

Ginning Challenges: A Case Study of SM Cotton Ginning Factory

Ghulam Muhammad (Ph.D.)¹  Mehool Kumar² Hakim Ali³ Muhammad Farooq Hasan⁴ Aziz Ahmed⁵

¹ Associate Professor, Mohammad Ali Jinnah University Karachi, Pakistan.

² Student, Mohammad Ali Jinnah University Karachi, Pakistan.

³ Student, Mohammad Ali Jinnah University Karachi, Pakistan.

⁴ Student, Mohammad Ali Jinnah University Karachi, Pakistan.

⁵ General Manager HR, Pakistan Institute of Living and Learning, Karachi, Pakistan.

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Correspondence:

Ghulam Muhammad (Ph.D.)

Associate Professor, Mohammad Ali Jinnah University Karachi, Pakistan

Email: gm@jinnah.edu

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Abstract

SM cotton ginning factory is a medium-sized cotton ginning factory located in Uthal tehsil district Lasbela Baluchistan, Land of Uthal tehsil. Cotton ginning is a critical step in the cotton value chain, where cotton fibers are separated from seeds. Pakistan is the world's fourth largest producer and consumer of cotton. The cotton industry is also a cause of better economy. In Pakistan there are more than 1,220 cotton ginning units most of the ginning units are in Punjab and Sindh. Pakistan Cotton Ginners Association (PCGA) represents the industry for advocating ginners interests and addressing their challenges. During the crop year 2023-24 Pakistan cotton ginning industry produced about 10.2 million bales of cotton. According to the Economic Survey of Pakistan fiscal year 2023-24 Pakistan exported textile of around 16 billion USD and exported cotton of around 1.42 billion USD. Textile industry contributes around 60% of the Pakistan total exports. The SM cotton ginning factory under study is currently grappling with severe financial losses, caused by a significant decrease in cotton prices, increasing operational costs, and other market-related challenges. From the recent years, a decline in ginned cotton prices and the rise in production costs, has led the SM factory into a fiscal crisis. There are a variety of external and internal factors, including overproduction, fluctuations in global demand, and unfavourable weather conditions. While the factory's operational costs, such as labour, machinery maintenance, and energy consumption, have remained constant or even increased due to inflation, the income generated from the sale of cotton has decreased, leading to financial losses. This has directly impacted on the factory's profitability. The company's management and leadership have actively engaged in both internal and external strategies to turn the business around. The factory's leadership has worked on identifying areas where expenses could be minimized. SM management took measures to reduce energy consumption, optimized labour allocation, and negotiated better deals with suppliers to secure raw cotton at competitive rates. These measures were aimed at preserving profit margins amid declining prices. The factory sought to develop value-added products such as cottonseed oil and cotton by-products. Management sought internal funding for last year's profit and friendly loans from partners to support operational activities. The finance department also worked on restructuring payment terms with suppliers. Focused on continuous manufacturing during the cotton season to meet the market demand and supply. This case thought lessons to deal with competitors and increase profitability by cost management, product diversification, diversified recruitment, production efficiency, and friendly relation with suppliers.

Keywords: Cost Analysis, Product Diversification, Recruitment, Vender Management.

1. Description of the Problem

How is it possible that we achieved our annual targets of purchases & sales, but the factory is not in profit as past years?’ Sham Lal, the Owner & Managing Director of SM Cotton Ginning Factory, asked. On 05 February 2024, the Owner called for an urgent meeting with Jetha Mal, the Procurement & Finance Manager (who purchases raw cotton from farmers and intermediate traders and rate the cotton with market price and its quality) and Narayan Das, the Sales Manager (who searches for a good buyer for cotton at suitable price either spinners or textile mills), to discuss the financial performance of the factory of past few years. Jetha Mal had assumed the Procurement and Finance position and observed a decline in net profit of the factory from the past few years, however SM was profitable from the year they started to its first 10 years. In the meeting, Jetha Mal stated that the supply of raw cotton is inefficient though the factory hardly met its expected targets of raw cotton procurement from traders for this year, but the quality of purchased raw cotton was not good due to weather conditions in these years the cotton is more dirty and wet as compared to past few years. Narayan Das stated that textiles mills import cotton of high quality for better finished products and our finished cotton bales are not up to mark to their standards, so we must sell our cotton bales at lower rates. So, it was evaluated that in some deals the sales price of cotton bales is less than the total cost of cotton ginning after deducting the revenue from cotton seed oil and seed oil cake as well as other byproducts.

2. Industry Outlook

Cotton ginning is a critical step in the cotton value chain, where cotton fibres are separated from seeds. Cotton ginning affect both farmers by price and textile mills by quality of fibre (Hardin et al., 2018). Pakistan is the world’s fourth largest producer and consumer of cotton. Cotton production contributes in Pakistan’s agriculture as well as economic growth. Pakistan cotton ginning industry is composed of small-medium sized enterprises. According to Economic Survey of Pakistan 2023-24, cotton ginning has a share of 0.32% in Pakistan’s total GDP and a 1.34% share in agriculture, while textile sector share is 8.5% in Pakistan’s GDP that is the main part of economy cotton ginning is indirectly contributing much in Pakistan’s economy as textile is also a finished product of cotton. Cotton contributes in Pakistan’s economy as a lifeline and ginning is the initial step in this value chain (Tanveer, 2012). About 13 lakh farmers in Pakistan grow cotton that is covering 60 lakh acres of land that is around 15% of the total cultivation of Pakistan (Sheeraz et al., 2024). In Pakistan there are more than 1,220 cotton ginning units most of the ginning units are in Punjab and Sindh. Pakistan Cotton Ginners Association (PCGA) represents the industry for advocating ginners interests and addressing their challenges (Altaf et al., 2008) Cotton Ginning Industry of Pakistan plays a vital role in employment generation by directly employ over 10000 people and indirectly providing employment to millions. Cotton crop in Pakistan contains 33% fibre trash 8% and 59% cotton. Cotton Ginning contributes around 4.6% share in cotton value chain (Asia, 2008). In 1974 Pakistan government established a corporation named CEC (Cotton Export Corporation of Pakistan) for check and balance of cotton industry. During the crop year 2023-24 Pakistan cotton ginning industry produced about 10.2 million bales of cotton. According to the Economic Survey of Pakistan fiscal year 2023-24 Pakistan exported textile of around 16 billion USD and exported cotton of around 1.42 billion USD. Textile industry contributes around 60% of the Pakistan total exports. In the fiscal year 2023-24 cotton rose by 47% due to a high increase in cotton production. The ginning factories face competitions from each other in terms of technology and quality of finished cotton, however the cotton ginners of Pakistan are facing competition from foreign imported cotton that is cheaper and good at quality which leads to decline in cotton ginning industry, the number of ginning units are decreasing in Pakistan as well it is impacting the

cotton cultivation. Cotton ginners haven't much options to decide their sales price or purchase price as in this industry everything is according to the market demand, cotton ginners purchase cotton according to the market rate and then when they want to sale the finished good it is also sold according to market price that is impacted by imported cotton as well so they can do effective production to meet their expected sales and profit.

3. Company Introduction

SM cotton ginning factory is a medium-sized cotton ginning factory, established in 2010 in Uthal Tehsil, District Lasbela, Baluchistan, is a pioneering cotton ginning unit in the region. As the first cotton ginning factory in Lasbela, it has played a significant role in promoting local cotton production and contributing to the regional economy. Baluchistan, traditionally known for its vast arid lands, has seen limited industrial development. Lasbela, specifically, has significant potential for cotton production due to its favourable climate and fertile soil, yet the region lacked the necessary infrastructure for processing cotton on a commercial scale. SM Cotton Ginning Factory was established to bridge this gap and revolutionize the cotton industry in the region. Lasbela is very good for cotton cultivation but there was limited cultivation because of few buyers in the market and dependency at Sindh side factories. Then SM factory opens doors for new buyers and farmers by establishing its ginning plant at Uthal. Establishment of cotton ginning factory was profitable not only for owners but also for locals as it shortened the lengthy process of buying locally then sending trucks to Sindh that was full of multiple problems like rate fluctuation, rejection due to lower quality, huge capital requirement to run this process. SM is a medium sized cotton ginning factory in which they clean raw cotton to remove dirt, leaves stem others and separate cotton fibre from cotton seeds. Compressing cotton fibres to make cotton bales is called ginning. The factory also extracts oil from cotton seeds by which a byproduct is also generated known as seed cake that is used to feed animals. SM employs around 100-200 labourers in the ginning section, grading, packaging, maintenance, and administrative staff but it generates indirect employment for thousands of people. SM cotton ginning Factory has a capacity of ginning around fifty tons of raw cotton daily and it produces around ten thousand tons in crop year. SM produces around fifty thousand bales annually. Its Annual Revenue is around 200-300 million rupees and a net profit of around 20-30 million annually.

4. Background of the Problem

Cotton ginning is an essential part of the cotton supply chain, where raw cotton is processed to separate cotton fibres from the seeds. The SM cotton ginning factory has been facing financial losses in the past few years. The main cause of losses in profits is due to the decline in cotton lint prices, access cost of operations and other challenges of the cotton market. From the year of establishment, the SM cotton ginning factory was profitable as there was an appropriate demand for its processed cotton, the with prices of raw cotton and cotton lint were stable. SM factory was successful in making a profit as there was a balance between raw cotton costs and sales price of ginned cotton lint. But in the past few years, a decline in cotton prices and demand and the rising production costs, has pushed the SM factory into a financial collapse. However, SM maintained its production capacity and workforce load but became very difficult for the factory to sustain in the cotton market with that economic pressure. SM factory is primarily dependent on local farmers for the supply of raw cotton. As the cotton market experiences lots of fluctuation, it also affects the factory's revenue. This unpredictable external market, combined with internal weakness, has led the factory to financial stress. The factory's management is struggling in finding and implement effective solutions that can help in the long-term sustainability of the business.

CASE STUDY

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The core issue faced by the SM cotton ginning factory is the decline in prices of ginned cotton. In recent years, the cotton price has been falling due to multiple external and internal factors, including overproduction, fluctuations in global market demand, and unfavourable weather conditions. All these factors have directly impacted the factory's profitability. However, the factory was unable to handle increasing operational costs due to rise in labour wages, machinery maintenance, and energy prices. The income generated from the sale of cotton has decreased and the cost increased, which leads to financial losses.

Besides the falling cotton prices, the factory is also facing increased competition from other ginning facilities in the region. These competitors have implemented cost-cutting measures, adopted more efficient technologies, or gained access to cheaper raw cotton, leaving the factory struggling to keep up with market demands. The competitive pressure is worsening the situation, as the factory cannot afford to lower its prices as it will lead to even more losses.

Another main issue is SM is using obsolete inefficient machinery in operations. The factory still relying on outdated machinery and manual processes that lead to high labour costs and decline in productivity. However, the cotton ginning processes have evolved with the use of updated efficient technology. This inefficiency has not only increased operational costs but also affected the quality of the ginned cotton that is unable to compete in the market.

Furthermore, the cotton supply is disrupted due to unpredictable weather patterns and natural disasters from few years. Unseasonal rains or floods affected the cotton yield that making it harder for SM factory to achieve its desired production target. This unpredictable nature of cotton farming has brought up new additional challenges for the factory in terms of planning production and meeting market demands.

This situation of SM cotton ginning factory has led to considerable frustration for its management and employees. Even after implementing multiple cost-cutting measures, the factory's losses continue to mount. The drop in ginned cotton prices has led to a decrease in profit margins. Even though the factory continues to production with the available quantity of cotton, due to quality they sell ginned product at low prices that resulted in insufficient revenue to cover costs. This has created a cash flow problem, which affects the ability to pay suppliers, workers, and invest in necessary repairs and upgrades.

The factory's ginning machinery is outdated so the production rate is slower. This inefficiency not only increases maintenance costs but also makes it difficult for the factory's ability to meet market demands in a timely manner. Because of this the factory lost several spinning and textile customers.

With the unstable prices of energy and raw materials, it has become very difficult for the factory to predict and control its operational costs. Ass because of increasing competition the factory was unable to pass the cost difference on the finished decent price. Cotton farming is highly dependent on weather conditions, and changes in climate patterns in recent years have made it difficult for the factory to get enough supply of raw cotton. Natural disasters including heavy rains and floods effects both the quantity and quality of harvested cotton. This disruption in cotton supply further complicates production planning. The cotton market is highly unpredictable, not only local production, global cotton production, trade policies, and international demand all affects the cotton market. The ongoing global economic conditions, tariff free trade agreements, and increase in cotton imports made it even more challenging for the factory to sustain in these market conditions.

		2021-22		2022-23		2023-24	
Position		'000' Bales	'000' Metric Tons	'000' Bales	'000' Metric Tons	'000' Bales	'000' Metric Tons
Table 1 COTTON PRODUCTION, IMPORTS, MILL CONSUMPTION & EXPORTS (Bale = 170kg)	Production	8326	1416	4912	835	10224	1738
	Imports	4567	776	4024	684	1206	205
	Mills	13000	2744	12576	2138	11559	1965
	Consumption						
	Exports	16	3	71	12	182	31

Source: i) Textile Commissioner Organizations (Mill Consumptions)

ii) Pakistan Bureau of Statistics (Imports & Exports).

iii) Provincial Crop Reporting Department and D.G Agriculture (Ext & Res)

5. Company Efforts

The SM cotton ginning factory after facing financial challenges has made efforts to overcome the problems raised by declining cotton prices, market instability and rising operational costs. The factory's management have actively engaged in both internal and external strategies to turn the business around. They made efforts to make innovations in product and service delivery, leadership involvement in strategic decision-making, all departments' contributions in improving production efficiency and research on the factors that influence the factory's performance.

These efforts include strategic cost management & product diversification, effective financial, human resources, and production planning.

6. Leadership Efforts

The leadership of the SM cotton ginning factory has played a critical role in steering the organization through turbulent economic times. In response to declining cotton prices and competitive pressures, the leadership has made numerous attempts to secure the factory's future. Some of the most notable efforts include:

7. Strategic Cost Management

Recognizing the importance of controlling operational costs, the factory's leadership has worked on identifying areas where expenses could be minimized. For example, the management implemented stringent measures to reduce energy consumption, optimized labour allocation, and negotiated better deals with suppliers to secure raw cotton at competitive rates. These measures were aimed at preserving profit margins amid declining prices.

8. Product Diversification

The leadership also explored opportunities to diversify the company's product line. The main product of cotton ginning is cottoning fibre lint but in raw cotton half of the crop is cotton seed which is usually sold to other seed press companies. The factory sought to develop value-added products from cotton seed such as cotton seed oil and cotton by-products, such as animal feed, to generate additional revenue streams such as cotton seed oil cake also known as cotton hull has a huge market and its increasing with the growth in dairy farming. This increased the

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revenue a little and saved cost of transporting the cotton seed as cotton hull has a huge demand in rural areas, so it is easy to sell within Lasbela.

Each department in the factory has been tasked with contributing to the company's turnaround strategy. These efforts are crucial for improving operational efficiency, increasing productivity, and ensuring the company's long-term sustainability. Below are the specific efforts made by different departments:

9. Finance Department

The finance team's efforts were focused on managing cash flow, reducing unnecessary expenses, and finding innovative ways to reduce debt. They sought internal funding of last year's profit and friendly loans from partners to support operational activities. The finance department also worked on restructuring payment terms with suppliers to avoid liquidity crunches including instant payment to traders and cotton suppliers at a lower price than routine payments, this instant payment strategy attracted more traders and suppliers. This payment system helped in decreasing the cost of raw material.

10. Human Resources Department

The financial constraints made it difficult for the HR department to offer competitive wages or benefits, so the HR team focused on hiring experienced & productive labor from Sindh rural areas for a crop seasonal period of four to five months instead of hiring locals that demand entire year hiring and other employment benefits. This saved cost but it was difficult step as the company must hire every year.

11. Production Department

The production team worked on optimizing the cotton ginning process to maximize output. The department used skilled labor to reduce errors during production. In addition, they focused on continuous manufacturing during the cotton season to meet the market demand and supply, the electrical load shedding was affecting productivity, so SM factory purchased heavy generators for continuous ginning process.

12. Teaching notes

The case focuses on SM cotton ginning factory struggling to sustain operations amidst the persistent challenge of declining cotton prices. SM cotton ginning factory is a medium-sized cotton ginning factory located in Uthal tehsil district Lasbela Baluchistan. Land of Uthal tehsil and others tehsil of Lasbela are very good for cotton cultivation but there was limited cultivation because of few buyers in market and dependency at Sindh side factories. Then SM factory opens doors for new buyers and farmers by establishing its ginning plant at Uthal. Located in a region heavily dependent on cotton farming, the factory serves as a critical link in the agricultural supply chain, processing raw cotton into lint for textile manufacturers. However, the global unpredictable cotton markets, followed by cotton over production, competition from other factories and fluctuating demand, has led to decline in the prices to the lowest, affecting the factory's profit margins. This financial struggle is composed of operational challenges, including high increasing costs for labour, maintenance, and energy. The factory relies on local farmers, who are themselves facing challenges due to reduced incomes and increased production costs. With the increasing cost delays in raw cotton supply, low quality of cotton and unpleasant relation with spinners has added in factory's burden. All these issues combined have resulted in competitive disadvantages against larger factories that are technologically advanced and working on economies of scale and have better access to markets. These financial

issues have limited the factory's ability to invest in modernization. Feasible options include diversified production by investing in value-added products, such as cottonseed oil or processed cotton lint, so that we can explore alternative markets and can save cost and earn extra profit. Cost-saving measures and investments in efficient technology are also under consideration. Additionally, the management should address the hurdles between traders and factories to establish pleasant relationships with traders as well as farmers to get a consistent supply of quality raw cotton. This case provides a platform for exploring the challenges small and medium enterprises face in unpredictable commodity markets, focusing on the nature of market forces, financial constraints, and strategic decision-making. Students are tasked with critically evaluating potential solutions, such as diversification, stakeholder engagement, and operational efficiency, while considering the broader implications for sustainability and competitiveness in the agricultural processing sector. The case encourages learners to develop practical strategies to ensure business sustainability and growth in a rapidly changing economic environment, while dealing with debt obligations and operational inefficiencies exacerbate the liquidity crisis. Faced with shrinking revenues and increasing costs, the management must make critical strategic.

13. Teaching objectives

The teaching objectives aim to equip students with analytical and practical skills to address real-world challenges in a competitive and uncertain business landscape. This case study is suitable for undergraduate and graduate-level programs in strategic management and provides students with the opportunity to engage with industrial issues of supply chain, finance, procurement and sales by analyzing the impact of fluctuating global commodity prices and interdependence between the factory and its stakeholders, particularly farmers and suppliers, identifying areas for cost reduction and efficiency improvement in a traditional manufacturing setup, examines the financial implications of declining revenues and rising costs, identification of proactive risk and mitigation strategies to address external economic pressures. By the end of the case study discussion students will be able to:

Understand the supply chain of agriculture products,

The importance of effective inventory management in industries that have fluctuating prices and

Take decisions in tricky situations.

In this way, the case study adds to the limited body of knowledge on managerial issues in small and medium enterprises (SMEs) in the agricultural sector, such as decision-making, Inventory Management, effective and efficient budget allocation addresses the need for better integration between the academic and business world.

14. Discussion Questions:

The questions are as follows:

Q1. How to deal with fluctuating cotton price and cotton lint price?

Q2. How can the SM cotton factory manage its maintenance cost?

Q3. How can the factory compete with foreign imported cotton?

Q4. What steps can the factory take to opportunity of cotton exports?

The questions can be use by students or managers in their studies or business to analyze their management abilities in tricky situations.

15. Analysis of discussion questions

Q1. How to deal with fluctuating cotton price and cotton lint price?

This question is important as it is the core problem. As raw cotton prices are very high at the beginning of the crop season due to limited supply and decreases as the supply increases, but the cotton fiber lint price is dependent on global demand international, cotton supply and textile production, it usually drips during harvest periods and peaks in the off-season. To deal with this problem the factory should avoid cotton purchase at the beginning of the crop season as it increases the average cost and holds the cotton lint in off season to sell it at a competitive price.

Q2. How can the SM cotton factory manage its maintenance cost?

As cotton ginning process is off four to five months in a year, but factory maintenance cost is a burden of entire year. To deal with this cost the management should rent out the warehouse in off seasons. In Cotton ginning factory there is another oil plant that can be used for other crops including castor seed, mustard seed, and sesame seed as they are also highly cultivated in Lasbela after cotton.

Q3. How can the factory compete with foreign imported cotton?

Cost-cutting techniques can save companies money and will be helpful to decrease losses and increase profitability, but competing is a different scenario. The SM cotton ginning factory usually sells cotton to multiple available buyers at harvesting period at that time it faces challenges to compete with foreign imported cotton, and this increases the bargaining power of the buyers (textile mills). To compete with them SM management should make investment in advanced machinery that can produce a better-quality product as SM ginning machinery are a decade old.

Q4. What steps can the factory take to opportunity of cotton exports?

As Pakistan is among top five producers of cotton all around the world, so it exports and import cotton according to the seasonal demand and supply. If SM cotton factory needs to be in the cotton exporters list, it should work hard for it. Cotton importers all around the looks for a better quality so SM should invest in advanced machinery as I stated earlier and developed nations are moving towards environment friendly products so SM should establish measures to become environment friendly as it can shift on solar energy than using heavy diesel generators as Lasbela is a sunny area it will decrease the production cost and will help to get environment friendly certifications from organizations like International Organization for Standardization (ISO) and get certificates including ISO 14001 and ISO 9001 certification.

16. Reasons for lower quality of cotton

Cotton picking from cotton plant is a very difficult and unmanaged process that is a huge reason for lower quality. When cotton is harvested and cotton pickers collect minor seeds of cotton also collect sticks, leaves and stones with it and it becomes a part of the crop. The time of picking also affects the quality as harvesting in early morning is usual at that time the crops usually wet due to dew drops and cotton changes colour to yellowish. The pickers mix all the varieties together that reduce their quality. And the process goes on to traders who purchase cotton from farmers and sell to factories, trader purchases multiple quality cotton and mix them too in warehouses and

transport vehicles. Mixing multiple varieties affects the cotton quality. Intermediaries between factories and farmers keep cotton in unsecured areas where it is polluted by dust and sometimes becomes wet due to rain. Intermediaries and farmers are responsible for damaging the cotton quality as there are not any efforts for better storage and transportation, they do not care about the quality just want to decrease the cost of handling and transportation. At the last step of cotton ginning process, it reached at ginning factory where it is usually kept in open areas that also damages the quality. Unorganized picking and handling of cotton seed enhance moisture level in it. At ginning process, cotton seed has around 10% to 15% moisture which creates problems in ginning (Tanveer, 2012). Excess moisture increases the cost of electricity and breaks the seed which remains with cotton fibre after the ginning process, in this way quality of cotton may be reduced. As with the increase in moisture level in cotton seed the colour of cotton fibre is impacted and furthermore it impacts the dyeing and finishing of the fibre. However, imported is clean and of excellent quality as it handled with a well-managed method. Textile mills prefer excellent quality cotton fibre as it impacts the textile as well so in the presence of imported cotton local ginners are facing troubles in the market. Cotton fibre affected by moisture is not anyone priority, so it is difficult for ginners to compete in international market.

17. Cotton Ginning Process Flow

The cotton ginning process involves the following steps.

a. Raw Cotton Procurement

The ginning factories purchase raw cotton from farmers and traders and then store it in warehouses, source it from rural markets to ginning factories for the ginning process.

b. Ginning

Cotton ginning is a mechanical process of separating the cotton lint fibers from cotton seeds and other impurities (woods, stones, polythene) present in raw cotton.

c. Lint cleaning

It is the process of removing dust dirt and other impurities including motes (immature seeds) from the cotton lint for making the lint suitable for spinning and further process.

d. Bale compressing

The cotton lint is compressed tightly into bound rectangular bundles called bales it is done to reduce volume for easy handling and transport to next step.

e. Seed Pressing

The cotton seed is pressed/crushed to extract oil and to separate the byproducts hull. Cotton hull is used to feed animal for milk boost (Jacobs et al., 2022).

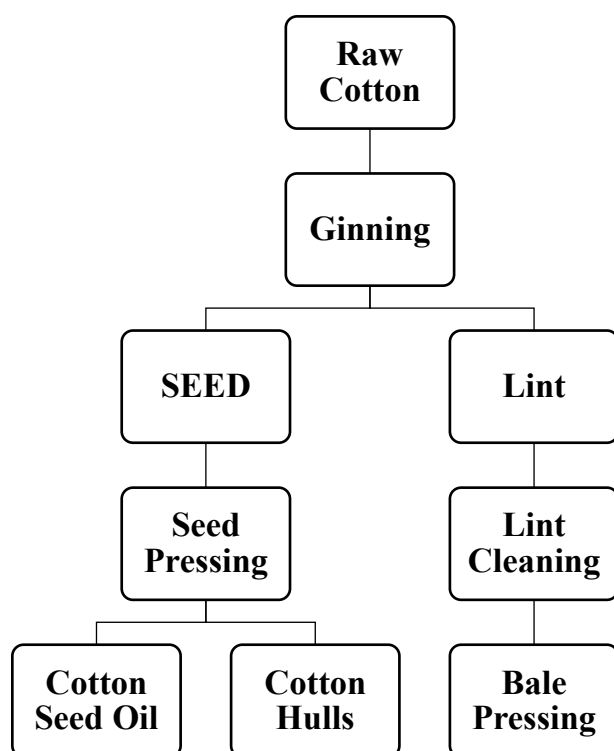


Figure 1
Cotton Ginning
Process Flow

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Conception or Design: Dr. Ghulam Muhammad

Data Collection and processing, Analysis or Interpretation of Data: Mehool Kumar, Muhammad Farooq Hasan & Aziz Ahmed

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Furthermore, this research did not involve the use of animals, plants, or any biological specimens requiring ethical approval. Therefore, ethical clearance from an institutional review board, prior informed consent (PIC) from respondents, or animal/plant welfare approvals are not applicable to this study.

The author(s) affirm full compliance with international ethical standards for research and publication.

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