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Accounting for the Agricultural Machinery Industry

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Accounting for the Agricultural Machinery Industry*

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Of the various American manufacturing industries, perhaps none requires a greater aggregation of capital in proportion to its output, nor carries with it a larger expense for operation and distribution, than the manufacture and distribution of agricultural machinery.

In considering the subject it is well, perhaps, briefly to classify the products in this line under the following heads:

Implements:
- Plows, cultivators, harrows, etc.
- Planting machinery:
- Planters, grain drills, seeders, etc.

Power and miscellaneous machinery:
- Wind-mills, gasoline engines, grinding machinery, cream separators, etc.

Harvesting machinery:
- Mowers, headers, binders, corn harvesters, rakes, tedders, hay loaders, etc.

Heavy machinery:
- Traction engines, gas tractors, threshers, engine plows, saw-mills, stationary engines, etc.

Aside from the cost of production, the accounting principles involved are largely governed by the method of sale and distribution, which differs to some extent with each line.

Implements, planting and power machinery are usually sold to retail merchants, who in turn sell to the farmer or user.

Harvesting machinery is usually sold direct to farmers, but in some cases the retailer assumes the account. When sold direct to farmers, a profit or commission is included in the sale price for the retailer in whose territory the purchaser resides, as in most cases sales are made through the agent's personal efforts.

Heavy machinery is almost invariably sold direct to the user,

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but the retailer or agent for the territory receives a commission whenever a sale is made through his efforts.

The cost accounting procedure in the manufacture of all the foregoing lines is somewhat similar.

Materials are purchased on a cash basis and considerable time is consumed in building the machinery. The machines are manufactured before orders are received and are carried in stock ready for delivery when sales are made.

Implements, Planting and Power Machinery

Implements, planting and power machinery are usually sold on season contracts containing lease and reserve title clauses which withhold the title to such machinery until payment is complete. These articles are noted for a multiplicity of long and complicated terms on which the machinery is sold and, although a degree of regularity is maintained, the terms on each kind of machine are different.

In many cases it is customary to allow liberal cash discounts, quantity discounts, extended terms and "carry-over-on-next-year's terms" privileges, while in other cases settlement is required on the first of each month by cash less discount, or by note, for all machines sold during the preceding month, these terms to apply for a definite number of months, at the end of which time settlement is required for machines on hand unsold by cash less discount, or by note due on a definite date, often four, six, eight and twelve months after settlement date.

It is customary, when the terms set forth in the season contracts provide for a definite due date, to close all unsettled items into notes maturing on the dates specified. When a contract provides for cash discount allowances if the invoice is paid by a certain date, it is sometimes customary to wait until after the discount date and, if the discount privilege is not used, to close the account by note. At other times notes may be taken before the discount date with the discount privilege written on the margin of the note.

The retailer will hesitate to give notes when his machinery purchases are subject to a carry-over privilege. In such cases it is best to wait until the time to make settlement; then have a representative take an inventory of the machines on hand to be carried over on extended terms and obtain settlement by note for all items at the respective maturities named in the contract. All notes so taken usually bear interest after maturity.

Considerable bookkeeping can be avoided if accountants will give attention to closing customers' accounts into notes as soon as possible. It may be necessary to train customers to the habit of giving notes, but when once accomplished, it will serve to avoid many disputes—"frequent settlements make friends."

Accountants must not overlook the fact that machines carried over on next season's terms, whether settled by note or not, represent sales on which the profit is not yet earned. It is therefore necessary to reserve a sufficient amount of the apparent profits so that they will not be included in the profits of the current year and paid out as dividends, or for other purposes, as it is quite possible that before the notes taken mature, the machinery carried over may be returned for various reasons.

While it is the custom among manufacturers of implements, planting and power machinery to confine their sales to retail dealers, orders frequently are solicited and taken from farmers or users by manufacturers' representatives and delivery is made through and the account assumed by the retail dealer or agent, who controls by contract the territory in which the sales are made.

When a manufacturer fails to make a satisfactory agency contract in a community, he often finds it necessary to establish his own agency through which to sell his output direct to the user.

With this kind of an agency many aggravations are involved in according for the machines handled, credit risks taken when machinery is sold on time, as most sales are made, and cash and notes taken by the agent in settlement, as so often such an agency is established at some cross-roads in a good farming community with a former canvasser in the same line or perhaps a farmer.

As a rule the selling season for such an agency is short and the person who accepts an agency under such conditions seldom keeps books but depends entirely upon the invoices received for a record of the machines received and carries only a mental account of each transaction.

When machines are sold on time through such an agency, notes made out on forms furnished by the manufacturer are taken from purchasers in settlement at the time of delivery of the machines, the notes sometimes being secured by chattel mortgage, lease contract or vendor's lien, the form of security adopted being that which is most effective under the law of the state in which the sales are made.

The notes and cash received by the agent are sometimes held by him until settlement time at the close of the season and sometimes sent to the nearest branch house weekly or monthly.

At settlement time a representative of the manufacturer calls upon the agent to make settlement; at which time an inventory is taken of the machines on hand unsold, an accounting made of the cash and notes taken by the agent and an investigation made as to the ability of the makers of the notes to pay.

After determining the net amount due the manufacturer, after deducting commissions due the agent, the representative selects the proper proportion of the good notes and cash receipts. If a deficiency remains, the agent is required to make it up in cash, or, if he is unable to do so, his note is taken for the difference together with the farmers' notes which may have been rejected in the first instance, these latter notes being taken as collateral to the agent's note—or the agent's note may be taken as collateral to the farmers' notes.

Harvesting Machinery

Harvesting machinery differs from implements and other articles in that it has a short season. Sales and distribution are directed principally from the main or branch office and sales are made direct to farmers, for that purpose an army of canvassers is employed, whose work is accomplished within a few months immediately preceding and during harvest season.

It is customary to make season contracts with agents to represent the manufacturer in the farming districts, these agents being either retail merchants, blacksmiths, farmers or some other persons.

The machines are shipped in car lots from the factory to the agency and when less than car lots are ordered, several such lots are consolidated into carloads and the car shipped to a common distributing point whence the less-than-car lots are re-shipped by local freight to destination.

A peculiar difference to be noted between harvesters and implements is that harvester shipments are usually billed to consignees on manifests showing quantities, description and equipment, without showing the price, and accounts with the consignees or agents are kept entirely on a stock record, each kind of machine being accounted for by quantity, size, description and equipment.

In recent years some manufacturers have sold harvesting machinery on the same plan used in the case of implements and planting machinery, with different degrees of success, but exclusive harvester companies find the old method satisfactory.

Agencies are checked up frequently during the selling season and if sales are slow, the machines which an agent may have on hand without prospect of sale are reshipped to other agencies having better prospects, or they may be concentrated at some central point for loading in cars for shipment to a distant market, so that at the close of the season the agencies over the territory will have practically no machines on hand to be carried over.

The advantage in invoicing without a price will no doubt be apparent when the various movements of machines are understood. It is of particular advantage when, as is often the case, the equipment is changed from one machine to another, thereby causing a change in the description and often the size of the machines which can only be accounted for on a stock record on which the various equipment and complete parts are recorded.

When the machines are shipped from the factory, the freight generally follows the shipment, but often the manufacturer advances the freight, which is charged against the agent, to be included in his account at settlement time; and, as most machines are sold f. o. b. factory, it is necessary that the agent collect the factory freight when the machines are sold and delivered.

When machines are taken off the hands of an agent and shipped elsewhere, the factory freight is collected through the railroad as advance charges; and such collections together with the freight collected from purchasers of machines must be accounted for at settlement time.

Harvest season is followed by the settlement and collection season. Settlements require a visit to the agent by the traveling "blockman" who covers the territory in which the agency is located.

When the blockman calls to make a settlement an inventory is taken of all machines and repair parts on hand. A statement of the machines shipped to and from the agency is furnished the blockman by the accounting department of the main or branch office.

The blockman is required to make the necessary entries on the statement, showing the inventory of machines on hand in quantities and repair parts on hand in total at list price, the detail of parts inventory being shown in the repair list book which is made to be used as an inventory record.

The inventories are then deducted from the items shown on the statement for which accounting is required. The blockman then makes adjusting entries to correct errors and for machines reshipped and not credited on the statement before it left the main or branch office.

After all adjusting entries are made the balance will indicate the quantity, kind, size, description and equipment of machines sold. The blockman is then required to make up a statement on settlement blanks provided for the purpose, generally on the back of the statement furnished by the accounting department of the main or branch office showing the quantity, kind, size, description and equipment of each kind of machine sold, with the name and address of the purchaser and amount received, showing the amount of cash received in the cash column, notes or leases in the note column and the total extended to the total column, thus reducing all machine sales to a dollar and cents basis. All columns are then totaled.

Contra items are then entered for freight adjustments, commissions, allowances, etc., and the total is deducted from the grand total of debits, leaving the net balance for which settlement must be made by the agent.

In the case of harvesters, when the machines are delivered, settlement is obtained from the farmer in cash to cover freight and a part payment on the machines and notes for the balance, which is secured by chattel mortgage, lease contract or vendor's lien on the machines, besides additional security when required.

When sold on time, the notes or lease contracts are made to mature in the fall of the year in one, two and three years with interest and are taken on forms furnished by the manufacturer.

When settlement is made with an agent the notes taken on sales are classified according to the ability and reputation of the maker for paying his obligations. These facts are determined by interviews with local bankers, merchants, etc., as well as a property statement from the maker.

The blockman then completes the settlement by taking good notes and cash in proper ratio to total cash and notes received for machines sold. When more than one note is taken secured by the same lease or mortgage, the complete set is taken instead of dividing them between the manufacturer and agent.

In case any notes are classed as not good, they are rejected by the blockman and any deficiency in the settlement has to be made up in cash or by note by the agent, in which case some or all the rejected farmers' notes may be taken as collateral to the agent's note—or the agent's note may be taken as collateral to the farmer's notes.

In some cases the manufacturer will take all the farmers' notes, and the amount of agent's commissions included in the deferred payments will be accounted for by commission certificates, which are issued to the agent by the manufacturer after the settlement is received and entered on the books at the main or branch office.

In this way the manufacturer protects himself to some extent against losses on the business done by the agent by withholding payment of commission certificates until all or a sufficient amount of the notes taken on sales made by the agent have been paid. In case of any loss on such sales, the agent is made to stand it to the extent to which any commissions due him unpaid may cover the loss.

Heavy Machinery

The methods of sale and distribution of heavy machinery involve more accounting problems, perhaps, than the other kinds of agricultural machinery. Machines in this class are almost invariably sold direct to users. On account of the large amount of capital required, it is seldom that a retailer is financially equipped to carry such articles on his own account. Most sales, however, are made through the efforts of the local agent or retailer.

When a new machine is completed at the factory, it is turned into completed stock and recorded on a stock record. A separate account is kept thereafter in the stock record with each machine, showing the serial or factory number, description and equipment and cost as equipped. If changes are made on the machine by adding to or taking from it, the cost of such changes is debited or credited as the case requires on the stock record. This record is kept until the machine is finally sold and must include all freight invested in it when shipped to the selling territory awaiting sale.

Machinery in this class is usually sold for part cash and balance due in one, two and three years. Often one or more second-hand machines of the same or different make are taken in trade.

Notes are taken for all deferred payments, which are required to be secured by chattel mortgage, trust deed or lease contract covering the machines sold, the form of chattel security depending upon the laws governing chattels in the state where the machines are sold and to be used.

Additional security is also often taken in the form of chattel mortgages on live-stock, growing crops and anticipated thresher receipts, and mortgages and trust deeds on real estate.

The varying features of the laws of each state in which machinery is sold must be kept constantly before both the accounting and collection departments so that securities may not go by default, as, for instance, in one state, where a lease contract is used instead of a chattel mortgage, by filling the lease contract it amounts to a foreclosure; so it is customary not to file lease contracts in that state until it is found necessary to repossess the machinery. In another state it is necessary to file the lease contract in order to protect the seller and it then virtually becomes what is known in other states as a reserved title or a vendor's lien. In some other states where chattel mortgages prevail, such mortgages have to be renewed annually and, unless so renewed, the security is lost.

Another problem, which is always the cause of more or less concern, arises when the purchaser, without permission from the seller, takes the machinery out of the county or out of the state in which it is sold and to be used and in which the security on record applies. This often occurs where the purchaser operates near a state line. Wherever there is a possibility of such an occurrence, it is best to have proper chattel instruments covering the machinery also recorded in the counties of the adjoining state in which the purchaser is likely to operate.

One of the items to be considered in accounting for heavy machinery sold on deferred payments is that of deferred profits. Properly to account for such profits it is necessary to set up a sufficient reserve out of the book profits each year to allocate the profits to the years in which they are actually realized, which will be in the years in which the deferred payments are due and paid. Such deferred profits will frequently disappear before the payments become due, for it is not an uncommon thing for a purchaser, after having used his machinery during the first or second season after purchase and realized some income therefrom above the amount of his initial payment, to default on his remaining payments and move out of the country, leaving the machinery on the ground uncared for and subject to the elements and other depreciating conditions.

In such circumstances it is necessary that the seller, as soon as he discovers this condition, follow a legal process known as "repossessing" the machinery, in which case it becomes a second-hand machinery purchase at an appraised value, or, if the appraisal is more than the balance due on the debt, the machinery is taken in at a price sufficient to balance the debt. A similar proceeding is followed in the case of a foreclosure on a chattel mortgage or lease contract.

In case a balance remains due on a claim after allowing credit for the machinery taken back, if there is no chance of collecting the amount still due, it should be closed out to reserve for doubtful accounts.

When taking second-hand machinery in trade or in settlement of a debt, care must be used in appraising the value of the second-hand machinery and sufficient allowance must be made for the cost of rebuilding and placing it in salable condition.

Second-hand machinery taken in trade or otherwise is debited to second-hand machinery purchased at the price at which it is taken.

A separate account is kept in the second-hand machinery stock record with each second-hand machine. As soon as a machine is taken an account is opened, the machine is given a stock number, which must appear on the account, and the name, kind, description, equipment, etc. and cost or price at which it is taken is entered on the account, with the amount of freight paid.

Most second-hand machinery has to be overhauled and rebuilt, in which case each machine to be rebuilt is entered in the rebuilding department, which is maintained by most of the heavy machinery concerns at the larger distributing branches, on a rebuilding shop order, which should show the stock number and a brief description of the machine.

It not infrequently happens that, after a machine has entered the rebuilding department, it is found to be too defective to warrant the expense of rebuilding, in which case it is sold for scrap and the proceeds are credited to second-hand machinery sales and the amount received and the disposition of the machines are recorded on the stock account.

The separate account carried in the second-hand machinery stock record with each machine serves as a cost account for rebuilding operations. As soon as the machine enters the shop, the stock record account (loose-leaf in form) should be placed in a separate binder or division of the stock record, so that entries for the cost of rebuilding may be made without, having to handle accounts of other machines not in the rebuilding department.

The rebuilding shop order should be made in duplicate and one copy retained in the office as a follow-up.

A suggestion for a form of stock-record account for second-hand machinery is shown on form "A" (see page 445), which provides space in the heading for the stock number and a complete description of a machine. Below the heading, columns are provided from left to right for date, folio, quantity, description and equipment, serial number, original cost, freight, material, direct labor, overhead expense, total rebuilding cost, grand total cost, credits, balance (cost). On the back columns are provided for recording the daily time tickets for direct labor performed on each job each day as shown on form "B" (see page 446).

When a second-hand machine is purchased, the name, description, equipment, size, stock number, from whom received, date and number of credit invoice are entered in the upper part; and in

Form "A"

SECOND HAND MACHINERY STOCK RECORD

Stock No.________

____
Size   Name, Description and Equipment
____

Received from________________ Date________ Credit Invoice No.________

Sold to________________ Date________ Invoice No.________

Address________________

Remarks________________

SUMMARY

Amount of Sale $________

Grand Total Cost $________

Gross Profit-Loss $________

Commissions $________

Net Profit-Loss $________

	Date	Folio	Quantity	Description and Equipment	Serial Number	Original Cost	Freight	Material and Supplies	Direct Labor	Overhead Expense	Total Rebuilding Cost	Grand Total Cost	Credits (Cost)	Balance (Cost)
				Amounts Forwarded										
				Total-Amounts Forwarded										
				Total-Amounts Forwarded										

Form "B"

Stock No.__________

DIRECT LABOR

Date	Employee's Number	Number Hours	Amount	Total for Day	Total for Month	Date	Employee's Number	Number Hours	Amount	Total for Day	Total for Month	
							Amounts-	Forward				
Total -	Amounts	Forwarded				Total -	Amounts	Forward				
Total -	Amounts	Forwarded				Total -	Amounts	Forward				

the lower part are entered separately under the proper date and number of credit invoice, the main body of the machine, equipment and attachments, showing cost of each in the original cost column and freight paid in the freight column with total extended to the grand total cost column.

Material used must be entered daily on the account at cost under proper date and in the material column from the material tickets, and the total must be added to the total rebuilding cost and also to the grand total cost. At the end of each day or month the total direct labor for each day or month, shown on the back of the account, must be posted to the account on the front under the proper date and in the direct labor column. The amount of overhead expense based upon a percentage of direct labor must be entered in the overhead expense column. The total of both must be added to the total rebuilding cost and also to the grand total cost so that the account will show the total cost of rebuilding and the total investment in the machine to date.

In case any part of the equipment is taken from a machine while in stock, the cost of such an item is entered under the proper date in the credit column and the balance is extended to the balance column, showing the net investment remaining in the machine.

It is necessary to keep a close watch on the cost of rebuilding second-hand machinery as there is a tendency to spend too much money in rebuilding, thus increasing the total investment to more than the price for which the machines can be sold, in which case they will have to be sold at a loss.

Sample Machines

A large amount of capital is at all times invested in sample new machines, which it is necessary to have on exhibition all over the country to enable agents to make sales, and during the harvesting and threshing season it is necessary to ship large numbers of machines, so that they will be at points convenient for delivery when sales are made, as machines frequently are wanted on short notice which does not permit shipment from the factory.

Samples and machines shipped for quick delivery on anticipated sales are invoiced to agents, but cannot be counted as sales until settlement is made and, therefore, must be included in the inventory. This also applies to machines shipped to agents or purchasers on sale contracts, as it often happens that machines are rejected at destination on account of delay in delivery or because purchaser cannot raise the funds to make the initial payment or for other reasons. Such machinery cannot be considered sold until satisfactory settlement is received therefor.

Heavy machinery is most always sold f. o. b. factory. When machines are shipped as samples or scattered over the country to effect quick delivery on anticipated sales, the freight is often carried by the manufacturer until the machines are sold and reshipped, at which time accrued freight is collected from the purchaser through the railroad, or, if delivered, collection is made through a bank or sales agent.

An accounting must be made for freight collected through the railroad and other sources. It often happens that through oversight of the shipper or railroad clerks such freight is omitted from the bill of lading or way-bill and the shipment is delivered and local freight collected without the advance charges. The purchaser of the machine cannot be reached, settlement having been made when the machine was delivered, and the omission of advance charges may not be discovered until a long time afterwards, often too late for collection, in which case, if the railroad is at fault, it is required to make good the amount, or, if some one else is responsible, it may result in a loss.

Settlements and Commissions

When sales are made through agents, settlements with purchasers may be made by the agents, manufacturer's representative or by a bank at the delivery point. When settlement is made by an agent, that portion of his commission included in the initial cash payment is withheld by the agent. If made by the manufacturer's representative or a bank, the cash commission is remitted to the agent when the settlement is received at the main or branch office. For the commissions included in deferred payments, commission certificates are issued to agents payable when the notes given by the purchaser of a machine are paid.

Outstocks

On account of the heavy freight on local shipments of implements, planting, power and harvesting machinery, and in order to effect delivery to the retailer as nearly as possible at carload rates, it is necessary to maintain "outstocks" with transfer and storage agents so that less-than-car lots can be reshipped by local freight by the transfer agent and the freight at carload rate from factory to transfer point, plus a storage and transfer charge, can be collected through the railroad by inserting in the bill of lading the amount to be collected. This amount is then included by the railroad in the way-bill as advance charges.

By collecting the factory freight in this way, the amount invested in freight on outstocks is returned to the manufacturer soon after reshipments are made.

When a transfer agent reships machines, he is required to make to the manufacturer a report of each shipment, showing the quantity and description of the machines shipped, amount of advance freight collected and transfer fee. The transfer agent is required to collect the advance charges from the railroad and remit to the manufacturer as collections are made from the railroad.

It is important that the accounting department keep a close check upon transfer agents to the end that all advance charges be collected and remitted promptly.

Outstocks are frequently carried with retail dealers at good shipping and distributing points. The retailer is given the privilege of drawing machines from outstocks for his own sales, but he frequently neglects to report such withdrawals when they are made. At the same time the main or branch office is carrying a stock record account of machines in outstocks, showing a certain quantity on hand with transfer agents, and is not notified of such withdrawals until the machines are ordered out for other customers, dissatisfaction resulting on the part of the other customers on account of the delay.

The only way to avoid this is to insist that transfer agents report withdrawals immediately after making such withdrawals. Machines in outstocks cannot be treated as sales until drawn from outstocks for that purpose.

Repair Parts

Repair parts are usually sold on a cash basis, but it is necessary to supply agencies and retailers as well as transfer agents with a general assortment of repair parts on consignment so that users may be supplied promptly when the urgency of the season requires quick delivery.

When repair parts are shipped on consignment, they are usually invoiced at list price and an accounting is made at the end of the season when settlement is made for repair parts sold at list price less trade discount.

Repair parts shipped on consignment must be accounted for at the main or branch office as "outstocks," as they are returnable on demand of the manufacturer. Therefore it is important that repair parts should not be included in sales until they are actually sold.

The user frequently finds it necessary to order repair parts direct from the factory, especially in the case of harvesters and heavy machinery. It is important that repair parts orders be filled promptly to meet the urgency of the season and to keep machines from being thrown back on the manufacturer on account of delay in obtaining repair parts. Therefore it is necessary that such shipments be sent c. o. d. and at list price.

It often happens that an agent is entitled to a commission or discount on sales made direct to user. In that case, when returns are received from the c. o. d., a credit must be made to the agent or retailer into whose territory the shipment is made, for the amount of the trade discount which he would have received if the sale had been made through him.

Repair Parts Returned for Credit

When repair parts stocks are returned for credit by agents and retailers, it is not an uncommon thing for them to include in such returns good parts showing no sign of usage which may have been taken from some old discarded machine, for which the agent or dealer paid nothing but would gain substantially if credit were allowed for such parts, as in many cases the credit would amount to more than the price of the complete machine from which they were taken.

A comparison of the list of repair parts shipped to agents with the list of the repair parts returned will aid in determining whether credit should be allowed for all parts returned or not.

Defective Repair Parts

One of the things which requires careful attention on the part of the accountant and auditor is the allowance of claims for defective repair parts.

There is, seemingly, a tendency among users and agents to take advantage of the manufacturer in this respect. As free repair parts allowances run into a great deal of money each year, it is important that such claims undergo the closet scrutiny and all defective repair parts be returned for inspection.

Defective Machines

In the course of a year's business, more or less machinery is returned on account of defective materials, improper workmanship in designing and construction, or the machinery may be entirely unfitted for the purpose for which it is intended to be used in the territory in which it is found to be defective or inefficient.

Such machinery, when returned, is seldom in salable condition. Sales are reduced and expense increased by return freight and handling charges. Some returned machinery is nothing more than scrap, but in some cases there may be parts which are perfectly sound and can be used elsewhere, or they may be interchangeable with other machines. In other cases the machines returned may, by applying a coat of paint, be put in salable condition and used in some other territory.

All these conditions must be carefully considered by the auditor and accountant to the end that the inventory shall not be padded with worthless and unsalable machinery; that profits and losses may be allocated to the years in which they belong; and that, for statistical purpose, correct comparisons may be made of the progress of the business over a period of years.