

COTTON GINNING, HANDLING, AND MARKETING
IN THE WESTERN COTTON REGION

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Cotton ginning, warehousing/compressing, and merchandising services are quite similar across the three areas of Arizona and California (figure 1). Production and associated services in the region tend to be concentrated in the large valleys. In contrast to the Southwest Irrigated Cotton (SWIC) region where production is widely scattered, there are only a few scattered isolated production areas mostly in the Imperial and Mid-Arizona areas.^{2/}

Most upland cotton grown in the Mid-Arizona and Imperial areas is Deltapine or Stoneville varieties which produces fiber that is about 10 percent stronger than the fiber from similar varieties planted elsewhere in the United States. Acala cotton, grown in the one-variety San Joaquin Valley, is noted for its long staple and high Pressley strength (97,000 to 98,000 PSI). These irrigated areas of the West produce very high yields and consistently uniform quality cotton which is attributable to the relatively constant weather conditions from year to year. There is a strong specific demand for this cotton by both domestic and foreign mills for making medium and higher count yarns and for blending with lower quality cotton from other areas.

Mid-Arizona produced 33 percent of the U.S. American Pima cotton crop in 1974; Imperial added another 10 percent with the balance (57 percent) being produced in the Southwest Irrigated Cotton region. The small acreage

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^{2/} For additional information on location of cotton production and production practices, see Ethridge, Don E., Dale L. Shaw, and W. C. McArthur, "Production Resources and Practices in the Western Cotton Region," CED Working Paper, Nov. 1977.

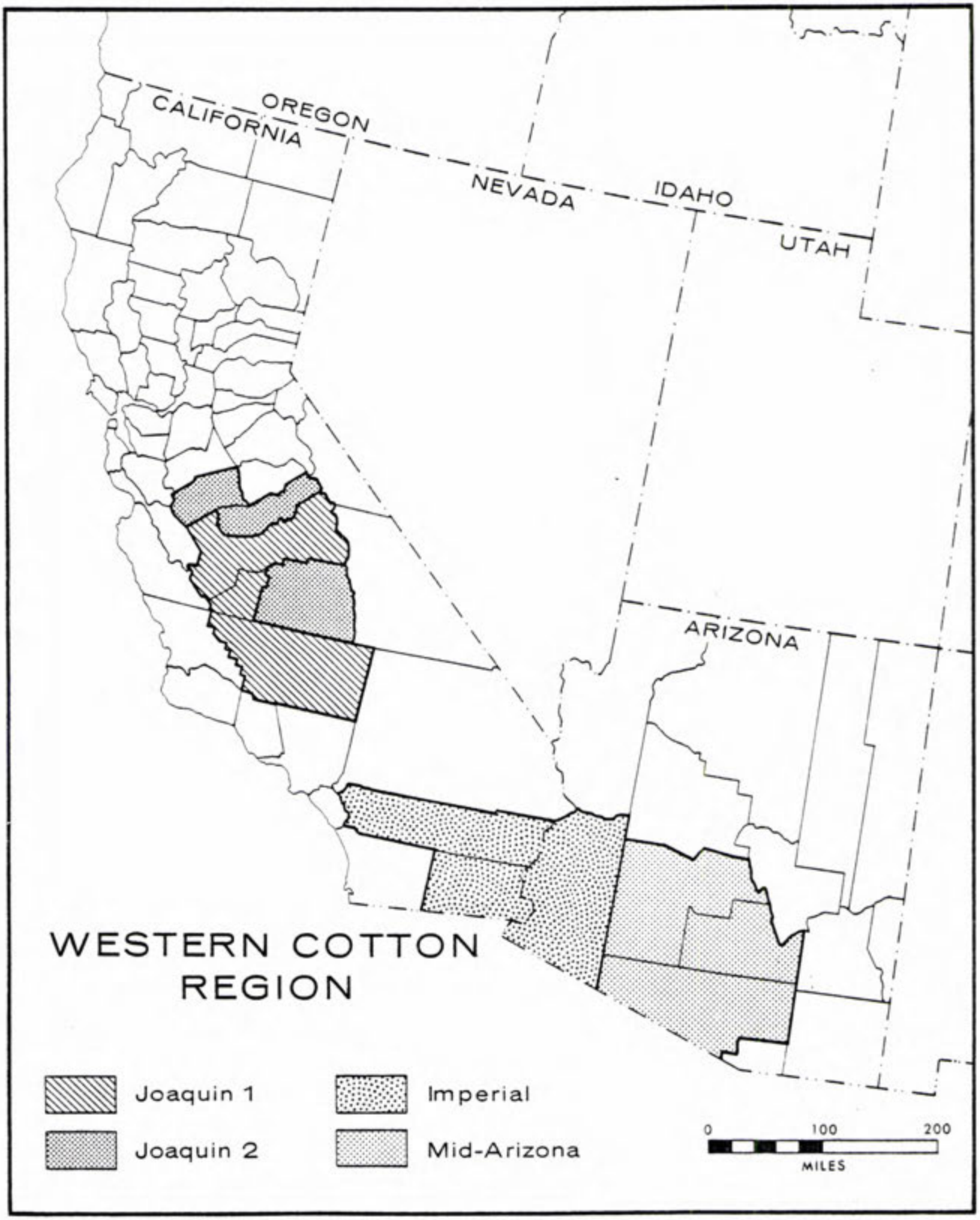


FIGURE 1

of American Pima cotton produced in Riverside county, California (Imperial area) is ginned in Arizona, and classed at the Phoenix Classing office.

As the direct marketing company for over 3,700 growers in the Far West, Calcot (a Bakersfield, California, based cooperative) merchandises nearly a million bales annually amounting to about 40 percent of the cotton grown in the three areas. Calcot and another firm, Federal Compress, have warehousing-compressing facilities in each of the three areas. Anderson Clayton Company has ginning, warehousing and oil milling facilities in Mid-Arizona and the San Joaquin Valley. Producers Cotton Oil Company operates gins in all three areas, oil mills in Mid-Arizona and San Joaquin, and a compress in the San Joaquin Valley. Chickasha Cotton Oil Company of Fort Worth, Texas, operates an oil mill and 11 gins out of Casa Grande, Arizona. There are also numerous gins operated by large farming operations. Calcot, the line companies, several large farms, other cooperative gins, belt-wide merchant-shippers--all are active in merchandising cotton produced in the region.

Seed Cotton Handling and Ginning

Cotton producers in the Far West generally assume responsibility for transporting seed cotton from farm to gin in their own trailers pulled by pickup trucks--a common practice across the Cotton Belt. While only a few Mid-Arizona gins and none of the San Joaquin gins furnish trailers, nearly all Imperial gins furnish cotton trailers. Trailers tend to be in good condition. The capacity ranges from four to six bales of seed cotton with the newer and larger tandem-axle trailers hauling eight to ten bales per load. Trailers in the older and marginal producing areas are smaller, older, and usually not so well maintained. They are often farm built on old truck frames.

Farm tractors, pickup trucks, and larger truck-tractors are used to move trailers to the gins. Truck-tractors are used mainly in San Joaquin by the large ranchers to move up to five trailers at a time over ranch owned roads. Pickup trucks are the most common towing vehicle.

Custom cotton picking is a common practice, especially in the Imperial Valley, with some machines coming each year from as far away as the lower Rio Grande Valley of Texas. Several machines typically operate together. All cotton arriving at an Imperial Valley gin on a given day may come from only three to five farms. This allows block ginning for several hours for each producer. The net effect is a more efficient ginning operation, fewer remnants, and fewer "plated" bales resulting from changing producers or varieties. Mechanical samplers also operate more efficiently under these uniform conditions. Custom operators may or may not own and furnish trailers and may or may not haul the cotton to the gin as part of the custom harvesting operations. A rule of thumb is to have about eight trailers per picker or about two days trailer capacity; at this rate a trailer would average eight to 12 trips to the gin per year.

Hauling Distance

Most cotton is grown within ten miles of a gin. An estimated 80 percent of the cotton has an average farm to gin haul of seven miles. There are a few isolated production areas that require hauling up to 100 miles to the gin. In other cases, seed cotton is hauled long distances on account of the grower having scattered farming operations and a financial interest in a distant gin. Some of the cotton grown on the west side of the San Joaquin Valley is hauled to gins on the east side in large semi-trailers.

Most producers in the San Joaquin are located within reasonable hauling distance of a gin operated by one or both of the major line companies and a cooperative gin. Mid-Arizona producers in the concentrated cotton areas have a choice of two or three local gins. Because of the scattered production areas and relatively few gins, Imperial producers typically have only one gin located close to their operation.

One of the line gin companies and some multi-gin plant firms attempt to equalize the load at individual gins by hauling seed cotton in open top, van-type semi-trucks and trailers. Some gin firms with several gin plants provide a per bale per mile allowance to the grower for delivering seed cotton to the plant that can best handle it. Other firms require growers to deliver trailers to the closest gin yard, and the ginner transports it to another gin if necessary to equalize the ginning load.

Seed Cotton Storage

Seed cotton storage is a common practice, especially in the San Joaquin Valley. For the 1974/75 season, 25 percent of the California cotton was ginned from ricks and 2 percent from modules; in the 1975/76 season, these percentages dropped to 15 percent and less than one-half of a percent respectively, mainly on account of the 25 percent decrease in total ginnings.^{3/} About 60 percent of the San Joaquin gins processed some rick or module stored seed cotton during the 1975/76 season. Producer cooperatives and farmer owned gins tend to have the most seed cotton storage; line companies have the least. The volume stored as seed cotton in 1975 ranged from a few bales to up to 50 percent of total ginning at several plants. Only a few gins in Imperial and Mid-Arizona processed stored seed cotton in 1974 or 1975.

^{3/}"Charges for Ginning Cotton, Costs of Selected Services Incident to Marketing, and Related Information, 1974-75 and 1975-76 Seasons." U.S. Department of Agriculture, ERS-2, Revised August 1975 and May 1976.

The trend seems to be toward increased use of modules, especially those using the truck mounted mover that does not use a pallet. Ricks and loose piles on the ground have been used as overflow handling systems for many years when volume exceeds capacity of gins. At least one gin in San Joaquin and one in Imperial planned to module cotton in excess of ginning capacity on the gin yard in 1976. Several San Joaquin and Imperial gins are moving toward modules as the main handling systems. Nearly every gin community has some growers with rick or module equipment and many of these gins make some allowances to growers, such as rebates or actually owning and operating the equipment to pick up and move field stored seed cotton to the gin yards. Many in the ginning industry believe that higher wage rates, difficulty of obtaining competent labor, overtime requirements, OSHA regulations, and so forth, will speed the adoption of more seed cotton storage, probably of the module type.

California law prohibits any material falling from a vehicle to the roadway except water and chicken feathers. Although not universally and rigidly enforced, most cotton trailers are tarped or covered with net to prevent cotton from blowing out of the trailer. Modules are covered on the top, front and sides with a canvas or moved in a metal van type trailer. For this reason, module builders in California are six inches narrower than in other areas of the belt.

The palletless module mover trucks have caught on rapidly in California. The addition of a metal van-type front, top, and sides adds about \$7,000 to the basic \$60,000 unit. These units handle moduled cotton very well and were quite successful in picking up rick-stored cotton. A seven by 30-foot rick section contains about five bales of seed cotton, compared with ten to 12 bales in a 32-foot module. With a short haul, one truck can keep an average size gin supplied with seed cotton.

Two San Joaquin gins have successfully used basket seed cotton storage under covered sheds for several years. These gins also use some rick and module storage as well as ginning direct from trailers.

Machine picking is the harvest method. Mid-Arizona and Imperial growers typically pick twice and rood (machine scrap) after each picking. This results in about 6 percent of the cotton being machine scrapped or ground harvested. Rood cotton contains considerable trash and dirt, having a turnout similar to machine stripped cotton. San Joaquin growers typically second pick about 75 percent of their acreage and rood virtually none. If the harvest is late, the field is going into a grain crop, or if unfavorable weather occurs, the amount of second picking is reduced. The San Joaquin Valley usually gets fog and rain during late fall and winter whereas Imperial and Mid-Arizona areas seldom experience similar weather conditions. This also encourages the use of seed cotton storage in the San Joaquin to assure the completion of harvest and the start of land tillage for the next crop before the rains occur.

Ginning Charges and Practices

Historically, gins in Arizona and California have not made separate charges for bagging and ties. The 1975 ginning charges per hundred pounds of seed cotton, including bagging and ties, were \$1.75 to \$1.95 in Mid-Arizona, and \$2.00 to \$2.10 in Imperial and San Joaquin. Some Mid-Arizona and Imperial gins charge \$0.10 more per hundred pounds if they furnish trailers. A few gins charge \$0.25 to \$0.35 per hundred pounds more for ginning machine scrapped cotton, but most charge the same as for machine picked.

The ginning charge includes 20 days of gin-yard insured storage, but does not include transportation to the warehouse. If the bale remains on

the gin yard over 20 days, insured storage costs range from four to ten cents per bale per day (averaging about six cents) or about twice as much as insured warehouse storage. Many of the cooperative gins, especially in the San Joaquin, do not make a ginning charge per hundredweight as such. All operating and ownership costs for the year are calculated and the total cost is divided by the total hundredweight of seed cotton processed to obtain a per hundredweight operating cost. This cost is applied to each grower's seed cotton weight and the amount is deducted from the cottonseed credit giving the net amount due the grower or gin. Gins operated by large farms do not have a ginning charge as such, and a few do not even weigh the seed cotton before ginning.

Some of the line companies have allowed farmer-growers in a gin community to buy a share of the gin usually based on growers acreage, production, and so forth, with the growers owning up to 50 percent and the line company owning the balance. Operating profits are divided on basis of ownership proportions. These line companies also operate a few gins on management contracts charging a per bale administrative and maintenance fee and splitting the profits with the owners, who are usually the producers ginning there. Other per bale charges to the grower collected by the gins when applicable include Western Cotton Growers dues (\$0.04) or Arizona Cotton Growers dues (\$0.10), California pest control for pink bollworms (\$0.50), the state of California in lieu of a tax (\$0.25), and National Cotton Council dues (\$0.20).

Most line company gins and many of the other non-cooperative gins are involved in crop financing for their producers. Most of these gins also act as an agent in selling farmers' cotton. Gins derive most of their revenue from ginning cotton and sale of cottonseed. Cotton planting seed

is sold by many gins, but relatively few gins are extensively involved in supplying and applying fertilizers, herbicides, insecticides, and other production inputs. A few gins handle feed and grain or serve as weighing stations for tomatoes and other fruits and vegetables. Several of the large farm gins are operated as a division of the farm enterprise.

Cottonseed is purchased from the farmer by the gin and sold to a cottonseed oil mill except for that quantity retained for planting seed. Also, a few gins sell raw cottonseed direct to dairies and feedlots where it is fed to livestock. This seed supply is usually placed in a large pile on the gin yard as ginned, aerated, and used as required over the next several months. Seed for oil mills is usually blown into a seed pile and loaded to a truck from the piles rather than using seed houses that are common in the rest of the Cotton Belt.

Seed from most cooperative gins goes to Ranchers, a large cooperative oil mill in the San Joaquin Valley. The line companies also operate oil mills across the Mid-Arizona, Imperial, and San Joaquin areas. These firms obtain seed from both their own gins and other gins.

Gin trash in Arizona is mainly spread back on the producers fields with a small amount being fed to livestock. California law states that (1) gin trash is an industrial waste and cannot be burned and (2) it contains potentially hazardous chemical residues and cannot be used as a livestock feed. Some growers do not want trash spread on fields because of the threat of weeds and disease. California ginners are very much interested in heat exchange incinerators. Successful application of incinerators producing heat for drying seed cotton would solve the trash disposal problems, help meet air quality regulations, and reduce the amount and cost of propane and/or natural gas required. Incinerators to burn gin trash and supply

dryer heat were to be installed for the 1977 season at two or more gins in the San Joaquin Valley. The California state legislature recently passed a special law giving California gins until 1980 to meet adequately the state regulations on dust and trash.

Gins in California, Arizona and most of New Mexico use a trash trailer rather than the burr spreader trucks used in West Texas. These trailers are similar to a cotton trailer with an inverted "V" in the bottom and hinged doors along the sides. It is parked under the trash collection equipment during ginning. When loaded, the trailer is towed across a field with the doors open where the trash falls out. The trash requires some spreading before it can be worked into the soil. Several gins pile the trash during ginning; hauling and spreading it later in the year. A few gins compost gin trash by adding water during and after ginning; others just dump the trash in holes or pits to dispose of it.

Bales Ginned and Ginning Capacity

During the 1974 season, the 351 active gins in Mid-Arizona, Imperial and San Joaquin ginned a total of 3,534,975 bales for an average of 10,071 bales per gin (table 1). Although volumes varied considerably from gin to gin, most counties averaged about 10,000 bales per gin, the major exception being Kings county (San Joaquin 1) with 15,426 bales and Madera (San Joaquin 2), Pinal and Pima (Mid-Arizona) counties which averaged 7,621, 7,978, and 5,547 bales per gin, respectively.

Many of the cooperative gin firms operate more than one gin plant; some with two on the same gin yard and others with several locations but operated as one financial organization. Producer cooperatives are more common in the San Joaquin. Only two cooperative firms with several gin plants serve producers in both the Imperial and Mid-Arizona areas.

Table 1. Cotton gins by ownership and counties in the Western region, 1974

Area - counties	Gin locations by ownership ^{1/}				Gin plants and ginning volumes 1974 ^{4/}				
	Total :Producers:	Anderson :	Coopera- : tives ^{2/} :	Others ^{3/} :	Active:	Idle :	Total bales:	Avg./gin	
	Cotton Oil:	Clayton :							
San Joaquin 2									
Merced, Calif.	9	2	4	2	1	12	0	114,378	9,532
Madera, Calif.	10	2	6	2	0	12	0	91,450	7,621
Tulare, Calif.	27	5	9	9	4	30	1	282,946	9,432
Total	46	9	19	13	5	54	1	488,774	9,051
Percent of area total	100	20	41	28	11				
San Joaquin 1									
Fresno, Calif.	61	18	19	9	15	76	0	719,694	9,470
Kings, Calif.	23	5	7	4	7	25	0	385,652	15,426
Kern, Calif.	43	11	5	16	11	67	2	701,154	10,465
Total	127	34	31	29	33	168	2	1,806,500	10,753
Percent of area total	100	27	24	23	26				
Both San Joaquin areas									
Total	173	43	50	42	38	222	3	2,295,274	10,339
Percent of area totals ⁵	100	25	29	24	22				
Imperial									
Riverside, Calif.	5	1	0	0	4	6	0	69,852	11,642
Imperial, Calif.	14	1	0	0	13	17	0	204,971	12,057
Yuma, Ariz.	13	3	2	2	6	15	0	159,528	10,635
Total	32	5	2	2	23	38	0	434,351	11,430
Percent of area total	100	16	6	6	72				
Mid-Arizona									
Maricopa, Ariz.	40	4	9	1	26	43	1	441,873	10,276
Pinal, Ariz.	38	8	14	1	15	40	3	319,103	7,978
Pima, Ariz.	8	3	3	0	2	8	1	44,374	5,547
Total	86	15	26	2	43	91	5	805,350	8,850
Percent of area total	100	18	30	2	50				
Grand total	291	63	78	46	104	351	8	3,534,975	10,071
Percent of grand total	100	21	27	16	36				

(continued)

Table 1. Continued

1/ Texas Cotton Ginners Association, 1975 Ginners' Red Book

2/ This is the number of cooperative associations. Many have more than one gin plant, some up to five. Also a few Producers, Anderson Clayton, and other gin locations have two plants on one yard.

3/ Includes other small line companies, farm owned gins, and independent gins.

4/ U.S. Department of Commerce, Bureau of the Census, Cotton Ginnings in the United States, Crop of 1974.

The rated capacity of saw gin plants in the Far West ranged from five bales to 33.6 bales per hour in 1974, and averaged 12.1 bales (table 2). The average Mid-Arizona saw gin was 1.6 bales per hour smaller in rated capacity than the San Joaquin and Imperial plants. In Arizona, roller gins are typically smaller than saw gins. The capacity of roller gins ranged from three to eight bales per hour in 1974, or 4.5 bales on the average.

Over the past few years there have been a few mergers of cooperative gin associations, cooperatives buying out independent or line gin plants, and some large farm gins organized as cooperatives resulting from sale of the land. Currently there is not much interest in mergers because of large acreages which tax most gins to capacity. One new gin plant was built in Mid-Arizona in 1976 while others across the region were doing maintenance and modernization work in expectation of a large crop in 1976 and beyond.

Gins belonging to the major line companies tend to be smaller and older compared with the cooperatives. J. G. Boswell Company (a large corporation with ginning and farming operations in the San Joaquin and Mid-Arizona areas) has some of the newest and most modern gins. Two of their gins have trailer dumps in addition to suction unloading. The Boswell gins in the San Joaquin tie out naked bales which are hauled to a central packaging plant where they are sampled, weighed, tagged, and wrapped. Some bales are loaded in containers and van trucks for direct shipment to ports or domestic mills, the balance going to a warehouse.

An example of recent developments in the ginning industry is Farmers Cooperative Gin No. 6 at Buttonwillow, California. It was built in 1974 at a cost of \$1.7 million. The gin is highly automated with a dumping system for trailers and modules instead of suction, a mechanical sampler, universal density press, automatic strapping of naked bales, conveyor belt

Table 2. Range and average rated ginning capacity of saw gins in the Western region, 1974

Region	Rated ginning capacity <u>1/</u>	
	Range	Average
	----- bales per hour -----	
San Joaquin 2	5.7 - 22.4	12.2
San Joaquin 1	5.0 - 33.6	12.6
San Joaquin total	5.0 - 33.6	12.5
Imperial	7.6 - 22.4	12.5
Mid-Arizona	5.0 - 25.1	10.9
Grand total	5.0 - 33.6	12.1

1/ Rated capacity of the gin stands in bales per hour based on saw number, diameter and manufacturer.

sacking system, and closed circuit television. Capacity is about 30 bales per hour. During the 1975 season, this plant processed 29,000 bales, or some 48 percent of the total ginnings of the Farmers Cooperative operation.

Cotton Sampling and Classing

Nearly all of the cooperative gins in Mid-Arizona, Imperial and the San Joaquin have mechanical samplers. Calcot encourages the use of mechanical samplers by paying \$1.00 per bale to the gins for each acceptable sample. Most other warehousing-merchandising firms make no allowance for mechanically drawn samples.

Thirty-two percent of the gins in the three Western areas had mechanical samplers in 1975-76 and accounted for 50 percent of the bales classed (table 3). The number of gins with mechanical samplers increased to 34 percent in 1976-77, and accounted for 51 percent of the bales classed. This reflects the higher volumes ginned by cooperative gins relative to other gins. Mechanical samplers predominate in the areas served by the El Centro and Bakersfield Classing Offices, the two areas where Calcot is the main marketing agency. Warehouse-cut samples are most common in the Phoenix territory, reflecting the relatively small number of cooperative gins.

A sampling method that is unique to the Far West is the operation of commercial sampling services that cut samples on the gin yard on a regular schedule for a fee. This service is utilized the most by gins in Mid-Arizona, typically by the lower annual volume and slower hourly capacity gins. For a low hourly ginning rate, the cost of sampling service per bale is about equal to the cost of adding one man to the crew to operate a mechanical sampler or cut a sample as the bale comes out of the press. The commercial sampling service tends to work better when bales are placed on the gin yard for storage. The trend, however, is toward moving bales

Table 3. Origin of samples by classing office, 1975-76 and 1976-77 seasons, Western region

Classing office	Sampling method-bales				Sampling method-gins				Total	
	Mechan- ical	Ware- house	Gin yard Commer- cial	employee	Mechan- ical	Ware- house	Gin yard Commer- cial	employee		
----- Percent of bales ----- Percent of gins -----										
1975-76 season										Number
Bakersfield, Calif.	69	8	7	16	46	21	9	24	82	
Fresno, Calif.	43	25	3	29	30	35	4	31	102	
El Centro, Calif.	65	11	18	6	58	11	23	8	26	
Phoenix, Az.	21	42	36	1	16	47	36	1	95	
Combined	50	21	13	16	32	33	17	18	305	
1976-77 season										
Bakersfield, Calif.	68	4	8	20	47	11	11	31	81	
Fresno, Calif.	48	25	2	25	33	38	2	27	106	
El Centro, Calif.	74	7	19	<u>1</u>	64	7	25	4	28	
Phoenix, Az.	20	45	33	2	16	48	34	2	88	
Combined	51	20	13	16	34	31	16	19	303	

1/ Less than .5 percent

Source: U.S. Department of Agriculture, Agricultural Marketing Service, Cotton Division. Origin of Samples, Western Region, 1975-76 Season and 1976-77 Season.

to the warehouse as soon as possible after ginning. As the number of gins using the sampling service decreases, the travel requirements of sampling crews become greater. Therefore, commercial gin yard sampling will probably decrease in importance in the years ahead.

Typically a small amount of cotton is ginned in Mid-Arizona and the San Joaquin that is not officially classed by the Agricultural Marketing Service (AMS) classing office. This cotton is sold direct by the large grower to a mill buyer who may specify variety, ginning procedure, and other terms of sale. All cotton ginned in Imperial Valley is typically classed.

Gin Press Type

Gins in the Far West have been slow to modify flat bale presses compared with other areas of the belt. There was a considerable increase in the number of modified flat presses in 1976 as Calcot paid \$0.25 per bale for all bales coming from modified flat bale presses, and a line company modified all of their presses in Mid-Arizona. The reasons modification has been slow in the West are: (1) costs are higher than first expected, (2) many of the older gins require new motors, pumps, and so forth when modified, (3) ginners fear breakdowns during the season resulting from extra strain on tramper and rams, and (4) no penalty for declining to modify or no incentives to modify.

California and Arizona gins have been leaders in adoption of gin standard density and high density presses. Several gins also have installed the new gin universal density presses. Two new universal density presses were installed in Mid-Arizona gins for 1976, and several more were being installed in the San Joaquin. Calcot also encourages the use of extra density presses by making the following allowances per bale in 1975:

<u>Bale type</u>	<u>Thickness</u>	<u>Allowance</u>
Gin standard	31 inches or greater	\$1.25
Gin standard	less than 31 inches	\$1.75
Full universal	26 inches or less	\$2.25

Ocean freight rates from the West Coast are the same for 22 pounds per cubic foot density (less than 31 inches gin standard) as for 28 pounds universal density bales. Some gin managers feel the extra stress and strain required to go to 28 pounds density is not worth the extra allowance. Therefore, they produce thicker bales even though their presses are equipped to make full universal density bales. A summary of press types is presented in table 4.

Transportation, Warehouses, and Compresses

Baled cotton lint in Mid-Arizona, Imperial and the San Joaquin is typically placed on an open gin yard. Years ago, it was common for bales to be stored in the open on gin yards or compress bale yards. The trend is toward moving the bales to the protective cover of a warehouse as soon as practical. Most of the cotton in the Far West is now moved to a warehouse within two weeks after ginning. Thus, relatively little cotton remains on gin yards for long periods of time before being sold and shipped.

Transportation

Transportation from gin yard to warehouse is not included in ginning charges. Trucking is arranged and paid for by the warehouse, or by the buyer if already sold. All movement of cotton is by commercial trucking firms using semi-trucks mostly under regulated rates. Mid-Arizona cotton moves from 25 to 50 miles at a cost of \$1.15 to \$1.60 per bale, while much of the Imperial and San Joaquin cotton moves 60 to 90 miles for \$1.15 to

Table 4. Types of gin presses by state as of July 1975 and July 1976

State	Total gin batteries :		Number of batteries having:		
	presses :	gin presses :	Universal density : presses :	Standard density : presses :	High density presses :
July 1975					
Arizona	122	86	19	1	15
California	259	170	4	11	63
1975 Total	381	256	23	12	78
July 1976					
Arizona	117	59	39	3	16
California	245	160	3	15	57
1976 total	362	219	42	18	73

Source: U.S. Department of Agriculture, Agricultural Marketing Service, Cotton Division. Cotton Gin Equipment, July 1975 and July 1976.

\$1.45 per bale. The basic rate is \$0.65 per bale and it increases with distance hauled.

During 1976, rail transit privilege or inbound rail substitution rates were available to warehouses in California for shipment from gin to warehouse. Some warehouses use this transit privilege if they expect a lot of domestic rail shipments from the warehouse. Others do not use it, especially if they ship mostly export cotton. Available negotiable, non-regulated, inbound truck rates are lower than the regulated, inbound rail substitution rates. In addition an extremely heavy load of paper work is required of the compress and merchant in order to obtain the \$1.50 per bale inbound revenue from the railroad. A proposal to eliminate the inbound transit privilege and reduce current rail rates to Southeastern mills by about \$0.45 per hundred pounds, or \$2.25 per bale, is under consideration.

Warehouses-Compresses

During large crop years, warehouse space is short of requirements in the Far West. Calcot recently built ten new warehouses with a total capacity of 80,000 bales at its Pinedale, California plant. This firm is the largest warehouse operator in each of the three Far West areas, having 58 percent of the total warehouse space (table 5). Most of Calcot's warehouses are all steel, clear span construction that allows bales to be stacked three high in limited areas, resulting in an efficient warehouse operation. These unobstructed warehouses allow large semi-trucks to unload using large fork lifts that cannot be used in the old conventional warehouses. Most other warehouse-compress operations in the Far West are the older, more conventional facilities.

The older warehouse-compresses were designed and built for hand-truck receiving and rail shipping, whereas the newer plants are designed for using forklifts and conveyors for receiving and shipping by trucks or rail. It is

Table 5. Cotton warehouse location and capacity in the Western region, 1975

Area	Number of locations and capacity by ownership													
	Producers		Anderson		Clayton		Calcot Ltd.		Federal		Others		Totals	
	No.	Bales	No.	Bales	No.	Bales	No.	Bales	No.	Bales	No.	Bales	No.	Bales
Mid-Arizona														
Maricopa	1	64,000	1	273,000	1	60,000							3	397,000
Pinal	1	50,000			1	45,000							2	95,000
Total	2	114,000	1	273,000	2	105,000							5	492,000
Imperial														
Yuma					1	45,000							1	45,000
Imperial			1	185,596			2	1/52,500					3	238,096
Total			1	185,596	1	45,000	2	52,500					4	283,096
San Joaquin 2														
Tulare	1	40,200											1	40,200
San Joaquin 1														
Kern			1	384,500	1	75,000	2	2/64,500					4	524,000
Fresno	1	56,500	1	382,100			4	3/245,500					7	784,500
Total	1	56,500	2	766,600	1	75,000	6	310,000					12	1,348,700
Grand total	1	56,500	4	254,600	4	225,000	8	362,500					21	2,123,796
Percent of grand total	5	3	19	12	19	10	38	17					100	100

1/ One 30,000 bale warehouse plus a 22,500 bale warehouse which were idle in 1973 were leased to Calcot in 1974 and 1975. Both owned by the same firm.

2/ One 22,500 bale warehouse only and a 42,000 bale compress warehouse.

3/ Includes a 10,000 bale warehouse only as part of Kerman Cooperative gin, and three compress warehouses of 52,500, 40,500, and 142,500 bales.

Source: Commodity Credit Corporation (CCC), Approved Capacity, and information obtained on personal visits to the areas.

sometimes difficult and inefficient to position trucks across railroad tracks for loading at old plants. Adequate space is not always available to obtain maximum efficiency from large forklifts at the older compress-warehouses. This tends to make operators of older warehouses prefer rail shipment and operators of newer ones prefer truck shipment.

Charges per bale for the warehousing services during the 1975-76 season were: receiving, normally no charge; storage, \$0.90 to \$1.00 per month; recompression, \$3.25 to \$3.75; and shipping, \$2.00 to \$2.10. Additional charges are made for such services as reweighing, resampling, loading out-bound cotton in containers, and handling and storage of cotton that is not compressed.

Several foreign firms and major U.S. exporters recently purchased warehouses in the San Joaquin Valley in an effort to become more integrated and to have better control of compression and shipping activities.

Over 70 percent of the Arizona and California cotton crop is exported; all movements from warehouses to West Coast ports are by truck. Containers are used for the vast majority of cotton exports from the Far West. Approximately 65 percent of the exports from San Joaquin and 30 percent from Imperial and Mid-Arizona are source loaded into containers at the warehouses and moved by trucks to the ports. Additional volume is hauled on flat bed or van-type trucks, especially from Mid-Arizona and Imperial, to the port areas where it is placed in containers for export. Some estimates indicate movement of up to 90 percent of the European and 60 percent of the Far East shipments by containers. Most merchants prefer source loading containers and there is an attempt to develop a container yard at Phoenix, Arizona, and expand service for the Imperial area. Some of the benefits to be derived from full use of the container concept are reduction in export packaging costs, lower ocean freight rates (\$2.65 per metric ton to Europe in 1975),

reduced damage and pilferage during transit, lower cargo insurance, and a savings in pier warehousing and handling charges (\$0.50 to \$1.00 per bale).

A relatively small volume of Far West cotton is exported through Gulf and East Coast ports in connection with mini-bridge or land-bridge shipments by rail. The export carrier takes control of the cotton at a West Coast port and determines if a mini-bridge shipment is to be used. Costs to the shipper are the same regardless of method of shipment selected by the export carrier.

Domestic shipments in 1975 were about 35 percent by truck and 65 percent by rail. The truck-rail relationship varies from year to year with a trend toward increased truck use. Merchants seem to prefer trucks if the rates are competitive. Interest and other carrying charges are reduced owing to faster service with trucks.

A summary of selected rail and truck rates from compress points to major mill areas and export points are shown in table 6. Rates from Mid-Arizona to the Los Angeles harbor area varies considerably. More inbound than outbound freight moves under Public Utility Commission rates which results in a very competitive back-haul situation.

Merchandising the Cotton

Producer prices for nearly all sales in the Far West are based on the 'green card' class as in other parts of the belt. A few large farms do sell direct to mills or merchandise their own cotton; these bales may not be officially classed. Price is determined on the basis of past performance, variety, forward contracts and other considerations. This type of sale represents only a small percentage of the total crop; however, it is probably more common in the Far West than in any other area of the Cotton Belt.

Central market firms, local merchants, salaried and commission buyers, mill buyers, line companies, and gin organizations--all participate in

Table 6. Selected rail and truck rates by origin and primary destination, Western region, 1975

Item	Destination			
	Houston, Texas	Southeast Mills	New England Mills	Fries, Va. Mills
----- Dollars per bale -----				
Rail rates				
San Joaquin	13.00	14.05	18.55	16.80
Imperial	13.00	14.05	18.55	16.80
Mid-Arizona	11.00	14.05	18.55	16.80
----- Dollars per bale -----				
	Ports			
	: : : :			
	Los Angeles, Calif. area: Stockton, Calif. area : Galveston, Texas area:			
	Bulk ^{1/}	Bulk ^{1/}	Bulk	mills
	: Container	: Container	: Bulk	: Container
	-----	-----	-----	-----
----- Dollars per bale -----				
Truck rates				
Bakersfield	2.35	2.05		13.50
Fresno	2.95	2.77	1.95	13.50
Imperial	2.45	2.29	1.75	13.50
Mid-Arizona	3.15	3.00	7.50	11.50

^{1/} Includes unloading charge at ports of \$0.25 per bale.

buying cotton from producers. The largest marketing agency is Calcot, which merchandises one-third of the Mid-Arizona, 75 percent of the Imperial, and 40 percent of the San Joaquin crops or about 40 percent of the total Far West production. Calcot is a shipper-merchant performing all of the shipper functions.

Started in 1927, the firm currently has 3,700 members and markets to textile mills around the world and to other belt wide merchants. Calcot provides two marketing options for their producers, a seasonal pool and a call pool. The objective of the seasonal pool is to obtain the highest price possible over the period the crop is marketed with Calcot's sales personnel making all selling decisions. The call pool option is designed to allow Calcot members the opportunity to make individual price decisions that fit their own farming and financial situation. About 50 percent of the 1975 volume was in each pool; growers tend to use the call option more during years of high and rising prices. Farmers in the Imperial area have favored the call option, probably on account of the wide selection of crops they produce, the ease of shifting in and out of cotton production, and the desire or necessity to establish a firm price at or before planting.

Calcot and other merchants sell a small quantity on 'green card' class, but most sales are based on description, type, or approval of samples. Calcot maintains a classing department, automated electronic classing equipment, and a fiber laboratory to aid in development of even running lots. The firm operates across the three regions but all sales are handled out of the Bakersfield office.

Although the central market firms have salaried or commission buyers all across the Far West, all sales to mills, exporters, and other merchants are handled through the home offices at Fresno, Bakersfield, Dallas, Houston,

Memphis, and so forth; for that reason there are few mill buyers in either Mid-Arizona or Imperial.

All of the major line gin companies, most of the independent and large farm gins, and cooperative gins with members not marketing through Calcot assist the growers in selling their baled lint, but none of them are shipper-merchants.

Producers Cotton Oil Company does take title to the cotton but resells immediately to merchants. This firm has sold small amounts to mill buyers in the past, but it operates in most respects as an f.o.b. buyer.

Anderson Clayton acts as a commission buyer or agent using a bid sheet to bring the merchant in contact with the grower. Until recently Anderson Clayton was a major cotton merchant.

Chickasha, Arizona, gins also use the bid sheet approach, acting as an agent only; that is, they do not take title to the cotton or perform the functions of a shipper. Other corporation gins also use bid sheets as do several cooperative gins, especially in the Fresno area. Ginners normally do not purchase baled lint for resale in the three Far West regions.

Most merchants prefer to have the baled lint moved into warehouses as soon as possible after ginning for protection from the elements and for convenience in assembly for filling shipping orders. A few merchants purchase bales at the gin yard and leave them there until sold. Compression-in-transit saves some freight and storage costs on gin yard purchases, but insurance cost is higher.

Compared with West Texas and other areas, there are relatively few local merchants, brokers, f.o.b. merchants or commission buyers in the Far West. Gin point buying is not very important in the San Joaquin, Imperial,

and Mid-Arizona areas. A few merchants will not buy cotton produced in certain communities or will buy it only at a discount.

Because of forward contracts and Calcot, there was very little uncommitted 1976 cotton acreage in the Far West. About 73 percent of the California crop and 62 percent of the Arizona crop was forward contracted in 1976. Forward contracting of the 1977 crop amounted to about 30 percent in California and 49 percent in Arizona.

AMCOT, a world-wide sales organization composed of the four principal cotton marketing cooperatives in the United States, has headquarters at its Calcot offices in Bakersfield, California. The organization includes Calcot, Ltd., Bakersfield, California; Plains Cotton Cooperative Association (PCCA), Lubbock, Texas; Staple Cotton Cooperative Association (Staplecotn), Greenwood, Mississippi; and Southwestern Irrigated Cotton Growers Association (SWIG), El Paso, Texas. Established in 1971, AMCOT, Inc. has sales representatives located in the United States, Europe, and Asia.

Salesmen for AMCOT represent over 29,000 cotton producers and 25 percent of the U.S. cotton crop. Each AMCOT partner prepares annually a complete set of quality types representing the cotton offered for sale. Sales inquiries are referred to appropriate cooperatives by the AMCOT representative.

There is no textile mill activity in the three Far West areas. Several small cutter-sewers are located in the Mid-Arizona and Imperial areas. A thread plant is operated in Fresno and a considerable cutting-sewing industry is located in the Los Angeles area.

Summary

The cotton ginning, handling, and marketing facilities, like production, are concentrated in the large valleys of the Western region. High

yields and uniform quality characterize production in the irrigated areas of the West. The demand for this type cotton by domestic and foreign mills is generally strong.

Cotton ginning facilities range from smaller and older standard gins to the modern highly automated gins. The volume of cotton handled per gin, averaging about 10,000 bales in 1974, tends to be larger in the Far West than in other regions. The capacity of gins in the region now averages about 12 bales per hour. Gins operated by producer cooperatives tend to be more modern, higher capacity, and handle greater volumes of cotton than the line company or independent gins. A larger proportion of the gins in the Far West have mechanical samplers than in any other area. Over 50 percent of all bales produced in the region in 1976 were mechanically sampled.

Ginners charged about \$30.00 per bale in 1975 for ginning and wrapping. In the Far West, most cotton bales are placed in open gin yards after ginning, and then moved to a warehouse by commercial truckers within two weeks. Warehouse charges for three months (including storage, receiving, compression, and shipping) averaged about \$9.00 per bale in 1975.

There are several cotton market outlets in the Far West, including central market firms, local merchants, salaried and commission buyers, mill buyers, line companies, and gin organizations. A California based producer cooperative, Calcot, is the principal market outlet in the region. This firm provides nearly 60 percent of the warehouse space in the Far West, and markets about a million bales of cotton annually for its 3,700 grower members. Historically, over 70 percent of the Arizona and California cotton crop is exported, mainly through West coast ports where containers are used for most of the shipments.