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Cost manual for confectioners

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Cost....
Manual

...FOR...

Confectioners

National Confectioners'
Association
OF THE UNITED STATES

COST MANUAL

PREPARED FOR

National Confectioners' Association
OF THE UNITED STATES

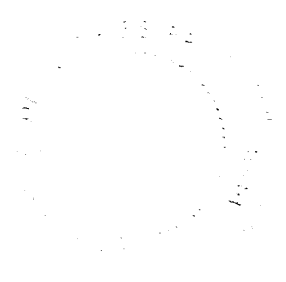
— BY —

GUERDON W. PRICE,

Colorado Springs, Colo.

UNDER SUPERVISION OF THE EXECUTIVE
COMMITTEE.

—
May, 1916



PREFACE.

This Cost Manual is intended to cover the following three features of Factory Cost Accounting:

Standards of Efficiency.

To establish standards of efficiency representing the best possible results obtainable in each individual factory.

To provide a system by which a comparison may be made between the best possible results obtainable in the individual factory and the results actually being obtained.

Cost of Production.

To maintain and secure records of cost of Raw Materials, Labor, Packages, Packing and Expenses and methods of cost figuring which will result in knowledge of a safe and accurate cost of producing, packing and handling each individual piece of goods.

Stimulating Profits.

To devise ways and means of stimulating the sale of profitable goods.

COST MANUAL.

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CHAPTER I.

GENERAL REQUIREMENTS.

In order that the objects of this manual may be accomplished it is necessary that the following things shall be done in the order named:

Cost Clerk.

To secure or select some person whose principal duty shall be to carry out and be responsible for the Cost System.

Pay Roll.

To arrange the keeping of Pay Roll in form required by the system.

Expense and Merchandise Accounts.

To charge expenditures to the proper accounts required by the system.

Salesman's Sales and Expenses.

To apply Sales, Selling Expenses, Freight Expenses and Bad Debts to the individual salesman, as required by the system.

Standard Labor.

To arrive at the lowest possible cost of labor per pound or per package of producing and packing each individual item made in the factory, and to provide records by which actual results may be checked against same.

Standard Weights.

To determine the least weight at which various Penny Goods, Five Cent Goods, etc., can be packed without affecting the marketable qualities of same, and to provide a record by which actual weights may be checked against said weights.

Standard Coatings.

To arrive at the proper amounts of coating to be put upon all coated goods, in order to manufacture them at the lowest

possible cost and maintain their marketable qualities and to provide records by which actual results may be compared with said amounts.

Colors and Flavors.

To establish a method by which waste in the use of Colors and Flavors may be avoided and by which the amount of Color and Flavor actually used may be determined.

Raw Materials and Packages.

To provide and keep a current and comparative record of the purchase cost of all raw materials, packages, and package findings, plus freight cost.

Labor Cost.

To determine the cost of labor at which various goods shall be figured so as to assure safety and accuracy in costs.

Expense Cost.

To provide an accurate and safe method for application of Expense costs to cost of individual goods.

Crystalizing Cost.

To determine cost of crystal.

Scrap Cost.

To determine cost of scrap.

Package Cost.

To determine cost of packages, findings and labor.

Also application of package costs to individual goods.

Working Formula.

To provide an accurate and safe method of determining and maintaining the proportions of different Raw Materials used in different goods.

This to include Chocolate Coatings and other coatings, sugar rolling, and crystal.

General Cost Finding.

To follow methods and examples of figuring total and final costs on all classes of goods.

Manufacturing and Cost Data.

To keep ready reference records of all data.

Some Things to Watch.

To look out for the danger points that eat into costs and are not covered in ordinary regular records.

Jobbers' Profits.

To properly figure profits on buying and selling.

Gross and Net Profits.

To have a uniform method of determining gross and net profits throughout the industry.

Volume.

To correct false ideas about volume efficiency.

Profit and Salesmen.

To get salesmen interested in selling profitable goods and in profit returns.

CHAPTER II.

PERSONAL SUPERVISION.

Under any factory accounting system capable personal supervision will always be necessary because there are many conditions surrounding the manufacture of candy which can only be watched and corrected through personal supervision.

But it has been proven that even in the smaller factories without some form of factory records many mistakes will occur which are not seen by the Superintendent or Foreman.

The sum total of these, if left alone to correction through personal supervision, will amount to a considerable sum in the course of a year.

The savings to come through adding to personal supervi-

sion practical factory records will not only cover fully the expense of keeping the records, but also will show a profit upon the expense.

There are so many leaks in the making of candy that cannot be seen by even the most painstaking personal supervision that to let a factory run on without a proper check system whereby mistakes, carelessness and varying conditions can be daily brought to light, is in these days of small profits and ever-increasing expenses suicidal.

It is not difficult without a cost system to approximate the cost of any article, but it is impossible without it to maintain a business-like standard of efficiency and to rely upon the accuracy, permanency and safety of the costs so secured.

The difference between what could be done under a genuine check system and what is done when we rely solely on personal supervision would make in itself a very handsome profit.

When one stops to think of all that could happen to increase the costs of goods beyond what they really would be under maintained efficiency, it shouldn't seem hard to make up one's mind that the installation of a method of accounting that will prevent these things is a good investment.

When your office, selling and other expenses increase you can definitely trace their source, cause and effect upon profits, because you have a system for taking account of them. But when the many serious things that can occur in the manufacture of your goods, do occur, without your knowledge, the loss occasioned by them simply comes out of the net results without ability to trace them or effort to correct them.

When a salesman's sales fall off, or his expenses run up, it is promptly known and the situation dealt with intelligently. But when blind leaks go on in the factory, and carelessness, break-downs and reduced outputs proceed with nothing done to stop or account for them, and when raw materials and labor costs increase without determining their effect upon profits, it is these things that tend to make results unsatisfactory.

When the year's results turn out bad there is generally a clamoring to cut down expenses, or increase sales by cutting prices, both of which are worthless undertakings and in no sense conducive to the continued welfare of the business. Sales-

men and other help are cut down to repair a flaw in the manufacturing mismanagement for which they are not responsible.

We cannot go on forever forcing sales up, without profit, nor continue making unwise and unjust economies in expenses to overcome manufacturing negligences.

CHAPTER III.

THE COST CLERK.

Before you begin the work of factory cost accounting you must have the proper kind of a man to carry on the details.

He should possess the following qualifications:

(1) He must be honest in his statements and free to admit ignorance when he doesn't know.

(2) He must not rely entirely upon other workmen's word, but must dig in and find out the facts for himself.

(3) He must be good at figures.

(4) He must like the work.

(5) He must be tactful.

Cost work entails a great deal of time and patience. Very often the person selected for the task is not given ample time with which to fulfill his duties. Many factories find it to their advantage to combine the cost work with some other form of clerical work. The only caution to make in so doing is to make sure the other work does not prevent the proper carrying out of the cost accounting. Rather than overburden one individual with two jobs, both of which will suffer, spread it out among the entire office force. Better still—give one man the factory clerical work, let him do that right, then give him the share of other work he has time to do.

There are many good working combinations in every factory, but each must be determined by **existing conditions**.

The Superintendent seldom, except in instances where the business is small, has time to give to cost details. Understand this does not mean that the Superintendent should not concern himself about costs, his connection with the work should be however, in the nature of a supervisor and not a keeper of records.

CHAPTER IV.

THE PAY ROLL.

The first thing to do is to keep your Pay Roll properly.

All wages paid out must be accurately distributed on the pay roll on the different departments in which they are spent.

Time Record.

The time card is used in connection with time clocks, each employee is given a time card bearing his name and number. Every day upon entering and leaving the factory he records his arrival and departure from the building in the time clocks.

The card will show at the end of the week the hours put in each day, and these extended by the hourly or daily rate of wages will show the wages due for the week.

The method of recording time by the time clock system is fully explained by the various concerns furnishing time recording instruments and from this same source the printed cards may be had.

The keeping of each employee's time is a matter of course, and one which all manufacturers are familiar with. It does not matter much whether the clock system is used or the old-time checking method in time books. The principal thing is to get each person's time accurately.

Wage Distribution.

The wages of all employees must be distributed, according to departments, on the Pay Roll, as shown in the following design and explanation of use of Form No. 1.

PAY ROLL.

Form No. 1.

Object of Form.

To show the actual wages paid to every employee of the factory during the week and to distribute these wages according to the departments in which they worked so that the total or weekly wages for each department can be had.

Use of Form.

(Week Ending) Insert the date the pay roll week ends.

(No) The individual employee's number, if given a number.

(Name) Employee's name.

(Time) The total time to be credited to the employee for the week.

(Rate) The rate of wages to be paid each employee. In the case of a pieceworker the rate is omitted and the letters "P. W." inserted instead. (See Piecework, Chapter XIII.)

(Amount) In this column is entered each employee's total weekly wages.

(Cream, M. M., Etc.) These are the distribution columns to which the total wages of each employee are to be charged. Each column represents a department of the factory or a division of account to which wages must be distributed.

On completion of the pay roll all columns are footed, the total of each representing the total actual labor of each department and the wages to be charged to expense accounts.

Columns should be arranged for the following departments, if they exist, for the distribution of Labor.

It is also advisable to leave a few blank columns for newly created departments and infrequent disbursements.

Cream	Lozenge	General Packing
Marshmallow	Caramel	Chocolate Coating
Gum Work	Fudge	Pan Work
Hard Boiled Goods	Chocolate	

When manufacturing departments are combined in a factory, for example, when Gum Work and Cream Work are made

in the same department, then the Pay Roll columns can be headed "CREAM & GUM DEPT.," etc.

And columns should also be allowed for the following for the distribution of expenses:

Factory Wages Store Wages Office Wages

(Factory Wages) In this column are to be distributed all wages paid to non-productive labor in the factory generally. These include helpers whose wages are not figured in determining the labor cost of making a piece of goods.

Also superintendent, factory porters, stock men, factory clerks, and, in fact, all wages paid to factory employees whose wages are not figured in determining the cost of labor in making or packing goods. (See Labor, Chapter V.)

(Store Wages) The wages of all employees employed in shipping, receiving, casing and generally caring for stock in the shipping and receiving department.

(Office Wages) All wages of office employees.

(Piece Work) Wages paid for piece work should be entered on the Pay Roll the same as other wages, the entry to be made from Piece Work Report. (See Piece Work, Chapter XIII.)

(Labor) In this column is to be entered the total wages chargeable to Labor account.

This amount will be shown only in the total footing. It will include the total of all columns except columns containing Factory Wages, Store Wages, and Office Wages.

This should be the last column on the sheet.

Transfer Time Sheets.

When employees work part of the time in one department and part of the time in another department it is necessary to keep some record of the time put in in the different departments, in order to have an accurate record of the actual labor cost in each department each week.

This is provided for by the Transfer Time Sheet, which is to be used in the following manner:

Each department is to be furnished weekly with a Transfer Time Sheet (Form No. 2). See next page.

The wages of each employee must be charged regularly on the Pay Roll to his or her regular department, that is, the department in which the employee works the greater part of the time.

When an employee leaves his or her regular department to work in another department the foreman of the department in which the employee goes to work, must keep a record on Transfer Time Sheet of the time put in by said employee in his department.

The method of keeping this record is as follows:

TIME TRANSFER SHEET

Form No. 2

Form No. 2.

Department _____ Week Ending _____

No.	Name of Employee	Dept. Transferred From	Time	Rate	Total Wages

Cross Lines all the way down.

Print One Side.

Blocked Sheets, size 6"x9".

TIME TRANSFER SHEET.

Form No. 2.

Use of Form.

(Department) The name of department to which employees of other departments have been sent to work temporarily.

(Week Ending) Date of week at which the regular Pay Roll ends.

(No) Number of employee, when employees are given numbers to designate them.

(Name of Employee) Name of employee sent to work in the department.

(Department Transferred From) Name of the department from which the employee was sent.

(Time) Number of hours which the employee worked in the department to which he or she was transferred.

(Rate) Rate of hourly, daily or weekly wages.

This is to be filled in by the person keeping the Pay Roll.

(Total Wages) The amount of wages derived by multiplying the time put in by the rate of wage. This to be done by the person keeping the Pay Roll.

At the end of the Pay Roll week the Time Transfer Sheets must be collected from each department and delivered to the person keeping the Pay Roll.

In collecting same be sure to see that they have been fully filled out by the department foreman.

Also deliver to each department fresh sheets for the next week's use.

After the time Transfer Sheets have been delivered to the person in charge of the Pay Roll, the rate of wages should be filled in by him and extensions made in the "Total Wages" column on each department Time Transfer Sheet.

After extension of all "Time Transfer Sheets" have been completed, the amounts of total wages for time put in by each employee as shown on the "Time Transfer Sheets" should be recapitulated as follows:

Time Transfer Charges.

(a) Wages chargeable to each department to which employees were transferred.

This amount is secured by recapitulating the total of the "Total Wages" column on the Time Transfer Sheets separately for each department.

Time Transfer Credits.

(b) Wages to be credited to each department from which employees were transferred to other departments.

These amounts to be secured by picking out and recapitulating, according to departments the amount in "Total Wages" on Time Transfer Sheets, stated after the names of each employee.

Posting on Pay Roll.

The next step is to post these amounts for the week on the "Pay Roll" Sheets. (Form No. 1.)

This is to be done at the bottom of the Pay Roll Sheets opposite the items "Transfer Time Charges" and "Transfer Time Credits."

The amounts are to be posted on the "Pay Roll" Sheets under the proper column headings for the different departments.

Time Transfer Charges.

The amounts entered as "Transfer Time Charges" are the amounts set for in (a) above, and same are to be added to the total wages for each department on the Pay Roll, according to the department to which they belong.

Time Transfer Credits.

The amounts entered as "Transfer Time Credits," as set forth in (b) above, are to be deducted from the total wages for each department, according to the department to which they belong.

The results thus obtained will show at the footing of the columns of the Pay Roll the actual wages chargeable to each department for the week.

The total of weeks give the total for the month.

Making Up Pay Roll.

The Pay Roll is best made up beginning on Friday morning, so that the cashier will have time to compile it and pay off his help on Saturday through Thursday night. The pay roll week beginning Friday morning and ending Thursday night.

CHAPTER V.

EXPENSE ACCOUNTS.

The following subdivision of expense accounts should be kept on the books:

- Manufacturing Expense.
- General Expense.
- Labor.
- Selling Expense.
- Freight Expense.
- Bad Debts.

These may be resubdivided as below indicated as the individual case may warrant, but the above general subdivision is necessary in order to properly apply expense against cost of goods and keep proper records of expense applicable to sales.

Manufacturing Expense.

Is the expense related solely to the production of goods and consists of the following:

FACTORY WAGES. (See Pay Roll, Chapter IV.) The wages of the Superintendent, the mechanical force, repairmen, elevator men, engineers, firemen, porters, roustabouts, etc., in fact, all factory wages not directly applicable to the production of goods, as is the case with wages termed "Labor," referred to later on in this Chapter.

FUEL. Coal, coke, gas, wood, etc., namely, all fuel used to develop power and heat with which to cook and produce.

INSURANCE. The proportion of insurance expense applying to the factory only, i. e., insurance on merchandise of all

kinds, raw materials, manufactured merchandise and machinery and fixtures. Also employers and public liability insurance.

FACTORY SUNDRIES. All Sundry purchases for the factory, such as brooms, mops, soaps, cleaning powders, engine supplies, and small tools.

ROYALTY. Royalty paid on all machines and leased appliances.

TAXES. All taxes on personal property and real estate.

STORAGE. Storage charges on all raw materials, packages, finished or unfinished merchandise and machinery.

DRAYAGE. Drayage expenses of every kind except that proportion chargeable to deliveries to the City or Suburban trade for retail salesmen. Also do not include the maintenance of salesmen's horses, wagons, or automobiles, under this division. This is a selling expense and will be covered under heading "Selling Expense."

DEPRECIATION. The annual amount charged off to cover depreciation on machinery and fixtures, which should average ten (10) per cent of book value.

REPAIRS AND REPLACEMENTS. Representing repairs and replacements on factory machinery and fixtures. These should never be charged to machinery and fixtures.

LIGHT. This includes the cost and maintenance of all lighting equipment, except that charged to the Machinery and Fixture Account; also includes light purchased from an outside source.

RENT. Rent on everything except that proportion applying to the office and shipping room. (See General Expenses following.)

POWER. Power if purchased from an outside source.

WATER. All water.

The office books or records should be kept so as to charge the expenditures enumerated above under the general heading, "Manufacturing Expense," or separate accounts for each subdivision, as above indicated, may be kept and recapitulated monthly to get the total manufacturing expense for the month.

GENERAL EXPENSE.

General expenses should include the following:

OFFICE SUNDRIES. Stationery, pencils, ink, books of account and all office sundries.

SAMPLE. Sample cases and boxes, postage and express on samples. Labor in putting up samples. Candy used for samples. Allowances made for samples.

STORE SUNDRIES: All store, i. e., shipping and receiving department supplies.

STORE WAGES. (See Pay Roll, Chapter II.) All wages paid to employees in the store, i. e., shipping and receiving clerk, stock men, store helpers, etc.

ADVERTISING. All expenditures for advertising and advertising matter.

GENERAL SUNDRIES. Sundry items other than those enumerated herein, i. e., express, telegrams, etc.

RETURNED GOODS FREIGHT. Freight on goods returned.

RETURNED GOODS LOSSES. Losses on returned goods. This to be computed upon the difference between allowance made to customers and the value of the goods for re-sale or re-use in manufacturing.

OFFICE WAGES. (See Pay Roll, Chapter IV.) Wages paid to office employees.

SALARIES. Salaries of Managers, Officers or Executives.

EXCHANGE. Bank exchange on deposits.

DISCOUNTS. Cash discounts allowed and deducted. The cash discount allowed customers in discounting their bills are to be debited and the cash discount deducted by you from your purchasers are to be credited to this account.

DONATIONS. All donations for charitable purposes. Gifts of candy to trade, friends, etc.

The office books or records should be kept so as to charge the expenditures enumerated above under the general heading, "GENERAL EXPENSES," or separate accounts for each subdivision, as above indicated, may be kept and recapitulated monthly to get the total general expense for the month.

Application in Figuring Costs.

The application of MANUFACTURING AND GENERAL EXPENSES in figuring costs is covered in Chapter XIX, "GENERAL COST FINDING."

LABOR.

Consisting of all wages paid to employees engaged in the actual making or packing of goods made, packed or repacked in your factory.

The amount of this expense is secured from the Pay Roll and should be charged on your books to "LABOR" Account.

It will not include the total Pay Roll if Pay Roll is kept as set forth in Chapter IV, because the Pay Roll also includes Factory, Office and Store Wages, Factory Wages being chargeable to Manufacturing Expense and Office and Store Wages to General Expense.

SELLING EXPENSE.

This expense is not included in Cost of Goods, but should be recorded as an expense and subdivided in a separate record, according to Salesmen. (Chapter VII.)

All expenditures of the following nature should be charged on your books to account entitled "SELLING EXPENSE":

Salesman's Salaries.

Salesmen's Commissions and Bonuses.

Salesmen's Expenses.

Brokerage.

FREIGHT EXPENSE.

This expense should be included in Cost of Goods wherever it can be done accurately and applied to the cost of an individual piece of goods or assortment.

The freight cost can be applied on a basis of freight averages per pound, if accurate freight is not determinable.

When freight is charged into the cost of goods, or such amount as is so charged, should be charged to **Merchandise Purchases** (Chapter VI) and not to **Freight Expense Account**.

All other freight allowances, deductions, equalizations, namely, all other items of expense in the nature of freight and express applying to sales, should be charged to "FREIGHT EXPENSE" account on the books and separately subdivided according to Salesmen (Chapter VII).

BAD DEBTS.

All losses on bad accounts should be charged on the books to account entitled "BAD DEBTS" and should be separately subdivided according to Salesmen. (Chapter VII.)

SALESMEN'S EXPENSES.

The expenses properly applicable to Salesmen's Expenses are the following:

Selling Expenses.

Freight Expense.

Bad Debts.

See explanation of said accounts above.

Each of these expenses should be subdivided according to each salesman, so that at the end of each month and period it will be known what each salesman's selling expenses were, what freight expenses were incurred on his sales, also what losses through bad accounts were incurred on his sales.

Each one of these should also be figured as a percentage of the salesman's sales.

The total percentage of all should also be shown as a per cent of his sales.

Likewise, subdivisions should be made showing said totals and percentages separately for City Wholesale Sales, City Retail Sales, Country Wholesale Sales and Country Retail Sales.

The proper percentage for selling each class of trade should be standardized, for example:

City Wholesale	2½%
City Retail	10 %
Country Wholesale	5 %
Country Retail	12½%

Every salesman should be checked against this standard in respect to his selling expenses. These not including Freight Expenses and Bad Debts, but only Selling Expenses which as above indicated includes Salesmen's Salaries, Expenses, Bonuses, Commissions and Brokerage.

It will be found that having this standard will provide a goal to work to and, having a distinct purpose in view, the salesman will work more intelligently and with better possibilities of reaching the standard.

The Freight Allowance and Bad Debts are as a rule not traceable directly to causes over which the salesman has control; therefore, they should not directly enter into the salesman's results, except that they represent an added expense, which should be traced to each salesman and reckoned with in judging the net profit value of trade in his territory.

It should be known what percentage of each salesman's sales and the total sales are represented by his Selling Expenses, Freight Expenses and Bad Debts.

CHAPTER VI.

MERCHANDISE ACCOUNTS.

Merchandise Sales.

This account should consist of the following:

MERCHANDISE SALES: Sales of Merchandise.

SALES ALLOWANCES: Overcharges and shortages.

TRADE DISCOUNT: In cases where goods are billed to jobber at retail price, less discount. (Not cash discount.) Also quantity discounts.

RETURNED GOODS: Merchandise Returned.

Merchandise Sales to be credited to Merchandise Sales account and the other items debited to Merchandise Sales account, the difference representing the net sales.

Salesmen should be credited with "Net Sales" only.

Merchandise Purchases.

The purchase accounts are made up of the following.

Raw Materials.

Packages.

Colors.

Flavors.

Manufactured Merchandise.

In-coming Freight.

Freight figured in the cost of goods (Chapter V).

Separate accounts, if desired, can be kept for each subdivision, but generally speaking, they may all be charged to the general account called "MERCHANDISE PURCHASES."

CHAPTER VII.

SALESMAN'S SALES AND EXPENSES.

Sales.

Merchandise Sales should be subdivided according to individual salesmen in a separate record.

All debits to Merchandise Sales (Chapter VI) should be taken into account in this subdivision.

Profitable Sales.

(See Chapter XXV, Profit and Salesman.)

Expenses.

This is covered in Chapter V under heading, **SALESMAN'S EXPENSES.**

Salesmen's Records.

The Records, therefore, to be kept for each salesman should be as follows:

(1) Gross Sales. Less debits for Sales Allowances, Trade Discounts and Returned Goods.

(2) Profitable Sales.

(3) Per Cent Profitable Sales of Gross Sales.

(4) Selling Expenses.

(5) Per Cent Selling Expenses of Gross Sales.

(6) Standard Selling Expense Percentage.

(7) Freight Expenses.

(8) Per Cent Freight Expenses of Gross Sales.

(9) Bad Debts.

(10) Per Cent Bad Debts of Gross Sales.

(11) Total expenses consisting of the total of Selling Expenses, Freight Expenses and Bad Debts.

(12) Total Expense Percentage being the sum total of the Selling Expense, Freight Expense and Bad Debt Percentage of Gross Sales.

This total percentage will represent the expense that has to be overcome before a net profit can be secured.

The total sales, selling expenses, freight expenses and bad debts of all salesmen will represent the total for all business.

The same thing applies to percentages.

Sales as well as expenses should be subdivided according to

City Wholesale.

Country Wholesale.

Total Wholesale.

City Retail.

Country Retail.

Total Retail.

Sum Total All Sales.

CHAPTER VIII.

STANDARD LABOR.

Standard Labor is the cost of making or packing a piece of goods under the most favorable conditions existing in your factory.

This is called Standard Labor because it is the standard you should work towards and seek to maintain in order to keep your factory and its several departments operating at its maximum efficiency, from a labor cost point of view.

The way to arrive at the Standard Labor cost per hundred pounds or per hundred packages in making any piece of goods is to figure the total wages paid out to those actually producing a run of goods under favorable conditions and then dividing that total by the pounds or packages produced. The wages of the foreman or forewoman, who, while they do not actually aid in the production, are a part of the labor expense of the department in which the goods are produced and should therefore be averaged and applied proportionately to all output coming under their supervision.

When a standard labor cost is being determined the cost clerk should be on hand to watch the making from start to finish so that no errors will occur, viz., he must know that the total time applied in the making is properly recorded that the wages are properly computed and that the work is done without avoidable delays or mishaps; likewise, that the total number of pounds or packages, less unavoidable scrap, is rightly figured.

In recording the total time applied make sure everything is included, i. e., time applied in adjusting machines, in getting equipment ready, cooking the batch, and time in which the help is unavoidably idle and during which time they receive pay.

The following Form No. 3 should be used in arriving at the Standard Labor Cost.

Form No. 3.

STANDARD LABOR COST

Form No. 3.

Date _____

Goods _____ Dept. _____

Total Labor \$ _____

Output _____

Approved:

Standard Labor _____

**Loose Leaf Form, size 6"x9".
Print One Side.
Allow one (1) inch for binding space.
No Cross Lines.**

Form No. 3.

STANDARD LABOR COST.

Object of Form.

The object of this form is to show a record of the data from which Standard Labor Costs on different goods have been derived. These figures should be kept on file, so that they can be referred to in verifying and refiguring the standard labor costs at future times. Arrange alphabetically according to names of goods and classify according to departments.

Use of Form.

(Dept.) Name of department in which goods are made.

(Goods) The name of the piece of goods covered by the estimate.

(Date) The date figures were compiled.

(Total Labor) Total labor paid out in making goods.

(Output) Total number of pounds or packages produced.

(Standard Labor) The standard labor cost per 100 pounds or 100 packages.

(Approved) For signature or O. K. of Superintendent or Foreman.

The following figures, as an example, would be inserted in the blank space of the sheet, and show how a standard labor cost is arrived at:

One Foreman	\$ 3.00 per day
One Cook	2.50 per day
One Beater Man	2.00 per day
One Depositor Feeder	2.50 per day
One Depositor Take-Away	1.50 per day
One Starch Buck Feeder.....	1.50 per day
One Starch Buck Take-Away.....	1.50 per day
One Printer	1.50 per day
One Roustabout	1.50 per day

TOTAL LABOR.....\$17.50

OUTPUT

1,800 lbs.

STANDARD LABOR..... .97 per cwt.

The above is not to be figured in determining the cost of goods. Labor Cost. (See Chapter XIII.)

DAILY OUTPUT & LABOR REPORT

Form No. 4.

Department _____		Date _____							Total Standard Labor
Name of Goods	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Total Output	Standard Labor Cost	
TOTAL PER WEEK									

Loose Leaf Form, size 8½" x 11".
Print One Side.

Allow one (1) inch for binding space.
Cross Lines all the way down.

DAILY OUTPUT AND LABOR REPORT.

Form No. 4.

Object of Form.

The object of this form is to keep a record which will show at the end of the week the total output of each department and the total cost of labor in producing that output under the most favorable conditions possible in your factory, which is the Standard Labor basis.

Use of Form.

(Department) Name of Department where goods are made.

(Date) The date upon which the week covered by the report ends. This date should correspond with and be based upon the date ending your payroll week. (See Pay Roll, Chapter II.)

(Name of Goods) The name of each different piece of goods.

(Monday, Tuesday, etc.) In the columns headed with the names of the days of the week, enter the total output of each piece of goods for that day. State these outputs in pounds or packages, according to the basis upon which you arrived at your standard labor costs.

(Total Output) At the end of the week total the amounts stated in each column, showing the total weekly output of each piece of goods for that week. These should, of course, be added from left to right.

(Standard Labor Cost) In this column insert opposite the output of each piece of goods the standard labor per 100 lbs. or per 100 packages for making said goods.

(Total Standard Labor) In this column the figures to be inserted are arrived at by multiplying the amounts in the "Total Output" column by the figures in the "Standard Labor Cost" column. This result is the total standard labor cost of producing the week's output of each piece of goods made during the week.

(Total for Week) The addition of the "Total Output" column inserted here shows the total output in pounds and pack-

ages of all goods made in the department during the week. The addition of the "Total Standard Labor" column shows the total cost of standard labor for the week for the department.

To arrive at the total number of pounds produced in each department each week, where the total output is shown in packages, the output in packages should be reduced to pounds by multiplying the number of packages by the net weight of each package. This can be averaged where net weights per package are not uniform.

Form No. 5.

Form No. 5

WEEKLY OUTPUT & LABOR REPORT

Week Ending _____

Departments	Output	Standard Labor		Actual Labor		Loss or Gain	

Loose Leaf Form, size 6"x9".
Print One Side.
Allow one (1) inch for binding space.
Cross Lines all the way down.

WEEKLY OUTPUT AND LABOR REPORT.

Form No. 5.

Object of Report.

The object of this report is to arrive at Weekly information showing how far you are coming from actually producing your goods, so far as labor is concerned, at costs of labor you have estimated you could produce them for under good normal conditions.

Use of Report.

(Date) To be dated with the date corresponding to the ending of week covered by the report which shall be the ending of your pay roll week. (See Pay Roll, Chapter IV.)

(Department) Here insert the names of all departments of the factory.

(Output) Insert here the total weekly outputs of the respective departments as taken from the "Total Output" column footing of each Daily Output and Labor Report. (Form No. 4.)

(Standard Labor) Insert here the total of standard labor of the respective departments as taken from the footing of the "Standard Labor" column of each Daily Output and Labor Report. (Form No. 4.)

(Actual Labor) The weekly totals of labor for each department, as taken from the weekly pay roll. (See Chapter II, Pay Roll.)

(Loss or Gain) The difference between "Standard Labor" and "Actual Labor."

Also foot the two columns, "Standard Labor" and "Actual Labor," and from the totals of each ascertain a net loss or gain for the entire factory for the week.

The Weekly Output and Labor Reports can be recapitulated to cover monthly, Quarterly, Semi-Annual and Annual Reports.

These records of Loss and Gains for each department will show how near you are coming to producing your goods under the most favorable conditions in your factory so far as labor cost is concerned.

Losses will usually be found to occur, except when departments are running full force under unusually favorable conditions.

Frequently, owing to shutdowns, the breaking in of new help, weather conditions, slack business, and other causes of reduced output, the actual labor will be found to be in excess of the standard labor. These excesses will vary in different departments; therefore, a separate record of each department is kept, so that you can definitely trace the cause of the losses to the individual department. If an attempt was made to bunch the output of the entire factory, it would be very difficult to locate the source of the causes for labor inefficiency.

In judging differences one must investigate the causes. Occasionally it will be found that things have occurred which could not have been remedied because of their extraordinary nature; on the contrary, it more often happens that the causes are of such a nature that they can, if known, be overcome.

It will sometimes be the case that the estimates of standard labor on individual pieces will not have been properly taken. These, by all means, must be carefully gone over to find out whether or not they have caused the discrepancies, but don't allow bad conditions to be covered up by advancing Standard Labor Costs, unless it is found that they were incorrectly taken.

The importance and use of these weekly comparative reports of Output and Labor, is to provide a record which will show, at the end of each week by the comparisons of Standard Labor and Actual Labor, the difference between the best possible labor conditions and the actual labor conditions in each department.

Of course, it is appreciated that each department cannot be expected to run day in and day out up to its maximum efficiency, but with knowledge to the losses occasioned by the various causes of reduced output and wage increases, attention is called to the discrepancies, and when investigation of the causes follow, many correctible causes are located, and as a result a much higher efficiency is attained than if the records were not kept and the question was left to correction through personal supervision or by other means.

CHAPTER IX.

STANDARD WEIGHTS.

When goods are packed by the pound, and the package is weighed on accurate scales, overweights are due entirely to personal carelessness, but when goods are packed by count, containing a specified number of pieces, irrespective of weight, overweights may occur frequently, and as the result of many causes.

This is one of the great dangers and uncertainties of count goods.

Candy-makers, in making count goods, are often careless and as a result make the boxes run too heavy and unnecessarily increase the cost.

The way to prevent this is to establish a standard weight per package for each kind of count goods. This is done by experiment based upon having the least number of pounds per box and having a saleable piece of goods at the count desired.

After this standard has been established, a record should be kept of the weight of ten boxes from each batch or lot of the goods produced, making proper allowances for tare. Comparing these weights with the standard weights will immediately show you whether or not the weight of goods is running as it should.

Another method that can be used is to figure as a standard on the basis of experiment, the number of boxes a certain sized batch should yield. When batches are thereafter made and packed complete, the actual number of boxes obtained from each batch or group of batches should be counted and compared with the standard number of boxes the batch or batches should have yielded.

The form used in checking actual weights against standard weights is as follows:

Form No. 6.

Form No. 6

STANDARD WEIGHT REPORT

Dept. _____ Date _____

Batch Quantity	Name & Count	Gross	Tare	Actual	Standard

Loose Leaf Form, size 6" x 9".
Print One Side.
Allow one (1) inch for binding space.
Cross Lines all the way down.

STANDARD WEIGHT REPORT.

Form No. 6.

Object of Form.

To check the weights of penny and other count goods as they actually are turned out against the standard weight established for said goods.

Use of Form.

(Department) Name of department in which the goods were made.

(Date) Date made.

(Quantity) The total number of boxes produced.

(Name and Count) The name and count of each piece of goods.

(Gross) The gross weight of ten boxes selected at random from the lot.

(Tare) The tare weight of said boxes. This to be safely estimated for different goods.

(Actual) Net weight of candy in the ten boxes.

(Standard) The standard weight of the ten boxes.

By observing these comparisons daily, attention will be called to Penny Goods, Five-Cent Goods and other goods which are running overweight, and steps can be promptly taken to correct the causes of same.

It is most essential that these reports should be watched carefully each day, as negligence is bound to lead to overweights, and as the goods are sold by the box, and not by the pound, when the goods run overweight it means just that much of a loss per box.

CHAPTER X.

STANDARD COATINGS.

General.

It must be kept constantly in mind in dealing with "Standard Coatings" that a "Standard Coating" represents in all cases the most economical amount of coating that can be put

upon the various coated dipped goods and have them of a satisfactory marketable quality.

In many cases less coating could actually be put upon certain goods, but if it were done the quality would not be satisfactory.

But if 20 pounds of coating to 100 pounds of centers will make the goods satisfactory as to quality, there is no need of putting on 30 pounds of coating, when the centers, as is most always the case, cost much less than the coating put upon them.

In cases where the centers cost more than the coating, then, of course, the situation is reversed, and the object should be to put on as much coating as possible and have the goods of satisfactory marketable quality.

To manufacture upon an efficient and economical basis, it is necessary to have efficient and economical standards to work to and compare actual results with.

Often the difference between a poor profit result and a good one lies in manufacturing carelessness.

Standard Chocolate Coating.

The high cost of chocolate coatings and the vast difference which so frequently exists between the cost of chocolate and the centers coated with same necessitate unusual care in watching the amount of chocolate coating used so that no more is put on than should be put on to make the goods satisfactory in quality.

An excess of two pounds of chocolate coating to each one hundred pounds of goods turned out will in the course of a week amount to a considerable sum and is well worth taking pains to save.

In order to determine what amount of chocolate coating shall be placed upon any piece of goods, take one hundred pounds of centers, or a smaller amount if necessary, and have them dipped in the right kind of chocolate at correct temperatures. After they have cooled weigh them. Subtract the weight of the centers from the total weight of the finished goods and the result will give you the amount of coating on that amount of centers. From these figures ascertain how many pounds, at

the same rate, one hundred pounds of centers would have taken (if one hundred pounds was not used for the test), and call this the Standard Chocolate Coating.

Repeat this experiment at least three times, then compare the results of the test, and if they all show about the same average they can be considered accurate.

If there is a wide variance in the tests made at different times, the experiment should be continued until a fairly similar average is reached.

The next thing is to determine whether the goods made according to the tests are correct in quality, whether they will require more coating or can be made with less and still be satisfactory as to quality. Cut a piece open and see if the amount of coating appears excessive or too thin. If excessive reduce the amount, and if too thin, add enough to make goods marketable.

Of course, all goods, to be rightly made, must be saleable, but it will frequently be found that one manufacturer's product will be just as saleable as another's and contain considerably less coating, as much less as five pounds to the hundred pounds of centers, and this condition accounts for one wondering how the other can sell his goods profitably at the prices he is offering them, or for the reason why one can figure a profit and another can't.

It is vitally necessary, having established the standard coating, to see that it is maintained. If less coating is put on than should be, it will readily affect the necessary quality and sale. If too much is put on, it will destroy much of the profit in selling them.

The next step, therefore, is the keeping of records that will produce a prompt and reliable check upon the quantities of coating put on all different goods dipped.

This can only be done by keeping accurate account of every pound of centers of every kind of goods going into the machines or to the hand dippers each day, deducting scrap which cannot be dipped, keeping the weight of every pound of centers after they are dipped, and including separately such dipped goods as go to scrap. In fact, if we know the weight of all centers be-

fore and after dipping the actual coating to 100 pounds of centers is very easily ascertained.

Small tests—that is, a pound of centers specially dipped and thereafter weighed—are not safe records to go by, because the very next lot of goods dipped may show entirely different results. They are sometimes beneficial in machine work, if they are made often enough, in that they prevent continued excessive dipping. In hand work the tendency of the dipper is to meet the ideal when under observation, and the individual tests are, therefore, not a fair test for a general average.

The only safe method is to keep a complete record of everything actually produced during each day by weighing the centers before and after dipping for each day's output of each different kind of goods.

“Machine Dipped Goods.”

For the purpose of keeping record of machine and enrober dipped goods, use the following Form No. 7, “MACHINE COATING REPORT.”

Always take account of the scrap in arriving at the weight of centers by deducting the accumulation of centers undipped before entering weight of centers on the report. Such dipped pieces as go to scrap, should be added to the weight of the finished lot.

The weight of centers can always be obtained by weighing the goods before dipping.

The weight of the coated centers can be had by weighing or by getting the net weight of the goods after being packed in the various packages.

When weights are secured from packages, care must be taken to see that each lot or day's run of each kind of goods is kept separate, otherwise the figures will become so confused an accurate record will not be had.

MACHINE COATING REPORT

Form No. 7.

Dept. _____ Date _____

Name of Goods	Weight Centers	Weight Coated	Weight Coating	Actual Coating	Standard Coating

Blocked Sheets, size 6"x9".

Print One Side.

Cross Lines all the way down.

MACHINE COATING REPORT.

Form No. 7.

Object of Form.

The object of the form is to determine the chocolate coating put on all machine and enrober dipped goods, and to compare the actual coating with standard coating.

Use of Form.

(Department) Name of department

(Date) Date covered by report—that is, day upon which work was done.

(Name of Goods) The name and style or count of goods.

(Weight Centers) The weight of each lot of centers run, the scrap not run, deducted.

(Weight Coated) The weights of the individual lots of centers run, dipped scrap included.

(Weight Coating) This is arrived at by deducting the weight of centers from weight of coated centers.

(Actual Coating) Arrived at by dividing the "Weight Coating" by the "Weight Centers." Reduce this to basis of 100 pounds centers for convenience of comparison.

(Standard Coating) This is the coating to 100 pounds of centers arrived at as the proper amount to be used to make the goods correctly, both from a basis of cost and quality.

Remarks.

A comparison between the actual coating and the Standard Coating will show whether the goods are economically made. Every effort should be used to see that the goods are made to run as near to standard coating as possible. As the standard coating represents the lowest cost at which satisfactory quality can be produced.

Hand Dipped Goods.

For keeping record of hand dipped goods, a separate form should be used for each dipper, irrespective of the fact that they are dipping the same kind of goods. The reason for this is that some dippers will dip heavier and cause more excessive coating averages than others. Separate records will enable you to find out who the heavy dippers are, so you can correct their practice.

The following, Form No. 8, "Hand Coating Report," should be used for this purpose.

Its use and method of application follow closely the form used in machine-dipped reporting.

HAND COATING REPORT

Date _____

Name of Dipper _____ No. _____

Name of Goods	Weight Centers	Weight Coated	Weight Coating	Actual Coating	Standard Coating

Form No. 8.

Blocked Sheets, size 6"x9".

Print One Side.

Cross Lines all the way down.

HAND COATING REPORT.

Form No. 8.

Object of Form.

The object of this form is to determine the actual coating put on all hand-dipped chocolate goods by each individual dipper, and to compare same with standard coating.

Use of Form.

(Date) To be dated with the day upon which work was done.

(Name of Dipper) Individual dipper's name.

(No) The dipper's clock or payroll number, if given one.

(Name of Goods) The name of goods, together with style or count.

(Weight Centers) The weight of each individual lot of centers dipped. These will be the allotments or customary amounts given each time.

(Weight Coated) The weight of the individual lot after dipped. Be sure to include the slight accumulation of dipped pieces going to scrap.

(Weight Coating) The difference between the weight of centers before dipping and after dipping. Enter in each individual case.

(Actual Coating) Arrived at by dividing "Weight Coating" by "Weight Centers." Reduce to basis of 100 pounds of centers for convenience of comparison.

(Standard Coating) This is the amount of coating to 100 pounds of centers arrived at by previous experiment and is the amount which should properly be put on 100 pounds centers to make the goods correctly, both as to cost and quality.

Remarks.

In weighing out centers for this class of work, it will be found advantageous to give each dipper a specified number of pounds each time, viz., give each girl five pounds of centers and

allow her to dip them all before recording the weight coated. If she has a few scrap pieces of centers which cannot be dipped, and which are a part of her five-pound allotment, replace their equivalent with good ones, so that her original weight will be complete.

With nut centers, five pounds may be too much. In such a case, give one pound, or two pounds, but always make it a rule to give the same and a definite number of pounds each time for each kind of goods.

As soon as a dipper has completed her allotment, they should be weighed, with the plaques and trays on which they have been placed, allowing tare for the plaques and trays, and deducting it accordingly to get the net weight of dipped goods.

All weighing and recording of weights of centers and coated goods for the making up of reports should be in the hands of one person specially delegated to the task. This will not only assure you of honest and accurate work, but will save time and trouble otherwise.

Weekly and Monthly Reports.

To arrive at weekly reports of either hand or machine dipped work, the daily reports can be recapitulated and a general average on each individual piece found. In doing this, make but one entry on the report for each kind of goods, no matter how many times it has been dipped, nor by what number of persons.

Monthly reports may be had by recapitulating the weekly reports.

The Monthly Reports should be preserved as a permanent record. The Daily and Weekly Reports can then be destroyed as soon as they have served their purposes.

Topped Goods.

Following the importance of knowing the quantity of coating put on chocolate goods comes the quantity of nuts, fruits, etc., used as toppings—especially the nuts.

Frequently this is responsible for considerable loss, chiefly because of failure, as in the case of chocolate coatings, to regulate the quantities used.

Every possible effort should be made to know before using nuts whether they can afford to be used.

Following are two tables gotten up to show the best means of checking the weights.

The first table is for walnut toppings (Walnut Half), the size of the nuts varying from 350 to 400 pieces per pound. The centers on which they will be used varying from 30 to 90 pieces per pound.

From these figures it can be determined at a glance how many pounds of nuts will be used on one hundred pounds of dipped centers by merely knowing the count of centers per pound and the count of the new nuts per pound.

Say, for example, the nuts count out 370 pieces to one pound, the centers 70 pieces; then, by referring to the figure opposite the number 70, in the first column, and in the column headed 370, is found the figure 18.9, meaning 18.9 pounds of nut halves per cwt. centers. Refer to the cost sheet and learn whether the goods can be made profitably at such quantities. Of course, the size of the nuts cannot be changed after they have been purchased, but it will be found out whether they are too large to be used on goods of small profit margins, and the next time smaller pieces can be purchased. In other words, it provides a standard of purchase.

Always compute weights of toppings on the basis of one hundred pounds of centers for cost figuring, as it will make tables of this kind more helpful. If the weights are based on one hundred pounds of centers and coating, the tables will be useless, since it is not convenient to find the number of pieces of coated centers in one pound without tops.

In averaging the number of pieces per pound of both toppings and centers, be sure to pick out average pieces. Get as near to the actual condition existing as possible.

If the variance in pieces per pound is greater than is shown on the tables submitted, extend the figures accordingly.

Table No. 1.

How to determine the number of pounds of walnut halves used in topping chocolates:

Number Centers per lb.	Nuts, 350 per lb.	Nuts, 360 per lb.	Nuts, 370 per lb.	Nuts, 380 per lb.	Nuts, 390 per lb.	Nuts, 400 per lb.
90	25.7	25.0	24.3	23.7	23.1	22.5
85	24.3	23.6	23.0	22.4	21.8	21.2
80	22.9	22.2	21.6	21.0	20.5	20.0
75	21.4	20.8	20.3	19.7	19.2	18.7
70	20.0	19.4	18.9	18.4	17.9	17.5
65	18.6	18.0	17.6	17.1	16.6	16.2
60	17.1	16.7	16.2	15.8	15.4	15.0
55	15.7	15.3	14.9	14.5	14.1	13.7
50	14.3	13.9	13.5	13.1	12.8	12.5
45	12.9	12.5	12.2	11.8	11.5	11.2
40	11.5	11.1	10.8	10.5	10.2	10.0
35	10.0	9.7	9.4	9.2	8.9	8.7
30	8.6	8.3	8.1	8.0	7.7	7.5

When the centers before dipping run per pound as is shown in the first column, and the number of pieces, of nut meats per pound of nuts as is shown in the balance of the columns, the corresponding figures represent approximately the number of pounds of nuts used to every one hundred pounds of centers.

Table No. 2.

How to determine the number of pounds of pecan halves used in topping chocolates:

Number Centers per lb.	Nuts, 600 per lb.	Nuts, 610 per lb.	Nuts, 630 per lb.	Nuts, 650 per lb.	Nuts, 670 per lb.	Nuts, 700 per lb.
90	15.0	14.7	14.3	13.8	13.4	12.9
85	14.1	13.9	13.5	13.1	12.7	12.1
80	13.3	13.1	12.7	12.3	11.9	11.4
75	12.5	12.3	11.9	11.5	11.2	10.7
70	11.6	11.4	11.1	10.8	10.4	10.0
65	10.8	10.6	10.3	10.0	9.7	9.3
60	10.0	9.9	9.5	9.2	8.9	8.6
55	9.1	9.0	8.7	8.4	8.2	7.9
50	8.3	8.2	7.9	7.7	7.4	7.1
45	7.5	7.3	7.1	6.9	6.7	6.4
40	6.6	6.5	6.3	6.1	5.9	5.7
35	5.8	5.7	5.5	5.3	5.2	5.0
30	5.0	4.9	4.7	4.6	4.5	4.3

When the centers, before dipping, run per pound as is shown in the first column, and the number of pieces of nut meats per pound of nuts is as shown in the balance of the columns, the corresponding figures represent approximately the number of pounds of nuts used to every one hundred pounds of centers.

Standard Coatings.

In all other departments Pan Work, Hand Dipped Cream, Icing and wherever centers are coated or dipped the following principles should be applied.

Determine by experiment the Standard to be established on the basis of the following:

- (1) A satisfactory marketable quality.
- (2) According to relative value of centers and coating. If centers are more valuable than coating, put on as much coating as possible in accordance with necessary quality.

If centers less valuable than coating, put on as little coating as possible in accordance with necessary quality.

Keep a record of actual coating put on and check it against the Standard.

The forms to be used are the Machine Coating Report, Form No. 7, and the Hand Coating Report Form, No. 8, according to whether the goods are machine coated or hand coated.

The use of the forms is similar to the use as explained in this chapter in connection with Machine Dipped and Hand Dipped Chocolates.

CHAPTER XI.

COLORS AND FLAVORS.

Colors and flavors, more especially flavors, are perhaps more frequently wasted in a candy factory than any other raw material.

The habit of sending large bottles to departments and ex-

pecting that they will be conscientiously measured out with graduates has caused many manufacturers considerable loss through the use of unnecessary quantities.

When the Superintendent or Foreman is at the side of a workman, the measures will be used as intended, but as soon as he is out of sight the bottle is generally turned upside down unscrupulously, with the result that too much has been used.

Workmen don't do this to be mean, nor to do something they shouldn't. It's purely carelessness.

The only way to correct it is to have all colors and flavors kept in a stock room, under key and in charge of one person. All mixtures and reductions are to be made by this person and distributed to the departments in which they are to be used in bottles holding a sufficient quantity for the size batch they will be used in—just enough for one batch. Of course, this will have to be figured out, but is not difficult, and when once done proves a great saving.

The same means facilitates the figuring of colors and flavors on cost formulas, in that the actual amounts used become known and standardized.

CHAPTER XII.

RAW MATERIALS RECORD.

It is vitally important to have constantly at hand a complete and accurate record of Raw Material costs.

Many good methods are in use for keeping such a record, but the one which seems to be the simplest and most practical is the following:

Get a loose-leaf book indexed from A to Z.

Set aside a page in this book for each raw material, viz., Sugar, Corn Syrup, Coconut, etc.

Head each page with the name of the Raw Material, viz., Sugar, Corn Syrup, etc.

Have the pages printed in accordance with Form No. 9. "RAW MATERIAL RECORD."

As purchases are made, a record should be entered in the book showing the date of invoice, from whom purchased, class of goods, quantity, weight, cost, cost of freight and cost with freight added.

In cases where a purchase made but once in several weeks or months, it is not necessary to give such items a separate page. These few can be entered on a page headed "MISCELLANEOUS." However, the more you can keep them separate, the more easily they can be located for reference.

This record will not only give an accurate record of costs of raw materials, but will also show quantities used.

By entering contract purchases in red ink and actual deliveries from contracts in black ink, it will also give a record of contracts and contract balances.

When possible, the cost clerk should keep this book in order that he may be familiar with the costs of raw materials and variances in same.

This book should also contain a record of package purchases and package findings, such as nails, twine, labels, etc.

RAW MATERIAL RECORD

Name _____

Date	Purchased From	Class of Goods	Quantity	Weight	Cost	Freight	Total Cost

Form No. 9.

Loose Leaf Form, size 8½" x 11".
Print Both Sides.

Allow one (1) inch for binding space.
Cross Lines all the way down.

CHAPTER XIII.

LABOR COST.

Regular.

You will find that the unavoidable hindrances to uniform maximum efficiency in one department, will cause the actual labor to exceed the standard labor of that department, say ten per cent on the average, and in another department it may be fifteen per cent, and so on.

Consequently, when you come to arrive at the cost of labor to be used in figuring the cost of your goods, add to the standard labor (See Chapter VIII) the percentage which the actual labor exceeds the standard labor in the department where the goods in question are made.

For example, if your standard labor estimate on a piece of goods made under the best normal conditions in a department is 50c per cwt., and if your weekly records show that the actual labor in that department, on the average, exceeds the standard labor of the department twenty per cent, add twenty per cent to the 50c per cwt. and figure the labor in determining the cost of your goods at 60c per cwt. This is called "Labor Cost."

Keep in mind this fact at all times, that when you actually produce your goods for less than 60c per cwt., you are making just that much profit in the manufacturing end. It is just as important to save one-quarter cent per pound on the manufacturing cost as it is to get one-quarter cent per pound more for your goods in selling them. In the one case the matter is in your own hands and in the other in the hands of your customers and competitors.

Piecework.

Careful attention should be paid to the matter of piecework rates. These must be established with an assurance of fairness to the employee. Unless the help are to derive a certain

amount of remuneration for their additional efforts you can be sure the system will fail.

The principle is one of dual purpose and both employee and employer must profit alike—the employee through his increased efforts, the employer through added production.

In establishing rates, it is most essential to have the cooperation of the person in charge of the department in which the work is to be installed.

If a record of outputs and labor costs has been retained, you have a splendid basis upon which to undertake the start; otherwise, it will be necessary to make a test on the basis of the work of one of the best workers under supervision and from the outcome reach your conclusions.

A good way to establish rates for wrapping (wrapping only) is to pay one cent per hundred pounds for every piece of wrapped candy to the pound, viz., if goods run twenty-five pieces to the pound, pay twenty-five per hundred pounds for wrapping them. This rule will invariably hold good where the construction of the piece does not interfere with its ready handling, such as would be the case with skewered suckers.

In chocolate dipping, always pay for the work on the weight of the centers dipped. This offsets the tendency of the workers to dip unnecessarily heavy and increase outputs and earnings, also increasing the cost of the goods where the chocolate is more expensive than the centers.

When the centers cost more than the chocolate, as with dipped nuts, this rule can be reversed.

The same rule would apply to machine dipped as well as hand dipped goods.

Cream dipped candies should be paid for on the weight of the centers and coating. Here the relative difference in cost of either is light.

Pan work rates should be based upon the amount of coating put on. There are exceptions, but this is the general rule.

All rates, except those just related, should be computed by the weight of the finished goods or completed packages.

Employees, as a rule, are somewhat skeptical about accepting piecework as their basis of pay, when the proposition is first placed before them. To convince them it is necessary to start a few of the better workers on a conditional agreement. If they have worked as they should, a comparison of their earnings will soon induce the remainder to follow.

Where it has been customary to pay one cent per pound for wrapping caramels at day work, you can safely figure the wrapping and packing, even to the completion of the package, can be done at piecework for the same amount. This is a point well to remember, but one not thought of until the rates have been established.

Wherever possible, and there are really few instances in which it is not, always make the piecework rate include the completing of the package, i. e., tying, labeling, nailing, strapping, etc.

So often a rate for packing merely calls for the packing of the candy in the box, the labeling and tying being left for another person at further cost. If this point is considered on adoption of the rates the workers will willingly accept the extra portion as a part of their duties and, at no additional cost, undertake it. But if they do not have it to do at the start they will not accept it without extra pay later on.

The same applies to the packing of pails or cases. The worker should complete the package all in one rate, and not leave it for a corps of needless helpers to finish.

A word in conclusion about supervision:

The incentive of every piecework is to **TURN OUT THE GOODS**. To increase earnings. It becomes so much a custom that they are apt to overlook certain features having to do with the appearance and neatness of their work.

The only means of eliminating such a fault is through capable supervision and inspection. This falls to the lot of the Foreman or Forelady if they themselves are not on piecework; if they are, the supervision and inspection should be attended to by the Superintendent or Head Factory Foreman or Cost Clerk.

There is little to be said of a system for operating piecework. Common sense will set forth the most of the detail.

The form to be used is important, however. (See Form No. 10.)

Without an adequate means of verifying the quantity of work reported for piecework credit, the dangers of overpaying are great.

Such a means represents just as much of importance to piecework as the time clock or time book to day work.

Form No. 10.

Form No. 10

PIECE WORK REPORT

No. _____ Name _____

Department _____ Date _____

Items	Style	Quantity	Rate	Total
Total				

Blocked Sheets, size 4½" x 6".

Print One Side.

Cross Lines all the way down.

PIECEWORK REPORT.

Form No. 10.

Object of Form.

For the reporting of piecework of the individual workers for compilation of weekly earnings.

A slip should be made each day for each worker. The next morning collected and extended, the rates and extensions checked by another person.

File numerically or alphabetically. Each day until the end of the week attach each worker's slips together.

Use of Form.

(Number) The employee's number, if numbers used.

(Name) The employee's name.

(Department) The name of the department in which the work was done.

(Date) The date on which the work was done.

(Items) The name of goods the work is done on or the name of the work itself. With the department name giving reference to the class of work generally done the name of the goods will identify the labor.

(Style) In this column the style of packing of goods is inserted. Five pound boxes, 100 count or weight or pail, etc.

(Quantity) The amount to be multiplied by the rate is to be inserted here. The hours in case of day work.

(Rate) The rates at which the piecework is done.

(Total) Extensions of quantities and total wages.

Form No. 11.

Form No. 11

PIECE-WORK STOCK REPORT

Dept. _____

Date _____

Name of Goods	Style	Quantity	Receivers Check

Signed _____

Blocked Sheets, size 4½" x 6".

Print One Side.

Cross Lines all the way down.

PIECEWORK STOCK REPORT.

Form No. 11.

Object of Form.

To verify amount of work reported on piecework reports.

Use of Form.

Every lot of goods put up must be accompanied by one of these slips when sent to stock room. The stock keeper on receiving the goods verifies the quantities reported and signs the slips, sending them to the Cost Clerk.

At the end of the week, or from day to day, the totals shown on these slips are checked by the Cost Clerk against the totals on the Piecework Reports (Form No. 10), to see that the work reported done by the Piece Workers corresponds with the goods received in the Stock Room.

(Department) Name of department from which goods are sent.

(Date) Date goods were made.

(Name) Name of Goods.

(Style) Style of package, count or weight.

(Quantity) Total quantity of each kind of goods in packages or pounds.

(Receiver's Check) Check mark of stock keeper to show that quantities have been counted in stock room.

(Signed) The person who does the checking to sign initials here.

CHAPTER XIV.

EXPENSE COST.

It is highly important to properly, fully and accurately apply the expense cost to the cost of the individual piece of goods.

All expenses which are fixed should be applied in figuring costs.

For example, Manufacturing Expenses and General Expenses as covered in Chapter V.

The application of these expenses to the cost of individual goods should be handled in the following manner:

Manufacturing Expense.

The best method of applying the Manufacturing Expense to the cost of an individual piece of goods is as a percentage of the labor.

To arrive at the percentage to be applied take the total labor account for a given period, and the total manufacturing expense for the same period, a period of six months or a year is the best basis. If the Labor Account for this period was \$7,500.00 and the Manufacturing Expense for the same period \$6,000.00, then the Manufacturing Expense would be 80 per cent of the Labor. Therefore, in compiling a cost formula every time you add labor you must add 80 per cent of the Labor to cover Manufacturing Expense.

Manufacturing Expense is a fixed expense and does not fluctuate up and down with the costs of raw materials, consequently, it should not be figured in cost formulas as a per cent of the cost of raw materials. When raw materials are high, by this method the expense would show a lower percentage than when they were low, and vice versa.

The condition that should make the Manufacturing Expense go up is a reduced output in pounds, and the condition that should make it go down is an increased output in pounds. This same thing applies to the labor costs going up and down, and that is why manufacturing expense should be figured on the formulas as a per cent of the labor.

As a further example, take the production of two pieces of goods made in the same department of exactly the same materials and the same proportions, one piece being half the size of the other.

If the Manufacturing Expense is figured in cost as a per cent of the cost of the materials used in making the goods, there would be no difference in the amount as applied to the two pieces.

However, we know that we would produce with the same labor less pounds of the smaller goods than of the larger goods, therefore the Manufacturing Expense per pound on the smaller goods would be greater than on the larger goods.

The old method of applying Manufacturing Expense as a percentage of cost of raw materials of which a piece of goods is made is out of date and dangerously inaccurate.

Quarterly Check on Manufacturing Expense.

At the end of each three months your books will show the amount spent during the period for labor.

By inventorying the few items of Manufacturing Expense at the end of each three months, and deducting same from amount shown on books for Manufacturing Expense for the period, you can get at your actual Manufacturing Expense for the three months.

Find out from these figures what per cent the Manufacturing Expense for the three months is of the Labor for the same period.

If you find the per cent is 90 per cent, and you are figuring 30 per cent in your costs, you will know that your cost basis is not high enough.

General Expense.

General Expense (Chapter V) should also be applied to costs as a percentage of Labor in the same manner as Manufacturing Expense.

General Expense should, however, be applied separately from Manufacturing Expense.

By taking inventories of General Expense items the General Expense can be accurately determined at the end of any month or period.

As the Labor for the same period can be determined from

the books, it will be easy to determine whether or not the proper percentage of Labor is being added to cover General Expense.

In order to determine what percentage of the Labor should be added to the cost of an individual piece of goods, find out the total General Expenses for a given period, for example, three months, six months or a year, and the total Labor account for the same period, then determine what per cent the General Expense is of the Labor, viz.:

Labor	\$9,000.00
General Expenses	3,000.00
Per cent of Labor.....	33 $\frac{1}{3}$

Wherever Labor is applied to the cost of an individual piece of goods, the per cent of General Expense of Labor must be added.

This will be applied in Chapter XIX, "General Cost Finding."

CHAPTER XV.

CRYSTALIZING COST.

The proper way to figure the cost of crystal is to keep in mind the use made of the crystal syrup resulting from crystalizing and make the crystal stand the loss or depreciation in the use of the syrup.

For example, goods crystalized with a crystal batch made of sugar at 6 cents per pound will take up a certain amount of crystal, though the cost of the sugar used in making this crystal cost 6 cents per pound, it is not always safe to figure the crystal put on the crystalized goods at 6 cents, for the reason that the crystal syrup resulting will in most cases be used in some other goods in the place of a cheaper sugar.

If those other goods have been figured on the basis of the cheaper sugar, they will cost more than figured at, if the crystal syrup is used in them.

The burden of this added cost should not fall upon the goods in which the crystal syrup is used, but should be charged in as a cost of the crystal.

For example, take the following figures based upon a crystal syrup made of sugar coating 6 cents per pound, and where the remaining crystal syrup is used in goods to replace sugar costing 5 cents per pound these figures would work out as follows: on a sugar solid basis:

100 lbs. Crystal A Sugar, at 5c.....	\$5.00
85 lbs. Sugar Substituted, for 5c.....	4.25
<hr/>	
15 lbs. Sugar Taken Up as Crystal.....	\$ 1.75
100 lbs. Sugar Taken Up as Crystal.....	11.66

On a basis of 6 cent Crystal and 5½ cents for sugar the syrup was substituted for, it would figure as follows:

100 lbs. Crystal A Sugar, at 5c.....	\$6.00
85 lbs. Sugar Substituted for 5½.....	4.67
<hr/>	
15 lbs. Sugar Taken Up as Crystal.....	\$1.33
100 lbs. Sugar Taken Up as Crystal.....	8.66

This will clearly show how to arrive at the true value of crystal, when the crystal syrup is used to replace cheaper sugar in other goods.

Another thing which must be considered in connection with crystal syrup, when used in goods to replace another sugar, is that same must not be figured on basis of weight of syrup. Otherwise it will be necessary to deduct it from the finished weight in the form of shrinkage.

For example, in making a batch of hard goods 100 lbs. of sugar would have to be replaced with 130 pounds of crystal syrup on a solid basis would be the equivalent of 100 pounds sugar only.

Find out the per cent of sugar in the syrup being used and use and figure syrup on a basis of sugar solids. The average quantity of sugar solids in all syrups is about sixty-five per cent (65%). This makes 150 pounds of syrup, equivalent to

100 pounds of sugar solids; in other words, every 150 pounds of syrup contains 100 pounds dry sugar.

The above will apply as a general rule, but to be more accurate, the following is suggested:

Density of Syrup	Per cent Sugar
32	60%
33	62%
34	65%
35	68%

If the syrup to be used came from a 32 degree baume cook figure sixty (60%) per cent of its weight as solid sugar. If 33 degree, sixty-two (62%) per cent, etc.

Crystal scrapeings (the scrapeings from the pans where the pan and rack process is used) are equivalent to their own weight in the matter of sugar contents. These, however, should never be used in the same way that the syrup is used. They should never replace other than the best grades of sugar unless they have been damaged in some way. Occasionally in crystalizing a batch of highly colored goods the scrapeings become discolored and here they would have to be used in a batch of colored goods. But, remember, the scrapeings represent sugar solids and the cost of same is the same as the cost of the sugar out of which the crystal syrup was made.

Sometimes pans (as baskets in the tank and basket process) are steamed or washed off instead of being scraped. The condensation or wash-water will in this case contain the proportion that would otherwise be scrapeings, but in no wise is the value the same. Wash-water is of little value, due chiefly to discoloration. However, don't throw it away—use it wherever possible in place of water and get what little value there is in it that way.

There are some gains in the weight of certain goods after crystalizing.

Cream work and Grain work are the most common. Some cocoanut pieces also.

When allowing a piece of porous grain candy to remain in a liquid for a given length of time it will absorb a part of that liquid which it will hold for some length of time.

Experiments show that most grain work will show an absorption (grain), exclusive of the weight of the crystal itself, of 10 per cent on being removed from the syrup. In this state it is of course not fit for packing. Allowing it to dry out and the crystal surface to solidify sufficiently for further handling the original amount of absorption has decreased five per cent. Packing in containers and allowing them to stand in stock, there occurs a further shrinkage of about 2 per cent, reducing the original ten per cent to three per cent. This amount under ordinary circumstances remains, but the general and safe rule to go by is not to figure upon any gain from this source.

About crystal averages, that is, the number of pounds of crystal one hundred pounds of goods will take on. This de-

If scrap results from a batch of goods costing 6 cents per pounds altogether on the size and shape of the pieces and the kind of goods. No set rules will govern the amount. It will vary from six to fifteen pounds on grain work and from ten to twenty-five pounds on gum work.

Make several (not one) tests for each different kind of goods before adopting a figuring basis.

CHAPTER XVI.

SCRAP COST.

The habit of putting an arbitrary value on scrap, in figuring it in the cost of the goods in which it is used, is entirely wrong.

Scrap should be figured in the cost of goods at its approximate actual value; otherwise, a loss is going to be made that is unaccounted for.

If scrap results from a batch of goods costing 6 cents per pound, that scrap cannot be put into a batch of some other piece of goods and be figured at 4 cents per pound without an unaccounted loss of 2 cents per pound.

When scrap is put into a batch of the same kind and value of goods from which it came it must also be figured at its approximate actual value if it is figured upon as a part of the batch.

Very frequently scrap pieces are sold cheap because it is believed that the cost is cheap because the scrap used is figured at a low arbitrary value, not its actual value.

Though scrap goods may have to be sold cheap, they should be figured on a basis of the actual value of the scrap, so that it will not be thought that a profit is being made when actually a loss is being made.

This also happens very frequently in the case of Grab Bags, and though Grab Bags may provide a good method of disposing of goods unsalable, it is very poor business to figure them as showing a profit when actually a loss is being made.

And when this loss is known an effort to correct it is made where otherwise the loss would continue unaccounted for because the incorrect cost figures would indicate a profit.

CHAPTER XVII.

PACKAGE COSTS.

The accurate cost of packages is very important. All items which enter into the package as well as Labor, Manufacturing and General Expenses must be taken into consideration in arriving at the proper package costs.

The following are examples of proper methods of figuring package costs:

“Regular Bulk Boxes.”

100	Boxes No. 431, \$28.00 M.....	\$2.80
100	Box Face Labels, 70c M.....	.07
100	Strip Labels, 50c M.....	.05
100	Wax Liners, \$3.50 M.....	.35
6 oz.	String, 24c lb.....	.09
100	Labor Packing, \$1.00.....	1.00
	Manufacturing Expense, 80%.....	.80
	General Expense, 50%.....	.50
100	Casing (30 Boxes in No. 55 Case at 45c)	1.50
<hr/>		
100	Boxes and Findings.....	\$7.16
	Packed 5-lbs., Cost.....	1.45 per 100 lbs.
	Packed 4½ lbs., Cost.....	1.60 per 100 lbs.
	Packed 4 lbs., Cost.....	1.80 per 100 lbs.

Count Goods.

100	Boxes No. 320, \$25.00 M.....	\$2.50
100	Box Face Labels, \$1.00 M.....	.10
100	Strip Labels, 50c M.....	.05
¼ lb.	String, 24c lb.....	.06
100	Box Liners, \$3.50 M.....	.35
300	Pulp Layers (8 lbs), \$2.50 Cwt.....	.20
100	Labor Packing Complete, \$2.00.....	2.00
	Manufacturing Expense, 80%.....	1.60
	General Expense, 50%.....	1.00
100	Casing (40 Boxes in No. 2 Case at 50c)	1.25
<hr/>		
100	Boxes and Findings.....	\$9.11

Note in the above examples that boxes in which goods are packed by the pound, that the package cost is based upon the per pound basis.

In case of Penny Goods, 5c Goods and Goods packed and sold by count, the package cost is based upon the per box basis.

“30-Lb. Taper Pails.”

100	30-lb. Wood Taper Pails, \$2.16 doz.	\$18.00
100	Pail Labels, \$4.00 M.....	.40
100	Weight Stickers, 20c M.....	.02
1 1/2 lb.	Nails, 2 1/2c lb.....	.04
100	Blue Fibre Liners, \$3.00 M.....	.30
100	Lace Circles, \$5.00 M.....	.50
100	Labor Packing, \$2.50.....	2.50
	Manufacturing Expense, 80%.....	2.00
	General Expenses, 50%.....	1.25
<hr/>		
100	Pails and Findings.....	\$24.96
	Packed 30 lbs., Cost.....	.83
	Packed 35 lbs., Cost.....	.71
	Packed 40 lbs., Cost.....	.62

Other styles and sizes of pails, cases and packages should be figured in the same manner, and the package cost figured on a per pound basis.

Of course, in connection with goods sold by the pail, case or package and not by weight, the package cost in connection with such goods can be figured per pail, per case, etc.

Barrels.

100	Empty Barrels, 25c.....	\$25.00
100	Barrel Liners, \$25.00 M.....	2.50
100	Strip Labels, 40c M.....	.04
100	Labor Packing, \$15.00.....	15.00
	Manufacturing Expense, 80%.....	12.00
	General Expense, 50%.....	7.50
<hr/>		
100	Barrels and Findings.....	\$62.04
	Packed 350 lbs., Cost.....	.18 per 100 lbs.
	Packed 300 lbs., Cost.....	.20 per 100 lbs.
	Packed 200 lbs., Cost.....	.31 per 100 lbs.

Some manufacturers in compiling barrel costs do not figure the barrel at a given amount, assuming that they cost nothing because they are containers in which often sugar was delivered to them. This is a mistake, for while in reality they are paid

for in the sugar cost, they are of value on the basis at least of what they could be sold for, and in addition there is often repairs to be made to the barrels, and many are of no value. Therefore, on a basis of accurate and safe figuring the barrel package cost should always be included.

The question of labor in the packing of barrels is also not to be overlooked.

Casing Costs.

The cost of casing is very important. Where goods are always packed a definite number of boxes to a certain case, the actual cost per box for casing can be determined by dividing the complete cost of case plus labor and findings by the number of boxes in the case. In the majority of instances, however, boxes are packed in cases in varying ways, so that it is difficult to get at the actual casing charge per box of goods so packed.

The best method of handling casing costs of this kind is to figure same on average basis. Taking as the average, however, a safe basis.

For example, the following:

CASING COSTS

Case No. 1 Case No. 2 Case No. 3

Name of Goods	Box No.	Case No. 1		Case No. 2		Case No. 3	
		Cost	Per 100 Boxes	Cost	Per 100 Boxes	Cost	Per 100 Boxes
M. M. Bananas	#36	12	2.00	22	1.64	30	1.40
Cachous	#48	18	1.33	27	1.33	40	1.05
Jellies	#16	16	1.50	24	1.50	32	1.31
Puffs	#84	8	3.00	12	3.00	16	2.62
Cream Drops	#94	15	1.60	23	1.56	30	1.40
Royal Gums	#94	15	1.60	23	1.56	30	1.40

Loose Leaf Form, size 6"x9". Print One Side. Allow one (1) inch for binding space. Cross Lines all the way down.

By working out a schedule like the above fitting any particular situation, a safe average basis can be decided upon for the case charge.

For example, in the above schedule M. M. Bananas 12 boxes to case cost \$2.00 per 100 boxes, 22 boxes to case cost \$1.64 per 100 boxes, 30 boxes to case cost \$1.40 per 100 boxes; a safe average would therefore be \$1.75 per 100 boxes for casing charge.

Remarks.

It will be noted from the cost figures for boxes and pails above given that unless the barrel cost is figured in that the prevailing differential between barrels and 30-lb. pails and between barrels and 5-lb. boxes will not cover the costs of packing goods in these packages.

CHAPTER XVIII.

WORKING FORMULA.

The proportions and kinds of different raw materials to be used in each piece of goods should be determined and written copies of same should be filed with the Superintendent, Cost Clerk and with each department foreman.

These records serve as a guide to what should and should not be used; in other words, is a form of written instruction so that no misunderstanding can occur between foreman, forewoman, superintendent and cost clerk as to how the goods ought to be made.

The object is to prevent error in the making of goods through misunderstanding as to how they should be made.

There is a great possibility for mistakes through verbal instruction and wherever given they should be confirmed in writing as promptly as possible.

Suppose, for example, a foreman is called upon to make twenty or thirty different kinds of goods. He can hardly be expected to carry in his mind the exact details concerning every one of them, and unless written instructions are given him he will make the goods according to his own fancy and his method may differ from the basis upon which costs are being figured.

Following are examples of forms which may be used as Working Formula Records:

PACKING DEPARTMENT

Name of Goods _____ Date _____

BARRELS & PAILS

PACKAGE: 30-lb. Wood Taper Pail

WEIGHT: 30.lb. Net

FINDINGS: Diagonal Partitions
Circular Pail Lace
Blue Fibre Liner
Nails and Clamps

REMARKS:

Loose Leaf Form, size 6"x9".
Print One Side.
Allow one (1) inch for binding space.
No Cross Lines.

PACKING DEPARTMENT

Name of Goods _____ Date _____

BOXES

PACKAGE: Box No. 8

COUNT: 200 Pieces per box

WEIGHT: 4 pounds net

FINDINGS: Special End Label
Special Display Label
No. 3 Parchmyne Liner
Penny Card
String

REMARKS: If these goods run more or less than 50 pieces per pound report at once to Superintendent.

Loose Leaf Form, size 6"x9".
Print One Side.
Allow one (1) inch for binding space.
No Cross Lines.

GUM WORK DEPARTMENT

Date _____

Name of Goods _____

Batch; 200 lbs. Clarified Sugar
100 " Corn Syrup
36 " Pearl Starch
Flavor: 3 oz. Orange Oil
Color: 2 oz. Liquid Orange Color
Mold: Candy Orange Mold
Sanding: Fine Granulated Sugar
Process: Mogul
Output: 4000 lbs. per day
Remarks:

Loose Leaf Form, size 6"x9".
Print One Side.
Allow one (1) inch for binding space.
No Cross Lines.

PAN WORK DEPARTMENT

Date _____

Name of Goods _____

Batch: Soft coating
Flavors: 1 oz. Orange Oil per cwt. coating
Colors: 4 oz. Liquid Orange per cwt. coating
Average: 75 lbs. coating per cwt. centers
Remarks: These goods must not exceed 50
pieces per pound after panning

Loose Leaf Form, size 6"x9".
Print One Side.
Allow one (1) inch for binding space.
No Cross Lines.

The formula records kept by the Superintendent and Cost Clerk can be complete, but the working formula records filed with foremen should only be that part of the formula in which he is interested, i. e., a formula for that part of the goods he makes in his own department.

The sheets should preferably be of the loose-leaf type and formula should be filed alphabetically according to names of goods.

Each department head should, of course, be supplied with a binder of good, substantial material (canvas) and such general instructions as are to be issued should be written on separate sheets and filed in the front of the book.

There are two additional important things to be done in connection with these formulas.

(1) It should be understood that wherever possible all raw materials should be weighed into the batches and arrangements should be made so that this can be done conveniently and accurately by the man making the goods.

(2) It should positively be understood that formulas must not be changed by foreman without consent of the Superintendent confirmed in writing.

(3) Whenever the Superintendent authorizes a change in formula he should notify the Cost Clerk.

(4) The Cost Clerk should frequently check up formulas with the foremen to see that they are making goods as stated on the Working Formula Records.

CHAPTER XIX.

GENERAL COST FINDING.

In the preceding chapters the methods of arriving at costs of individual divisions of general costs have been outlined and it therefore becomes necessary in order to arrive at the cost of an individual piece of goods to apply these various costs to an individual formula.

The formula is called "Cost Formula."

The best form to use is Form No. 12, hereinafter set forth.

This form is so arranged as to be comparative, so that the effect of changes upon costs can be determined and corresponding changes in prices made when necessary.

One point which should be kept in mind in respect to these comparisons is the gross profit percentage.

In other words, changes in costs and selling prices should not be judged from the point of view of so much per pound or per box, but according to the effect of these upon the gross profit percentage.

If, for example, an item costing eight cents was sold for ten cents, the gross profit percentage on the selling price would be 20%.

If changes took place in the cost, making the cost $8\frac{1}{2}$ cents, and the selling price was not changed, it would mean that the gross profit percentage had been reduced from 20% to 15%.

If the price was advanced $\frac{1}{4}$ cent, the gross profit, at the advanced cost, would be 17% or a reduction from 20% to 17%, therefore the advance of $\frac{1}{4}$ cent would not have covered the added cost, and maintained the 20% profit standard.

It would become necessary, therefore, in order to maintain the gross profit, to advance the price $\frac{1}{2}$ cent, making same $10\frac{1}{2}$ cents. This would show a gross profit at the advanced cost of 19%, which would about maintain the 20% profit.

This is a very important matter, and should be carefully watched.

COST FORMULA

Form No. 12

Form No. 12.

Quantity	Name of Goods Item	Cost	Date	Date	Date	Date

Loose Leaf Form, size 8½" x 11".

Print Both Sides.

Allow one (1) inch for binding space.

Cross Lines all the way down.

COST FORMULA.

Form No. 12.

Object of Form.

To record all items entering into the cost of an individual piece of goods.

And to keep a comparative record of selling prices, costs, and profits on individual items.

Use of Form.

(Name of Goods) Name of item covered by the formula.

(Quantity) Quantity of each item entering in the cost.

(Item) Name of items, viz., "Sugar," "Chocolate Coating," etc.

(Cost) Cost of the item per pound or per hundred, as the case may be.

(Date) At top of column under word "date," put the date formula was figured. In the column, insert extensions, totals, etc.

The following are samples of a complete cost formula:

CHOCOLATE PIECE.

Cream for Centers.

Quantity	Item	Cost	April 1, 1916.
400 lbs.	Granulated Sugar	\$7.00	\$28.00
100 lbs.	Corn Syrup	2.25	2.25
<hr/>			
500 lbs.	Cream for Centers.....		\$30.25
100 lbs.	Cream for Centers		6.05
100 lbs.	Labor Making Cream15
	Manufacturing Expense	80%	.12
	General Expense.....	50%	.08
<hr/>			
*100 lbs.	Cream for Centers		\$ 6.40

Centers.

200 lbs.	A Sugar	\$7.00		\$ 7.00
50 lbs.	Corn Syrup	2.25		1.13
*250 lbs.	Cream for Center	6.40		16.00
10 oz.	Vanilla Flavor06		.60
<hr/>				
500 lbs.	Material for Centers.....			\$24.73
100 lbs.	Material for Centers			4.95
100 lbs.	Labor Making Centers50		.50
	Manufacturing Expense	80%		.40
	General Expense	50%		.25
<hr/>				
100 lbs.	Centers			\$ 6.10

Coating

100 lbs.	Centers			\$ 6.10
40 lbs.	Chocolate Coating	\$0.25		8.00
<hr/>				
140 lbs.	Coated Centers			\$14.10
100 lbs.	Coated Centers16		10.00
100 lbs.	Labor Coating60		.60
	Manufacturing Expense	80%		.48
	General Expense	50%		.30
<hr/>				
100 lbs.	Finished Goods			\$11.38

Package Cost Per 100 Lbs.

Bulk Cost		\$11.38
Pails 30 lbs., add per 100 lbs.....	.85	12.23
Boxes 5 lbs., add per 100 lbs.....	1.50	12.88

Profit.

Pails 30 lbs.	Sell		15.00
	Cost		12.23
	Profit		18%
Boxes 5 lbs.	Sell		15.50
	Cost		12.88
	Profit		17%

Penny Goods Piece.

Quantity	Item	Cost	April 1, 1916.
100 lbs.	A Sugar	\$ 7.00	\$ 7.00
50 lbs.	Corn Syrup	2.25	1.13
50 lbs.	Cocoanut	10.00	5.00
<hr/>			
250 lbs.	Material		\$13.13
100 lbs.	Material		5.25
100 lbs.	Labor Making	1.00	1.00
	Manufacturing Expense	80%	.80
	General Expense	50%	.50
<hr/>			
100 lbs.	Finished Goods		\$ 7.55
400 lbs.	Finished Goods		30.20
*100 lbs.	*23 Boxes and Findings		20.00
<hr/>			
100 lbs.	Boxes 100's		\$50.20
	Sell		65.00
	Cost		50.20
	Profit		22%

*The box cost is to be taken from package formula previously prepared. See "Chapter XVII, Package Costs."

All profit percentages should be figured on the selling price, not on the cost price.

CHAPTER XX.

Manufacturing and Cost Data.

As a matter of reference and convenience a record should be kept of the manufacturing and cost data relating to each piece of goods.

This data should be kept on Form No. 13, hereinafter set forth and explained.

These forms should be filed alphabetically and classified according to classes of goods, for example:

Cream Work.

Gum Work.

Mixtures.

Chocolate Coated Goods.

Hard Boiled Goods.

Fudge.

Etc.

All "Fudge" goods would be alphabetically arranged under index classification and so on for all classes of goods made.

The data should be recorded as it is secured and should be kept revised, so that it will at all times be accurate and up to date.

Form No. 13.

Form No. 13

MANUFACTURING & COST DATA

Name of Goods _____

Date		Memo.	Standard	Cost
	Labor Centers " Sanding " Crystallizing " Coating " Wrapping " Boxes " " " Pails " "			
	Sanding Crystallizing Coating			
	Number of pieces to lb.			
	Net Weight			
	Tare			

Loose Leaf Form, size 6"x9".
 Print Both Sides.
 Allow one (1) inch for binding space.
 No Cross Lines.

MANUFACTURING AND COST DATA.

Form No. 13.

Use of Form.

(Name of Goods) Name of piece of goods covered by the report.

(Date) Date upon which data was secured. This date to be stated with each separate date, i. e., Labor Centers, Labor Sanding, etc.

(Memo) Extra data like "P. W." indicating piece work, etc.

(Standard) Standard Labor, Weight and Coating.

(Cost) Labor, Weight or Coating used in figuring Cost Formula.

(Labor Centers) Labor per 100 pounds for making centers. centers.

(Labor Sanding) Labor of sanding, based on sanding and centers.

(Labor Crystallizing) Labor of crystallizing, based on sanded or plain centers and crystal.

(Total Coating) Labor of coating, based on sanded or plain centers and coating.

(Labor Wrapping) Labor Wrapping.

(Labor Boxes) Labor packing in boxes per 100 boxes.

(Labor Boxes) Labor packing in boxes per 100 lbs.

(Labor Pails) Labor packing in pails per 100 lbs.

(Labor) These are left for other labor costs of packing.

(Sanding) Sanding (Sugar) on sanded (sugar rolled) goods. Based on 100 lbs. centers.

(Crystallizing) Crystal on goods. Based on 100 lbs. centers.

(Coating) Coating on Goods, Chocolate, Pan Work, Cream, etc. Based on 100 lbs. centers.

(Number of Pieces to Pound) Number of pieces of finished goods to the pound.

(Net Weight) Net weight of Count Goods per box.

(Tare) Tare Weight of Ten Boxes.

It can be readily seen that this data is very useful for factory records and computing costs.

Factory Records.

A list taken from this data should be filed in each department of the factory showing information concerning that part of each piece of goods made in the department.

For example, in the Chocolate Coating Department, there should be filed alphabetically arranged a list of all goods coated in that department showing the standard coating of each piece.

Likewise, in the Pan Work Department, and other departments.

Also a list of standard weights, piece work rates, etc., should be furnished each department.

Except in case of Piece Work rates, no Labor data need be filed.

CHAPTER XXI.

SOME THINGS TO WATCH.

SCALES: Test scales frequently as to accuracy. Don't figure that inaccurate scales always work for your interest. As a matter of fact, they more often work for your customer.

SCRAP: Have each department report weekly the amount of each kind of scrap on hand. This will prove an incentive to keep scrap down to the minimum.

COLORS: Avoid waste by careless use.

FLAVORS: Measure flavors. Use amount necessary to impart proper flavor, and no more or less. Don't let workmen guess at amount of flavor. Flavor worth \$1.60 per pound is 10c an ounce; 10 ounces a day wasted means \$330.00 a year loss.

SHRINKAGE: Many raw materials shrink while in stock. If not accounted for in cost will be lost.

Shrinkage in roasting nuts.

Shrinkage in cooking batches.

SUGARS: See that the proper sugars are used in the proper place for quality and economy's sake.

STOCK REPORT: Watch your stock on hand carefully. It will avoid over-buying, over-stocking and dead stock.

Shrinkage.

Corn Syrup (Glucose) will undergo a loss of weight in cooking in all hard-boiled goods. You can safely figure 20 per cent shrinkage in weight of Corn Syrup put in batch.

Molasses will also show shrinkage under like conditions, about 20 per cent of its own weight.

Beware of Skimmed Milk; fresh cow's milk, wherever used. It will lose from 50 per cent to 85 per cent of its weight in cooking. It is an expensive product to use.

Ascertain the shrinkage whenever sweet cream or condensed milk is used and heat applied to them.

Be sure to record the net weight of the ingredients of caramel and fudge batches. Both contain materials largely susceptible to shrinkage.

Don't overlook the shrinkage whenever nuts are roasted by dry heat. It will vary from 5 per cent to 10 per cent, depending upon the age of the nuts.

Nuts roasted in oil will shrink from 5 per cent to 10 per cent as with dry heat, but they will also absorb a portion of the roasting oil. To determine shrinkage and absorption, it is necessary to know the weights of both before and after the operation.

Batch shrinkages are of grave importance. Never remain in doubt. Test every new batch before assembling its cost.

Never figure water on the formula as a portion of the batch composition.

Gains.

In accounting for gains in any batch, never figure more than fifty per cent (50%) of the actual gain shown by test, as shrinkage will take place afterwards.

Marshmallow and Jap Jelly Batches are the two most important in the consideration of gains. Gelatine is used in both. A pound of Gelatine will absorb from six to ten pounds of water. Under average conditions it will retain about eight pounds, but the quantity it actually does retain is entirely de-

pendent upon the extent of heat applied to it. Do not consider the gain on the cost sheet without thoroughly testing it.

Sugar, cooking starch and other ingredients will also absorb definite amounts of water and up to certain degrees of temperature hold it. These amounts are hardly significant enough to term gains and are, therefore, not to be considered on the cost sheet.

Color and Flavor.

Figure all color and flavor at actual costs wherever it is possible to do so. Do not depend entirely upon guessing or upon arbitrary estimate.

Miscellaneous.

Stock Cream Fondants to be used in different goods should be figured the same as any other cost formula, including labor and the manufacturing and general expense percentage.

Separate costs for all dipping creams, icings, etc., must be written and filed. Labor, manufacturing and general expense must always be added. When colors and flavors form a part of their make-up, these, too, must be included.

Labor.

Figure all labor on a basis of one hundred pounds or 100 packages. All estimates and rates should be on a per hundred basis.

The following means of applying labor rates are set forth, having proven the most satisfactory:

Labor of sanding should be based on the weight of centers and sanding (sugar), not on the amount of sanding put on.

Labor crystallizing should be based on the weight of the crystallized goods—that is, centers and crystal.

Labor pan coating should be based on the amount of coating put on, unless, as in the case of all sugar goods—that is, when the whole work is done in Pan Room.

Labor on all machine and enrober dipped chocolates should be based on the weight of centers only.

Labor on all hand dipped chocolates should also be based on the weight of centers only, except in cases where the center is more expensive per pound than the coating used. (The same exception applies to machine and enrober dipped goods.)

The principle involved is the prevention of an excessive use of coating and an unnecessary increase in the cost of the product. All rates of piecework should be based on the weight of centers only. When such is the case, the tendency of the laborer to coat excessively to increase output and earnings is eliminated. When the center is more expensive than the coating, it is obvious that the pieceworkers should be paid on the weight of centers and coating, instead of centers only. Increased use of coating in this instance decreases cost and it is to this end that we must strive to direct the faults of the workers.

Labor dipping cream bonbons should be based on the weight of centers and coating.

Labor wrapping should be based on the weight of wrappers and candy. Wrappers, and one or two other package items are sold as a part of the candy itself, because it is not possible to discriminate after the wrapping.

Labor packing should be based on the number of packages. When wrapping and packing are done conjunctively, the labor for both should be based on the number of complete packages.

With a few possible exceptions, all other labor accounts are computed per hundred pounds or packages.

The finished cost of any piece of goods must be so expressed that goods sold by the box will be figured per hundred boxes, and goods sold by the pound will be figured per hundred pounds.

Bear in mind that everything pertaining to a formula is a part of it, and that a formula is not complete without proper reference notations denoting the location of any other part that is not filed immediately with it.

The greatest care to be exercised in the writing of any cost formula is to make sure that nothing has been omitted.

CHAPTER XXII.

JOBBER'S PROFITS.

In selling the retail trade, the cost of doing business amounts to from 20 to 25 per cent of the sales.

If expense of doing business is 20 per cent of sales, add 25 per cent to the cost to cover expenses.

If expense of doing business is 25 per cent of sales, add 33 1-3 per cent to the cost to cover expenses.

Notice that the above covers simply the percentage to be added to cover expenses.

Therefore, it will of course be necessary to add an additional percentage in order to make a net profit.

The following table will show the percentages to be added to cost at different basis of expense of doing business and the net profit per cent remaining:

*Cost Doing Business.	Add to Cost of Goods.	†Net Profit Result.
18%	25%	2.0%
19%	25%	1.0%
20%	25%	0.0%
22%	25%	**2.0%
25%	25%	**5.0%
18%	33 $\frac{1}{3}$ %	7.0%
19%	33 $\frac{1}{3}$ %	6.0%
20%	33 $\frac{1}{3}$ %	5.0%
22%	33 $\frac{1}{3}$ %	3.0%
25%	33 $\frac{1}{3}$ %	0.0%
18%	40%	10.6%
19%	40%	9.6%
20%	40%	8.6%
22%	40%	6.6%
25%	40%	3.6%

*Cost doing business is based upon a percentage of sales.

**Loss.

†Net Profit on sales or selling price.

CHAPTER XXIII.

GROSS AND NET PROFITS.

The proper way to arrive at the gross profit on total volume of business is as follows:

*June 30, 1916, Mdse. Purchases.....	\$30,000.00
June 30, 1916 Labor	3,000.00
June 30, 1916, Manufacturing Expense	2,400.00
June 30, 1916, General Expense	1,500.00
	<hr/>
June 30, 1916, Total Cost Mdse.....	\$36,900.00
June 30, 1916, Mdse. Inventory.....	10,000.00
	<hr/>
June 30, 1916, Total Cost Mdse. Sold.....	\$26,900.00
	<hr/>
June 30, 1916, Mdse. Sales.....	\$35,000.00
June 30, 1916, Cost Mdse. Sold.....	26,900.00
	<hr/>
June 30, 1916, Gross Profit.....	\$ 8,100.00
Per Cent Sales.....	26%

*Includes Mdse. Inventory as of Jan. 1st, 1916.

Net Profit.

The net profit is the net result remaining after deducting from the Gross Profit all remaining expenses, i. e.:

Selling Expenses.
Freight Expenses.
Bad Debts.
(See Chapter V.)

CHAPTER XXIV.

VOLUME.

Many theories as to the advantages of volume as a profit producing method are in the minds of many confectioners.

Often costs and profits are based upon a prospective volume that cannot be secured by the usual means pursued.

The only means of reaping full benefit of lower costs of production to come through volume are along the lines of quality, service, salesmanship and advertising.

Price cutting as a means of stimulating volume is not only unsafe, but impracticable.

Though a lower price may stimulate business temporarily, it will not do so permanently, because competitors meet cut prices just as soon as they become the cause of loss of business. The result, therefore, is that the legitimate and natural volume of business will come to each manufacturer, and when simmered down, each is getting only his legitimate share, and both at a smaller margin of profit.

The candy business is not one of uniform demand throughout the various seasons of the year. A capacity sufficient to take care of the Christmas rush must necessarily be partially idle during the dull seasons.

To try and stimulate the output during these dull seasons up to a Christmas season output by price cutting is suicidal. The plan which has shown the real and permanent results is the one which seeks to stimulate profits rather than volume.

Of course every business must have a certain volume to reach the standard of average efficiency, but from that point on the effort should be not to stimulate sales at the expense of reducing profits.

If a concern doing a business of \$300,000.00 per annum has a selling expense of 12½ per cent and a gross profit of 17½ per cent, it will show a net profit of 5 per cent, or \$15,000.00.

Now, much better net profit results will occur if an effort is made to increase the gross profit percentage on the same volume than if the volume is attempted to be increased by lower prices.

Though increased sales decrease the Selling Expense percentage, it will be found that to decrease them materially the gross profit will suffer to a much greater extent than the selling expenses are decreased, because any effective cut in prices must need be 5 per cent, at least, and it has been proven that the sav-

ing in expenses resulting from such a sacrifice in profits will not exceed 2 per cent.

Note these examples:

Gross Sales	\$300,000.00	\$350,000.00
Gross profit, per cent.....	17½%	12½%
Gross Profit	\$ 52,500.00	\$ 43,750.00
Gross Expenses, per cent	12½%	10%
Gross Expenses	\$ 37,500.00	\$ 35,000.00
Net Profit	\$ 15,000.00	\$ 8,750.00
Net Profit, per cent.....	5%	2½%

Stimulate sales by every possible means, except by means which will materially decrease gross profits or increase expense out of proper proportion to increased profits.

CHAPTER XXV.

PROFIT AND SALESMEN.

What personal incentive, to sell profitable goods, have your salesmen?

After all, it is largely up to your salesmen whether or not the profitable goods in your line are sold in sufficient quantities to bring your profits up to a satisfactory average.

When the entire personal incentive of the salesman is to simply make sales, regardless of whether the goods are profitable or not, and when, in addition, it is easier to sell goods on the basis of price than on the basis of quality and service, is it to be wondered at that the salesmen follow the line of the least resistance and put just as much effort behind unprofitable goods as profitable?

When the salesman knows that the principal demand made upon him is to hold and increase his total volume of sales; when he knows that his salary and his expenses and his entire chances for a bonus on his year's efforts or an increase in salary, depends upon his increase in sales, and when there is no understand-

ing whatsoever as to what the nature of his sales shall be, is there anything queer or unusual in the fact that the average salesman ignores entirely the question of profits?

True, if you do not make a satisfactory profit in your business you cannot afford to give your salesmen an increase in salary, but you do it just the same, because you feel it necessary to hang on to the salesman who can bring home the business.

There is no equitable arrangement so far as the salesman's compensation is concerned; every salesman wants an increase in salary, if he is the right kind of a salesman, because if a man has no self-interest it can be safely assumed that he has little interest in the welfare of those he serves. His one big purpose in life is to hold his job, and after this is done, not through results entirely, but also through excuses and future prospects and promises and so impressing himself upon his house as to promote either a sympathy or liking for him, that will enable him to stick, regardless of results.

But, after all, this is no kindness to the man and certainly no way to help him build up a future for himself nor to enable you to build up a profitable business for yourself.

Every salesman should be required to produce results commensurate with his compensation, and the standard set for him should not alone be sales and expense, but sales, expense and profit.

You should know and your salesmen should know not only what they have contributed to your sales, but also what they have contributed to your profits.

It is often the case that the salesman who has contributed the most to profits will receive less return for his efforts than the salesman who has contributed more to sales and less to profit.

As the ultimate measure of your efforts in business is the net profit return, it is not justice nor good business to ignore the question of profit in fixing the salesman's worth and value to you.

I don't want you to draw the conclusion that I believe that sales results should be entirely ignored. I recognize the fact

that a certain volume of business is necessary in order to keep your expenses on an efficient basis, and in order to operate your factory at a capacity that will hold down your labor and overhead or manufacturing expenses to a point that will not put you at a disadvantage in so far as cost is concerned, with your principal competitors.

But when this necessary point in volume of sales is reached, is it more profitable to keep on increasing your sales, regardless of profits, or is it better to stimulate, in every way that you can, the sale of profitable goods.

As far as my personal investigations and experiences are concerned, there is but one right answer to this question, and that is, build from this point on the basis of quality, service, salesmanship and profit.

There may be a glory in a large volume of business that is pleasing, but the real substantial pleasure of effort comes from three sources only—

Prestige, Good Will and Profit.

Now, how can you make the salesman play a bigger part in the accomplishment of these three things than he is now doing?

Whatever plan you adopt, to be successful, must embody creating a personal incentive on the part of the salesman, in bringing about these three results.

Let me ask you a few questions.

Do you know the total sales of each of your salesmen for last year and each month of last year? I assume you do.

Do you know what salary you paid each of your salesmen, what were their individual expenses, and what per cent the total of these were of their respective sales? I again assume that you do.

Do you know what per cent of each salesman's sales was represented in freight prepaid or allowed on their sales, in drayage in delivering goods for city salesmen, in losses on returned goods, in bad accounts. You ought to if you don't.

But the big questions are these:

Do you know what was the gross and net profit made on each salesman's sales?

And do you know what percentage of each salesman's sales were goods showing a satisfactory profit and what percentage were goods not showing a satisfactory profit?

If you really want to know the value of your salesmen's efforts, you must know these two things, in addition to the other information you have in respect to his work and results.

And, having this information, in order to produce better profits, as the result of it, you must use it practically and connect up with it some plan that will make it of personal interest to your salesmen to carry out your plans.

How can this be done?

First, you should determine the proper percentage of selling cost for each salesman, according to the class of trade he is working, wholesale or retail, and the territory he is covering, city or country.

You should then classify the different goods you sell according to a profitable and unprofitable, calling the profitable goods Class A and the unprofitable Class B.

A record of each salesman's monthly sales should then be so kept as to show his total sales and his Class A and Class B sales.

If these records have not been previously kept, by keeping them for a period of two or three months, you will be able to determine what percentage of each salesman's sales are Class A and what percentage Class B.

After these percentages are arrived at, figure them on the basis of the total sales upon which each salesman's salary and expenses have been based.

Assuming that these percentages figure out 60 per cent Class A and 40 per cent Class B, then on total sales of \$25,000.00 it will be found that \$15,000.00 are Class A and \$10,000.00 Class B sales.

Now, arrange to pay your salesmen in addition to their regular salaries and expenses based upon total sales, a bonus upon their increase in profitable sales—that is, Class A sales.

In many instances, salesmen are paid bonuses upon increases in total sales over and above the fixed amount upon which salary and expenses are paid. Adjustments are also made on a fixed percentage of total sales. Also salaries are increased on increases in sales, but none of these plans, adopted for the purpose of stimulating the salesman's efforts, provide him with any personal incentive to increase sales of profitable goods.

Under such plans it is just as advantageous to increase sales of unprofitable goods as of profitable.

It is unsafe to rely upon human nature ignoring self-interest; especially is this so in the case of men of ability.

But it has been proven that, with the profit interest aroused and stimulated, the volume of sales can be maintained and the proportion of sales of profitable goods largely increased.