



Cultivating Prosperity: A Journey from Setbacks to Success in Palm Oil Cultivation – Unlocking a 10X Yield Revolution in a \$5 Billion Market!

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Abstract: In this comprehensive white paper, we delve into the profound insights derived from the Golarchi Palm Oil Pilot Project, a groundbreaking initiative spanning a decade and encompassing a 50-acre expanse in the heart of Sindh, Pakistan. Guided by the expertise of Farid Premani, a distinguished Biotech Agri Consultant boasting accolades such as the Guinness World Record Holder, PhD Full Bright Scholar in Biotech, and the creative force behind three successful companies. The venture, in collaboration with Mr. Zamir Hussain from Sindh Coastal Authority, unearths the intricate methodologies, expenses, and yields intricately associated with palm oil cultivation. Through meticulous analysis, this study elucidates the intricate financial landscape of the project. It delves into revenue generation models, profit margins, and the overall economic viability of palm oil cultivation. The findings not only shed light on the economic prospects of the Golarchi project but also present a compelling case for scaling up palm oil cultivation on a national scale. The paper underscores that cultivating palm oil across 3 million acres has the transformative potential to render Pakistan self-sustainable, bridging the gap in its annual 5-billion-dollar palm oil imports from Malaysia and Singapore. Crucially, this white paper isn't merely an exploration of financial viability; it is a testament to sustainable farming practices. Emphasizing the paramount importance of environmental conservation, the paper outlines strategies that not only make economic sense but also tread lightly on the Earth. It illuminates a path where economic growth harmoniously coexists with ecological well-being, advocating for a future where palm oil cultivation becomes a beacon of sustainable agriculture, illuminating the way forward for Pakistan and the global community alike.

1. Introduction: The Golarchi Palm Oil Pilot Project aimed to assess the feasibility and profitability of cultivating palm oil on 50 acres of land in Golarchi, Sindh, Pakistan. The study focused on hybrid palm seed “Tenera” from Malaysia, evaluating its potential for sustainable cultivation in the local agricultural landscape. Some numbers derived from 50 acre successful pilot:

Agricultural Demographics

- 5 billion kilograms of palm oil is equivalent to
- 5,000,000,000 kg of oil if considered \$1 per kg of oil equivalent to Rs 300
- Each tree yields

- 30 kg of oil and 120 kg of fruit (25-28% extraction)
- So, the number of trees needed is
- $5,000,000,000 \text{ kg} / 30 \text{ kg per tree} = 166,666,667 \text{ trees}$

Scalability Calculations

- There are 54 trees per acre.
- Therefore, the number of acres required is
- $166,666,667 \text{ trees} / 54 \text{ trees per acre} \approx 3,086,420.37 \text{ acres}$
- Considering the average small scale to large farmer residing at 100 acres about 30,000 agri entrepreneurs could benefit from inviting youth graduates from biotech, food sciences and other disciplines who unfortunately in Pakistan are at mercy of unemployment or cross industry jobs having no decent future.

2. Methodology:

2.1 Palm Oil Cultivation:

- Land Preparation: Each acre accommodated 54 palm trees, totaling 2,700 trees over 50 acres was conducted in land near Golarachi, Sindh - Thatta District
- Yield: Initial yield started from the 3rd year, with each tree producing 180 kg annually,
- Companion Crops: Intercropping with pulses and vegetables provided additional revenue and enhanced soil fertility. The companion crops can contribute a constant income of 100,000 PKR per acre per year.

Here are some companion crops that can be cultivated with palm oil trees:

Banana and Plantain: These fast-growing plants provide shade to young palm oil trees and can be harvested for additional income.

Pineapple: Pineapple plants have shallow roots and can be grown between palm oil rows. They help control weeds and retain soil moisture.

Legumes (e.g., Soybeans, Peanuts): Leguminous plants enrich the soil with nitrogen through a process called nitrogen fixation, benefiting both the companion crops and palm oil trees.

Cassava: Cassava is a drought-tolerant crop that can be grown between palm oil trees. It provides food security and income diversification.

Ginger and Turmeric: These spices can be grown under the canopy of palm oil trees. They require partial shade and can be a profitable secondary crop.

Peanuts: Peanuts can be grown as an intercrop with young palm oil trees. They have shallow roots and do not compete significantly with palm oil for nutrients.

Pigeon Pea: Pigeon pea is a nitrogen-fixing legume that enriches the soil. It can be grown as a cover crop in palm oil plantations.

Papaya: Papaya plants have a short life cycle and can be grown between palm oil rows. They add diversity to the plantation and provide an additional income source.

Rubber Trees: Rubber trees can be interspersed with palm oil trees, especially in areas where rubber cultivation is suitable. This diversification adds resilience to the plantation.

Herbs (e.g., Lemongrass, Basil): Certain herbs can be grown as ground cover between palm oil trees. They can deter pests and provide additional income through culinary and medicinal uses.

It's important to note that the choice of companion crops should be made based on careful consideration of the local climate, soil type, water availability, and market demand. Proper planning and crop rotation strategies can help optimize the benefits of companion cropping in palm oil plantations.

3. Cultivation Process:

- Fertilization: Fertilizer costs incurred annually from the 4th year onward at a rate of 283 PKR per tree.

4. Financial Aspects:

4.1 Cost Breakdown (Per Acre):

- Seed: 100 PKR per tree
- Fertilizer (Annual from 4th Year): 283 PKR per tree
- Miscellaneous Expenses: Operational costs spread across the initial three years.

4.2 Revenue Calculation (Per Acre):

- Palm Oil Revenue: Calculated based 54 trees per acre - each tree giving 120 kg about 30 kg of oil as its 25% oil content in Palm fruit x 300 pkr (\$1 approx) giving about \$1620 equivalent to Rs 486,000-500K Pakistani Rupees of revenue after 3 years and ongoing basis increasing 5% every year
- Where as Total investment per acre required is 15282 per year per acre x 3 years = 45,846 PKR
- Return on Investment = $486,000 / 45,846 = 10x$ 1000% in 3 years rounding off to about 333% per year without cost of land rental that varies places to place starting from Rs 15000/acre to 100,000 per acre still on easier and least possible basis we can see 250% ROI coming up as annual return
- Companion Crop Revenue: Assume a constant income of 100,000 PKR per acre per year starting from year 1 if you don't want to wait for full throttle palm income, This will take up 30% of your land but will sustain you during three years for farmers with low capital investments.

ROI

Year	Investment per Acre (PKR)	Palm Oil Revenue (PKR)	Total Revenue (PKR)	Cumulative Revenue (PKR)	ROI (%)
1	45,846	0	0	0	0
2	48,138	0	0	0	0
3	50,545	510,300	510,300	510,300	1010.77
4	53,072	535,815	535,815	1,046,115	1971.54

5	55,726	562,606	562,606	1,608,721	2872.05
6	58,513	590,736	590,736	2,199,457	3772.84
7	61,437	620,298	620,298	2,819,755	4674.07
8	64,505	651,378	651,378	3,471,133	5580.25
9	67,724	684,071	684,071	4,155,204	6493.18
10	71,103	718,475	718,475	4,873,679	7415.93

In this table, the investment increases by 5% every year due to cost inflation, Palm Oil revenue increases by 5% every year, and the Cumulative Revenue column shows the total revenue accumulated over the years. ROI is calculated based on the cumulative revenue and the total investment made up to that year.

4.3 Profit Calculation (Per Acre):

- Profit: Calculated by subtracting the total cost per acre from the total revenue per acre.

5. Results:

The Golarchi Palm Oil Pilot Project demonstrated consistent profitability from the 3rd year onward. The project not only generated significant revenue from palm oil but also benefited from companion crops, showcasing the economic viability of the cultivation model.

6. Conclusion:

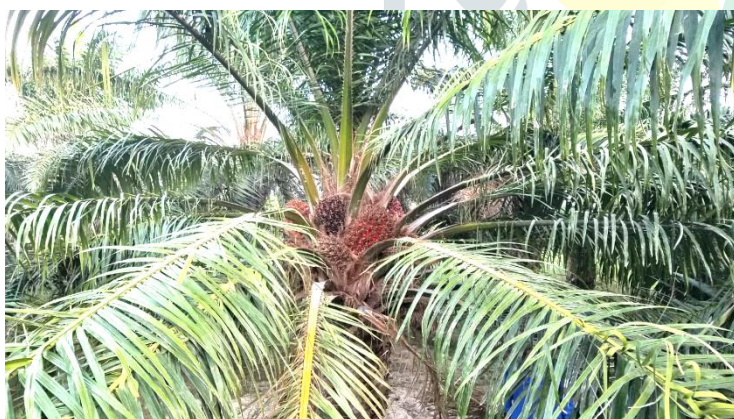
The success of the Golarchi Palm Oil Pilot Project, under the guidance of Farid Premani as Biotech Entrepreneur/Consultant and ROI Expert in Innovative Science and the leadership of Mr. Zamir - Head of Sindh Coastal Authority Pakistan and traditional farmer with high business acumen and international certifications learning Palm Oil from China, Malaysia and Sri Lanka to reinvent the wheel making it successful for Pakistan after a lot of failures in this field. Pakistan being a 5B USD importer of Palm oil. This farming on this land became possible, opening new doors of agri science for farmers, reaffirms the potential of palm oil cultivation in Sindh, Pakistan. By adopting sustainable practices and careful financial planning, this project exemplifies a model for profitable and environmentally conscious agriculture. The cultivation of palm oil, accompanied by companion crops, not only ensures economic prosperity for local farmers but also contributes to sustainable agricultural development in the region.

This comprehensive white paper, led by Biotech Agri Consultant Farid Premani and Sindh Coastal Authority Project Lead Mr. Zamir, provides a detailed overview of the Golarchi Palm Oil Pilot Project. Combining information on cultivation methodologies, financial aspects, and sustainability practices, this document

serves as a valuable resource for researchers, agricultural experts, and policymakers interested in promoting sustainable agriculture and economic development in similar regions.

- Cost per Acre: Initial cost includes land preparation, seeds, fertilizers, irrigation, organic enrichment, and miscellaneous expenses. From the 2nd year onward, the cost per acre includes manure and magnesium oxide (MgO) at a reduced rate.
- Revenue from Palm Oil: Calculated based on 180 kg per tree starting from the 3rd year, with a growth rate of 10-15% per year, sold at 300 PKR per kg.
- Revenue from Companion Crops: Assumed a constant income of 100,000 PKR per acre per year.
- Profit: Calculated by subtracting the total cost per acre from the total revenue per acre.
- Profit in USD: Calculated using the exchange rate of 1 USD = 300 PKR.

Some Images from 50 - acre pilot project:



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