Minor Issue: 3 respondents expressed minor reservations.

Don't Know: 2 respondents were uncertain about the implications of global market access.

Table 5: Farmers' perception about issues in Olive production

Factors		Major issue	Minor issue	Don't know
Access to	high quality Fertilizer	154	5	1
	high quality pesticides	140	15	5
	high quality Insecticides	145	13	2
	high quality Weedicides	145	13	2
Access to	National Market	149	10	1
	International Market	155	3	2

We observe that access to high quality fertilizer, pesticides insecticides and weedicides are major issue reported in olive production in the study area. Also access to international and national olive market is major issue reported. (Table 5).

Table 6: Estimates of PAM indicators of olive (based on export price parity)

Economic Efficiency	Region	Olive
NPC	Punjab	1.02
	Khyber-Pakhtunkhwa	1.01
	Balochistan	1.04
EPC	Punjab	0.91
	Khyber-Pakhtunkhwa	0.92
	Balochistan	0.99
DRC	Punjab	0.59
	Khyber-Pakhtunkhwa	0.54
	Balochistan	0.39

4.9 Results of the Analysis of Agricultural Policies:

The Policy Analysis Matrix offers key indicators for assessing the competitiveness and efficiency of economic systems. It specifically examines the level of protection or implicit taxation that arises from a country's overall policies towards the agricultural sector. These policies have an impact on the input and output markets as well as the commerce of the industry. This study measures some specific indicators.

The Policy Analysis Matrix (PAM) was employed to assess the influence of current policies, such as input prices, product prices, resource prices, loan support, subsidies via agricultural projects, and exchange rates, on the efficiency of olive tree production across various governorates. The study established the comparative advantage and economic norms of protection, which include competitiveness and efficiency. It also examined the influence of policies on the olive crop.

The nominal protection coefficient (NPC) represents the unit domestic price (DP) and the foreign price ratio (PP), with both prices expressed in national currency. Table 6 illustrates the NPC of Olive 1.02, 1.01, and 1.04 Punjab, KP and Balochistan.

The effective protection coefficient (EPC) measures the private value added (PVA) compared to the social or economic value added. If the value of EPC is more than one, it shows that the producers generate a value-added higher than under the optimal situation. Due to protection, farmers are economically efficient, while the value of less than one shows that producers are implicitly taxed. It provides a better measure of protection as compared to NPC.

The domestic resource cost (DRC) indicates the opportunity cost of the domestic resources and the social value added per crop unit. The country has a comparative advantage in the product under consideration if the value of DRC is lower than one, and vice versa. The results show that DRC for Olive in Punjab, KP and Balochistan.

Based on these observed results, we propose offering incentives to farmers that are tailored to individual crops and farm scales. This would encourage farmers to prioritize the cultivation of crops that use fewer domestic resources to provide output. Efforts should be made to mitigate price volatility in input and output markets, particularly in relation to olive pricing, in order to incentivize olive production in Balochistan. Balochistan has a distinct edge in olive production, so it is essential to enhance the market infrastructure to facilitate the expansion of Olive output.

ANALYSING THE OLIVE VALUE CHAIN IN PAKISTAN: OPPORTUNITIES FOR WOMEN'S INCLUSION AND PARTICIPATION

The olive industry in Pakistan faces several challenges, including input quality, market access, and policy discontinuity. To address these issues, policymakers should focus on orchard management, packaging, branding, and consistent regulations. Additionally, promoting water availability, suitable varieties, and proper pruning techniques will enhance olive farming. Ensuring quality production, attractive bottling, and adherence to international standards are crucial for competitiveness. A holistic approach, supported by stable policies, technical expertise, and market development, will drive sustainable growth in Pakistan's olive sector.

Elements of the main problem	Solutions to problems/policy recommendations
1) Major general problems in the industry as a whole	Orchard management, Packing, branding, bottling, regulation, policy
2) Main problems in supplying inputs	Regulation, support price, international standard is not following, labor cost, fluctuation in quality
3) Main problems in farming	Water availability, varieties availability as per climatic condition, pruning pattern
4) Main problems in marketing	Quality product, bottles, branding, unavailability of local market
5) Main problems in processing	Lack of technical man power, lack of portable units, HAACP standard are not follow, lack of storage tank
6) Main problems specifically regarding export performance and competitiveness	Low production, quality production as per standard, attractive bottling missing, can't follow IOC standard
7) Main problems related to government policies	Discontinuity of policies, irregularities
8) Main problems in other aspects	High farmers share in provision of plants and drip irrigation, extraction of mix varieties etc

5.1 Section 1: Production Factors

<p>1. How has climate change (drought, floods, rainfall pattern, warming) affected olive production in your region?</p> <ul style="list-style-type: none"> • Sudden increase in temperature during flowering time in Balochistan has affected the production. • Increase in humidity and sufficient rainfall during monsoon in Punjab affect the quality of production due to anthracnose disease on the fruits. • Due to increase in temperature in KP cause olive Syllid attack on the flowering which affected the production. • Some district of Balochistan, KP and Punjab were affected by flood during last year
<p>2. Did farmers shift to olive as an adaptation strategy to climate change or due to awareness and income generation?</p> <ul style="list-style-type: none"> • Yes, the farmers of Balochistan shifted to olive due to low delta crops (less water requirement) and high production as by replacing apples as required more water.

<ul style="list-style-type: none"> • In Punjab the stakeholders are involving in olive business as obtained high income from value added products. • In KP District Nowshera, Dir, Bajour, Waziristan etc produced good quality fruits of for pickle as well as oil.
<p>3. What is range of per kg olive fruit production on an adult tree in Pakistan in your experience?</p>
<p>Olive tree is mostly matured at 07 years, so at Balochistan it produced an average of 25- 30kg/tree, while at KP 20-25kg/tree and in Punjab 15kg/tree an average.</p>
<p>4. To what extent are farmers aware of the benefits and production techniques related to olives?</p>
<p>PSDP olive project with collaboration of Italian funded project name OliveCulture provided professional training sessions on whole olive value chain i.e. nursery production, orchard management, pest management, post- harvest, value addition, branding, certification and marketing imparted by Italian expert.</p>
<p>5. What is the role of women in olive production in Pakistan?</p>
<p>Women are mostly involved in olive value addition i.e. Pickle preparation, soap, cosmetic, olive tea etc in Punjab, KP and Balochistan. For this purpose, women associations are made across the country and training sessions are delivered by Italian experts and by Pakistani technicians.</p>
<p>How is women's engagement and participation at the production level influencing the overall success of the olive value chain?</p>
<p>Women can play a Vitol role in the business of olive value chain. They can work on producing new olive products and introduce in the local markets.</p>
<p>7. What are the major pest and disease challenges faced by olive farmers, and how are they mitigating these issues?</p>
<p>Olive Psyllid = Timing 1): before flowering to protect the inflorescences (flower clusters) Timing 2): immediately after the harvest, ideally after the pruning, to decrease the active population before it stops the activity for the drop of the temperatures due to the approximating of the winter Products: Rates to be defined locally. Before the insecticide is applied the canopy should be irrigated with high volumes of water and insecticidal soap (potassium salt, Marseille Soap + oil or detergent) to eliminate most of the waxes which protect the insect. Bifenthrin or lambda cyhalothrin or azadirachtin @ 2ml/lit water.</p> <p>Anthracnose= Early Harvesting in order to escape secondary infections. Planting the trees at a higher distance and pruning for better aeration of the canopy and to break down the primary inoculum on the plant (dry twigs, mummified drupes). Control of fruit fly that spreads the conidia of the pathogen. Chemical Control: Pyraclostrobin, Tebuconazole, Trifloxystrobin, and Cupric Products (Copper Oxycloride).</p> <p>Olive fruit fly= Pheromone trap is effective in catching adult moths and should be installed in early spring. Organophosphate compounds applied against the larval feeding stages on flowers may provide good control.</p> <p>Olive scale= Monitoring to detect the presence of honeydew on infected trees Pruning of closed canopies.</p> <p>Pea Cock Leaf Spot= Use less susceptible varieties (Frantoio, Leccino, Ascolana). Adopt not too dense plant layouts. Promote ventilation and insolation even in the internal parts of the canopy. Carry out balanced fertilizations Spraying the tree with 2% Bordeaux mixture can control the disease.</p>

<p>Olive Knot= Field Monitoring: Between July and August, an early detection should be carried out on the leaves for the presence of disease (even if symptoms are not apparently visible on the tree). Pruning of the branches during the dry season may also reduce the inoculum of disease expose it to good aeration.</p> <p>Preventive Control: Use of copper-based compounds 20 days before the harvest or after the harvest</p> <p>Curative Control: It is also important to cover wounds after the pruning during spring season with curative products (Copper Hydroxide).</p>
<p>8. women Farmers do have access to resources? What is the situation of their control on land and other resources and inputs?</p>
<p>Only in Punjab women of are also involved in orchard establishment and nursery production, while mostly women have no role in the field of olive except olive value addition and house hold industry.</p>

5.2 Section 2: Market Issues

<p>1. How are collective marketing efforts contributing to the promotion and sales of olive products?</p>
<p>Olive is a new crop in Pakistan, no proper market established for olive. Collective marketing will help the individual farmers across the province will help to bring all producers on one page and will help in promotion olive products.</p>
<p>2. What is the level of women's engagement and participation at the production level in the olive value chain, and how does it impact market outcomes?</p>
<p>Women are mostly involved in olive value addition and it is in initial stage. In near future it will help in local market to introduce locally produced olive products.</p>
<p>3. What are the key challenges faced by olive farmers in accessing markets for their products, especially for women farmers involved in marketing?</p>
<p>Presently no such market exists for olive products most of the farmers sale their products on personal approach.</p>
<p>4. How does the involvement of middlemen affect the market dynamics and profitability of olive farmers?</p>
<p>From Punjab some middlemen purchased produced from Balochistan and KP farmers on low rates which affect the market dynamics and profit of the farmers.</p>
<p>5. What is the main supply and demand issues for different olive products in the market?</p>
<p>In Pakistan have good quantity of demand of oil and its products but they face problems in supply due to unavailability of local market.</p>
<p>6. How does competition between market actors influence pricing and market share in the olive value chain?</p>
<p>There is no proper mechanism for fixing rate for fruits, oil and products. Businessmen purchase the fruits from different farmers directly on low rate, extract oil and sale on high rate which affect the local producers.</p>
<p>7. What are the opportunities and challenges associated with e-commerce in the olive value chain?</p>
<p>This phenomenon is not yet introduced in olive business.</p>
<p>8. How does product competitiveness impact market success for olive producers?</p>
<p>Those farmers who followed HAACP procedure to produced extra virgin olive oil has high demand and rate as compared to those produced low quality olive oil.</p>
<p>9. What are the opportunities and challenges faced by traders in the olive value chain?</p>
<p>Non-availability of local market.</p>

5.3 Section 3: Processing

1. How does product quality affect the market demand and value of processed olive products?
Extra virgin olive oil and quality products has high demand as consumers have knowledge and conscious about health. Packing, labelling and bottling affect the market.
2. What are the key facilities required for olive processing, and how accessible are these facilities to olive producers?
<ul style="list-style-type: none"> i. Small potable extraction units in furlong areas of Balochistan to obtain quality oil ii. Pre and post-harvest kits iii. Stainless steel storage tank for storage of olive oil iv. Proper bottles, packing, labelling v. Machinery for table olive processing Government are providing plants, drip and pre and post-harvest kits on subsidies rates, while for the remaining NGOs should facilitate farmers.
3. What is the cost of processing olives, and how does it impact the profitability of the value chain?
For value added products very less amount required to established the business by producing quality products will be in competition with the import products.
4. What types of processing facilities are available, and how do they influence the quality and quantity of processed olive products?
<ul style="list-style-type: none"> i. For oil extraction: Oil mills at all Punjab, Balochistan and KP in Government institute who provided facilitates to the farmer for extraction. To obtain quality and quantity oil many training sessions were conducted. ii. To prepare quality products (table olive) i.e. de-pitting, slicing etc., one unit installed at Balochistan one at Punjab and one at KP to facilitate olive farmers.
5. To what extent are women engaged and participating at the processing level in the olive value chain?
Small numbers of women engaged as it a new crop in Pakistan.
6. What are the major risk factors associated with olive processing, and how are they managed?
<p>Electricity problem: Manage by generator.</p> <p>Storage tank: No proper stainless-steel storage tank available so farmers stored their oil in plastic tank which affect the quality of oil</p> <p>Olive Pickle: Farmers/women prepared olive pickle on traditional method due to which the shelf life of the products is very less.</p>
7. What is the role of local manufacture of processing units in supporting the development of the olive value chain?
Local manufacture design tea, soap, pellet machine etc machine and help in importing extraction units.

5.4 Section 4: External Factors

How do government policies impact the growth and development of the olive value chain?
Government provided plants, drip irrigation system on 67% subsidy, pre and post-harvest kits on 50% matching grant, while free of cost extraction facilities and conducted training session on all aspect of value chain. Government of Pakistan also working of action plan and on establishment of Pakistan Olive Oil Council (POOC) which will help to boost the olive industry in Pakistan.
What is the cost of investment and return on investment in the olive value chain?
Vary from product to product

What are the key coordination challenges among stakeholders in the olive value chain, and how do they impact its efficiency?
Missing of association in all provinces and inter coordination among the stakeholders of all provinces. An association should be constituted in each province having contact of all farmers and having liaison between all the associations for marketing and other issues.
To what extent are women engaged and participating at the government level in shaping policies related to the olive value chain?
In POOC group 02 women are the part of this council and they got training from Italy and Italian expert impart training regarding olive value chain in which women have key role.
Can you identify any options to enhance women's engagement and empowerment in the olive value chain?
Yes, women can engage in: i. Cosmetic preparation ii. Olive pickles of various varieties iii. Nursery Propagation iv. Olive Tea, Olive Murraba

CONCLUSION

In conclusion, Pakistan's olive industry holds immense promise, but it faces complex and multitude of challenges. To enhance growth, policymakers should prioritize orchard management, quality inputs, and streamlined regulations. Water availability, suitable varieties, and proper pruning techniques are important for successful farming. Marketing efforts should focus on quality products, attractive packaging, and local market access. Additionally, addressing technical gaps in processing, adhering to international standards, and ensuring policy continuity will lead the competitiveness it needs. By following a holistic approach and sustained government support, Pakistan can unlock the full potential of its olive sector, benefiting both farmers and the national economy.

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