THE INTERNATIONALIZATION OF THE SUPIMA INDUSTRY

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Dedicated to:

My Wife:

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My Son and Daughter:

Shannon and Kelly Skov

My Brother and His Family:

Bill, Linda, Billy, and Bobby Skov

My Parents:

Bob and Helen Skov

THE INTERNATIONALIZATION OF THE SUPIMA INDUSTRY

by

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THESIS

Presented to the Faculty of the Graduate School of

The University of Texas at El Paso

in Partial Fulfillment

of the Requirements

for the Degree of

MASTER OF SCIENCE

Department of Economics and Finance

THE UNIVERSITY OF TEXAS AT EL PASO

May 1992

ACKNOWLEDGMENTS

I wish to express my sincerest thanks to Dr. Dilmus James, Dr. Jim Holcomb, Dr. Elba Brown-Collier, and Dr. Bruce Collier for their teachings, encouragements, and the challenges they presented me with in their classes.

I would like to thank Dr. James, Dr. Holcomb, and Dr. Palmore for serving on my thesis committee.

I would like to thank my wife Jacque for the patience and encouragement she gave me to complete this degree, and my brother and my son who took on added responsibilities in our businesses which allowed me to reach this life-long goal--thank you.

March 22, 1992

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INTRODUCTION

Supima is the trademark designation for American-grown extra long staple cotton (ELS). This type of cotton is also referred to as American-Egyptian cotton and is grown in the states of Arizona, California, New Mexico, and Texas (see Appendix A). Extra long staple cotton is a highly specialized agricultural crop produced for export primarily in Egypt, Sudan, Peru, and the United States. Until 1984, the United States was the only country that consumed the bulk of its own domestic crop. To illustrate the magnitude of this industry and the changes that have occurred in just the last five years, the data in Tables 1 and 2 are presented from the 1985-1986 and 1989-1990 crops.

From these data it is quite evident that the 1985 U.S. production was comparatively small and, only 5 years ago, U.S. producers were not a major player in the world market. The U.S. produced just 8 percent of the total extra long staple supply in 1985/1986 and its export market share was a modest 14 percent of the total world market. This compares to the current U.S. total of almost 10 percent of all ELS produced and 39 percent of total of all ELS exported last year, an increase of 25 percent and 164 percent

Table 1

Bales Produced

	1985-1986[1]	1989-1990[2]
Egypt	379,000	380,000
Peru	49,000	122,000
Sudan	195,000	64,000
U.S.	285,000	358,000
All Others	2,652,000	2,703,000
Total	3,560,000	2,703,000

Table 2

Bales Exported

Egypt	421,000[3]	69,000[4]
Peru	133,000	97,000
Sudan	329,000	130,000
U.S.	155,000	410,000
All Others	92,000	336,000
Total	1,130,000	1,042,000

respectively. This phenomenal change in the market situation for Supima can only be appreciated and understood if one has some familiarity with the historical evolution of the industry.

Toward that end, I will (1) develop an in-depth historical look at this industry from its conception; (2) look at the current market situation as it pertains to supplies, consumption, and prices for ELS; (3) examine the possible causes for this tremendous growth in production and export volume; and (4) explore the implications for future agricultural and industrial trade policies.

It was the United States Department of Agriculture that first sponsored the development of extra long staple cotton, or American-Egyptian, which was first grown commercially in 1912. This was a direct response to the desire of American textile mills for a domestically produced product that would be competitive in both price and quality to imported Egyptian cotton which was in excess of 100,000 bales per year. Given this environment, how could a non-existent American industry begin and eventually flourish when faced with the complete dominance of the United States and world market by Egypt? Answering this question will be the primary focus of this thesis.

CHAPTER 2

HISTORY AND DEVELOPMENT

The United States has until recently been the world's largest cotton (all varieties) producing nation.* At one time the United States grew three times as much cotton (Upland and ELS) as the rest of the world combined.[6] This was due primarily to the invention of the cotton gin by Eli Whitney (in 1792) which no longer required the slow and laborious task of removing the seed from the lint by hand. Today, of the more than seventy-seven countries growing some cotton for export, only eight produce extra long staple cotton (ELS) in important exportable volume. The U.S., as seen from Table 2, now ranks first in this group.[7]

1786-1950

The longest, finest, and most valuable cotton grown in the world was first grown in 1786 from seed received from the Bahama Islands, an area from which Columbus is reputed to have taken Sea Island samples to Europe in 1492. There are earlier references to cotton cultivation in Virginia (1621), South Carolina (1664), and Georgia (1735), but these

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*China, and on occasion the old Soviet Union, produced more during the 1980s.[5]

refer to the Upland or short staple varieties.[8] By the early 1900s, there was only a limited amount of production due to the expansion of extra long staple production in the West Indies and the depressing effect that had on prices. Growers, as a consequence, turned to Upland cotton, and that in turn resulted in the contamination of the extra long staple cottonseed.[9] A final negative for this infant industry was the tremendous infestation of boll weevils resulting in the production of only eleven bales in 1924. Many of the roller gins and the production of this type of cotton (ELS) then moved to the industry's new home in the southwestern United States.[10]

The world's largest consumers of cotton since the industrial revolution were the mills of Manchester and Lancashire in England. The implementation of a series of eighteenth-century inventions began the transition from wool to cotton in these mills. India, which had monopolized the cotton industry from both the production and manufacturing ends for 3,000 years (1500 B.C. to 1500 A.D.), lost most of her trade to English machine-made cotton yarn, and by 1860 imported nearly 242 million pounds of this English product.[11] From 1840 to the time of the Civil War, the American South supplied Great Britain with four-fifths of her total raw cotton imports.[12] England's dependence on this single American crop was of alarming concern to that country's textile industry. As a result, the United Kingdom

provided financial assistance to help Egypt to expand its cotton plantings during the American Civil War. During the development of this relationship it was found that Egypt was capable of growing a long staple cotton with very special qualities of strength and fineness.[13] This is what started Egypt on the road to becoming the world's premier producer of extra long staple cotton and establishing an industry that came to dominate the Egyptian economy. Egyptian production had even been exported to the United States as early as 1884. The importation of Egyptian extra long staple cotton eventually reached such prodigious proportions that a tariff act was passed in 1930 putting a 7-cents-a-pound duty on imports of cotton with a staple 1-1/8 inches. There was also an allotted quota structure established in 1939 with Egypt and Sudan allowed to export 95.2 percent of 95,000 (500 pound) bales while Peru's proportionate share amounted to 4.5 percent.[14]

Egyptian cotton was grown by the United States Department of Agriculture (USDA) in all cotton-growing states from 1867 to 1871, but results were unsatisfactory. Scientific breeding began in 1898 looking to develop a domestic variety suitable to U.S. agronomic conditions. The newly developed varieties--after the move to the irrigated Southwest--were Sacaton, equal in length to the Egyptian Sakellarides, River, which compared to Jannovitch and Valley, which equalled the best Egyptian variety, Mit

Afifi.[15] In his first international marketing trip preparation in 1914, W. S. Dorman, President of the Salt River Valley Egyptian Cotton Growers' Association, found a complete lack of knowledge even about the existence of an American ELS cotton variety. His trip to England, France, and Germany, intended to introduce this new variety and educate new potential customers, was cancelled, however, by the declaration of war in August 1914.[16]

Sudan, the second major export producer, became an independent nation in 1956 after 57 years as the nation of Anglo-Egyptian Sudan. British influence dated as far back as 1869 when that nation administered the area. It was not until 1925 to 1926, however, that Sudan became a major supplier in the extra long staple market with production on 300,000 acres. This was due exclusively to the completion of the Sennar Dam which brought one million acres into irrigated cultivation.[17] The main variety grown today in Sudan is Barakat.

Peru, the other major exporter, is believed to have had an indigenous cotton culture. The first conquistadors found natives clothed in cotton, but Spain's colonial proclivities were more directed toward metals and not agricultural wealth. Pima (the old U.S. variety) and Karnak are the extra long staple varieties grown in Peru with Tanquis* as

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*The reason I mention Tanquis is because Dr. Walker Bryan used it in his crossings in developing the American S-1 variety.

the nation's long staple Upland cotton.[18] The Egyptian variety Mit Afifi was grown as Peruvian Pima until their "adoption" of S-1 as "their" Pima. Britain again was Peru's earliest main market, and is still an importer of a small amount of Peru's production.

Pima is the accepted generic term for all American-Egyptian cotton and has proven to be of great strategic value to the United States in both world wars and the Korean conflict. American tire and rubber companies became most anxious about the supply of their raw material when the production of Sea Island cotton failed on the southern East Coast, and import restrictions were imposed during the first World War. In addition to forming the cords used for strengthening inflatable rubber tires, extra long staple cotton was of primary import in the manufacture of airplanes, barrage balloons, cloth belts for machine guns, and parachutes. The War Department placed heavy demands on industry and agriculture for greater production using various incentive programs and establishing high market prices for the raw cotton product.[19]

These facts were the primary motivational elements in the coming of the Goodyear Tire and Rubber Company to Arizona in 1917 to grow what it could not purchase. On 16,000 acres west of Phoenix, they brought with them wholesale changes in both the way farms were run and the path on which the industry was to develop. The shortage of

capital in the area of gins, warehouses, and the "know-how" of big business would now be available to this infant industry. In 1917, Harvey Firestone, the founder of the Firestone Rubber Company, cited dependence on foreign sources for its raw materials as the rubber industry's weak point. When Britain placed an embargo on Egyptian cotton during World War I, tire makers were desperate for this product. The unrestricted German submarine warfare made shipping a most perilous exercise, and only desperately essential items were moved.[20] These economic circumstances caused Fisk, Firestone, and Dunlop to follow Goodyear to the Arizona area. Goodyear nearly went broke and needed refinancing in 1920 after the cotton crash. This was just after the best income year in its history. Firestone never bought land to grow its raw material needs; nevertheless, she suffered large losses as well. Unlike Goodyear, however, Firestone did not need refinancing.[21]

One of the most lasting contributions of the Goodyear heritage came from their early efforts at trying to maintain seed purity. This was due to the efforts of Kenneth McMichin and his use of the Goodyear farm. He was keenly aware of the absolute necessity to ensure seed purity for such a specialized crop.[22] This necessity has been transmitted to the industry as a whole, and can be seen today in producers' insistence on expending all efforts at seed quality maintenance and research in numerous seed

areas. This seed breeding effort was initially centered in Sacaton, Arizona, and was continued there for 50 years. It was transferred onto 275 acres purchased for $168,864 by Arizona Cotton Planting Seed Distributors (ACPSD) in 1954 with ACPSD retaining 10 acres for an office building and the remainder being given to the University of Arizona. This land was sold by the university in 1989 and the proceeds were used to purchase another farm of 400 acres in Maricopa County about 25 miles southwest of Phoenix.

The importance of seed breeding, that began with Goodyear's entry into the farming business, cannot be over-emphasized. Farmers in the business of cotton production know that without excellent planting seed the chances of producing a good, high-quality fiber are non-existent. The major cotton production parameter is a high-yielding crop without which profits will not be realized, and without profits, of course, there is no business. The purpose of seed breeding is therefore centered around:

1. The high production of lint fiber--high yields per acre;
2. Early maturity--so the crop can be grown to maturity before the growing season ends (usually 5 to 6 months);
3. A plant that is adapted to mechanical harvesting--a must for today's production techniques;

4. A fiber that must be of a type that textile mills find profitable to spin--this translates into a micronaire reading of 3.5 to 4.5, a grade of 3 or better (color basis), a staple of at least 1-3/8 inches, a strength of 35 G/tex (grams per tex), and a low level of waste; and
5. A variety that is disease- and to some extent insect-resistant.

Keeping seed pure was a relatively simple process until 1922 because the Salt River Valley was a one-variety cotton area --extra long staple. But with the terrible volatility in ELS prices, more and more Upland cotton was coming into vogue. By 1924, 127,000 bales of Upland were being grown, compared to 8,000 of Pima, and the maintenance of seed purity was becoming a major concern. A new association was formed to address this most pressing concern--the Maricopa County Farm Bureau Pure Seed Association.[23] This became the dominant producer group seeing that adequate pure seed was maintained. This organization existed until 1949 when the Arizona Cotton Planting Seed Distributors was formed and eventually merged with the Supima Association in 1975.[24]

The breeding process for cotton is a most difficult and time-consuming process. It took, for instance, 13 years from S-1's first cross in 1934 until a single plant selection was made in 1947. Pima S-1 originated as a single plant selection from four different varieties, and then

selected plants from within the crosses were chosen for added testing. Crossing in the field and seed mixtures are a tremendous problem if a most detailed and exacting regimen is not followed. Years of testing and increasing a particular strain's seeds are required, after which seeds are planted across the pima belt to get yield and other performance data. The lint from each of the new promising strains is then sent to laboratories and mills to determine their spinning performance (see Appendix B).

The first experimental farms for extra long staple cotton were in Arizona at Yuma and Sacaton on the Indian Reservations of the Pima Indian tribe. The breeding and experimental work went on there for 50 years. Until 1939, over 97 percent of the crop was grown in Arizona, so the state's needs were the same as the industry's. From 1912-1916, there were moderate production increases and prices fluctuated wildly (i.e., $78 per bale in 1914, or 15.6 cents a pound, to $210 a bale, or 42 cents per pound in 1916).[25]

These were the very first years of establishing the industry. The need for the construction of new roller gins, the establishment of grading criteria, finding and training labor, developing a pure seed program, establishing transportation means and freight rates, cultivating broker and mill relationships, as well as the crop itself, were all begun from "scratch." Booms and busts followed with 1919 prices at $1.32 per pound and 1920 prices of 31 cents per

pound. What followed was the post-war depression, and Egyptian imports flooded the country as American farmers were reluctant to produce for this volatile market. The development of low-pressure tires, which required less tensile strength (therefore less cotton), and the financial weakness of the tire companies themselves, brought the industry to a most precipitous point. The state of Arizona had also developed an Upland cotton industry and the need for two types of gins, the corresponding loss of seed purity (from cross-pollination), and fiber contamination all exacerbated the negative situation.[26]

In June of 1921, the Pima Cotton Growers Association was formed to bring some degree of soundness and stability to this all-but-expired industry. This new organization liquidated a 65,000 bale inventory carryover from 1920, got a $1.2 million credit line from the War Finance Corporation to help finance 1921 plantings, secured lower ginning prices and interest rates, higher seed prices, and lower storage costs. The association eventually moved into cotton marketing, but speculative fever created losses sufficiently severe to force the association to form a new cooperative with Anderson, Clayton and Company. The peaks and valleys of production continued throughout the 1930s with production averaging 16,995 bales. The war years of the 1940s saw production and profits rise with production averaging 64,639