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Accounting for Stored Produce
Michigan State University Extension Service
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ACCOUNTING FOR STORED PRODUCE

MICHIGAN STATE COLLEGE
Of Agriculture and Applied Science

EXTENSION DIVISION

R. J. Baldwin, Director

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FOREWORD

This bulletin has been prepared for the use of the bookkeepers in elevators and similar business organizations where produce is stored for the patrons. The procedure outlined here is for use only in unlicensed warehouses, such as local elevators. The author realizes that there are other methods which may be used for recording such transactions. This method has been suggested because it fits well into the accounting practice commonly followed in the local elevators, and because it is comparatively simple. It brings into the regular books of record the amount of produce received for storage and for which the business is liable. It also brings into the "cost of goods sold" the items of costs properly chargeable against the current year insofar as they can be determined. Finally, this method requires but relatively few adjustments to the purchases and liability accounts.

In conclusion, the author wishes to acknowledge his indebtedness and express his sincere appreciation to Messrs, E. A. Gee and C. R. Upham for their helpful suggestions and criticisms in the development of this problem.

ACCOUNTING FOR STORED PRODUCE

BY ARTHUR HOWLAND

The storing of produce for patrons presents some very real and perplexing problems, both from an accounting and from a liability standpoint. The acceptance of produce for storage places a very definite liability upon the receiver to deliver upon demand by the patron that produce, or its equivalent in money, according to the conditions of the contract or agreement. Failure to do so constitutes a basis for legal action with probable disastrous results to the receiver. The accounting records must, therefore, show in detail the complete history of all transactions concerning the receipt of, disposal of, and settlement for the stored produce.

It is also desirable to have a record, for insurance purposes, of the amount of produce on hand. The records ordinarily kept furnish, or should furnish, the amount of merchandise and produce bought and sold. These records unless destroyed, can be used as a basis for adjustments of losses covered by insurance.

Accounts For Stored Produce:

The accounting procedure for stored produce is complicated by the nature of the transaction, and also by the practices followed by the trade. The storage capacity of most local elevators is usually insufficient to enable them to maintain a physical separation between produce received for storage and that received by direct purchase. As a result, stored produce is commonly mixed with purchased produce of the same character and grade. Another condition which tends to bring about a mixing of stored and purchased produce is the necessity for loading cars to maximum capacity. Oftentimes there is insufficient purchased grain on hand to load a car and the needed amount is taken from the stored grain. Various other conditions are encountered which make it impractical to attempt to maintain a physical separation between the stored and the purchased produce or between the shipping records. Difficulties of similar nature are met in the sale of stored produce. The amount of produce stored by individual patrons is usually rather small, that is, less than car lot quantities, and when ordered sold, does not furnish sufficient volume to be sold at an advantage. These practical operating problems of the local elevator necessitate a different accounting procedure than would be necessary for concerns handling such business in larger units. The practical solution of these problems seems to be to handle these transactions like other purchases and sales, insofar as is possible, making such adjustments as are necessary when the actual facts become known.

The Receiving Record:

The record of receipts should furnish full information as to the date the produce is received for storage, the kind of produce (whether wheat, corn, oats, beans, etc.), the grade when received, the volume received, the name of the patron storing the produce, the name of the person delivering the produce, and the name of the person who issues the receiving receipt. A convenient form of the receiving record is illustrated in Figure I.

STORAGE RECEIPT		No. <u>1000</u>
Binding Margin	Received of _____	Date _____, 19____
	Delivered by _____	Produce _____
		Grade _____
		Gross Wt. _____
	Company _____	Tare _____
	Michigan _____	
	Received by _____	Net Wt. _____
(Storage charges will be made at the rate of ϕ per bu. per month.)		

Fig. I.—Receipt for stored produce.

These receipts should be numbered consecutively, and in duplicate, and bound in a book similar to the checks in a check book. The original copy should be issued to the patron, and the duplicate copy should be left in the book, which, when filled, should be filed for auditing and reference purposes.

The Receiving Accounts:

It will be desirable, from a practical standpoint, to handle these transactions as nearly like the regular purchases and sales as is possible. To assist the reader in grasping the detailed explanations of the procedure for handling the accounts, a general outline of the entire subject is stated below:

- (1) Produce received will be handled as direct purchases as of the date of delivery, using as the value the current price paid to growers on that date.
- (2) Accounts will be set up with the individual patrons showing the volume of produce delivered and the value at which it is shown as a purchase on the date of delivery.
- (3) An account will be set up through which adjustments can be made to the assumed purchase cost so that it will conform with the price actually paid to the patron at the time of settlement.
- (4) Sales will be handled like any other sale.

Stored Produce Purchases:

The acceptance of produce for storage places a very definite liability upon the party who has received such produce to return it, or its equivalent in value, when delivery or settlement is called for by the party who delivered the produce into storage. Therefore, it is essential that an amount of produce sufficient to satisfy such claims be kept available at all times. If the storage capacity of the local elevator is inadequate to carry the stored produce, and at the same time furnish the space needed for the regular operations, such produce should be placed in bonded warehouses. Stored produce should not be sold until after final settlement has been made with the patron.

In order to simplify the accounting procedure of recording storage transactions, the produce received for storage may be handled as a direct purchase at the time of receipt. The difficulty encountered with this plan will be that no definite price can be placed upon such produce until it is ordered sold by the patron. It will, therefore, be necessary to place a tentative valuation or price on the produce in order that it may be shown with the purchases. The tentative price used should be the price quoted to patrons for similar produce on the date the produce is received. Later it will be necessary to make an adjustment so that the amount actually paid to the grower will be shown. Thus, as far as recording the receipt of the produce is concerned, the accounting procedure will be the same as that for any direct purchase.

Stored Produce Liabilities:

Since only a tentative price has been placed upon the produce received for storage and shown as a direct purchase, it will be necessary to set up special liability accounts with the patrons. These accounts should show the amount of produce stored, the price used and the value placed upon the produce when received. Entries to these accounts will be the offsetting credits to the debits made to the purchases account when the produce is received.

Where there are many of these storage transactions, and where there is a journal column available, a controlling account for these items can be used to advantage. Where there are but few of these transactions, and where there is no journal column available, these transactions should be handled through the "General Ledger" column of the journal. The use of a controlling account will necessitate the setting up of a subsidiary ledger, similar to the "Patrons" or "Accounts Receivable" ledger, to furnish the detailed information about the individual storage accounts. An account title such as "Stored Produce Liabilities" may be used for the controlling account, while the subsidiary ledger may be known as the "Storage" ledger.

In many cases, cash is advanced to the patron at the time the produce is placed in storage. Such advances should be entered to an account set up for that purpose rather than showing them as a partial payment for the produce. This account should be debited, and the "Cash" account credited, for the amount of the advance. When settlement is made with the patron the "Advances" account should be credited for the amount of the advance.

The principles involved and the journal entries required to record the receipt of the produce, the assumption of the liability, and the advance of cash on the produce are brought out by the following problems and illustrated by Figure II.

Problem:

On September 2, 1929, John Jones delivered 500 bushels of wheat to the company for storage. Growers were being offered \$1.20 per bushel for wheat on that day.

On September 3, 1929, John Graham delivered 1,000 bushels of wheat to the company and received an advance on it of \$0.90 per bushel, the price on that day being the same as on the previous day.

The ledger accounts in the general ledger for the above transactions would now appear as in Figure III; while the accounts in the "Storage" ledger would appear as in Figure IV, the sum of which would be equal to the balance of the controlling account "Stored Produce Liabilities."

Cash									
				Dr.		1929			Cr.
						Sept			
						30		900	00

Purchases									
1929				Dr.					Cr.
Sept									
30				1800		00			

Advances To Patrons									
1929				Dr.					Cr.
Sept									
3	John	Graham		900		00			

Stored Wheat Liabilities									
				Dr.		1929			Cr.
						Sept			
						30		1800	00

Fig. III.—General Ledger Accounts showing effect of receipts of produce for storage and advances on that produce.

John Jones - Stored Wheat					
Dr.	1929				Cr.
	Sept 2	500 bu. @ 1.20			600 00

John Graham - Stored Wheat					
Dr.	1929				Cr.
	Sept 3	1000 bu. @ 1.20			1200 00

Fig. IV.—Storage Ledger accounts showing the liabilities to the individual patron assumed by the receipt of produce for storage.

Settlement With the Patron:

The amount paid to the patrons at the time of settlement will usually be different from the amount set up as a credit to their account in the "Storage Ledger" at the time the produce was received. There are two reasons for this difference: first, storage charges, and second, price fluctuations.

Storage Charges—The procedure for showing the amount of the storage charges involves only the showing of the income earned from storing the produce and of showing the origin of the receipts. An account entitled "Storage Income" is suggested for showing the amount of income received. Since the storage charges are deducted from the amount for which the produce is sold by the patron it will be necessary to show them as a part of the payment. Therefore, the settlement with the patron will be the origin of the amount received for storage. The entries to record the storage charges will thus be a debit to the account "Storage Liabilities" and a credit to the account "Storage Income."

Payment To the Patron for the Produce—Settlement for the stored produce must take into consideration the fact that the purchase of the produce has already been recorded and that a liability account has been set up with the patron. The journal entries that will be required are those which will cancel this liability and show the sources from which it was paid. Thus the account "Stored Produce Liabilities" must be debited for an amount which will close out the patron's account in the "Storage" ledger; at the same time, credits for an equal amount must be made to the sources of payment, such as Cash, Storage Income, Interest Income, Accounts Receivable, Sales Advances, etc.

The fundamental principles governing the necessary debits and credits at the time of settlement have been set forth in the preceding paragraph without regard to price factors. The discussion thus far has been based upon a constant price. However, the possibility of

constant prices is so slight that a thorough discussion of the adjustments made necessary because of price changes will be taken up later. Before proceeding with a discussion of adjustments, the entries required to record the settlement with the patrons, to show the deduction for storage charges, the deduction of an advance of cash to the patron, and of the deduction for interest charges, will be brought out by the following problems and illustrated by Figure V.

Problem :

Assume that John Jones and John Graham, who had stored wheat with the company as stated in the former problem, decided to sell their wheat on December 3, 1929. The price on that day was the same as on the day the wheat was stored, \$1.20 per bushel. The storage charge on wheat was \$0.02 per bushel per month, while six per cent interest was to be paid on any advances.

Solution :

John Jones sold his wheat for.....		\$600.00
He had to pay storage for three months..		30.00
		<hr/>
Leaving a balance paid him in cash.....		\$570.00
		<hr/> <hr/>
John Graham sold his wheat for		\$1,200.00
He had to pay storage for three months of	\$60.00	
He had been advanced	900.00	
And he had to pay interest of	13.50	
Making total deductions of.....		973.50
		<hr/>
Leaving a balance paid him in cash of...		\$226.50
		<hr/> <hr/>

Adjustments:

The adjustments which will have to be made to these storage accounts are necessary because a tentative price was placed on the produce before its actual cost to the company, and value to the patron, became known. The adjustment will, therefore, have to be of such nature that it will show the amount actually paid for the produce, and also, the amount actually paid to the patron. These adjustments should be made at the time of settlement with the patron for the produce.

Where the accrual system of accounting is practiced, i. e., where the accrued and deferred items of expense and income are taken into consideration at the close of a fiscal year, it will be necessary to adjust the storage accounts so that they will show the value of the unsettled for produce at the close of the fiscal year. These adjustments may be justified by the assumption that the prices on that date will presumably be more nearly the prices which will be finally paid to the patron than will the tentative prices set up at the time the produce was received. Furthermore, the prices on that date will also be the prices used as a basis for evaluating the produce on hand as shown by a physical inventory.

These adjustments will, therefore, occur at either or both of two periods of time, namely:

- (1) At the time of settlement for the produce with the patron, whether before or after the close of the fiscal year, or
- (2) At the close of a fiscal year for all produce not settled for prior to that time.

The fundamental principles involved in making these adjustments are concerned with the purchases and the liability accounts and are the same regardless of the time at which they are made. The purchases accounts must be adjusted so that only the actual cost of the produce will be shown, or, in case the fiscal year should end before the produce is actually purchased from the patron, to an amount which is as near to the actual cost as can be determined. The liability accounts must be cancelled at the time of settlement with the patron or, in case of an adjustment at the close of the fiscal year, either increased or reduced to conform to the amount added to or deducted from the tentative purchase costs. The detailed procedure for making the adjustments to these accounts will be discussed in the following paragraphs.

Purchases Adjustments:

Adjustments to the amounts tentatively set up as the purchase cost of the produce could be made through the regular purchases account. However, since these transactions are of a distinctly separate character than the regular purchases, and since it is well, from a management standpoint, to know the amount of gain or loss brought about this method of handling the stored produce, it is advisable to set up a special account in which these adjustments may be recorded. The title "Purchases Adjustments" is suggested as being particularly appropriate and descriptive for such an account.

Adjustments Required by an Increase in Prices—The additional costs brought about by an increase in price between the time the produce was received and the time of the settlement with the patron, or close of the fiscal year, must be added to the purchase cost of the produce. The amount of the difference in costs brought about by higher prices may be determined by deducting the amount set up when the produce was received from the cost of the produce at the time of the settlement, or from the value of the produce as determined on the last day of the fiscal year. This difference should be debited to the account "Purchase Adjustments." Thus the sum of the debits to the account "Purchase Adjustments" will represent the additional costs of the produce or the loss incurred through this system of buying produce.

Adjustments Required by a Reduction in Prices—The reduction in costs brought about by a decrease in price between the time the produce was received and the time of the settlement with the patron, or close of the fiscal year, must be deducted from the purchase cost of the produce. The amount of the difference is determined by deducting the cost of the produce at the time of settlement with the patron, or its value on the last day of the fiscal year, from the amount set up at the time the produce was received. This difference should

be credited to the account "Purchases Adjustments." The sum of the credits to this account will represent the amount of the reduction in the costs of the produce, or the gain obtained by this system of buying produce. The balance of the account "Purchase Adjustments" will represent the net added or reduced cost, according as to whether there is a debit or credit balance respectively.

Adjustments to the Liability Accounts:

The need for adjustments to the liability accounts will depend upon whether settlement is being made with the patron, or whether the adjustment is being made because of the close of the fiscal year.

Adjustments at the Time of Settlement—The principal object at the time of settlement with the patron, insofar as the liability accounts are concerned, is the cancellation of the liability accounts with the patron and the deduction of that portion of the liability from the account "Stored Produce Liabilities." The entries to these accounts should show that the liability of the company for the volume and also the amount has been cancelled. Therefore, there must be a debit entry to the account "Stored Produce Liabilities" and also to the individual patron's account for the volume of the produce shown by the credit balance of that patron's account **at the same price at which the liability for the produce is being carried in that account.**

Where the price at which settlement is made with the patron is higher than the price at which the liability was recorded when the produce was received, only that portion of the actual cost of the produce which is necessary to liquidate the liability should be debited to these liability accounts, the difference between this amount and the amount actually paid for the produce should be, as explained in the discussion of adjustments to purchase costs, debited to the account "Purchase Adjustments." The offsetting credits to these debits will be the sources from which payment was made to the patron.

Where the price at which settlement is made with the patron is lower than the tentative price at which the produce is recorded, it will again be necessary to debit these accounts for the full volume of the produce and for the full amount of the liability. In this case, however, it will be necessary to credit the account "Purchase Adjustments" for the difference between the actual cost of the produce and the amount of the liability. The other credits to offset the debit will be to the sources from which payment was made to the patron.

Adjustments at the Close of the Fiscal Year—The principal object of an adjustment at the close of the fiscal year is to record, as nearly as it is possible to determine, the actual amount of the liability to the patrons and the actual cost of the produce to the company. Where the price at the close of the fiscal year is higher than at the time the liability was recorded, it will be necessary to credit the account "Stored Produce Liabilities," and also the individual patron's account, with the amount added to the value of the produce. The offsetting debit to this credit should be made to the account "Purchase Adjustments." Where the price at the close of the fiscal year is lower than at the time the liability was recorded, the account "Stored Produce Liabilities," and the individual patron's account, should be debited with the amount

deducted from the value of the produce. The offsetting credit to this debit should be to the account "Purchase Adjustments."

The principles involved and the journal entries required to make the adjustments which have been discussed may be brought out by the following problems and the illustrations in Figure VI.

To show the necessary adjustments at the close of the fiscal year assuming that the price had advanced:

Problem:

On September 3, 1929, the company was offering growers \$1.10 per bushel for wheat. On that day Harvey Smith brought in 1,000 bushels to be stored at a rate of \$0.02 per bushel per month. On December 31, 1929, the company was offering growers \$1.20 per bushel.

Note: See the journal entries to Harvey Smith in Figure VI, dated September 3 and December 31; the handling of the storage charges have been omitted from these entries so that the storage and adjustment entries may be more easily understood.

To show the necessary adjustments at the time of settlement with the patron assuming that the price had advanced:

Problem:

Assume that on February 3, 1930, Harvey Smith informed the company that he wished to sell his wheat at the price being offered that day of \$1.28 per bushel.

Note: See the journal entries in Figure VI for Harvey Smith dated February 3, 1930.

Solution:

The wheat was stored on September 3 at \$1.10.

Adjustments were made on December 31 to \$1.20.

The wheat was sold on February 3 at \$1.28.

An adjustment must be made of \$0.08.

The company paid for the wheat \$1,280.00.

Harvey Smith was charged storage six months, \$120.00.

Leaving a balance to be paid in cash of \$1,160.00.

To show the necessary adjustments at the close of the fiscal year assuming that the price had dropped:

Problem:

On November 1, 1928, the company was offering growers \$1.15 per bushel for wheat. On that day Sam Greene brought in 500 bushels to be stored at a rate of \$0.02 per bushel per month. On December 31, 1928, the price of wheat had dropped so that the company was offering growers only \$1.10 per bushel.

Note: See the journal entries in Figure VI for Sam Greene dated November 1, 1928 and December 31, 1928; accrued storage charges have been purposely omitted from these entries.

To show the necessary adjustments at the time of settlement with the patron assuming that the price had dropped:

Problem:

Assume that on January 3, 1929, Sam Greene informed the company that he wished to sell his wheat at the price being offered that day of \$1.10 per bushel.

Note: See journal entries in Figure VI for Sam Green, date January 3, 1929.

Solution:

Adjustments were made on December 31 to \$1.10.

The liability now on the books is \$550.00.

The wheat was sold on January 3 at \$1.10.

Storage for three months is charged \$30.00.

Leaving a balance to be paid of \$520.00.

Conclusion

The problems which have been discussed and the procedure suggested in this bulletin refer only to the storage of produce in the local unlicensed elevator. The plan outlined is not suitable for use in licensed or bonded elevators and warehouses where negotiable storage receipts are issued and used as collateral for loans. The principal thought in writing this bulletin has been to enable the bookkeeper to bring these transactions into the regular books of record and eliminate the keeping of storage records in the heterogeneous mass of memorandum books commonly used. A brief outline of the journal entries required is submitted below for the purpose of ready reference.

I. At the time the produce is received:

Debit: Purchases, and
Credit: Stored Produce Liabilities.

II. At the close of the fiscal year:

(a) Where the price has advanced the amount of the difference in value between the amount set up when the produce was received and its value at the close of the fiscal year should be a

Debit to: Purchase Adjustments, and a
Credit to: Stored Produce Liabilities.

(b) Where the price has dropped the amount of the difference in value between the amount set up when the produce was received and its value at the close of the fiscal year should be a

Debit to: Stored Produce Liabilities, and a
Credit to: Purchase Adjustments.

III. At the time of settlement with the patron:

Debit: Stored produce liabilities for the amount recorded as a liability,

Debit: Purchase Adjustments for any adjustments necessary because of higher prices,

Credit: Storage Income for the amount of storage charged on the produce,

Credit: Purchase Adjustments for any adjustments necessary because of lower prices, and

Credit: The other sources from which payment is made to the patron, such as Cash, Bank, Accounts Receivable, Sales, Advances to Patrons, etc.

