Chapter 3: Producers Guide for Developing Price Expectations for Cotton

Section 3.1: Introduction

The pricing guide was developed in order to provide Virginia cotton producers with a tool that can be used to create expectations for supply, demand, and the average farm price for cotton. The guide uses a balance sheet approach because it provides the necessary framework to help explain the impact changes in supply and demand have on the price of cotton. Section 3.2 contains the pricing guide in the format published for producers. Appendix A contains information regarding the terminology and the econometric models that support the equations used in the balance sheet.

Section 3.2: Producers Guide for Developing Price Expectations for Cotton

Since 1991, Virginia has seen a significant resurgence in cotton production. Estimates for the 1995/96 crop year set the Virginia harvest at a record 107,000 acres. The purpose of this publication is to give Virginia cotton producers a reference to use when creating expectations regarding the following year's supply, demand, and farm price. Before the passage of the Federal Agriculture Improvement and Reform (FAIR) Act in 1996, cotton producers who participated in the farm program relied on target prices and acreage restraints established by law to create expectations for farm income and to make planting decisions. Under the FAIR Act, participants receive an annual payment based on flexibility contracts, not a pre-determined price. In addition, unlike soybeans and wheat, USDA is prohibited by law from publishing price forecasts for cotton. Thus, compared to producers of other commodities, such as soybeans or wheat, cotton producers must rely more heavily on limited public information and on private industry publications in order to create price expectations and to make production decisions. The Guide outlines sources of information, which is then used in a balance sheet approach to assist producers in creating the price expectations that will allow them to make informed production and marketing decisions.

Table 1 is an example of a supply and demand balance sheet for US cotton. This Guide uses the balance sheet as a tool to help producers understand the relationship between supply, demand, and price. Following the steps outlined in the guide, a producer can track the components of supply and demand, and the impact these market changes have on the average price they receive.

Table 1: Balance Sheet for US Cotton

ITEMS	UNITS	93/94	94/95	95/96 March Estimates [1]	96/97
Planted Acreage	thousand acres	13,488	13,726	16,720	
Harvested Acreage	thousand acres	12,783	13,280	15,780	
Lint Yield per Harvested Ac.	lbs./ acre	606	708	536	
Supply					
Beginning Stocks	thousand bales	4,662	3,530	2,590	
Production	thousand bales	16,133	19,660	17,610	
Imports	thousand bales	7	20	190	
Total Supply	thousand bales	20,802	23,210	20,390	
Use					
Mill Use	thousand bales	10,418	11,200	10,410	
Exports	thousand bales	6,862	9,400	7,090	
Total Use	thousand bales	17,280	20,600	17,500	
Ending Stocks	thousand bales	3,530	2,650	2,880	
Days Supply	days	75	47	60	
Stocks-to-Use Ratio	percent	20.43	12.86	16.46	
Loan Rate[2]	cents/lb.	52.35	50.00	51.25	
Average US Farm Price[3]	cents/lb.	54.6	73.0	76.7	

[1] Most recent information based on WASDE forecasts, released 2/9/96. [2] Reflects changes in Loan Rate due to the passage of the 1995 Farm Bill. [3]Average US Farm Price for 95/96 is from February 1996. USDA is forbidden by law to publish price forecasts for cotton.

The Guide is divided into three sections. Section I gives a brief description of the components of the supply and demand balance sheet. It also outlines the different relationships between the balance sheet components and the price of cotton. Section II illustrates a step by step process used to calculate the inputs used to forecast US supply, demand and average farm price. Section III analyses the changes in price as components of supply and demand change.

A description of the data sources used in the model and a description of sources available to producers are provided in Appendix A (Section 3.2.1). Historical data for the US cotton market and export information are provided in Appendix B, Tables B1-B6 (Section 3.2.2). Formulas for developing expectation for lint yield, mill use, exports, and average farm price were developed from econometric models, which used historical data. These models are presented in Appendix C (Section 3.2.3).

I. Supply, Demand & Price

This section is divided into two parts. The first, "Familiar Terms", defines each component of the balance sheet. The second, "Relationships", introduces the linkages between components of supply, demand, and price.

A. Familiar Terms:

Marketing year is a 12 month period that starts approximately when the new crop starts to enter the market. The Economics Research Service (ERS), a branch of USDA, starts the marketing year for cotton on August first, even though new crop cotton is not ginned in any significant quantity until October.

Long run is a period of time long enough to allow producers of a commodity to change the levels of all inputs in the production process. In the long run a cotton producer would be able the change the amount of planted acreage or a textile mill would be able to expand capacity (i.e. more than one year).

Short run is a period of time whose length only allows a producer of a good to change the level of some inputs, but not all inputs in the production process. Some inputs have fixed costs, while the costs of other inputs vary. For example, in the short run a cotton producer could change the amount of pesticides used on the crop or a textile mill could increase spindle hours (i.e. less than one year).

Total supply is the sum of beginning stocks, production, and imports.

Beginning stocks are the stocks carried over from the previous crop year.

Production refers to the quantity of cotton produced and ginned in a given crop year. Production is reported as the number of 480 pound bales from which the cottonseed and trash has been removed (i.e. cotton fiber useable by textile mills).

Imports are the cotton bales entering the US from other cotton producing nations.

Total demand is US mill use plus exports. In the ERS reports, total demand is referred to as **total disappearance** (Table B1) or **total use** in several sources of information. On the balance sheet it will be referred to as **total use**.

Mill use refers to the number of bales used by domestic textile mills.

Exports are the number of bales shipped to other countries and reflects foreign demand for US cotton.

Ending stocks refers to excess cotton supplies from the current year's crop or expected carry over stocks.

Days Supply is defined as the number of days it would take to use up ending stocks at the current rate of use. For example, according to Table 1, in 1993/94 it would have taken 75 days to use up ending stocks at the 1993/94 level of mill use and exports. Days Supply equals ending stocks divided by use per day (total disappearance/365 days).

Stocks-to-Use Ratio is ending stocks defined as a percentage of total use. The Stocks-to-Use Ratio is calculated by dividing ending stocks by total use, and is expressed as a percentage.

Average US Farm Price is the average price US cotton producers received per pound of cotton. USDA is prohibited by law from publishing price forecasts for cotton.

Figure 1 is a graph illustrating trends in total supply, demand, and ending stocks for US cotton for the past 35 years. The gap between total supply and total demand is attributed to ending stocks and unaccounted bales of cotton. From 1990/91 to 1995/96, the southeastern states accounted for an average of 15% of all US cotton production and Virginia production accounted for less than 0.5%. Virginia cotton producers do not account for large enough share of the US market to influence domestic prices. Virginia producers are price takers in the US market and must consider their position, as price takers, when developing expectations. Thus, conditions in the US market will impact the price Virginia producers receive for their cotton.

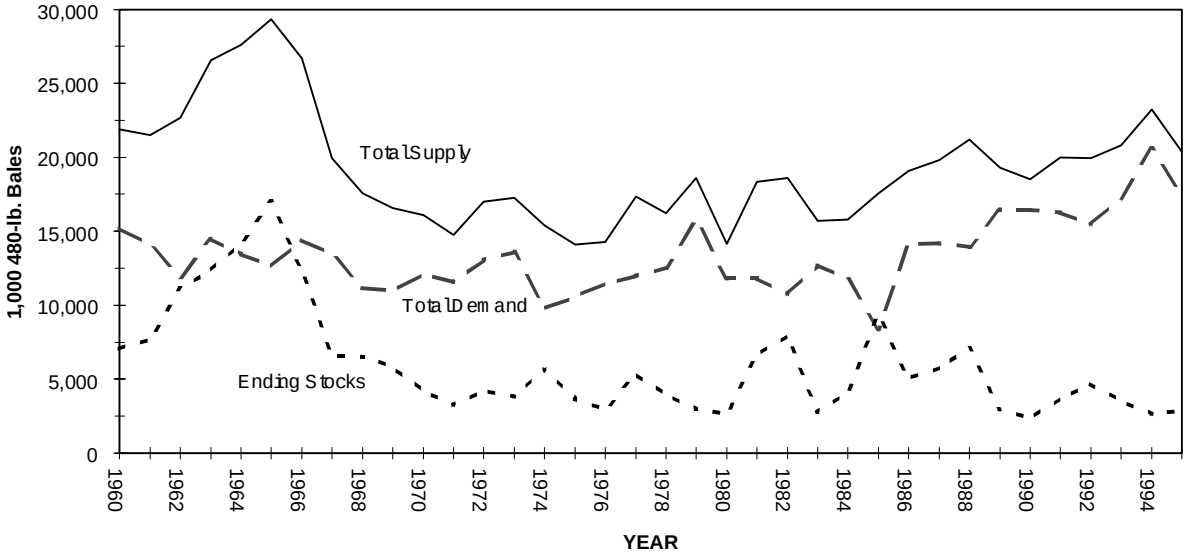

FIGURE 1: Total Supply, Total Demand, & Ending Stocks for US Cotton, 1960/61 - 1995/96

Prior to 1985/86, the United States was the largest exporter of cotton in the world. In 1985, the marketing loan program was introduced, in order to keep US cotton competitive in the world market. Once the marketing loan and the adjusted world price were introduced, US exports increased. From 1989/90 through 1995/96 the US has remained the largest exporter of cotton, accounting for approximately 34 % of all exported cotton. Uzbekistan (former Soviet Republic) is the second largest exporter of cotton, accounting for approximately 26% of all exported cotton (see Appendix B, Table B6). Because of the United States' role in the export market, Virginia cotton producers have to consider the impact of conditions in the global cotton market, as well as the domestic market. For example, what would happen to the world price of cotton during the marketing year if Uzbekistan's cotton production was reduced due to a severe drought and its share of world exports fell to 15%? As long as the world demand for cotton remained constant, this significant reduction in world supply would result in rationing and put upward pressure on the world price. An increase in the world price could provide the incentive to increase US exports, resulting in a decrease in US cotton stocks. Rationing of existing cotton stocks would also take place in the US cotton market, resulting in upward pressure on the price received by US, including Virginia, cotton producers. Therefore, the price Virginia cotton producers receive could increase due to conditions in the global cotton market that cause the world price for cotton to increase.

B. Relationships:

The basic relationship used to estimate price in the long run (more than one marketing year) is the association between ending stocks and average US farm price. For example, what will happen to the price of cotton if total supply increased next year but the needs of US mills and exporters remained constant? Assuming total use does not change, there is an inverse relationship between increased supply and farm price. For example, if total supply increases and total demand remain unchanged, farm price will decline. The additional cotton creates a surplus, which applies downward pressure on the farm price, resulting in an increase in cotton inventories or carryover stocks.

Quick Tip

If Total Demand (US Use & Exports) stays constant and . . .

if **Total Supply** ⇧ then expect **Average US Farm Price** to ⇩ **.**

if **Total Supply** ⇩ then expect **Average US Farm Price** to ⇧ **.**

What happens to the farm price if total supply remains constant but US mills and exporters need more cotton to meet increased consumer demand for apparel? If total supply remains constant, there is a direct relationship between total demand and the average US farm price. If there is an increase in total use and total supply does not change, then the available supply will have to be rationed between bidders, resulting on upward price pressure.

Quick Tip

If Total Supply (US Beginning Stocks, Production, & Imports) stays constant and . . .

If **Total Demand**  then expect **Average US Farm Price** to  **.**

If **Total Demand**  then expect **Average US Farm Price** to  **.**

On the other hand, if the total demand for cotton decreases and total supply remains unchanged, less bidding for the same amount of cotton could result in a lower farm price.

In the previous examples either demand or supply was kept constant. In the real world that rarely happens and the impact of a change in one may be offset or enhanced by a change in the other. The impact of a change in total supply is relative to any change in total demand and vise versa (illustrated in the following Quick Tip). Hence, the balance sheet needs to be able to account for all of the changes that impact price.

Quick Tip

YEAR	TOTAL SUPPLY	TOTAL DEMAND	AVERAGE US FARM PRICE
1979	18,592	15,735	62.5 cents/lb.
1980	14,150	11,817	72.7 cents/lb.
1981	18,340	11,831	54.3 cents/lb.

If **Total Supply** ⇩ more than **Total Demand** ⇩ then **Average US Farm Price** will ⇧.

For example, from 1979 to 1980, total supply declined 4,442 thousand bales, total demand declined 3,918 thousand bales, and the price increased of 10.2 cents/lb. If only the change in demand was considered, it would be assumed that price would decline because of the decrease in the need for cotton.

If **Total Supply** ⇧ more than **Total Demand** ⇧ then **Average US Farm Price** will ⇩.

For example, from 1980 to 1981, total supply increased 4,190 thousand bales, total demand increased 14 thousand bales, and price declined 18.4 cents. If only the change in demand was considered, it would be assumed that price would increase because of the increase in the need for cotton.

YEAR	TOTAL SUPPLY	TOTAL DEMAND	AVERAGE US FARM PRICE
1991	19,971	16,259	58.1 cents/lb.
1992	19,923	15,451	54.6 cents/lb.
1993	20,802	17,280	54.9 cents/lb.

If **Total Supply** ⇩ less than **Total Demand** ⇩ then **Average US Farm Price** will ⇩.

For example, from 1991 to 1992, total supply declined 48 thousand bales, total demand declined 808 thousand bales, and price declined 3.5 cents/lb. If only the change in supply was considered, it would be assumed that price would increase because of the decrease in available cotton.

If **Total Supply** ⇧ less than **Total Demand** ⇧ then **Average US Farm Price** will ⇧.

For example, from 1992 to 1993, total supply increased 879 thousand bales, total demand increased 1,829 thousand bales, and price increased 0.3 cents/lb. If only the change in supply was considered, it would be assumed that price would decrease, because of the increase in available cotton.

It is important to remember that while it is the individual components of supply and disappearance that ultimately change the levels of total supply and total disappearance, it is the overall balance of supply and demand that will impact US Farm Price (Table 1). For example, from 1993/94 to 1994/95, additional export demand put upward pressure on cotton prices.

Quick Tips

Reminder: Changes in **Total Supply** are a result of changes in **Beginning Stocks**, **Production**, and **Imports**.

Changes in **Total Use** are a result of changes in **US Mill Use** and **Exports.**

In the short run, once planting has occurred, crop management decisions can influence production output but environmental influences are more significant. Within the marketing year, supply is limited to production and stocks, and acreage decisions cannot be significantly adjusted until the next crop year. Thus, intra-year changes in the quantity supplied or use will have a direct impact on farm price.

Ending Stocks:

Figure 1 shows the difference or gap between total supply and total demand for US cotton, including the influence of foreign supply and demand. A simple relationship exists between ending stocks and price that summarizes all of the available information on supply and use (Figure 2). A decrease in ending stocks indicates a shortage of available cotton in the market at a price that will clear the market in a given year. Thus, the rationing of available cotton stocks applies upward pressure on the farm price of cotton.

Quick Tips

If **Ending Stocks** ⇧ then expect **Average US Farm Price** to ⇩ **.**

If **Ending Stocks** ⇩ then expect **Average US Farm Price** to ⇧ **.**

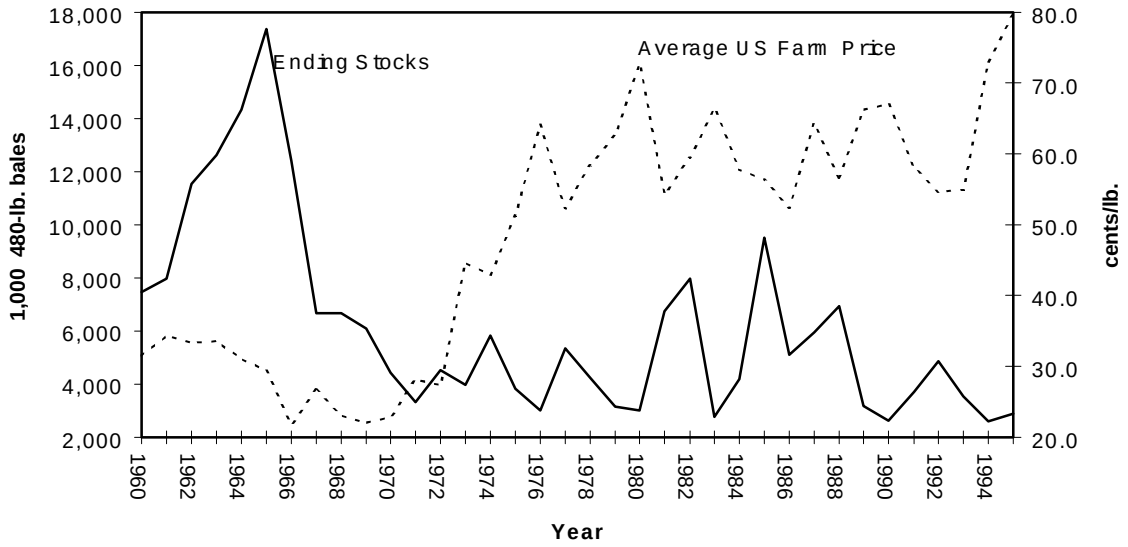

Figure 2: Ending Stocks & US Farm Price for Cotton, 1960/61 - 1995/96

Ending stocks can also indicate a potential increase or decrease in next year's total supply. Ending stocks are carried over to the next marketing year and are counted as a portion of total supply (beginning stocks). However, any impact a change in ending stocks has on next year's total supply or average farm price, depends in overall changes in next year's cotton market, including changes in production, imports, mill use, and exports.

Days Supply Index:

There is also an inverse relationship between farm price and an index of the number of days of mill supply . This index is calculated using total use, and it accounts for changes in mill use and exports. If the number of days supply declines, there is a market signal that the current level of cotton supply is tight relative to demand. The rationing of a limited cotton supply raises the average price bid in the market. If Days Supply increases, supply is abundant relative to demand. In this case, bid prices are weakened by the surplus of cotton.

Comparing 1991/92 to 1992/93 (Appendix B Table 1), a decrease in average price was indicated by an increase in Days Supply from 83 to 110 days. Looking at the rest of the information for these two years we can see that between 1991/92 and 1992/93 weak demand due to a decrease in exports contributed to the increase in Days Supply and the decline in the average farm price. A review of 1993/94 indicates that the carryover stocks would last 75 days and that the average price was 54.9 cents per pound. In 1994/95, Days Supply fell to 47 days, indicating that the short supply that year would cause the 1994/1995 average price to increase.

The index by itself cannot isolate the reasons for a change in price, but it can tell the producer that there was a change in one or more of the items in the balance sheet. Figure 3 shows that when Days Supply increases, the price of cotton declines and vise versa.

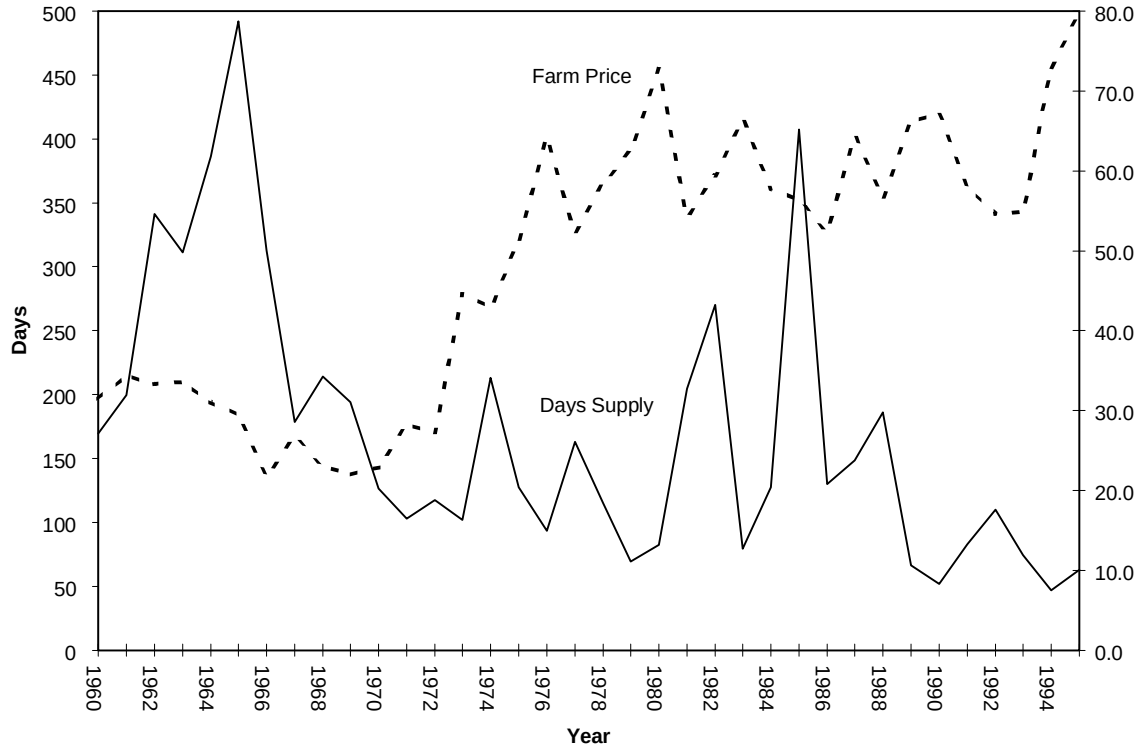

Figure 3: Days Supply & Farm Price for US Cotton, 19960/61 - 1995/96

Quick Tips

If **Days Supply** ⇧ then expect **Average US Farm Price** to ⇩ **.**

If **Days Supply** ⇩ then expect **Average US Farm Price** to ⇧ **.**

Reminder: **Days Supply** depends on the disappearance per day of cotton. Anything that would impact the **Total Demand** or **Ending Stocks** for cotton will impact **Days Supply**.

If **Mill Use** or **Exports** ⇧**,** then **Total Use** ⇧ and **Days Supply** ⇩.

If **Mill Use** or **Exports** ⇩**,** then **Total Use** ⇩ and **Days Supply** ⇧.

If **Ending Stocks** ⇧**,** then **Days Supply** ⇧.

If **Ending Stocks** ⇩**,** then **Days Supply** ⇩.

Stocks-to-Use Ratio:

There is also an inverse relationship between farm price and the stocks-to-use ratio. Because stock-to-use ratio is ending stocks as a percentage of total use, it can also be used to indicate movement in the expected price of cotton. If the stocks-to-use ratio declines, it tells a producer that the carryover stocks of cotton are being depleted, indicating that current supply cannot keep up with current demand. The rationing of cotton stocks will raise the average price bid in the market. If the stocks-to-use ratio increases, it tells the producer that cotton is being added to the carryover stocks, indicating that the current demand is lagging behind supply. Bid prices will be weakened by additions to the carryover stocks of cotton.

The Stocks-to-Use ratio also indicates a potential change in farm price due to changes in the factors that contribute to total use (US mill use and exports). Conditions that would impact mill consumption would be indicated by an increase or decrease of the Stocks-to-Use ratio. For example, if mills extended holiday shut downs, then expected mill use would decline, and current stocks-to-use ratio would increase because ending stocks would be a larger percentage of total use. Another example of an increase in the ratio would be a decrease in US exports. If the US were to revoke China's most favored nation (MFN) and restrict US-Chinese trade, expected cotton exports could decline, reducing cotton's total use. In both cases, a decrease in expected

total use would be reflected in a increase in the Stock-to-Use ratio, which in most years would result in a surplus of cotton, weakening average US farm prices. However, if, as in 1994/95, significant decreases in production in a number of key cotton producing countries results in an increase in US exports and total use, then the stocks-to-use ratio decreases, indicating a potential increase in the average US farm price for cotton. Figure 4 illustrates the inverse relationship between the stocks-to-use ratio and average farm price.

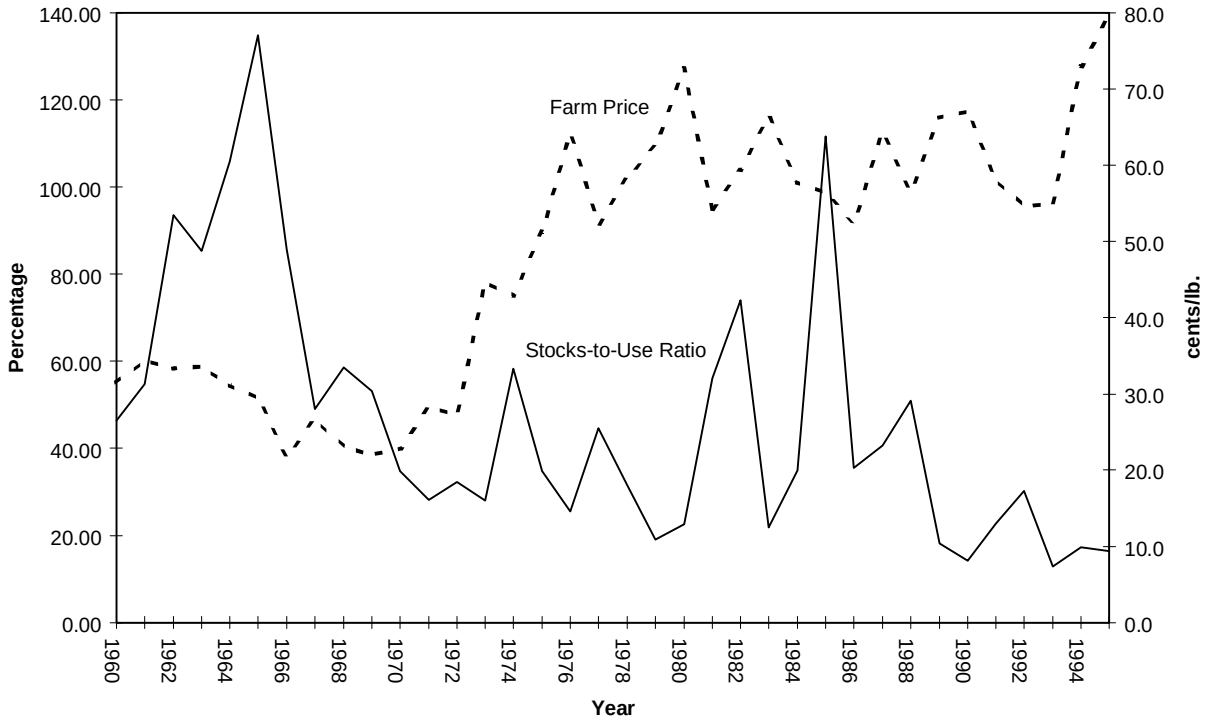

Figure 4: Stocks-to-Use Ratio & Farm Price for US Cotton, 1960/61 - 1995/96

Quick Tips

If **Stocks-to-Use Ratio** ⇧ then expect **Average US Farm Price** to ⇩.

If **Stocks-to-Use Ratio** ⇩ then expect **Average US Farm Price** to ⇧.

Reminder: **Stocks-to-Use Ratio** depends on Total Demand and Ending Stocks. Anything that would impact the **Total Use** for cotton and/or **Ending Stocks** will impact **Stocks-to-Use Ratio**.

If **Total Use** ⇧ and **Stocks-to-Use Ratio** ⇩.

If **Total Use** ⇩ and **Stocks-to-Use Ratio** ⇧.

If **Ending Stocks** ⇧**,** then **Stocks-to-Use Ratio** ⇧.

If **Ending Stocks** ⇩**,** then **Stocks-to-Use Ratio** ⇩.

II. Forecasting Model

Following the steps in this section the producer can estimate expected supply, demand, and subsequently formulate an expected season average price at planting time. Because USDA does not publish production forecasts for the new cotton crop until June, producers must make planting decisions based on historical trends, National Cotton Council survey information, and their expectations regarding future market conditions. Producers can calculate their supply, demand, and price expectations for the cotton crop at critical decision making times, such as planting. The Guide uses historical data to calculate initial expectations; however, the balance sheet approach gives producers the flexibility to reevaluate expectations as new information becomes available.

Because Southeastern (Alabama, Florida, Georgia, North Carolina, South Carolina, and Virginia) cotton producers account for only 15% (1990/91 to 1995/96) of total US cotton production, the pricing guide creates expectations for the average US farm price. Table 2 is a balance sheet exactly like Table 1, but it includes labels for each step in the process of developing expectations on the balance sheet. For reference purposes each step is labeled 1 through 14 and corresponds to an associated instruction box. To fully understand the components of supply and

demand and their impact on farm price it is recommended that the producer read the entire guide before attempting any calculations. Once the reader understands the process of creating expectations with the balance sheet, the quick tips and instruction boxes can be used in future use of the guide. A more detailed explanation of the models from which the equations are derived is available in Appendix C (Section 3.2.3).

While this Guide is a useful tool, it does not take into account changes in the weather or quality discounts. Expectations developed from the balance sheet (Table 2) will provide a point of reference for marketing decisions.

Table 2: Estimated US Cotton Supply, Demand, Stocks, and Price

STEP:	ITEMS	UNITS	95/96 March Estimates [1]	96/97	97/98
#1	Planted Acreage	thousand acres	16,720		
#2	Harvested Acreage	thousand acres	15,780		
#3	Lint Yield per Harvested Ac.	lbs./ acre	536		
	Supply				
#4	Production	thousand bales	17,610		
#5	Beginning Stocks	thousand bales	2,590		
#6	Imports	thousand bales	190		
#7	Total Supply	thousand bales	20,390		
	Use				
#8	Mill Use	thousand bales	10,410		
#9	Exports	thousand bales	7,090		
#10	Total Use	thousand bales	17,500		
#11	Ending Stocks	thousand bales	2,880		
#12	Days Supply	days	60		
#13	Stocks-to-Use Ratio	percent	16.46		
	Loan Rate[2]	cents/lb.	51.25		
#14	Average US Farm Price[3]	cents/lb.	76.7		

[1] Most recent information based on WASDE forecasts, released 2/9/96. [2] Estimated to be the same as 1994 loan rate because of the delay passing the 1995 Farm Bill. Please adjust if necessary. [3]Estimation. USDA is forbidden by law to publish price forecasts for cotton.

I. Supply

Production depends on planted acres, harvested acres, and lint yield per harvested acre, steps 1,2, and 3 in Table 2. Planted acres depends on a number of factors such as,

- government programs,
- profitability of cotton compared to alternative crops,
- and price incentives provided by the previous year's average farm price for cotton versus alternative crop prices.

An estimation of **Planted Acreage** is available in February from the National Cotton Council's Plantings Intentions Survey.[1] The National Cotton Council surveys its national membership, which is updated on an annual basis, unlike USDA's survey population. USDA's planting intentions survey is not published until the first week in April.

Step #1: Planted Acreage

Annual Plantings Intentions Survey
National Cotton Council
Box 12285
Memphis, TN 38182-0285
(901) 274-9030

The results of the survey are published in the middle of February in the National Cotton Council's newsletter, *Cotton's Week.*

Planted Acreage 1996/97 was estimated to be 15,500 thousand acres.

Enter 15,500 for Planted Acres on Table 2.

[1] Planted acreage used to be estimated by subtracting set-aside acreage from national base acreage; however, passage of the Federal Agriculture Improvement and Reform (FAIR) Act in 1996, eliminated the use of set-aside acreage.

Step #2: US Harvested Acreage

Harvested Acreage = **Estimated Planted Acreage***(Step #1)* * **0.9217**

EXAMPLE

Harvested Acreage 1996/97 = Estimated Planted Acreage 1996/97 * 0.9217

= 15,500 * 0.9217 = **14,286 acres**.

Enter 14,286 for Harvest Acreage on Table 2.

Harvested acreage: Since 1985/86, approximately 92.17% of all US planted acres has been harvested. Weather conditions, pests and disease damage, and quality discounts are just a few reasons why producers do not harvest all of the acreage planted in a given year. Table 3 gives the historical relationship between planted acreage and harvested acreage for Southeast and the US. Figure 5 compares the estimated US harvested acres and the actual harvested acres, starting in 1982.

Table 3: Southeast, and US Planted & Harvested Upland Cotton Acres

Crop Year	Southeast			United States		
	Planted	Harvested	Ratio	Planted	Harvested	Ratio
1974	1,486	1,425	96%	13,596	12,464	92%
1975	718	691	96%	9,408	8,730	93%
1976	948	898	95%	11,590	10,869	94%
1977	899	808	90%	13,604	13,201	97%
1978	599	574	96%	13,298	12,324	93%
1979	624	612	98%	13,887	12,742	92%
1980	689	672	98%	14,460	13,143	91%
1981	777	764	98%	14,272	13,783	97%
1982	634	623	98%	11,275	9,663	86%
1983	481	470	98%	7,863	7,285	93%
1984	703	697	99%	11,065	10,300	93%
1985	823	807	98%	10,601	10,145	96%
1986	761	722	95%	9,933	8,357	84%
1987	833	823	99%	10,259	9,894	96%
1988	1,047	988	94%	12,325	11,759	95%
1989	854	838	98%	10,210	9,166	90%
1990	1,133	1,123	99%	12,117	11,505	95%
1991	1,579	1,566	99%	13,802	12,716	92%
1992	1,524	1,505	99%	12,977	10,883	84%
1993	1,727	1,690	98%	13,248	12,594	95%
1994 1/	2,152	2,148	100%	13,552	13,156	97%
1995 2/				16,720	15,780	94%
1996						
1997						

1/ December 12, 1995 Crop Production Report. 2/ Forecasts for Va found in the 12/12/95 Crop Production Report. Forecasts for US from WASDE, released 2/9/96.

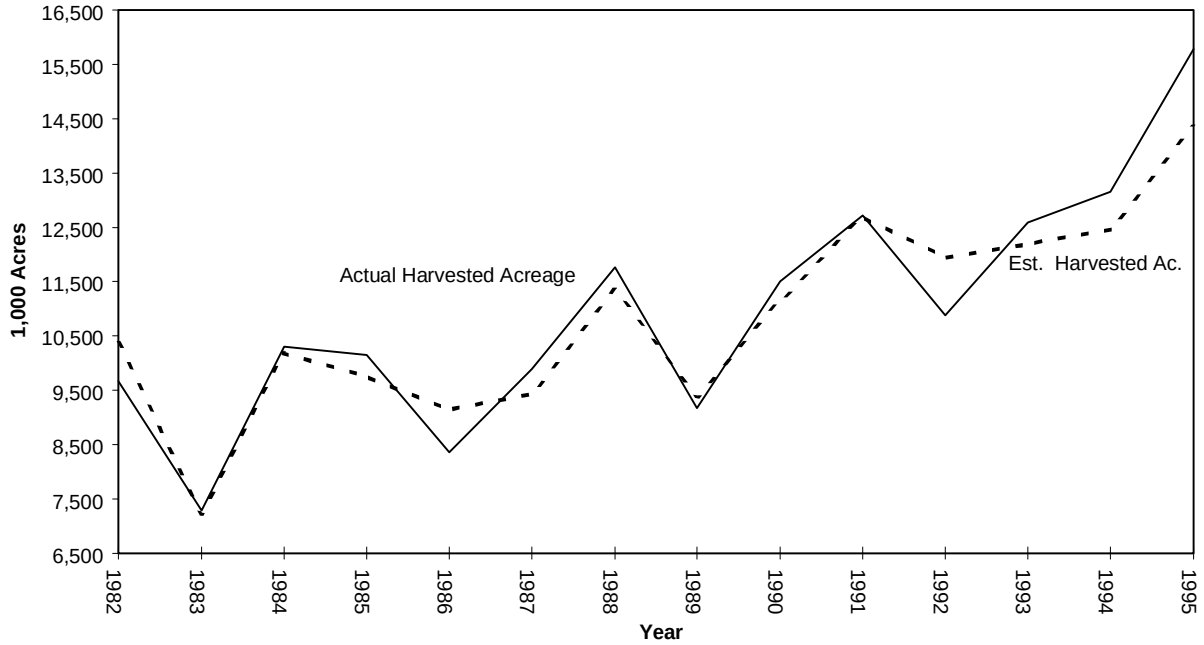

Figure 5: Actual vs. Estimated Harvested Acreage
US Cotton, 19982/83 - 1995/96

Since 1982, approximately 98.01% of the cotton planted in the Southeast was harvested. Again, due to the lack of information it is not possible to estimate harvested acres for Virginia. However, annual data for the 1984/85 - 1994/95 cotton crops show Virginia producers have harvested 100 % of their planted cotton, except for 1994/95 when 99.3% was harvested.

Step #3: US Lint Yield Per Harvest Acre

Lint Yield = (-12,875.76) + (6.77 * **Year)**

Year = Based on the start of Marketing Year, August 1st;

EXAMPLE

Lint Yield 1996/97 = (-12,875.76) + (6.77* 1996)
= (-12,875.76) + (13,512.92)
= 637.16 lbs./acre

Round and enter 637 for Yield in Table 2.

Yield: Because cotton yields are influenced by weather fluctuations, regional climates and the quality of the land in production, lint yield varies considerably from year to year and by region (Figure 6).[2]

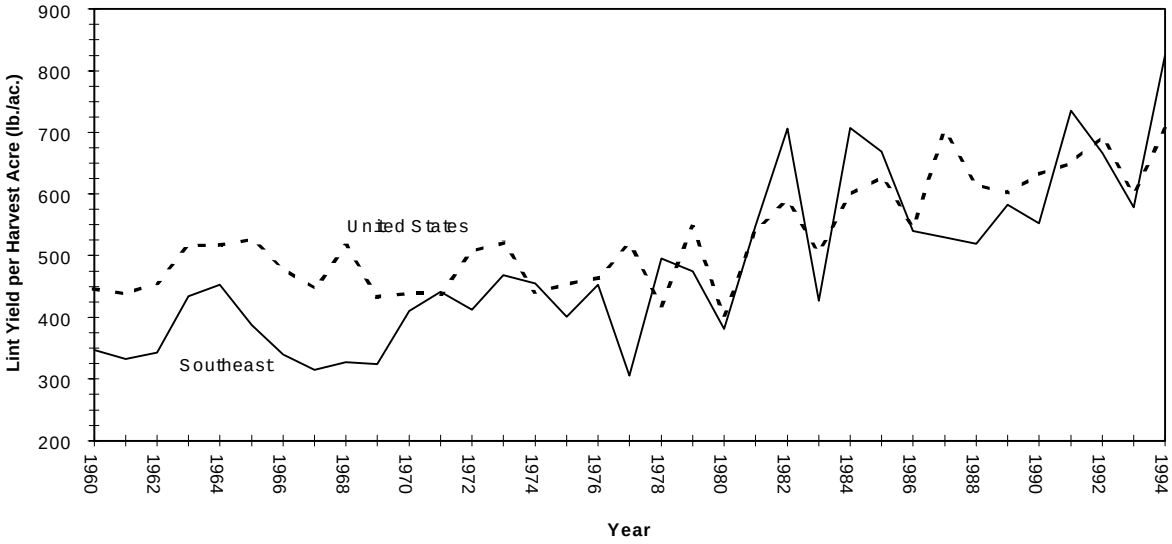

Figure 6: US, and Southeast Cotton Yield, 1960/61-1994/95

Each cotton producing region in the US has different lint yields per harvested acre due to a number of factors, such as differences in soil conditions, climate and pests. These differences are not isolated in the aggregated US estimation. Table 4 compares the actual yields to the estimated yields for the US and the Southeast. Figure 7 shows the historical relationship between the actual and the estimated lint yield for the US.

[2] Historically, the Acreage Reduction Program (ARP) was a significant factor in determining lint yield per harvested acre. However, under the FAIR Act, the ARP was eliminated, giving producers more flexibility in terms of allocating acreage for cotton production. See Section 3.2.3, Appendix C for discussion on historical influences.

Table 4: Actual vs. Estimated Lint Yield/Harvested Acre for Southeast, & US (lbs./acre)

Crop	Southeast			United States		
Year	Actual	Estimated	Act.-Est.	Actual	Estimated	Act.-Est.
1974	455	433.53	21.47	441	491.53	-50.53
1975	401	440.55	-39.55	453	493.80	-40.80
1976	453	447.58	5.42	464	496.06	-32.06
1977	306	454.61	-148.61	519	498.33	20.67
1978	495	461.63	33.37	519	500.59	18.41
1979	474	468.66	5.34	547	502.85	44.15
1980	382	475.69	-93.69	402	505.12	-103.12
1981	548	482.72	65.28	542	507.38	34.62
1982	706	489.74	216.26	589	509.64	79.36
1983	427	496.77	-69.77	506	511.91	-5.91
1984	707	572.18	134.82	599	606.84	-7.84
1985	668	611.56	56.44	628	635.38	-7.38
1986	540	586.24	-46.24	547	611.37	-64.37
1987	529	593.26	-64.26	702	613.63	88.37
1988	519	632.64	-113.64	615	642.17	-27.17
1989	583	607.32	-24.32	602	618.16	-16.16
1990	553	646.70	-93.70	632	646.70	-14.70
1991	735	631.63	103.37	650	618.79	31.21
1992	666	638.65	27.35	693	621.05	71.95
1993	578	645.68	-67.68	601	623.32	-22.32
1994 1/	826	674.80	151.20	705	655.75	49.25
1995 2/	599	659.736	-60.74	563	627.84	-64.84
1996						
1997						

1/ December 12, 1995 Crop Production Report. 2/ Forecast made December 1, 1995 Crop Production Report.

Figure 7: Actual vs. Estimated US Lint Yield, 1982/83 - 1995/96

Southeast Lint Yield Per Harvested Acre

Lint Yield = (-13,369.11) + (7.03* Year)

Year = Based on the start of Marketing Year

EXAMPLE

Lint Yield 1996/97 = (-13,369.11) + (7.03*1996)
= 669.8 lbs./acre.

For 1996/97 the estimated Southeast lint yield is 670 lbs./acre.

The balance sheet is set up to create expectations for the US market because cotton producers in the Southeast are price takers who are affected by the overall condition of the cotton market. However, even though the calculation for Southeast lint yield is not included in the balance sheet, it is useful information because producers need to be aware of the impact regional differences could have on their production when making planting decisions. The estimation for

1996/97 Southeast lint yield is 670 lbs./acre. Figure 8 shows the relationship between actual and estimated lint yield for the southeast.

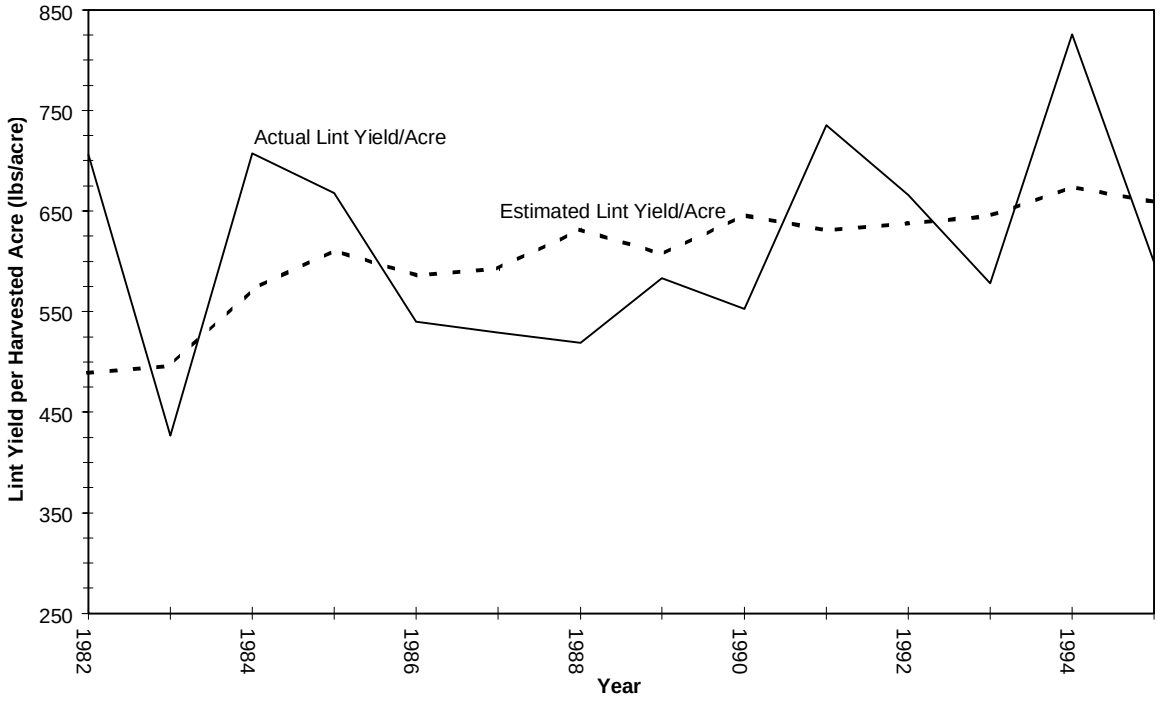

Figure 8: Actual vs. Estimated Southeast Lint Yield, 1982/83 - 1995/96

Step #4: Production

US Production = (**Estimated US Harvest***(Step #2)* * **Estimated US Lint Yield***(Step #3)*) / 480 lbs.

EXAMPLE

US Production 1996/97 = (**Estimated US Harvested Ac. 1996/97 * Estimated US Lint Yield 1996/97**) /480 lbs.

= (14,286 acres * 637 lbs./acres)/ 480 lbs.

= 18,963.47 thousand bales

Round up and enter 18,963 for Production on Table 2.

Production is calculated by multiplying the estimated harvested acreage by the estimated lint yield. Changes in either the estimation for US harvested acreage or US Lint Yield would impact the estimation of production, a component of total supply, and ultimately farm price.

It is important to recognize that actual levels of harvested acreage and lint yield can be affected by conditions that are not captured by the Guide's calculations. For example, estimated harvested acreage is based on the historical average of the ratio of planted to harvested acres (see Table 3), but conditions in a given marketing year could influence the actual ratio of planted to harvested acres. In years, such as 1992/93, when the ratio of planted to harvested acres fell below the average of 92.17%, the Guide would have over estimated harvested acre, production, total supply, and possibly underestimated average farm price. Thus, it is important to remember that a producer's expectations need to change as more information becomes available regarding the actual condition of the US cotton market.

Step #5: Beginning Stocks

Use **Ending Stocks** from the previous marketing year. This estimation is published by USDA in *World Agriculture Supply and Demand Estimates* (WASDE).

Example

As of March 11, 1996, USDA projected 1995/96 ending stocks to be 2.88 million bales (2,880 thousand bales in Table 2).

Therefore, expected 1996/97 beginning stocks are 2,880 thousand bales.
Enter 2,880 in the space for 1996/97 beginning stocks on Table 2.

Beginning Stocks: A monthly estimation for ending stocks is published by USDA in *World Agriculture Supply and Demand Estimates* (WASDE), which are available via the internet (refer to Appendix A). The ending stocks carried over from the 1995/96 marketing year become the beginning stocks for the 1996/97 marketing year.

Step #6: Imports

Imports = **Average of the last Three Years' Imports**

EXAMPLE

Imports 1996/97 = (**Imports 1993/94** + **Imports 1994/95** + **Imports 1995/96**)/ 3

= (7 + 20 + 190)/3

= 72.33 thousand bales

Round and enter 72 for Imports on Table 2.

Imports are estimated using the average over the past three years. Historically, imports have been a relatively small portion of total supply due to import quotas on agricultural commodities. However, under conditions of the General Agreement on Trade and Tariffs (GATT), import quotas on agricultural commodities were converted to tariff-rate quotas that will be reduced over time. GATT provides the potential for an significant increase in US cotton imports in the near future, which would be reflected in changes in the three year average.

Step #7: Total Supply

Total Supply = **Estimated Production***(Step #4)* + **Estimated Beginning Stocks***(Step #5)* + **Estimated Imports***(Step #6)*

EXAMPLE

Total Supply 1997/97 = **Estimated Production 1996/97** + **Estimated Beginning Stocks 1996/97**+ **Estimated Imports 1996/97**

= 18,963 + 2,880 + 72

= 21,915 thousand bales

Enter 21,915 for Total Supply on Table 2.

Total Supply is equal to the sum of beginning stocks, production, and imports.

II. Demand

Demand has two components, mill use and exports.

Step #8: Mill Use

Mill Use = (7,554.95) + (-14.61* Pc_{t-1}) + (-863,351.64* Dl) + (435.12* (Dl * Year))

Pc_{t-1} = Raw-Fiber Equivalent Price for Cotton for the last marketing year[3]

D1 = 1, if Year ≥ 1981 otherwise D1 = 0, and

Year = Based on the start of Marketing Year, August 1st.

EXAMPLE

Pc_{t-1} = Raw-Fiber Equivalent 1995/96
= 98.73 cents/lb.

D1 = 1

Year = 1996

Mill Use 1996/97 = (7,554.95) + (-14.61* 98.73) + (-863,351.64*1) + (435.12* (1996))

= 7,554.95 - 1,442.45 - 863,351.64 + 868,499.95

= 11,260.81 thousand bales

Round up and enter 11,261 for Mill Use on Table 2.

Mill Use: Figure 9 illustrates the ability of this equations to estimate US mill use. From 1981/82 to the present, the mean difference in the same time period was -1.58 thousand bales. Table 5 gives the historical relationship between actual and estimated mill use. A dummy variable, D1, was introduced into the equation because of the change in the trend of mills' cotton use in 1981/82 (Figure 9). Incorrectly accounting for the change in the trend of mill use would reduce the effectiveness of the formula in step #8.

[3] The raw-fiber equivalent price is published by USDA in the ERS *Cotton and Wool Situation and Outlook Reports*. Raw-fiber equivalent prices are adjusted in order to account for the waste associated with a pound of cotton fiber in the spinning process.

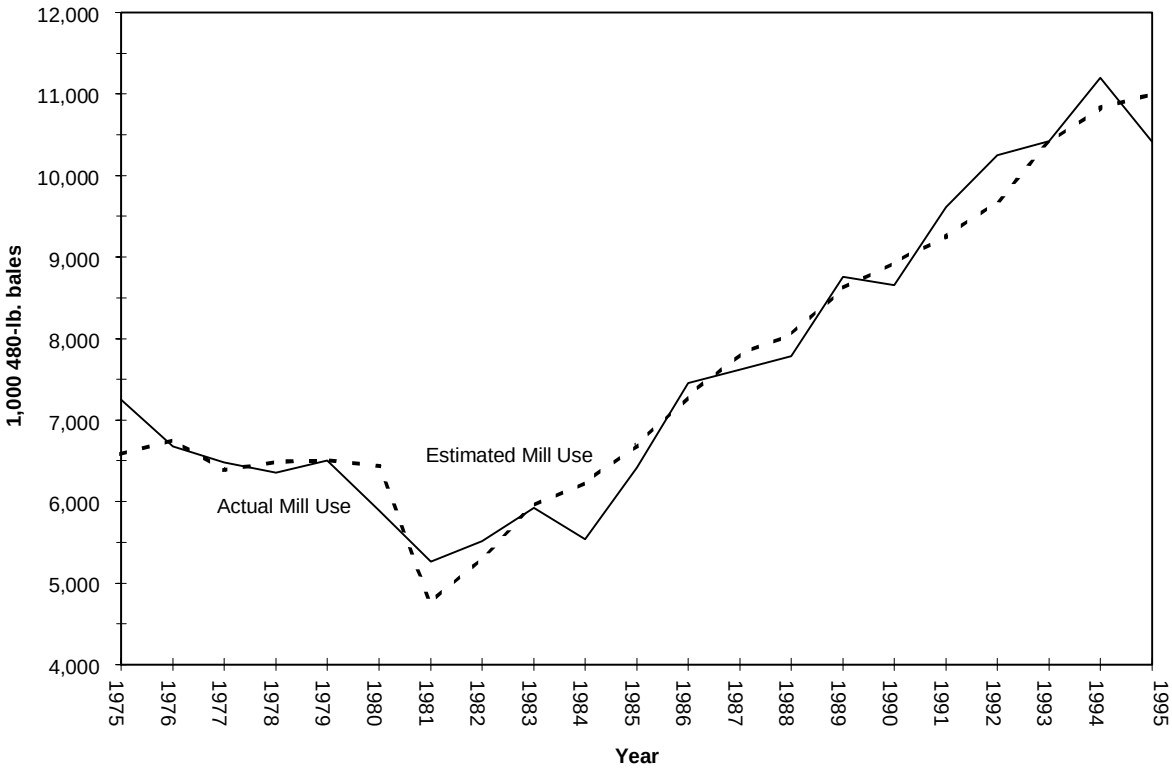

Figure 9: Actual vs. Estimated Mill Use, 1975/76 - 1995/96

Table 5: Actual vs. Estimated US Mill Use (1,000 480-lb. bales)

Year	Actual Mill Use	Estimated Mill Use	Difference (Act. - Est.)	Ratio (Est./Act.)
1975	7,250	6,582.24	667.76	91%
1976	6,674	6,756.80	-82.80	101%
1977	6,483	6,383.43	99.57	98%
1978	6,352	6,486.85	-134.85	102%
1979	6,506	6,510.81	-4.81	100%
1980	5,891	6,435.87	-544.87	109%
1981	5,264	4,757.13	506.87	90%
1982	5,513	5,315.10	197.90	96%
1983	5,921	5,951.81	-30.81	101%
1984	5,538	6,229.03	-691.03	112%
1985	6,413	6,691.17	-278.17	104%
1986	7,452	7,292.24	159.76	98%
1987	7,617	7,805.95	-188.95	102%
1988	7,782	8,050.89	-268.89	103%
1989	8,759	8,612.95	146.05	98%
1990	8,657	8,932.82	-275.82	103%
1991	9,613	9,249.48	363.52	96%
1992	10,250	9,688.55	561.45	95%
1993	10,418	10,401.65	16.35	100%
1994	11,200	10,828.45	371.55	97%
1995	10,410	10,999.77	-589.77	106%
1996				
1997				

Step #9: Exports

Exports = **(9,721.26) + (0.21* Foreign Exports$_{(t-1)}$) + (0.08* Foreign Imports$_{(t-1)}$) + (-0.26* Foreign Beginning Stocks) + (-46.53* Prw$_{t-1}$)**

Foreign Exports$_{(t-1)}$ = Foreign Exports 1995/96,
Foreign Imports$_{(t-1)}$ = Foreign Imports 1995/96,
Foreign Beginning Stocks = Foreign Ending Stocks 1995/96, and
Prw$_{t-1}$ = 1995/96 World Price/lb. of US Cotton c.i.f. Northern Europe (Index A) / 1995/96 Producer Price Index.

EXAMPLE

Real World$ 1996/97 = World Price 1995/96/lb. of US Cotton c.i.f. Northern Europe (Index A) /PPI 1995/96
= 86.04/1.24
= 69.38 cents/lb.

Exports 96/97 = **(9,721.26) + (0.21***20,870**) + (0.08***28,170**) + (-0.26***26,100**) +(-46.53***69.38**)**

= 6,343.31 thousand bales

Round and enter 6,343 or Exports on Table 2.

US Exports: In order to keep future estimations consistent, it is important to use the A Index world price, which is found in the ERS Outlook Report under Northern Europe price quotes. The A index price is the average of the five lowest priced types of strict low middling 1-3/32 inch staple (including Indian-type H-4 as of 1991/92) offered on the European market. The producer price index (PPI) is used to account for the impact of inflation on producer prices over time. ERS's monthly magazine, *Agricultural Outlook*, publishes a series of recent prices indexes (see Section 3.2.1, Appendix A).

Figure 10 illustrates the ability of the equation to function as a tool for predicting exports. Because changes in US exports during the marketing year can have a significant impact on the average US price for cotton, it is important for producers to reevaluate their expectations for US exports as new information becomes available. Historically, it appears that expectations for US exports created using the Guide's estimated exports were accurate because the estimation was approximately 95% of value of actual exports. However, in marketing years, such as 1994/95, when global market conditions changed within the marketing year and resulted in a dramatic increase in US exports, initial estimations would have under valued the level of US exports, total demand, and average US farm price. Table 6 outlines the historical relationship between actual exports and estimated exports.

Figure 10: Actual vs. Estimated US Cotton Exports, 1974/75 - 1995/96

Table 6: Actual vs. Estimated US Exports (1,000 480-lb. bales)

Year	Actual Exports	Estimated Exports	Difference (Act.-Est.)	Ratio (Est./Act.)
1974	3,926	3990.44	-64.44	102%
1975	3,311	4918.77	-1607.77	149%
1976	4,784	6110.67	-1326.67	128%
1977	5,484	5308.15	175.85	97%
1978	6,180	6663.60	-483.60	108%
1979	9,229	6824.01	2404.99	74%
1980	5,926	5008.00	918.00	85%
1981	6,567	6401.87	165.13	97%
1982	5,207	7053.26	-1846.26	135%
1983	6,786	7621.26	-835.26	112%
1984	6,215	5867.05	347.95	94%
1985	1,960	2574.54	-614.54	131%
1986	6,684	4909.65	1774.35	73%
1987	6,582	6946.14	-364.14	106%
1988	6,148	6682.74	-534.74	109%
1989	7,694	8569.94	-875.94	111%
1990	7,793	7536.74	256.26	97%
1991	6,646	6482.70	163.30	98%
1992	5,201	5797.65	-596.65	111%
1993	6,862	6544.52	317.48	95%
1994	9,400	7556.18	1843.82	80%
1995	6,890	6107.12	782.88	89%
1996				
1997				

A producer in Virginia must consider all of the industry participants in the world market for cotton. Table 7 lists major cotton exporting and importing nations. The US is the largest cotton exporter and one of the smallest cotton importers. US cotton producers have to be aware of conditions that may impact foreign cotton markets that cannot be accounted for in a mathematical equation, such as political pressures, outbreaks of pests in other countries, or global weather. Consider the example of the impact of a severe drought in a major exporting nation, such as Uzbekistan. Assuming the supply from other producing countries has not significantly changed, global supplies will fall short of expectations. The weather conditions in Uzbekistan will change the cotton supplies available for trade in the current marketing year. As long as global demand for cotton stays constant or increases during the marketing year (short-run), the reduction in global supply will result in an increase in the bid price in the world market. It can be expected as the largest exporter, US cotton that would previously have gone into ending stocks or residual

supplies, will now be exported because of the higher world price. An increase in US cotton exports will increase total demand, along with the average US farm price.

The unexpected increase in US exports will also have a long-run impact on the cotton market because diverting cotton from residual supplies to US exports will reduce the amount of beginning stocks in the next marketing year. Depending on changes in production, imports, and total demand, a decrease in beginning stocks could increase the expected average US farm price in the long-run. Factors that increase the long-run expected price of US cotton could influence planting and harvesting decisions, altering US production and total supply. Thus, producers' long-run decisions are affected by current conditions in the world market.

Table 7: **Major Exporters/Importers, Compared to the US (million 480-lb. bales)**

	Exporters			Importers	
Nation	**1994/95**	**1995/96**	**Nation**	**1994/95**	**1995/96**
United States	*9.40*	*7.20*	*United States*	*0.02*	*0.10*
Uzbekistan	5.10	4.80	Europe	6.16	6.77
African Free Zone[1]	2.56	2.77	Selected Asia[2]	5.71	5.65
Turkmenistan	1.60	1.20	Russia	2.10	1.80
Argentina & Paraguay	1.52	1.85	Japan	1.75	1.60
Australia	1.30	1.40	South Korea	2.10	1.50
Brazil	0.23	0.23			
China	0.18	0.40			
Pakistan	0.15	1.20			
India	0.14	0.50			

[1]Benin, Burkina Faso, Cameroon, Central Africa Republic, Chad, Cte d'Ivoire, Mali, Niger, Senegal, and Togo.
[2]Hong Kong, Indonesia, Taiwan, and Thailand Source: *WASDE Cotton US & World,* released February 8, 1996.

Quick Tips

If **World Supply** ⇩ because of **weather,** expect **demand** for **US Exports** to ⇧ **.**

If **US Exports** ⇧ then expect **Total US Use** to ⇧ **.**

If **Total US Demand** ⇧ then expect **Average US Farm Price** to ⇧ **.**

Reminder: Any impact a change in **US Exports** has on **Total US Demand** may be magnified or offset by a change in **US Mill Use**, for example longer mill shut downs during holidays.

Reminder: Any impact a change in **Total US Use** has on **Average US Farm Price** may be magnified or offset by any change in **Total US Supply**.

It is **IMPORTANT** to follow all changes in components of the **Supply & Demand Balance Sheet** all the way through the **Forecasting Model**.

With today's technology, tracking weather overseas is becoming easier. The Weather Channel and the web site http://wxweb.msu.edu/weather are two sources of information. At the beginning of the USDA Situation and Outlook Reports for cotton there is usually a paragraph that will summarize any major changes in global production due to unexpected conditions, such as weather patterns or insect damage. This information can be used to adjust expectations based on the impact these factors could have on the US supply or use.

Step #10: Total Use

Total Use = **Estimated US Mill Use***(Step #8)* + **Estimated Exports***(Step #9)*

EXAMPLE

Total Use 1996/97 = **Estimated US Mill Use 1996/97**+ **Estimated Exports 1996/97**
= 11,261 thousand bales + 6,343 thousand bales
= 17,604 thousand bales

Enter 17,604 for Total Use on Table 2.

Total Demand, listed as **total use** on Table 2, is estimated by adding up the estimates for mill use and exports.

Step #11: Ending Stocks

Ending Stocks = **Total Supply***(Step #7)* - **Total Demand***(Step #10)*

EXAMPLE

Ending Stocks 1996/97 = **Total Supply 1996/97** - **Total Demand 1996/97**
= 21,915 thousand bales - 17,604 thousand bales
= 4,311 thousand bales

Enter 4,311 for Ending Stocks on Table 2.

Ending Stocks can be estimated by subtracting total supply from total use.

Step #12: Days Supply

Days Supply = **Estimated Ending Stocks***(Step #11)* /(**Estimated Total Use** *(Step#10)*/365 days)

EXAMPLE

Days Supply 1996/97 = **Estimated Ending Stocks 1996/97** /(**Estimated Total Use 1996/97**/365 days)
= 4,311 thousand bales /(17,604 thousand bales/365 days)
= 4,311 thousand bales / 48.23 thousand bales/day
= 89.34 days

Round and enter 89 for Days Supply on Table 2.

Days Supply can be estimated by dividing estimated ending stocks by use per day (estimated total disappearance/365 days). The calculated index, Days Supply, assumes that mills are running seven days a week through out the entire marketing year. Factors that result in closing textile mills, such as prolonged mill shut downs, will impact the index because the stocks would last longer as mill's days of operation decrease.

Step #13: Stocks-to-Use Ratio

Stocks-to-Use Ratio = (Estimated Ending Stocks*(Step #11)***/Estimated Total Use** *(Step #10)***) * 100**

EXAMPLE

Stocks-to-Use Ratio 1996/97 = (Estimated Ending Stocks 1996/97/Estimated Total Use 1996/97) * 100
= (4,311 thousand bales/17,604 thousand bales) * 100
= 0.2448* 100
= 24.48%

Enter 24.48% for Stocks-to-Use Ratio on Table 2.

Stocks-to-Use Ratio can be easily calculated using estimated ending stocks and estimated total use. In order to convert the decimal value for the calculation into a percentage, multiplying (Estimated Ending Stocks/Estimated Total Use) by 100.

Before we estimate the average US farm price for 1996/97, let's examine the balance sheet. A review of 1995/96 with calculated 1996/97 expectations, indicates that yield, total supply, total demand and ending stocks have all increased. Days Supply and the stocks-to-use ratio have also increased. Thus, the results illustrated on the balance sheet indicate that in 1996/97 the increase in supply might be large enough to account for the increase in use. By looking at the *whole* balance sheet we can start to formulate our expectations for the average US farm price. Because of the increase in Days Supply and stocks-to-use ratio, it appears that the average US farm price in 1996/97 should be lower than the 1995/96 average.

Step #14: Average US Farm Price

Average US Farm Price (P_t) = Estimated ($P_t - P_{t-1}$) + P_{t-1}

($P_t - P_{t-1}$) = -2.92 + (-0.43*STU_t-STU_{t-1}) + (11.43*D1)

Pt = Nominal Average US Farm Price 1996/97
Pt-1 = Nominal Average US Farm Price 1995/96
STUt = Stocks-to-Use Ratio (*Step #13*) 1996/97
STUt-1 = Stocks-to-Use Ratio 1995/96
D1 = 1, if the change in Exports is greater than 35%

EXAMPLE (for t = 1996/97)

(STU_t - STU_{t-1}) = 24.48-16.46 = 8.02
D1 = (6,351 - 7,090)/7,090 *100 = -10.42% D1 = 0
($P_t - P_{t-1}$) = -2.92 + (-0.43*8.02) + (11.43*0) = -6.3 cents/lb.

Average US Farm Price 1997/96 = Estimated ($P_t - P_{t-1}$) + 1995/96 Farm Price

= -6.3 + 76.7

= 70.4 cents/lb.

Enter 70.4 for Average US Farm Price on Table 2.

Average US Farm Price: The variables included in the estimation equation account for 92.59% of the average farm price. Table 8 compares the actual and the estimated average US farm price. From 1975/76 to 1995/96, the estimated farm price has averaged 93.7% of the actual farm price. From 1990/91 to 1995/96, the estimated farm price was approximately 100.3% of the actual farm price. Figure 11 illustrates the relationship between the actual and the estimated average US farm price.

Table 8: Actual vs. Estimated Average US Farm Price (cents/lb.)

Year	Actual Farm Price	Estimated Farm Price	Differance Act. - Est.	Ratio Est./Act.
1975	51.3	50.10	1.20	98%
1976	64.1	63.82	0.28	100%
1977	52.3	52.94	-0.64	101%
1978	58.4	55.03	3.37	94%
1979	62.5	72.30	-9.80	116%
1980	72.7	69.50	3.20	96%
1981	54.3	55.36	-1.06	102%
1982	59.4	60.02	-0.62	101%
1983	66.4	66.40	0.00	100%
1984	57.8	57.86	-0.06	100%
1985	56.3	58.00	-1.70	103%
1986	52.4	54.60	-2.20	104%
1987	64.3	63.68	0.62	99%
1988	56.6	56.96	-0.36	101%
1989	66.2	67.76	-1.56	102%
1990	67.1	65.00	2.10	97%
1991	58.1	60.51	-2.41	104%
1992	54.6	52.00	2.60	95%
1993	54.9	55.88	-0.98	102%
1994	73.0	66.67	6.33	91%

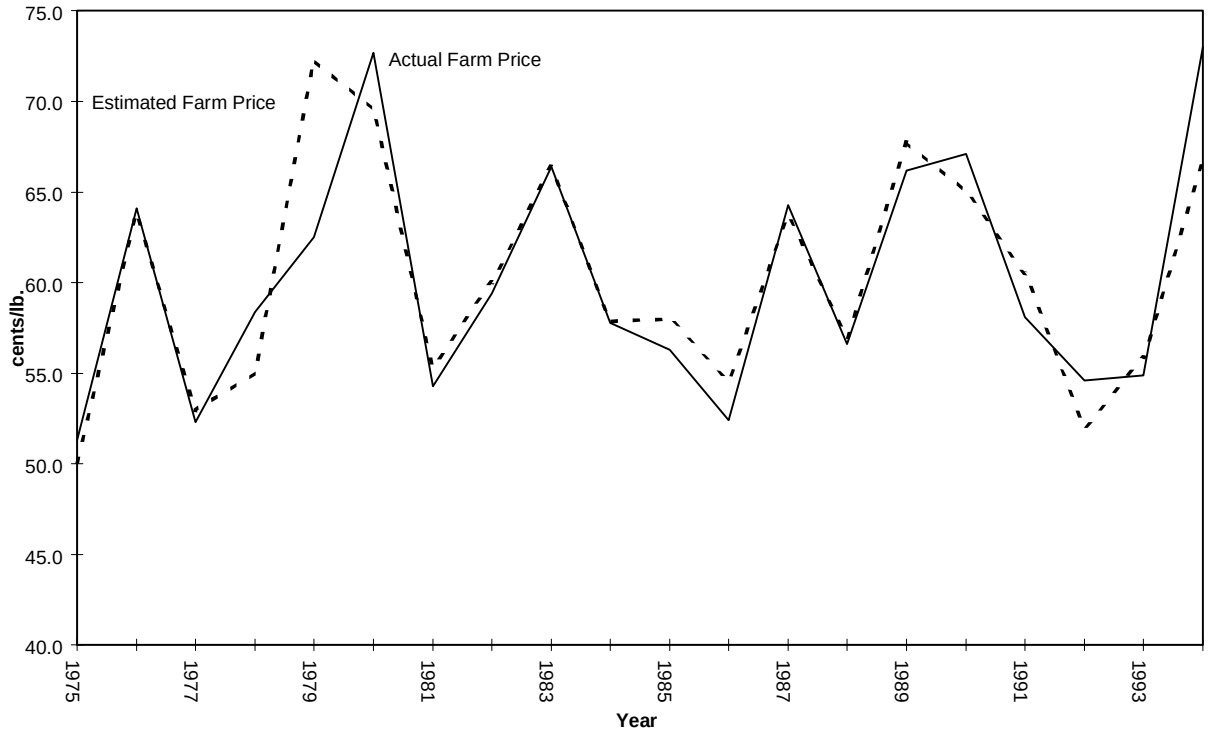

Figure 11: Actual vs. Estimated Farm Price for Cotton, 1975/76 - 1994/96

This Guide will only give producers a reference point, which can be used to create their seasonal expectations. It is important for producers to keep track of their own estimations and compare them to what actually occurred each year. That way producers will be able to check and make sure these methods of prediction do not become outdated due to structural changes in US and global markets. It would be helpful for producers to check their estimations against what actual happened on their own farm. Most of the tables, such as Table 6, have space for producer estimates for the next two years.

III. Summary

The information in this guide is to serve as a reference for Virginia cotton producers and to assist in developing expectations at planting time. By creating price expectations at planting time, producers can base decisions regarding planted acreage on expected income, as well as expected costs. The Guide can also be used by producers to evaluate different pricing strategies. For example, the expectations for the average farm price, would serve as a reference when determining if forward contracts from cotton gins offer a reasonable price per pound minus additional ginning costs. Comparing price expectations to futures' prices, aids producers in determining when expected benefits outweigh costs associated with hedging in the futures market. The expected average price can also be used to evaluate the timing of marketing activity. For example, producers would be able to evaluate the costs and benefits associated with storing cotton by comparing the farm price at harvest with the expected season average prices and considering the costs associated with storing cotton. Comparing their expected average price, futures market prices, current cash prices and storage costs would allow producers to create expectations regarding the value of storing cotton and selling it at some point in the future.

As the reader becomes increasingly familiar with the components of the cotton balance sheet, it will become easier to account for the impact of changes in the global and domestic cotton markets. It is important to keep in mind events that will impact supply and demand, even if the change is not accounted for numerically. For example, how would you interpret a serious drought in Uzbekistan or striking European textile workers? Even though these things can not be accounted for in numeric terms, what variables would they affect? The answer is total foreign supply and demand. Now, ask yourself what would happen to your 1996/97 predicted average price when foreign supply or demand changes. Hypothetically, consider the impact of a drought in Uzbekistan or China that significantly reduced global supplies in 1996/97 such that US exports increased unexpectedly during the marketing year. What could happen to the price of cotton as this information became available? A similar situation occurred in 1994/95 due to sharp reductions in cotton production in India and Pakistan, resulting from an outbreak of leaf curl. Based on the Guide's calculations, US exports were estimated to be 7.5 million bales (Table 6). However, due to the reduction in global supplies, actual exports rose to 9.4 million bales. The short-run impact was an increase in the estimated average farm price from 66.7 cents per pound to an actual season average of 73.0 cents per pound.

Within the 1994/95 marketing year producer prices rose to more than 1.00 per pound by the end of January 1995. Even though the guide only offers producers an estimation of average US farm prices, by evaluating changing conditions, such as the increase in US exports during the marketing year, producers would be able to take advantage of higher prices at specific times in the marketing year. Using the balance sheet approach and current information cotton producers would be able to evaluate different marketing strategies and take advantage of intra-year price increases. For example, producers may have originally decided to store their cotton in 1994/95 with the expectation that prices may increase as the amount of available cotton decreases towards the end of the marketing year. However, if these producers reevaluated their price expectations

because of the unexpected increase in US exports, they could have decided to take advantage of the January price increase, which would have increased their expected farm income, as well as reduced storage costs.

It is important to note that the quality of the cotton harvested will impact the price per pound producers receive. Producers could be discounted for number of quality characteristics such as color, fiber length, or trash. Keeping track of discounts received can only improve producers' ability to estimate the average price they receive for their cotton. Producers also have to consider the impact ginning costs have on their average income because these costs can be deducted from the price per pound depending on the gin's contract specifications. The estimation tools provided in this Guide will aid in the decision making process of producers, but should not be the sole justification for any planting or marketing decisions. The cost of growing quality cotton, projected cotton revenues, conditions of contracts offered by cotton gins, marketing costs, and overall farm budgets also need to be considered.