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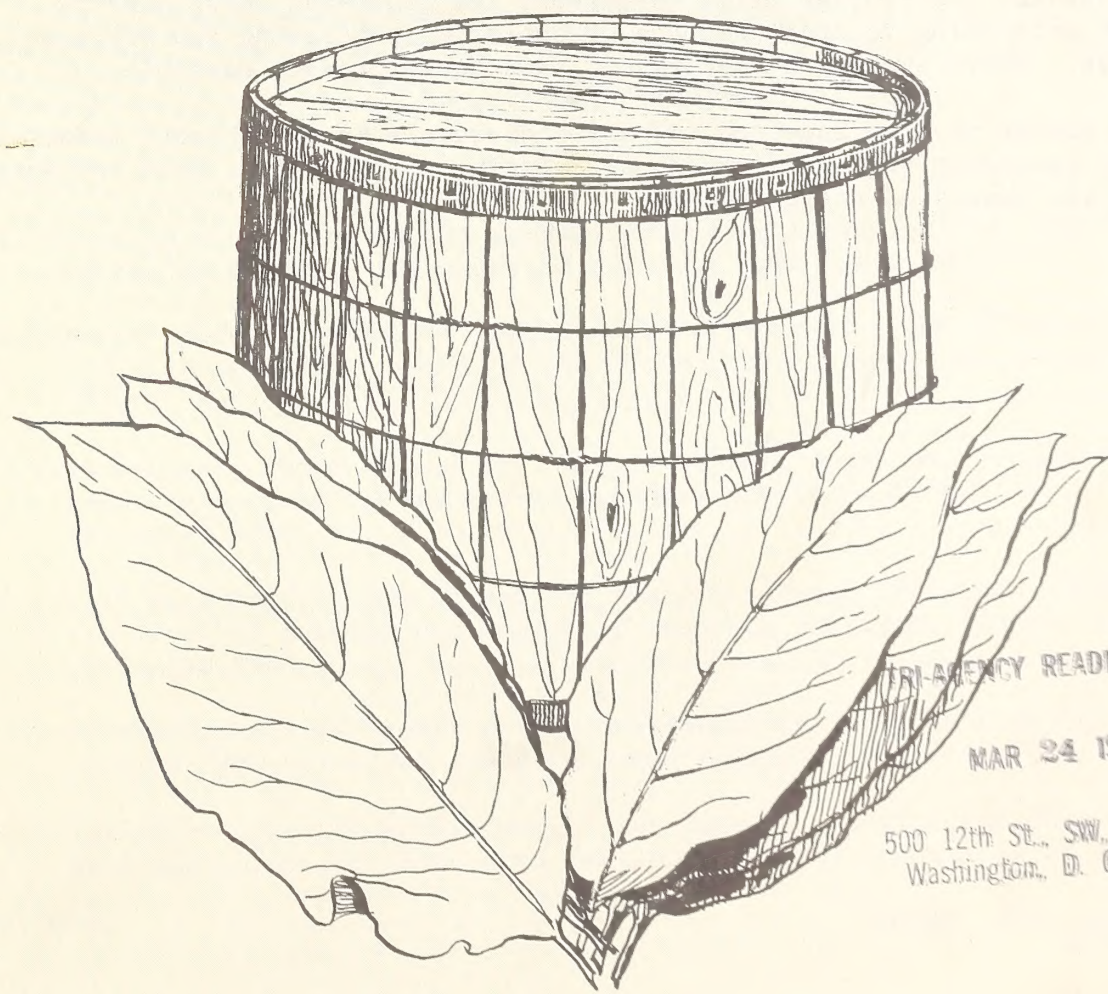
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# Processing, Storage, and Selected Storage Service Costs for Fire-Cured, Types 22 and 23, and Dark Air-Cured, Types 35 and 36, Tobaccos in Commercial Facilities, 1966 /67 and Estimated 1968



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## PREFACE

This report is one of a series on costs of handling, processing, and storing the major types of domestic tobaccos covered by Federal price support programs. The studies were conducted for the Agricultural Stabilization and Conservation Service to provide guidelines for setting rates for these functions. The average costs presented in these reports also provide individual firms with benchmark data for assessing their relative position within the industry.

The average middate of the various accounting periods covered in the surveys was December 1, 1966.

Processing and storage firms throughout the Southeast cooperated by providing accounting records on costs of operating processing and storage facilities. Their excellent cooperation made these studies possible.

The author is also indebted to many individuals in the tobacco industry for their constructive advice and counsel during the planning, data collecting, and analysis phases of these studies.

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PROCESSING, STORAGE, AND SELECTED STORAGE SERVICE COSTS FOR FIRE-CURED,  
TYPES 22 AND 23, AND DARK AIR-CURED, TYPES 35 AND 36, TOBACCOS  
IN COMMERCIAL FACILITIES, 1966/67 AND ESTIMATED 1968

by

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FINDINGS

This report analyzes the costs of handling, processing, storage, and related services in commercial facilities handling fire-cured, types 22 and 23, and dark air-cured, types 35 and 36, tobaccos during 1966/67 and presents estimates for 1968.

The results are based on accounting records of five firms processing fire-cured and dark air-cured, five firms storing fire-cured, and four firms storing dark air-cured tobaccos. These processing firms machine redried about 17.7 million pounds of green-weight tobacco with a redried weight yield of better than 88 percent.

Redrying costs include costs for receiving tobacco into the plant, redrying it, packing it into hogsheads, and shipping it out.

Costs were also developed for tobacco storage and storage services. Services included in this report are innage, outage, sampling, reweighing and restoring, and reweighing while performing other services.

The 1966/67 labor costs were updated to reflect minimum wage changes effective February 1, 1968, and changes in other variable costs as of January 1968. (See Methodology.)

Average survey period cost for machine redrying dark air-cured and fire-cured tobaccos was \$5.77. When updated to 1968, this cost increased to \$6.43.

Storage costs were computed on the volume stored during the survey period. Warehouses storing fire-cured tobacco used an average of 82 percent of storage capacity during the survey period. At this rate of utilization, the average survey period cost was 40.50 cents per hogshead per month, while the 1968 estimate was 41.87 cents. Fire-cured tobacco hogsheads weigh an average of 1,605 pounds, gross, with 1,425 pounds of tobacco. Warehouses storing dark air-cured tobacco averaged using 87 percent of storage capacity during the survey period. At this rate of utilization, the 1966/67 cost averaged 34.15 cents per hogshead per month and the 1968 cost was 35.59 cents. Estimated

storage costs by percentage of capacity utilized are illustrated in tables 4 and 5 for fire-cured and dark air-cured tobaccos, respectively.

Storage service costs for fire-cured include innage at \$2.16 for the survey period and \$2.36 when estimated for 1968. For outage, these costs were \$2.00 and \$2.19 for these periods. Costs for sampling, the most expensive service performed in the storage operation, amounted to \$20.79 per hogshead for the survey period. When estimated for 1968, this cost averaged \$22.93 per hogshead. Other services utilized by the industry in volume include reweighing. During the survey period, the cost to reweigh and restore a hogshead of tobacco was \$3.18. This cost was estimated to be \$3.39 for 1968. Reweighing a hogshead of fire-cured tobacco while performing some other service was \$1.45 in 1966/67 and an estimated \$1.49 in 1968.

Storage service costs for dark air-cured include innage at \$1.13 for 1966/67 and \$1.27 for 1968. For outage, these costs are \$1.05 for the survey period and \$1.17 for the 1968 estimate. Cost of sampling a hogshead of dark air-cured tobacco amounted to \$11.48 for the survey period. When estimated for 1968, this cost averaged \$13.02 per hogshead. During 1966/67, the cost to reweigh and restore a hogshead of dark air-cured tobacco was \$1.30. This was estimated to be \$1.44 for 1968. Cost for reweighing a hogshead of tobacco while performing some other service was 36 cents in 1966/67 and an estimated 39 cents in 1968.

Table 1.--Tobacco firms included in sample, volume processed, yield, hogshead months of storage, and selected services performed, 1966/67

Item	: Number : : of firms :	Unit	: Volume	: Yield or : utilization
				<u>Percent</u>
Machine redrying .....	5	:1,000 lbs. <u>1/</u>	17,651	88.36
Storage:				
Fire-cured, types 22 and 23:	5	:Hogshead :month <u>2/</u>	258,335	82.00
Dark air-cured, types 35 and 36 .....	4	:Hogshead :month <u>2/</u>	488,420	86.76
Services:				
<u>Fire-cured, types 22 and 23:</u>				
Innage .....	5	:Hogshead	5,628	---
Outage .....	5	:Hogshead	4,970	---
Sampling .....	5	:Hogshead	1,650	---
<u>Dark air-cured, types 35   and 36</u>				
Innage .....	4	:Hogshead	8,439	---
Outage .....	4	:Hogshead	12,308	---
Sampling .....	4	:Hogshead	1,159	---

1/ Green weight.

2/ Units of hogsheads times the months each was counted as being stored.



Table 2.--Total costs for selected services in fire-cured, types 22 and 23, and dark air-cured, types 35 and 36, tobacco storage and processing, 1966/67 and estimated 1968 1/

Item	Unit	Variable cost		Fixed cost		Total cost	
		: Estimated :		: Estimated :		: Estimated :	
		1966/67	: 1968	1966/67	: 1968	1966/67	: 1968
Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars
<b>Processing:</b>							
Machine redrying	Hundredweight 2/	4.9885	5.6474	0.7794	5.7679	6.4268	
<b>Storage:</b>							
Types 22 and 23	Hogshead per month	.1552	.1689	.2498	.4050	.4187	
Types 35 and 36	Hogshead per month	.1834	.1978	.1581	.3415	.3559	
<b>Storage services:</b>							
Types 22 and 23							
Innage 3/	Hogshead	1.5447	1.7493	.6131	2.1578	2.3624	
Outage 3/	Hogshead	1.4068	1.5925	.5948	2.0016	2.1873	
Sampling	Hogshead	15.8894	18.0294	4.9029	20.7923	22.9323	
Reweighing and restoring	Hogshead	1.5987	1.8050	1.5817	3.1804	3.3867	
Reweighing while performing							
other services	Hogshead	.3633	.4072	1.0851	1.4484	1.4923	
Types 35 and 36							
Innage 3/	Hogshead	.8871	1.0281	.2467	1.1338	1.2748	
Outage 3/	Hogshead	.8086	.9360	.2371	1.0457	1.1731	
Sampling	Hogshead	9.1693	10.7092	2.3140	11.4833	13.0232	
Reweighing and restoring	Hogshead	.9455	1.0871	.3521	1.2976	1.4392	
Reweighing while performing							
other services	Hogshead	.2286	.2581	.1277	.3563	.3858	

1/ 1968 costs are updated for variable costs only. See breakdown of variable costs, tables 6, 8, and 11.  
2/ Redried weight.  
3/ Excludes paper transfers.

Table 3.--Fire-cured, types 22 and 23, tobacco storage costs per hogshead per month by average percentage of capacity utilized, 1966/67 and estimated 1968

Percentage of capacity	1966/67	Estimated 1968
	<u>Dollars</u>	<u>Dollars</u>
100 .....	0.3321	0.3433
95 .....	.3495	.3613
90 .....	.3690	.3814
85 .....	.3907	.4038
80 .....	.4151	.4291
75 .....	.4428	.4577
70 .....	.4744	.4904
65 .....	.5109	.5281
60 .....	.5535	.5721
55 .....	.6038	.6241
50 .....	.6642	.6866

Table 4.--Dark air-cured, types 35 and 36, tobacco storage costs per hogshead per month by average percentage of capacity utilized, 1966/67 and estimated 1968

Percentage of capacity	1966/67	Estimated 1968
	<u>Dollars</u>	<u>Dollars</u>
100 .....	0.2962	0.3087
95 .....	.3117	.3249
90 .....	.3291	.3430
85 .....	.3484	.3631
80 .....	.3702	.3858
75 .....	.3949	.4116
70 .....	.4231	.4410
65 .....	.4556	.4749
60 .....	.4936	.5145
55 .....	.5385	.5612
50 .....	.5924	.6174

Table 5.--Standardized fixed costs per hundredweight for machine redrying and packing dark air-cured and fire-cured tobaccos, 1966/67 1/

Item	1966/67 cost
	<u>Dollars</u>
Depreciation:	
Redriers .....	0.0806
Buildings .....	.1483
Boiler .....	.0158
Prizing press .....	.0071
Scales .....	.0060
Quality control .....	.0010
Office equipment and furniture .....	.0095
Autos .....	.0358
Trucks .....	.0268
Forklifts and pickups .....	.0335
Stockroom .....	.0058
Shop equipment .....	.0022
Other .....	.0031
Land .....	.0186
Interest .....	.1911
Insurance .....	.0933
Taxes .....	.0443
License and bond .....	.0011
Lease and rentals .....	.0555
Total fixed costs .....	.7794

1/ Costs given for redried weight.

Table 6.--Variable costs per hundredweight for machine redrying and packing dark air-cured and fire-cured tobaccos, 1966/67 and estimated 1968 1/

Item	Cost	
	1966/67	Estimated 1968 <u>2/</u>
	<u>Dollars</u>	<u>Dollars</u>
<b>Salaries:</b>		
Executive .....	0.3276	0.3556
Superintendent .....	.2517	.2749
Foremen, engineers, mechanics .....	.2007	.2259
Clerical .....	.2634	.2931
Quality control .....	---	---
<b>Wages:</b>		
Drayage and shipping .....	.1125	.1369
Receiving .....	.3399	.4152
Redrying .....	1.2510	1.5216
Packing .....	.4155	.4972
Coopering .....	.0850	.0955
Maintenance .....	.1750	.2042
Utilities .....	.2149	.2199
Office supplies .....	.0946	.0980
Repairs and maintenance .....	.1690	.1757
Hogshead material .....	.5887	.6185
Other operating expenses .....	.2603	.2603
Interest .....	.0858	.0971
Trucking cost .....	.1529	.1578
<b>Total variable costs .....</b>	<b>4.9885</b>	<b>5.6474</b>

1/ Costs given for redried weight.

2/ Wage costs were updated to reflect 1968 minimum wages. Salaries were updated to reflect 2 years' change from survey period. Other costs were updated to reflect price changes to January 1968.

Table 7.--Variable costs per hogshead for storage and selected storage services for fire-cured tobacco, types 22 and 23, 1966/67

Item	Innage	Storage per month	Outage	Sampling	Reweighing and restoring	Reweighing while performing other services
	<u>Dollars</u>	<u>Dollars</u>	<u>Dollars</u>	<u>Dollars</u>	<u>Dollars</u>	<u>Dollars</u>
Salaries and wages:						
Administrative .....	0.0221	0.0128	0.0221	0.1767	0.0221	0.0066
Office .....	.0736	.0293	.0736	.0147	.0736	.0221
Direct labor .....	1.2432	.0398	1.1189	13.8309	1.2432	.2486
Machinery repair .....	.0530	.0011	.0530	.2387	.1061	.0530
Hogsheads supplies .....	.0155	.0085	.0139	.1721	.0155	.0031
Repairs and maintenance .....	.0556	.0304	.0500	.6184	.0556	.0111
Utilities .....	.0155	.0090	.0155	.1241	.0155	.0047
Other costs .....	.0396	.0216	.0356	.4405	.0396	.0079
Interest on working capital .....	.0266	.0027	.0242	.2733	.0275	.0062
Total variable costs .....	1.5447	.1552	1.4068	15.8894	1.5987	.3633

Table 8.--Variable costs per hogshead for storage and selected storage services for fire-cured tobacco, types 22 and 23, estimated 1968 <sup>1/</sup>

Item	Innage	Storage per month	Outage	Sampling	Reweighing and restoring	Reweighing while performing other services
	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars
Salaries and wages:						
Administrative .....	0.0251	0.0145	0.0251	0.2007	0.0251	0.0075
Office .....	.0838	.0334	.0838	.0168	.0838	.0252
Direct labor .....	1.4260	.0457	1.2834	15.8642	1.4260	.2852
Machinery repair .....	.0547	.0011	.0547	.2463	.1095	.0547
Hogsheads supplies .....	.0163	.0089	.0146	.1809	.0163	.0033
Repairs and maintenance .....	.0578	.0316	.0520	.6430	.0578	.0116
Utilities .....	.0159	.0092	.0159	.1269	.0159	.0048
Other costs .....	.0396	.0216	.0356	.4405	.0396	.0079
Interest on working capital .....	.0301	.0029	.0274	.3101	.0310	.0070
Total variable costs ....	1.7493	.1689	1.5925	18.0294	1.8050	.4072

<sup>1/</sup> Wage costs were updated to reflect 1968 minimum wages. Salaries were updated to reflect 2 years' change from survey period. Other costs were updated to reflect price changes to January 1968.

Table 9.--Standardized fixed costs per hogshhead for facilities and equipment used in storage and selected storage services for fire-cured tobacco, types 22 and 23, 1966/67

Item	Innage	Storage per month	Outage	Sampling	Reweighing and restoring	Reweighing while performing other services
	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars
Depreciation:						
Storage warehouse	0.0987	0.0540	0.0888	1.0975	0.0987	0.0197
Improvements	.0245	.0134	.0220	.2723	.0245	.0049
Scales	---	---	---	---	.4741	.4741
Fire equipment	.0005	.0003	.0005	.0058	.0005	.0001
Forklifts	.1640	.0033	.1640	.7379	.3280	.1640
Other equipment	.0595	.0325	.0536	.6622	.0595	.0119
Rent	.0090	.0053	.0090	.0716	.0090	.0027
Insurance	.0386	.0229	.0386	.3087	.0386	.0116
Taxes	.0400	.0238	.0400	.3202	.0400	.0120
Home office	.0080	.0047	.0080	.0638	.0080	.0024
License and bonds	.0052	.0031	.0052	.0419	.0052	.0016
Interest on land	.0256	.0151	.0256	.2047	.0256	.0077
Interest on investment	.1395	.0714	.1395	1.1163	.4700	.3724
Total fixed costs	.6131	.2498	.5948	4.9029	1.5817	1.0851

Table 10.--Variable costs per hogshead for storage and selected storage services for dark air-cured tobacco, types 35 and 36, 1966/67 1/

Item	Innage	Storage	Outage	Sampling	Reweighing
	per	per	per	per	per
	month	month	month	month	month
	Dollars	Dollars	Dollars	Dollars	Dollars
Salaries and wages:					
Administrative .....	0.0139	0.0225	0.0139	0.1124	0.0139
Office .....	.0222	.0281	.0222	.0044	.0222
Direct labor .....	.7334	.0235	.6601	8.1594	.7334
Maintenance .....	.0144	.0108	.0129	.1601	.0144
Machinery repair .....	.0574	.0527	.0574	.2582	.1148
Hogsheads supplies .....	---	---	---	---	---
Repair and maintenance .....	.0145	.0193	.0131	.1614	.0145
Utilities .....	.0072	.0116	.0072	.0575	.0072
Office supplies .....	---	---	---	---	---
Other costs .....	.0088	.0118	.0079	.0982	.0088
Interest on working capital .....	.0153	.0031	.0139	.1577	.0163
Total variable costs .....	.8871	.1834	.8086	9.1693	.9455
					.2286

1/ A small amount of types 22 and 23 is handled with types 35 and 36.



Table 11.--Variable costs per hoghead for storage and selected storage services for dark air-cured tobacco, types 35 and 36, estimated 1968 <sup>1/</sup>

Item	Innages	Storage per month	Outage	Sampling	Reweighing and restoring	while performing other services
	<u>Dollars</u>	<u>Dollars</u>	<u>Dollars</u>	<u>Dollars</u>	<u>Dollars</u>	<u>Dollars</u>
Salaries and wages:						
Administrative .....	0.0151	0.0255	0.0151	0.1204	0.0151	0.0045
Office .....	.0235	.0327	.0235	.0047	.0235	.0070
Direct labor .....	.8647	.0277	.7783	9.6202	.8647	.1729
Maintenance .....	.0174	.0112	.0156	.1933	.0174	.0035
Machinery repair .....	.0587	.0539	.0587	.2642	.1175	.0587
Hogsheads supplies .....	---	---	---	---	---	---
Repair and maintenance .....	.0148	.0197	.0134	.1652	.0148	.0030
Utilities .....	.0074	.0119	.0074	.0588	.0074	.0023
Office supplies .....	---	---	---	---	---	---
Other costs .....	.0088	.0118	.0079	.0982	.0080	.0018
Interest on working capital .....	.0177	.0034	.0161	.1842	.0187	.0044
Total variable costs ....	1.0281	.1978	.9360	10.7092	1.0871	.2581

<sup>1/</sup> Wage costs were updated to reflect 1968 minimum wages; salaries were updated to reflect 2 years' change from survey period; and other costs were updated to reflect price changes to January 1968.

A small amount of types 22 and 23 is handled with types 35 and 36.

Table 12.--Standardized fixed costs per hogshhead for facilities and equipment used in storage and selected storage services for dark air-cured tobacco, types 35 and 36, 1966/67 1/

Item	: Storage :		: Outage :		: Sampling :		: Reweighing :	
	: Innage :	: per :	: :	: :	: and :	: :	: performing :	: other services :
	: Dollars	: Dollars	: Dollars	: Dollars	: Dollars	: Dollars	: Dollars	: Dollars
Depreciation:								
Storage warehouse and other buildings .....	0.0343	0.0456	0.0308	0.3816	0.0343	0.0068		
Improvements .....	.0020	.0026	.0018	.0222	.0020	.0004		
Scales .....	---	---	---	---	.0064	.0064		
Office equipment .....	.0004	.0006	.0004	.0030	.0004	.0001		
Fire equipment .....	.0001	.0001	.0001	.0014	.0001	2/		
Dunnage .....	.0021	.0043	.0018	.0232	.0021	.0004		
Miscellaneous equipment ..	.0021	.0028	.0018	.0231	.0021	.0004		
Trucks .....	.0298	.0009	.0267	.3311	.0298	.0060		
Forklifts .....	.0698	.0014	.0698	.3142	.1396	.0698		
Shop equipment .....	.0020	.0026	.0018	.0218	.0020	.0004		
Rent .....	.0188	.0246	.0169	.2096	.0188	.0038		
Insurance .....	.0092	.0148	.0091	.0734	.0028	.0027		
Taxes .....	.0071	.0116	.0071	.0572	.0071	.0021		
License and bond .....	.0010	.0016	.0010	.0079	.0010	.0003		
Home office .....	---	---	---	---	---	---		
Interest on land .....	.0068	.0110	.0068	.0547	.0068	.0021		
Interest on investment .....	.0612	.0336	.0612	.4896	.0688	.0260		
Total fixed costs .....	.2467	.1581	.2371	2.3140	.3521	.1277		

1/ A small amount of types 22 and 23 is handled with types 35 and 36.  
2/ Less than .00005.

METHODOLOGY

Firms Surveyed

All firms contracting with Commodity Credit Corporation to handle, process and/or store loan tobacco were contacted in this study. This procedure was developed in consultation with the Statistical Reporting Service, U.S. Department of Agriculture.

Cost and other data were obtained from each plant by an economist or an auditor assigned to the Economic Research Service from other USDA agencies. The cost data and related volumes for each service performed were summarized and tabulated by plant, type of facility, and area, according to the plan outlined below.

Depreciation and Interest

To minimize the effects on cost of variations among plants in depreciation allowances and interest on investment, data were summarized using standardized rates.

The following depreciation allowances were used for buildings and equipment:

Item	Rate	Years	Salvage value
	Percent	Number	Percent
Tobacco storage warehouse .....	4	25	--
Buildings .....	5	20	--
Redryers .....	6 2/3	15	--
Threshing equipment .....	10	10	--
Boiler .....	5	20	--
Prizing press .....	5	20	--
Scales .....	5	20	--
Jacks .....	20	5	--
Sticks .....	20	5	--
Office equipment and furniture ....	10	10	--
Autos .....	25	4	20
Forklifts .....	25	4	20
Trucks .....	25	4	20
Stockroom .....	10	10	--
Shop equipment .....	10	10	--
Fire equipment .....	5	20	--

Interest was allowed at 7 percent on the average investment in buildings and equipment.

$$\text{Buildings, I} = \frac{\text{Building acquisition cost}}{2} \times .07$$

Equipment, I =  $\frac{\text{Equipment acquisition cost}}{2} \times .07$

Motorized equipment, I =  $\frac{\text{Equipment acquisition cost} + \text{salvage value}}{2} \times .07$

Land acquisition cost  $\times .06$

Variable cost, interest at  $.07 \times 1/4$  year usage

#### Estimated 1968 Costs

Costs of operating during 1968 were computed as follows:

Wages--Increased to \$1.60 per hour if \$1.40 or less;

Increased 20 cents per hour if the average was more than \$1.40 for a particular job;

All overtime computed at  $1\frac{1}{2}$  times the above rates.

Salaries--Executive and management salaries were increased 11.1 percent to reflect the average rise in management wages from the average date of the survey period, December 1, 1966, to December 1, 1968.

Office workers' salaries were increased 12.5 percent to reflect average salary increases of office workers during the same period.

Other company costs--FICA. These costs to the company were computed on the new rates and maximums effective in 1968--4.4 percent on \$7,800 per employee.

Unemployment compensation--Usual 1968 rates for each State involved were used for the tobacco processing and storing firms.

Workmen's compensation--Rates were obtained from the board setting or approving the rates in each State involved.

Supplies, utilities, etc., were updated to reflect costs in effect during January 1968 as reported in the Survey of Current Business, U.S. Department of Commerce, Office of Business Economics.

#### Method of Allocation

##### Tobacco Processing

No allocation of costs was necessary since redrying costs were separate from other costs.

Fixed costs

1. Building depreciation: Cost was based on area devoted to tobacco storage and total warehouse area as shown on warehouse records. Included as tobacco storage area were clearances and aisles as provided for in CCC storage contracts plus 2 feet of the main aisle space. The ratio of storage area and working area to total area was used as a basis for determining depreciation costs allocated directly to storage and services.

For example, assume that 90 percent of the warehouse was used for storage. In this case, 90 percent of the total depreciation was chargeable directly to the storage operation. The remaining 10 percent would then be allocated to all services including storage based on the volume handled in each function.

2. Equipment depreciation: Cost for equipment could be identified with a particular function or allocated directly. For example, scales were allocated directly to weighing. Motorized equipment (autos, trucks, forklifts) was allocated according to use. A weighting system was devised using estimates from each firm involved and checked with industry people to determine if these relative weights were realistic.

3. Insurance and taxes: Building insurance was allocated to functions in the same manner depreciation was in item 1. Insurance on machinery and equipment was allocated to functions based on use.

4. Leases and rentals: Building leases were allocated to functions in the same manner as building depreciation in item 1 and leases of equipment was allocated in the same manner as equipment depreciation in item 2.

5. Interest on capital investment: Cost was allocated in same manner as costs for leases and rentals.

Variable costs

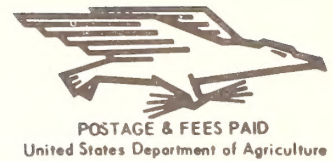
All variable costs except direct labor, machinery repairs, office supplies, and hogshead material were allocated on the same basis as building depreciation. Direct labor and hogshead materials were allocated according to labor use. Machine repairs were allocated according to machine use. Office supplies were allocated according to clerical salaries.

DEFINITION OF TERMS

Tobacco Processing

Machine redrying: Receiving tobacco, weighing, segregating, blending, plucking, hanging, redrying by redrying machine (some of the tobacco in these types is hung in buildings and redried by air), packing into hogsheads, cooping, weighing and loading out hogsheads.

OFFICIAL BUSINESS



### Storage and Services

Innage: Receiving hogsheads of tobacco, placing in storage on dunnage, and doing paper work necessary for checking bills and entering on books.

Storage: Maintenance, custodial, and accounting functions necessary during storage period.

Outage: Identifying hogsheads ordered for shipment, removing and loading onto transportation equipment, and associated office work.

Sampling: Identifying hogsheads to be sampled, removing from storage to display area, removing casks from tobacco, pulling samples and displaying, replacing casks, restoring, and associated office work.

Reweigh and restore: Identify hogsheads to be weighed, removing from storage, reweighing, restoring and associated office work.

Reweigh while performing other services: Reweighing while hogshead is removed from storage for another service.



