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# Processing, Storage, and Selected Storage Service Costs for Burley 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.

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PROCESSING, STORAGE, AND SELECTED STORAGE SERVICE COSTS FOR  
BURLEY TOBACCO IN COMMERCIAL FACILITIES, 1966/67 AND ESTIMATED 1968

by

N. A. Wynn, Jr., Donn A. Reimund, and J. W. H. Brown, Agricultural Economists  
Marketing Economics Division  
Economic Research Service

FINDINGS

This report analyzes the costs of handling, processing, storing, and related services in commercial facilities handling Burley tobacco during 1966/67 and presents estimates for 1968.

Results are based on costs in nine firms processing and eight firms storing Burley tobacco. The nine processing firms redried 43.6 million pounds (redried weight) of leaf tobacco. Tobacco was threshed by three firms and yielded 16.9 million pounds. Total green weight received by all firms processing amounted to 76.8 million pounds of tobacco.

Costs were developed for tobacco processing, which included receiving tobacco into the plant through packing it into hogsheads and shipping it out. These costs were for redried weight of tobacco packed as leaf and strip (lamina). Strip costs included packing and shipping stems.

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.

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 leaves was \$6.02. When updated to 1968, this cost increased to \$6.60. The average cost for threshing and redrying was \$10.14 for the survey period and \$11.03 for the 1968 estimate.

Storage costs were computed on the volume stored during the survey period. Storage warehouses used an average of 63 percent of storage capacity during the survey period. At this rate of utilization, the average survey period cost was 27.23 cents per hogshead per month, while the 1968 estimate was 29.38 cents. Estimated storage costs by percentage of capacity utilized are illustrated in table 4. Services necessary for storing include innage and outage of the tobacco. The innage cost per hogshead for the survey period was 79 cents, and the 1968 estimate was 84 cents. For outage, these costs were 75 cents for the survey period and 79 cents for 1968.

Cost for sampling, the most expensive service performed in the storage operation, amounted to \$6.90 per hogshead for the survey period. When estimated for 1968, this cost averaged \$7.33 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 97 cents. This was estimated to be \$1.02 for 1968. Reweighing a hogshead of tobacco while performing some other service was 35 cents in 1966/67 and an estimated 36 cents in 1968.

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

Table 1.--Burley 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>
Processing .....	9	:1,000 lbs. <u>1/</u> :	76,828	---
Leaf .....	9	:1,000 lbs. <u>1/</u> :	50,033	87.19
Strip (includes threshing) ..	3	:1,000 lbs. <u>1/</u> :	26,795	63.09
Storage .....	8	:Hogshead : month <u>2/</u> :	1,858,504	62.74
Storage services:				
Innage .....	8	:Hogshead	49,059	---
Outage .....	8	:Hogshead	36,870	---
Sampling .....	8	:Hogshead	2,628	---

1/ Green weight.

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

Table 2.--Total costs for selected services in Burley tobacco storage and processing, 1966/67 1/

Item	Unit	Costs		
		Variable	Fixed	Total
		<u>Dollars</u>	<u>Dollars</u>	<u>Dollars</u>
Processing:				
Redrying leaf .....	Hundredweight <u>2/</u> :	5.1378	0.8815	6.0193
Redrying strip (includes threshing) .....	Hundredweight <u>2/</u> :	8.4412	1.6953	10.1365
Storage .....	Hogshead per : month	.1532	.1191	.2723
Storage services:				
Innage <u>3/</u> .....	Hogshead	.5724	.2190	.7914
Outage <u>3/</u> .....	Hogshead	.5393	.2079	.7472
Sampling .....	Hogshead	4.9161	1.9822	6.8983
Reweighing and restoring	Hogshead	.7343	.2335	.9678
Reweighing with other services .....	Hogshead	.2522	.0971	.3493

1/ Middate for survey period was Dec. 1, 1966.

2/ Redried weight.

3/ Excludes paper transfers.

Table 3.--Total costs for selected services in Burley tobacco storage and processing, estimated 1968 1/

Item	Unit	Costs		
		Variable	Fixed	Total
		Dollars	Dollars	Dollars
Processing:				
Redrying leaf .....	Hundredweight <u>2/</u>	5.7227	0.8815	6.6042
Redrying strip (includes				
threshing) .....	Hundredweight <u>2/</u>	9.3368	1.6953	11.0321
Storage .....	Hogshead per			
	month	.1747	.1191	.2938
Storage services:				
Innage <u>3/</u> .....	Hogshead	.6219	.2190	.8409
Outage <u>3/</u> .....	Hogshead	.5856	.2079	.7935
Sampling .....	Hogshead	5.3514	1.9822	7.3336
Reweighing and restoring	Hogshead	.7892	.2335	1.0227
Reweighing with other				
services .....	Hogshead	.2673	.0971	.3644

1/ 1968 costs are updated for variable costs only. See breakdown of fixed and variable costs in tables 6 and 9.

2/ Redried weight.

3/ Excludes paper transfers.

Table 4.--Burley 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
	Dollars	Dollars
100 .....	0.1708	0.1843
95 .....	.1798	.1940
90 .....	.1898	.2048
85 .....	.2010	.2169
80 .....	.2136	.2304
75 .....	.2278	.2458
70 .....	.2441	.2633
65 .....	.2628	.2836
60 .....	.2847	.3072
55 .....	.3106	.3351
50 .....	.3417	.3687

Table 5.--Standardized fixed costs per hundredweight for redrying and packing Burley leaf and strip (including threshing), 1966/67 1/

Item	Redrying and packing	
	Leaf	Strip
	<u>Dollars</u>	<u>Dollars</u>
Depreciation:		
Redriers .....	0.0950	0.0737
Receiving area .....	.0634	.0446
Other buildings and office buildings :	.0671	.0846
Threshing building .....	---	.0559
Threshing equipment .....	---	.6283
Boiler .....	.0225	.0173
Prizing press .....	.0098	.0026
Scales .....	.0036	.0005
Jacks .....	.0380	.0589
Sticks .....	.0072	---
Quality control .....	---	.0395
Office equipment and furniture .....	.0105	.0203
Autos .....	.0212	.0126
Trucks .....	.0274	.0287
Forklifts and pickups .....	.0473	NA
Stockroom .....	.0063	NA
Shop equipment .....	.0108	.0135
Land .....	.0274	.0421
Interest .....	.2137	.3727
Insurance .....	.0929	.0356
Taxes .....	.0401	.0728
License and bond .....	.0063	.0043
Lease and rentals .....	.0644	.0731
Home office .....	.0066	.0137
Total fixed costs .....	.8815	1.6953

1/ Costs given for redried weight.

NA = Not available.

Table 6.--Variable costs per hundredweight for redrying and packing  
Burley leaf and strip (including threshing), 1966/67 and estimated 1968 1/

Item	1966/67 cost		Estimated 1968 cost <u>2/</u>	
	Leaf	Strip	Leaf	Strip
	<u>Dollars</u>	<u>Dollars</u>	<u>Dollars</u>	<u>Dollars</u>
Salaries:				
Executive .....	0.4178	0.6389	0.4484	0.6866
Superintendent .....	.0904	.1199	.0974	.1289
Foremen, engineers, mechanics ..	.1829	.3440	.2034	.3855
Clerical .....	.2405	.5258	.2625	.5762
Quality control .....	.0084	.0964	.0095	.1112
Wages:				
Drayage and shipping .....	.1643	.2251	.1965	.2592
Receiving .....	.2954	.4966	.3385	.5731
Redrying--bundle .....	1.2345	---	1.4488	---
strip .....	---	2.6524	---	3.0547
Packing .....	.4140	.5103	.5069	.5825
Coopering .....	.1210	.1438	.1442	.1523
Maintenance .....	.1837	.3469	.2107	.3944
Utilities .....	.2460	.3794	.2517	.3882
Office supplies .....	.0130	.0148	.0135	.0153
Repairs and maintenance .....	.1470	.4782	.1529	.4972
Hogshead material .....	.8472	.7646	.8902	.8034
Other operating expenses .....	.2480	.2766	.2480	.2766
Interest .....	.0884	.1452	.0984	.1606
Trucking cost .....	.1832	.2677	.1891	.2763
Basket rent .....	.0121	.0146	.0121	.0146
Total variable costs .....	5.1378	8.4412	5.7227	9.3368

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.--Standardized fixed costs per hogshead of selected services in Burley tobacco storage, 1966/67

Item	Innage	Storage	Outage	Sampling	Reweigh and
	: : Dollars :	: : per month :	: : Dollars :	: : Dollars :	: : : perform : : restore : : other services :
Depreciation:	Dollars	Dollars	Dollars	Dollars	Dollars
Storage warehouse .....	0.0691	0.0376	0.0622	0.7688	0.0691
Other buildings .....	.0013	.0007	.0012	.0144	.0013
Improvements .....	.0036	.0020	.0033	.0403	.0036
Scales .....	---	---	---	---	---
Office equipment .....	.0004	.0003	.0004	.0034	.0004
Fire equipment .....	.0003	.0002	.0003	.0034	.0003
Dunnage .....	.0019	.0010	.0017	.0211	.0019
Miscellaneous equipment .....	.0105	.0003	.0094	.1168	.0105
Autos .....	.0093	.0006	.0093	.0747	.0093
Trucks and trailers .....	.0170	.0005	.0153	.1893	.0170
Forklifts .....	.0147	.0003	.0146	.0029	.0146
Shop equipment .....	1/ 1/	1/ 1/	1/ 1/	.0004	1/ 1/
Rent .....	.0064	.0068	.0057	.0707	.0063
Insurance .....	.0125	.0145	.0125	.0999	.0125
Taxes .....	.0119	.0129	.0119	.0952	.0119
Home office .....	---	---	---	---	---
License and bond .....	.0019	.0014	.0019	.0154	.0019
Interest on land .....	.0003	.0002	.0003	.0022	.0003
Interest on investment .....	.0579	.0398	.0579	.4633	.0579
Total fixed costs .....	.2190	.1191	.2079	1.9822	.2335

1/ Less than .00005.

Table 8.--Variable costs per hogshead of selected services in Burley tobacco storage, 1966/67

Item	Innage	Storage per month	Outage	Sampling	Reweight and restore	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 .....	0.0521	0.0387	0.0521	0.4168	0.0521	0.0156
Office .....	.0134	.0092	.0134	.0027	.0134	.0040
Direct labor .....	.1250	.0681	.1125	1.3910	.1250	.0250
Maintenance .....	.0094	.0051	.0085	.1049	.0094	.0019
Machinery repairs .....	.1621	.0032	.1621	.7292	.3241	.1621
Hogsheads supplies .....	.0814	.0026	.0732	.9051	.0814	.0163
Repair and maintenance .....	.0259	.0141	.0233	.2880	.0259	.0052
Utilities .....	.0054	.0040	.0053	.0429	.0053	.0016
Office supplies .....	.0025	.0027	.0025	.0005	.0025	.0008
Other cost .....	.0877	.0028	.0789	.9752	.0877	.0175
Interest on working capital ..	.0075	.0027	.0075	.0598	.0075	.0022
Total variable costs .....	.5724	.1532	.5393	4.9161	.7343	.2522

Table 9.--Estimated 1968 variable costs of selected services in Burley tobacco storage 1/

Item	Innage	Storage per month	Outage	Sampling	Reweight and restore	Reweight 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 .....	0.0566	0.0420	0.0566	0.4526	0.0566	0.0170
Office .....	.0194	.0133	.0194	.0039	.0194	.0058
Direct labor .....	.1515	.0825	.1364	1.6855	.1515	.0303
Maintenance .....	.0109	.0059	.0098	.1215	.0109	.0022
Machinery repairs .....	.1672	.0033	.1672	.7526	.3345	.1672
Hogsheads supplies .....	.0855	.0027	.0769	.9510	.0855	.0171
Repair and maintenance .....	.0269	.0147	.0242	.2995	.0269	.0054
Utilities .....	.0055	.0041	.0055	.0439	.0055	.0016
Office supplies .....	.0026	.0002	.0026	.0005	.0026	.0008
Other cost .....	.0877	.0028	.0789	.9752	.0877	.0175
Interest on working capital ..	.0081	.0032	.0081	.0652	.0081	.0024
Total variable costs .....	.6219	.1747	.5856	5.3514	.7892	.2673

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 to January 1968.



## METHODOLOGY

### Firms Surveyed

All firms contracting with the 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  $.07 \times \frac{1}{4}$  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.

Costs for supplies, utilities, and related items 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

Tobacco processing costs were divided into costs for leaf and strip tobacco. For firms processing tobacco in both forms, all costs that were directly attributable to that process were assigned to it by accounting and managing personnel within the firm. Those costs that were joint were assigned according to breakout by individual firms and weights learned in other studies of industry capacities.

<u>Cost item</u>	<u>Basis for allocation</u>
<u>Variable Costs</u>	
Salaries	Volume of green-weight tobacco weighted by labor use
Wages:	
Drayage and receiving	Weighted on green-weight basis
Redrying	As allocated in company records (strip includes threshing)
Packing	As allocated in company records
Coopering and shipping	Dry-weight basis
Maintenance	Company records and green-weight basis
Utilities	Weighted by time and equipment used for different processes
Office supplies	Green-weight basis
Repairs and maintenance	Green-weight basis
Hogshead material	Dry-weight basis
Other operating expenses	Green-weight basis
<u>Fixed Costs</u>	
Redryers	Allocated by machine use
Receiving	Green-weight basis
Other buildings and office buildings	Green-weight basis
Threshing buildings and equipment	All to threshing
Boiler	Same as utilities
Prizing press	Dry-weight basis
Scales	Green and dry-weight basis
Jacks	Green-weight basis
Sticks	Leaf
Quality control	Weighted according to usage
Office furniture and equipment	Green-weight basis

Cost itemBasis for allocationFixed Costs (Cont.)

Autos	Green-weight basis
Trucks and trailers	Green-weight basis
Forklifts and pickups	Green-weight basis
Stockroom and other equipment	Value of equipment and usage
Shop equipment	Green-weight basis
Fire equipment	Included in building cost
Insurance	Green-weight basis
Taxes	Green-weight basis
License and bond	Green-weight basis
Lease and rentals	Green-weight basis
Home office	Green-weight basis

## Storage and Services

Fixed Costs

1. Building depreciation: Costs were 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 were allocated in the same manner as equipment depreciation in item 2.

5. Interest on capital investment: Interest cost was allocated on the same basis as costs for leases and rentals; see item 4 above.

#### 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

#### Processing Services

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

Threshing (strip): Receiving, weighing, segregating, blending, plucking, threshing, separating, picking, redrying, packing into hogsheads, coopering, weighing, and loading out hogsheads.

#### Storage Services

Innage: Receiving hogsheads of tobacco, placing in storage on dunnage, and 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.

Reweighing and restoring: Identifying hogsheads to be weighed. Removing from storage, reweighing, restoring, and associated office work.

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



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