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Processing, Storage, and Selected Storage Service Costs for Maryland Tobacco 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 authors are 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.

CONTENTS

	<u>Page</u>
Findings	4
Cost tables	6
Methodology	12
Firms surveyed	12
Depreciation and interest	12
Estimated 1968 costs	13
Method of allocation	13
Tobacco processing	13
Storage and services	14
Definition of terms	15

LIST OF TABLES

Table

1.--Tobacco processing and storage firms included in survey: Volume processed, yield, hogsheads stored and selected services performed, 1966/67	6
2.--Total costs for selected services in Maryland tobacco storage, 1966/67 and estimated 1968	7
3.--Maryland tobacco processing costs: Standardized fixed cost per hundredweight for redrying and packing 1966/67	7
4.--Maryland tobacco processing costs: Variable cost per hundredweight for redrying and packing	8
5.--Standardized fixed costs per hogshead of facilities and equipment for selected services in Maryland tobacco storage, 1966/67	9
6.--Variable costs per hogshead of selected services in Maryland tobacco storage, 1966/67	10
7.--Variable costs per hogshead of selected services in Maryland tobacco storage, estimated 1968	11

PROCESSING, STORAGE, AND SELECTED STORAGE SERVICE COSTS FOR
MARYLAND TOBACCO 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 Maryland tobacco during fiscal 1966/67 and presents estimates for 1968.

The results are based on accounting records of three firms processing and three firms storing Maryland tobacco. These processing firms handled a total of 23.5 million pounds of green weight tobacco in 1966/67. Of this amount 8.8 million pounds were redried with a yield of 94 percent. Redrying cost includes 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 are innage, outage, sampling, reweighing and restoring, and reweighing while performing other services.

Labor costs for 1966/67 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 redrying was \$11.68 per hundredweight. When updated to 1968, this cost increased to \$12.49.

Storage costs were computed on the volume stored during the survey period. Storage warehouses operated at 122 percent of rated capacity during the survey period. At this rate of utilization, the average survey period cost was 41.13 cents per hogshead per month, while the 1968 estimate was 42.99 cents. Necessary services to storing tobacco include innage and outage of the tobacco. The innage cost per hogshead for the survey period was \$1.56 and the 1968 estimate was \$1.70. For outage these costs were \$1.44 for the survey period and \$1.57 for 1968.

Cost for sampling, the most expensive service performed in the storage operation, amounted to \$15.80 per hogshead for the survey period. When estimated for 1968, this cost averaged \$17.28 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 \$1.79. This was estimated to be \$1.94 for 1968. Reweighing a hogshead of tobacco while performing some other service was 54 cents in 1966/67 and an estimated 57 cents in 1968.

Costs of performing other services, a minor part of total services, were subtracted from firm costs.

These findings indicate Maryland tobacco costs are relatively high in relation to those for flue-cured and Burley tobaccos. Three factors are mainly responsible:

1. Average volume processed per plant is only 20 percent of that processed for flue-cured and 34 percent of that for Burley.

2. Average storage capacity per firm is only 21 percent of flue-cured and 36 percent of Burley.

3. Maryland tobacco is packed with less than 80 percent of the average weight per hogshead packed for flue-cured and Burley.

All three factors result in increased operating costs and the third factor results in increased hogshead cost per hundred-weight.

High-cost items in relation to flue-cured and Burley were labor costs, taxes, and interest on land values--generally higher in the metropolitan areas close to where Maryland tobacco is handled than in the relatively rural areas in which Burley and flue-cured tobaccos are handled.

Table 1.--Tobacco processing and storage firms included in survey: Volume processed, yield, hogsheads stored and selected services performed, 1966/67

Item	Number of firms	Unit	Volume	Yield or utilization
				<u>Percent</u>
Receiving	3	1,000 lbs. <u>1/</u>	23,523	--
Redrying	3	1,000 lbs. <u>1/</u>	8,810	94
Storage	3	Hogshead month <u>2/</u>	494,365	<u>3/122</u>
Services:				
Innage	3	Hogshead	14,153	--
Outage	3	Hogshead	20,936	--
Sampling	3	Hogshead	2,271	--

1/ Green weight.

2/ Unit of 1 month's storage of 1 hogshead. For example: Ten hogshead months can equal 10 months' storage of 1 hogshead; 1 month's storage of 10 hogsheads; or 5 months' storage of 2 hogsheads, etc.

3/ See Methodology, page 9, storage and services, fixed cost, building depreciation for how capacity was calculated. More than 100 percent of capacity may be utilized by using aisle space for temporary storage. Temporary storage in aisle space may have increased storage and service costs.

Table 2.--Total costs for selected services in Maryland tobacco storage, 1966/67 and estimated 1968 1/

Item	Unit	Cost				
		Variable		Fixed	Total	
		1966/67:	1968		1966/67:	1968
-----Dollars-----						
Redrying	Hundredweight <u>2/</u>	8.1852	8.9991	3.4937	11.6789	12.4928
Storage	Hogshead month <u>3/</u>	.2325	.2511	.1788	.4113	.4299
Services:						
Innage	Hogshead	1.2089	1.3476	.3542	1.5631	1.7018
Outage	Hogshead	1.0968	1.2247	.3408	1.4376	1.5655
Sampling	Hogshead	12.8239	14.3038	2.9754	15.7993	17.2792
Reweigh and restore	Hogshead	1.2525	1.3948	.5404	1.7929	1.9352
Reweigh while per- forming other services	Hogshead	.2836	.3140	.2541	.5377	.5681

1/ 1968 costs are updated for variable costs only. See breakdown of variable costs tables 4 and 7.

2/ Redried weight.

3/ One hogshead stored for 1 month.

Table 3.--Maryland tobacco processing costs: Standardized fixed cost per hundredweight for redrying and packing 1966/67 1/

Item	Cost
Depreciation:	<u>Dollars</u>
Redriers	0.8020
Buildings .....	.4343
Boiler .....	.0232
Prizing press .....	.0157
Scales .....	.0078
Quality control	--
Office equipment and furniture .....	.0667
Autos, trucks and forklifts .....	.2371
Shop equipment .....	.0152
Other .....	.0841
Land .....	.0589
Interest .....	.8944
Insurance .....	.1783
Taxes .....	.3600
License and bond .....	.0110
Lease and rentals .....	.3050
Total fixed costs	3.4937

1/ Redried weight.

Table 4.--Maryland tobacco processing costs: Variable cost per hundredweight for redrying and packing 1/

Item	1966/67 cost	Estimated 1968 cost <u>2/</u>
-----Dollars-----		
Salaries:		
Executive	1.1295	1.2565
Superintendent .....	.2223	.2471
Foremen, engineers, mechanic .....	.4879	.5481
Clerical .....	.1912	.2147
Quality control .....	.0141	.0158
Wages:		
Drayage .....	.1476	.1685
Shipping .....	.0584	.0667
Receiving .....	.3926	.4474
Redrying--bundle	1.6528	1.8891
Packing .....	.6379	.7305
Coopering .....	.1954	.2220
Maintenance .....	.0132	.0149
Utilities .....	.2177	.2228
Office supplies .....	.1507	.1562
Repairs and maintenance .....	.4496	.4675
Hogshead materials	1.3842	1.4544
Other operating expenses .....	.5218	.5389
Interest .....	.1408	.1548
Trucking cost .....	.1775	.1832
Total variable costs	8.1852	8.9991

1/ Redried weight.

2/ Wage costs are 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 5.--Standardized fixed costs per hogshhead of facilities and equipment for selected services in Maryland tobacco storage, 1966/67

Item	Innage	Storage per month	Outage	Sampling	Reweight and restore	Reweight while performing other services
-----Dollars-----						
Depreciation:						
Storage warehouse	0.0380	0.0314	0.0342	0.4229	0.0380	0.0076
Other buildings and improvements	.0051	.0042	.0046	.0568	.0051	.0010
Scales	--	--	--	--	.1045	.1045
Office equipment	.0001	.0001	.0001	.0011	.0001	1/
Fire equipment	.0191	.0158	.0172	.2127	.0191	.0038
Dunnage	.0003	.0003	.0003	.0034	.0003	.0001
Autos, trucks, and trailers	.0644	.0021	.0580	.7174	.0644	.0128
Forklifts	.0816	.0016	.0816	.3675	.1633	.0816
Shop equipment	.0001	.0001	.0001	.0009	.0001	1/
Rent	.0086	.0071	.0078	.0962	.0086	.0017
Insurance	.0196	.0196	.0196	.1569	.0196	.0058
Taxes	.0412	.0411	.0412	.3299	.0412	.0124
Home office	.0055	.0056	.0055	.0447	.0055	.0016
License and bond	.0006	.0006	.0006	.0048	.0006	.0002
Interest on land	.0020	.0020	.0020	.0163	.0020	.0006
Interest on investment	.0680	.0472	.0680	.5439	.0680	.0204
Total fixed costs	.3542	.1788	.3408	2.9754	.5404	.2541

1/ Less than .00005.

Table 6.--Variable costs per hogshead of selected services in Maryland tobacco storage, 1966/67

Item	Innage	Storage per month	Outage	Sampling	Reweigh and restore	Reweigh while performing other services
Salaries and wages:						
Administrative	0.0319	0.0319	0.0319	0.2555	0.0319	0.0095
Office	.0141	.0117	.0141	.0028	.0141	.0042
Direct labor	.9434	.0302	.8491	10.4956	.9434	.1886
Maintenance	.0273	.0225	.0246	.3039	.0273	.0054
Machinery repairs	.0448	.0267	.0448	.2019	.0897	.0448
Hogshead materials	.0036	.0030	.0032	.0405	.0036	.0007
Repairs and maintenance	.0433	.0358	.0390	.4824	.0433	.0086
Utilities	.0143	.0144	.0143	.1151	.0143	.0043
Other cost	.0634	.0523	.0570	.7056	.0634	.0126
Interest on working capital	.0208	.0040	.0188	.2206	.0215	.0049
Total variable costs:	1.2089	.2325	1.0968	12.8239	1.2525	.2836

Table 7.--Variable costs per hogshead of selected services in Maryland tobacco storage, estimated 1968 1/

Item	Innage	Storage per month	Outage	Sampling	Reweight and restore	Reweight while performing other services
-----Dollars-----						
Salaries and wages:						
Administrative	0.0354	0.0354	0.0354	0.2833	0.0354	0.0106
Office	.0199	.0166	.0199	.0040	.0199	.0060
Direct labor	1.0650	.0341	.9585	11.8485	1.0650	.2130
Maintenance	.0311	.0257	.0280	.3460	.0311	.0062
Machinery repairs	.0462	.0276	.0462	.2084	.0926	.0462
Hogshead materials	.0038	.0032	.0034	.0426	.0038	.0007
Repairs and maintenance	.0450	.0372	.0406	.5016	.0450	.0089
Utilities	.0146	.0147	.0146	.1178	.0146	.0044
Other cost	.0634	.0523	.0570	.7056	.0634	.0126
Interest on working capital	.0232	.0043	.0211	.2460	.0240	.0054
Total variable costs:	1.3476	.2511	1.2247	14.3038	1.3948	.3140

1/ 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 in January 1968.

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.

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
	<u>Percent</u>	<u>Number</u>	<u>Percent</u>
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.

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

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

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

Land acquisition cost $\times .06$

Variable cost, interest at $.07 \times \frac{1}{4}$ year usage

Estimated 1968 Costs

Operating costs 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

Maryland firms received more tobacco than was redried. Costs applicable only to tobacco not redried were excluded from these costs. 1/ Costs that were joint between redried and not redried tobaccos and could not be properly assigned by company records or management within the firm were allocated by the following method.

1/ Tobacco not redried was shipped green, either loose or in hogsheads.

Cost itemBasis for allocationVariable costs

Salaries	Redrying wages as a proportion of total wages
Wages:	
Receiving	Redried tobacco as a proportion of total tobacco received
Coopering	Hogsheads required for redried tobacco as a proportion of total hogsheads made
Utilities	Same as salaries
Office supplies	Same as salaries
Repairs and maintenance	Same as salaries
Hogshead materials	Material required to package tobacco redried

Fixed costs in general were charged to tobacco redrying except where records provided a different allocation.

Storage and ServicesFixed costs

1. Building depreciation: Based on area devoted to tobacco storage and total warehouse area as shown on warehouse records. Included as tobacco storage area was 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 was 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 as depreciation 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 were allocated in the same manner as equipment depreciation in Item 2.

5. Interest on capital investment: Same as leases and rentals.

Variable costs

All variable costs except direct labor, machinery, repairs, office supplies, and hogshead materials 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

Redrying: Receiving tobacco, weighing, segregating, blending, plucking, hanging, redrying, packing into hogsheads, coopering, weighing, and loading out hogsheads.

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.

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