

Food and beverage control

Introduction

Food and beverage control may be defined as the guidance and regulation of the costs and revenue of operating the catering activity in a food and beverage establishment. A successful holistic food and beverage control is imperative for any type of food and beverage operation regardless of its size. The cost of food and beverage can range from 25% to up to 50% depending on the type of operation. In restaurants, food and beverage can be the only source of revenue (e.g. merchandising and room hire can generate additional revenue). In the public sector catering, employee restaurants and similar operations, food and beverages are the main day-to-day expenditure, which is controlled by budgets and possibly a level of subsidy, either on a total company or on a per unit basis. The amount of control is related to the size of the operation. A large group operation would require a much more precise, detailed, up-to-date information, than a small operation. Additionally a larger operation will be able to support the control with a computerized system when a smaller operation may not be able to afford it (however the cost of such technology has been greatly reduced in recent years so much so that even smaller operations can now afford such a system). In both instances the type and volume of data required needs to be selectively determined if control is to be meaningful and effective. Having already gone through Chapters 5 and 6 the reader will be familiar with the concepts of purchasing (Chapter 6) and pricing (Chapter 5) which are



two important parts that complete the circle of effective food and beverage control.

It is important at this stage to clarify the limitations of a control system.

- A control system can only identify problem areas and trends in the business. The system cannot automatically correct such problem areas.
- A control system will require constant management supervision to ensure that it functions efficiently.
- A control system will need management action to evaluate the information produced and to act upon it.

Chapter objectives

After working through this chapter you should be able to:

1. Understand the objectives of food and beverage cost control.
2. Perform a break-even analysis and understand the budget.
3. Understand the concepts of standard recipes, yields and portion sizes.
4. Understand the methods of food and beverage cost control.
5. Understand the basics of revenue control and the differences between manual and computerized systems.
6. Understanding some of the basic operating ratios.

THE OBJECTIVES OF FOOD AND BEVERAGE CONTROL

The objectives of a food and beverage control system may be summarized as follows:

- *Analysis of income and expenditure:* The analysis is solely concerned with the income and expenditure related to food and beverage operations. The revenue analysis is usually by each selling outlet, of such aspects as the volume of food and beverage sales, the sales mix, the average spending power (ASP) of customers at various times of the day, and the number of customers served. The analysis of costs includes departmental food and beverage costs, portion costs and labour costs. The performance of each outlet can then be expressed in terms of the gross profit and the net margin (i.e. gross profit minus wages) and the net profit (i.e. gross profit minus wages and all overhead expenses such as rent, rates, insurance, etc.).
- *Establishment and maintenance of standards:* The basis for the operation of any food and beverage outlet is the establishment of a set of standards which would be particular to an operation, for example, a chain of steak house restaurants. Unless

standards are set no employee would know in detail the standards to be achieved nor could the employee's performance be effectively measured by management. An efficient unit would have the set standards laid down in manuals often known as SOPs (standard operational procedures) which should be readily available to all staff for reference. Having set the standards, a difficult problem always for the management of an operation is to maintain these standards. This can be aided by regularly checking on the standards achieved by observation and analysis and by comments made by customers, and when necessary, conducting training courses to re-establish the standards.

- *Pricing*: An important objective of food and beverage control is to provide a sound basis for menu pricing including quotations for special functions. It is, therefore, important to determine food menu and beverage list prices in the light of accurate food and beverage costs and other main establishment costs; as well as general market considerations, such as the average customer spending power, the prices charged by competitors and the prices that the market will accept (Pricing is further explained in the Chapter 5).
- *Prevention of waste*: In order to achieve performance standards for an establishment, targets are set for revenue, cost levels and profit margins. To achieve these levels of performance it is necessary to prevent wastage of materials caused by such things as poor preparation, over-production, failure to use standard recipes, etc. This can only be done with an efficient method of control, which covers the complete cycle of food and beverage control, from the basic policies of the organization to the management control after the operation has been completed (see Figure 8.1).
- *Prevention of fraud*: It is necessary for a control system to prevent or at least restrict the possible areas of fraud by customers and staff. Typical areas of fraud by customers are such things as deliberately walking out without paying; unjustifiably claiming that the food or drink that they had partly or totally consumed was unpalatable and indicating that they will not pay for it; disputing the number of drinks served; making payments by stolen cheques or credit cards. Typical areas of fraud by staff are overcharging or undercharging for items served and stealing of food, drink or cash.
- *Management information*: A system of control has an important task to fulfil in providing accurate up-to-date information for the preparation of periodical reports for management. This information should be sufficient so as to provide a complete analysis of performance for each outlet of an establishment for comparison with set standards previously laid down (e.g. budget standards).

Information overload can be a major issue when managing an operation. Often management will be presented with enormous amount of reports and statistical information that they may not know how to use or do not have the time to act upon.

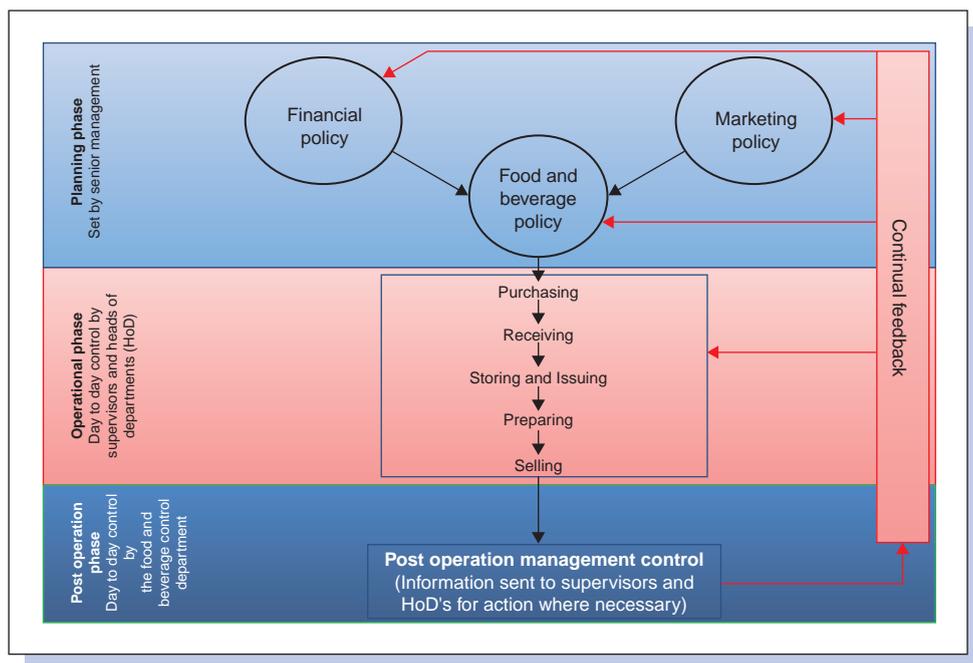


Figure 8.1 Holistic food and beverage control system

It is therefore imperative that depending on the size of the operation appropriate control is applied, for example, a small operation may not require daily, weekly and periodic reports whilst a larger operation will probably require them so that management may take both corrective and preventive action quickly.

SPECIAL PROBLEMS OF FOOD AND BEVERAGE CONTROL

Food and beverage control tends to be more difficult than the control of materials in many other industries. The main reasons for this are:

- *Perishability of the product*: Food, whether raw or cooked, is a perishable commodity and has a limited life. The caterer, therefore, has to ensure that she buys produce in the correct quality and quantity in relation to estimated demand, and that it is correctly stored and processed (beverages are less perishable and this contributes to easier control).
- *Business volume unpredictability*: Sales instability is typical of most catering establishments. There is often a change in the volume of business from day to day, and in many establishments from hour to hour. This causes basic problems with regard to the quantities of commodities to be purchased and prepared as well as to the staffing required.
- *Menu mix unpredictability*: In order to be competitive and satisfy a particular market, caterers must often offer a wide choice

of menu items to the customer. Predicting menu item preference on top of customer volume can be a challenge. Effective forecasting as part of the total food and beverage control system is therefore necessary.

- *Food and beverage operation short cycle:* The speed at which catering operations take place, relative to many other industries, allows little time for many control tasks. It is not uncommon that items ordered one day are received, processed and sold the same or next day. It is for this reason that in larger catering establishments cost reporting is done daily or at least weekly. Further problems, particularly with perishable foods, are that with a short life for produce, items cannot be bought very much in advance of their need; and the problem of availability at times of produce relative to the price that can be afforded in relation to the selling price.
- *Departmentalization:* Many food and beverage operations have several production and service departments, offering different products and operating under different policies. It is, therefore, necessary to be able to produce separate trading results for each of the production and selling activities.

THE FUNDAMENTALS OF CONTROL

Effective control systems and procedures consist of three broad phases: planning, operational and management control after the operation has taken place.

The planning phase

It is difficult to run an effective catering operation without having firstly defined the basic policies. Policies are pre-determined guidelines, laid down by the senior management of an organization, which outline such matters as the market or segment of the market that is being aimed at, how it is to be catered for, and the level of profitability/subsidy to be achieved. Policies in general are particular to individual companies and establishments, although in the public sector operations, there may well be broad national policies, for example, for hospital catering.

A catering operation should have its policies clearly defined before it commences business, and re-defined whenever a major change takes place, for example, when a new theme is chosen for a restaurant to aim for a different market segment. Ideally, in a large organization the policies should be written down and periodically reviewed in relation to the current business and future trends; however, in smaller organizations there is not the communication problem of a large organization and to formally draw up and commit policies to paper is not so vital. There are three basic policies which need to be considered:

1. The financial policy will determine the level of profitability, subsidy or cost limits to be expected from the business as a

whole and the contribution to the total profit, subsidy or cost limit that is to be expected from each unit, and then from the departments within them. This involves the setting of targets for the business as a whole as well as each unit and the departments within them. Thus, the financial policy for a large hotel will set profit targets for the hotel, and departmental profit targets for the accommodation and catering as well as other departments. The financial policy for the catering department will set the overall target for the department itself, which will be further divided into targets for the various restaurants, bars and function facilities. The financial policy for an industrial contract catering operation will set the overall target for the operation, the level of subsidy and the level of management fee, as well as the cost limits per unit (meal or employee).

2. The marketing policy will identify the broad market the operation is intended to serve and the particular segment(s) of the market upon which it intends to concentrate. It should also identify the immediate and future consumer requirements on a continuous basis in order to maintain and improve its business performance. It is obvious from the above that the broad market intended to be served by a large city hotel could be broken down into the specific segments of the various types of users of, for example, the coffee shop, the carvery, the cocktail bar, the banqueting rooms, etc. each having specific and different consumer requirements. The interpretation of the marketing policy for a national commercial catering organization into a marketing plan for the next year may include some or all of the following objectives:
 - *National identity* – to achieve a better national identity for all units by corporate design, and by meeting consumer expectations of what a ‘popular restaurant’ concept should be.
 - *Customer* – the customer profile being the business person, shopper, tourist of either sex, aged twenty-five years or more, commonly using the high street of any major town, requiring food and beverage of good general standard, waitress served, for a typical price of £*n* per meal.
 - *Market share* – to achieve, maintain or increase the percentage of ‘our’ market.
 - *Turnover* – sales volume to be increased by *x*% on previous year.
 - *Profitability* – profit to be increased by each unit by *y*% on previous year.
 - *ASP per customer* to be increased by *z*% – to achieve a new ASP of not less than £*n*.
 - *Product* – the product to be maintained at a consistently high standard.
 - *Customer satisfaction* – the net result must be the satisfaction of every customer.
3. The catering policy, which is normally evolved from the financial and marketing policies, will define the main objectives of operating the food and beverage facilities and describe the

methods by which such objectives are to be achieved. It will usually include the following:

- The *type of customer*, for example high spending business executive, low spending female shopper, short-stay hospital patient, etc.
- The *type of menu(s)*, for example table d'hôte, à la carte, fast food.
- The *beverage provision* necessary for the operation.
- The *food quality standards*, for example fresh, frozen, canned, etc. and the grade of produce to be used.
- The *method of buying*, for example by contract, quotation, cash and carry, etc.
- *Type and quality of service*, for example cafeteria, counter, waiter, etc.
- *Degree of comfort and décor*, for example square footage per customer, type and style of décor, of chairs, tables, etc.
- *Hours of operation*, for example twenty-four hours, seven days a week; 1200–1500 and 1800–2200 hours, Monday–Saturday, etc.

The operational phase

Having defined the policies (i.e. pre-determined guidelines), it is then necessary to outline how they are to be interpreted into the day-to-day control activities of the catering operation. The operational control is in five main stages of the control cycle. These are:

1. *Purchasing*: There are five main points to be considered.
 - (a) *Product testing* – to identify as a result of a series of taste panel evaluations the particular products to be used.
 - (b) *Yield testing* – to identify as a result of tests the yield obtainable from all the major commodities used.
 - (c) *Purchase specifications* – a specification is a concise description in writing of the quality, size, weight, etc. for a particular food or beverage item.
 - (d) *Method of buying* – by contract, quotation, cash and carry, etc.
 - (e) *Clerical procedures* – it is necessary to determine who originates, sanctions and places orders and what documentation is required for control.
2. *Receiving*: There are three main points to be considered:
 - (a) *Quantity inspection* – a person must be nominated to be responsible for physically counting and weighing goods and checking that the quantity and size of items in the delivery matches the purchase order. If there is a shortage in the delivery the purchasing manager or a member of the management must be informed.
 - (b) *Quality inspection* – this is particularly important with perishable foods where inspection may be made by a senior chef. Whenever possible the items should be checked against the appropriate purchase specification.
 - (c) *Clerical procedures* – this is a very important aspect as all necessary documentation must follow a set procedure. It

- includes the acknowledgement of the receipt of acceptable goods and the delivery person's signature on a 'request for credit' note for returned goods and short deliveries.
3. *Storing and issuing*: There are four main points to be considered:
 - (a) *Stock records* – it is necessary to decide what records are to be kept.
 - (b) *Pricing of items* – the method of pricing of the various types of items must be decided upon so that there is consistency within the operation. (see Chapter 5)
 - (c) *Stocktaking* – the points to be considered here are the level of stock to be held, rate of stock turnover, dealing with discrepancies, identification of slow-moving items, etc.
 - (d) *Clerical procedures* – there is a need to determine what documentation is necessary, for example requisitions, record cards, bin cards, stocktaking reports, etc.
 4. *Preparing*: This is a critical stage in the control cycle, in particular for food. There are three main points to be considered:
 - (a) *Volume forecasting* – a method of predicting the number of customers using the catering facilities on a specific day, and also of predicting as accurately as possible what items they will eat and drink.
 - (b) *Pre-costing* – a method of controlling food and beverage costs in advance of the preparation and service stages. It is done by preparing and using standard recipes for all food and beverage items and also by using portion control equipment, for example ladles, scales, optics, standard glassware, etc.
 - (c) *Clerical procedures* – what documentation is required and the distribution and destination of this information.
 5. *Selling*: This important stage of operational control needs to take into consideration the following points:
 - (a) *A checking system* – this is necessary to keep control of the number of covers sold and of the items sold. This may be done through a standard type of waiter's check system or through a till roll or in the case of hospital patients, by the summary and analysis of completed individual patient menu cards.
 - (b) *The control of cash* – this is vitally important. It is necessary to ensure that all items sold have been paid for and that the money is received or credit has been authorized.
 - (c) *Clerical procedures* – these would be necessary to control items sold and the money received or credit entitled, and would often include a restaurant checking system, meal and sales analysis, cashier's paying-in book, etc.

The post operation phase

This final phase of food and beverage control is in three main stages:

1. *Food and beverage cost reporting*: As mentioned earlier in this chapter, the cycle of production is very short and the product

is perishable. These factors together with the variations in demand for the product necessitate up-to-date reporting at least weekly if not daily.

2. *Assessment:* There is a need for someone from the food and beverage management team in the case of a large unit, or the proprietor or manager of a small unit, to analyse the food and beverage reports and to compare them with the budget for the period and against previous actual performance.
3. *Correction:* A control system does not cure or prevent problems occurring. When the analysis of the performance of a unit or department identifies that there is a problem, it is up to management to take the necessary steps to correct the problem as quickly as possible.

THE REALITY OF CONTROL

No matter how effective a control system may be there are certain realities that do not allow for any system to be 100% efficient. The reasons for the deficiency of a system can be:

- The material product (apart from purchased beverages) is very unlikely to be 100% consistent as to quality or the final yield obtainable from it.
- The employees are unlikely to work to a level of 100% efficiency at all times, in spite of the fact that operational standards may exist.
- The equipment used is also unlikely to work to the level of 100% efficiency at all times, and this could well affect the yield obtainable.
- The customers' choice of dishes can well be different at times to some of the budgeted sales mix, therefore affecting all forecasts.

It is important that the staff should see that control in some form is taking place and that on occasions there is a follow-up and action is taken on irregularities to set standards.

Further, the importance and relevance of using percentages as a yardstick necessitates that any percentages used should be directly related to the amount of money involved. A 1% difference to the required budgeted gross profit may not appear very significant at first but when related in financial terms it becomes more significant. For example, in the case of a unit with a turnover of £400,000 and with a budgeted gross profit percentage of 65% (i.e. £260,000) a 1% difference in the gross profit achievable would represent £2,600. Being aware that they are £2,600 off budget may be more meaningful to unit managers than just being aware that they are 1% off target.

The management of any catering operation has to be fully aware of everything that is taking place within and outside the operation and, to be successful, needs to continually collect, analyse, and evaluate data and take any necessary steps to correct anything which is irregular to the standards set for the operation.

SETTING THE BUDGET AND BREAK-EVEN ANALYSIS

In order to have an effective food and beverage control system a manager needs to have benchmarks where he/she can compare the operations performance.

The budget

A budget is a plan – expressed usually in financial and/or quantitative terms (e.g. total value of payroll, number of customers, etc.) – which reflects the policies of an establishment and determines the business operations for a particular trading period. The trading period is usually of one year, but is often broken down into review (or control) periods of either thirteen four-week periods; or alternatively, of thirteen-week quarters, each quarter consisting of two four-week and one five-week periods. Whichever method is adopted it is necessary that the periods remain the same so as to make it possible to compare results not only with corresponding periods in the same year, but also with the corresponding periods in earlier years. Bank holidays and special events falling into different periods each year should be noted.

The term *budgetary control* refers to a method of control where particular responsibility for various budgeted results is assigned to the managers concerned and a continuous comparison of the actual results and budgeted figures is made. When there are discrepancies between the two, it is necessary to identify the reasons for the variances and to take appropriate action. It is essential that when budgets are set they are clearly seen to be achievable; otherwise they are of little value. The objectives of budgetary control are threefold:

- To provide a plan of action for a set trading period, to guide and regulate a business in keeping with its stated policies, and to maximize the full use of its resources.
- To set standards of performance for management against which their performance can be measured.
- To set out levels of cost responsibility and encourage cost awareness.

Budgets are prepared by the senior management of an organization in consultation with the various managers and departmental heads so as to ensure a greater level of commitment and an awareness of the aims, objectives, problems and possible weaknesses of the establishment. There are two main types: capital budgets; and operating budgets. Capital budgets, as the name implies, are those which are concerned with the assets and liabilities of an establishment, for example equipment, plant and cash.

Operating budgets are those concerned with the day-to-day income and expenditure of an establishment and include sales, cost of sales, labour, maintenance, head office expenses, etc. This is the type of budget that food and beverage managers will be mostly concerned with when looking at the food and beverage control system.

For simplicity, budgeting may be seen as being in six stages. The amount of detail and sub division into departmental budgets depends very much on the type and size of the business. The basic stages are:

1. Determination of the net profit required for the business in relation to the capital invested and the risk involved. Alternatively, in the case of non-profit making establishments, the level of subsidy available or required is postulated.
2. *Preparation of the sales budget*: This determines the volume of sales necessary to achieve the desired net profit or subsidy and also influences the budgeted costs for food, beverages, labour and some overheads.
3. *Preparation of administration and general budgets*: These are for such items as head office expenses, advertising, rates, insurance, etc. Some of these may be regarded as fixed budgets, that is, they are not affected by any change in the volume of business, for example head office expenses, advertising, rates, etc.; while others may be regarded as flexible budgets, that is, they are affected by changes in the volume of business, for example telephones, laundry, etc.
4. Preparation of the capital expenditure budget which makes provision for such items of expenditure as new kitchen equipment, restaurant and bar furniture (including any installation charges), etc.
5. *Preparation of the cash budget*: This is regarded as the most important of the capital budgets and it predetermines the cash inflows, the cash outflows and resulting cash balance at particular points during the period.
6. *Preparation of master budgets*: As stated previously master budgets are prepared for the trading account, profit and loss account and the balance sheet (see Figure 8.2).

Costs, profits and sales

The cost of operating a catering unit or department is usually analysed under the three headings of the elements of cost (see Figure 8.3).

1. *Material costs* – cost of food and beverage consumed and the cost of additional items such as tobacco. (*Note*: The cost of any food and beverage provided to staff in the form of meals is deducted from material costs and added to labour costs.) The food cost is then calculated by the formula:

$$\begin{array}{rcl}
 \text{opening stock} & & \\
 + \text{cost of purchases} & & \\
 - \text{closing stock} & = & \text{material cost} \\
 - \text{cost of staff meals} & &
 \end{array}$$

2. *Labour costs* – wages and salaries paid to all employees, plus any employer contribution to government taxes, bonuses, staff meals, pension fund, etc.

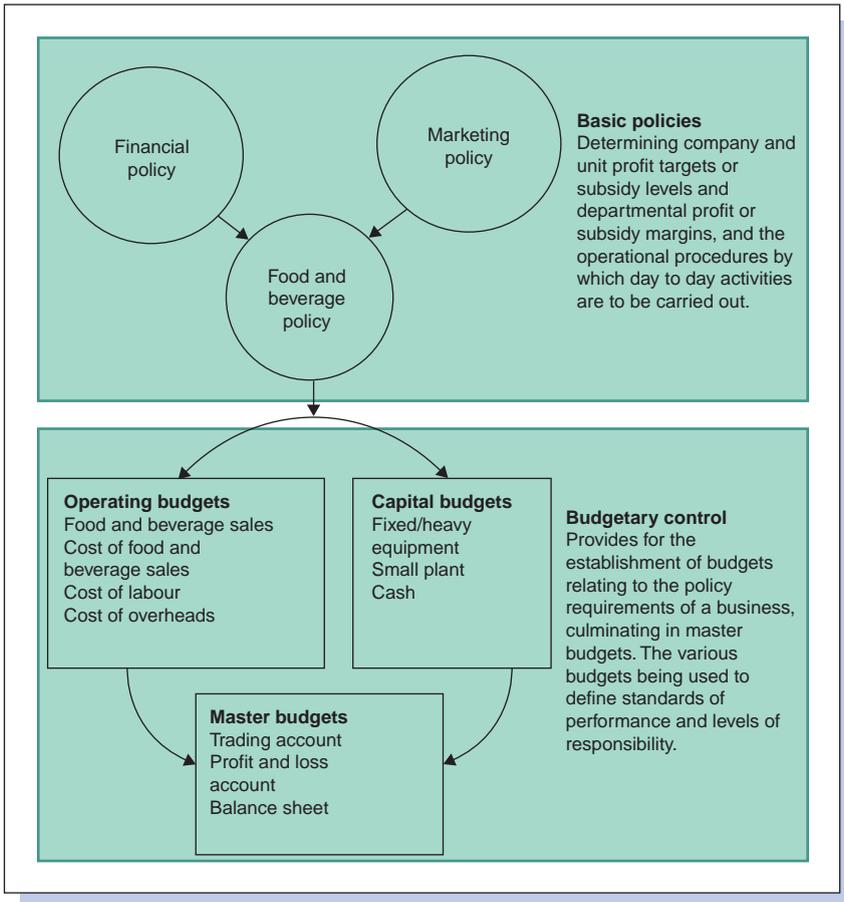


Figure 8.2 Budgetary control as an extension of basic policies

Total cost 80%	Materials	30%	Sales 100%
	Labour	30%	
	Overheads	20%	
	Net profit	20%	

Figure 8.3
A typical example of the elements of cost

3. *Overhead costs* – all costs other than material and labour costs, for example rent, rates, insurance, depreciation, repairs, printing and stationery, china and glassware, and capital equipment.

As most catering operations are subject to changes in the volume of business done, it is normal practice to express the elements of cost and net profit as a percentage of sales. A change in the volume of sales has an effect on the cost structure and on the net profit.

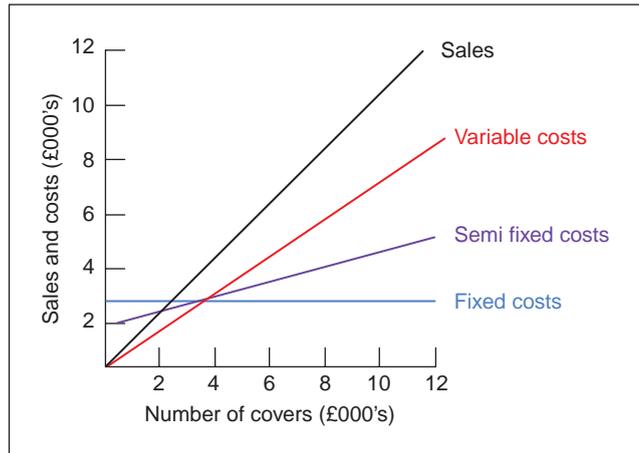


Figure 8.4
Fixed, semi-fixed and variable costs

It is necessary to examine costs not only by their nature (material, labour, overheads) but also by their behaviour in relation to changes in the volume of sales. Using this criteria, costs may be identified as being of four kinds:

1. *Fixed costs*: These are costs which remain fixed irrespective of the volume of sales, for example rent, rates, insurance, the management element of labour costs (see Figure 8.4).
2. *Semi-fixed costs*: These are costs which move in sympathy with, but not in direct proportion to the volume of sales, for example fuel costs, telephone and laundry. Semi-fixed costs contain a fixed and variable cost element, for example, the charge for the telephone service in the UK contains a fixed cost for the quarterly charge for the rental of each phone and a variable cost depending on the number of phone calls made.
3. *Variable costs*: These are costs which vary in proportion to the volume of sales, for example food and beverage (see Figure 8.4).
4. *Total costs*: This is the sum of the fixed costs, semi-fixed costs and variable costs involved.

Three main kinds of profit are normally referred to in food and beverage operations:

1. *Gross profit* = total sales – cost of materials. *Note*: The term gross profit is often referred to as 'kitchen profit' (food) or 'bar profit' (beverages). Room hire is normally treated as 100% gross profit.
2. *After-wage profit* (or net margin) = total sales – (material + labour costs).
3. *Net profit* = total sales – total costs (material + labour + overhead costs).

All of the above are normally used as measures of performance against past results and budgeted targets. For an example of the use of the three main kinds of profit used in controlling food and beverage operations see Table 8.1.

This period					Year to date			
Actual		Budget			Actual		Budget	
£	%	£	%		£	%	£	%
11,000	100	10,000	10	Net sales	20,000	100	21,000	100
5,500	50	4,000	40	Less Cost of sales	11,200	56	8,400	40
5,500	50	6,000	60	Gross profit	8,800	44	12,600	60
2,750	25	2,000	20	Less Wages and staff costs	4,200	21	4,200	20
2,750	25	4,000	40	Net margin less allocated expenses	4,600	23	8,400	40
550	5	500	5	Maintenance	1,200	6	1,050	5
220	2	200	2	Head office services	600	3	420	2
220	2	200	2	Others	200	1	420	2
110	1	100	1	Equipment	200	1	210	1
1,100	10	1,000	10		2,200	11	2,100	10
1,650	15	3,000	30	Operating profit	2,400	12	6,300	30

Note: Budgeted figures are used to compare with the actual operating results. It can be observed that the low operating profit achieved is almost entirely to the failure to achieve the budgeted gross profit on sales in spite of an increase in sales this period

Table 8.1

Example of a restaurant operating a sales statement with the sales budget

The Endsleigh Restaurant		
	April	May
Number of covers	2,000	3,000
Average spend	£10	£10
Total sales	£20,000 (100%)	£30,000 (100%)
Fixed costs	£3,000 (15%)	£3,000 (15%)
Variable costs	£8,000 (40%)	£12,000 (40%)
Semi-fixed costs	£6,000 (30%)	£8,000 (26.7%)
Total costs	£17,000 (85%)	£23,000 (76.7%)
Net profit	£3,000 (15%)	£7,000 (23.3%)

Note: Fixed costs remain the same and variable cost % remains at 40%. Semi-fixed costs increase by £2,000 but in relation to sales there is a 3.3% decrease this is also reflected in the total costs. A change in the volume of sales will reflect a change on the cost structure

Table 8.2

The Endsleigh Restaurant operating statement

The behaviour of the different types of cost and profit relative to a change in the volume of sales can be identified by examining the example of a simple operating statement for a restaurant in Table 8.2. The statement shows the sales, costs and profit over two consecutive months with the May sales figure showing a 50% increase in business.

Break-even analysis

It is very common for food and beverage management to be faced with problems concerning the level of food and beverage cost that can be afforded, the prices that need to be set for food and beverages, the level of profit required at departmental and unit level and the number of customers required to cover specific costs or to make a certain level of profit. Typical questions raised are:

1. What level of sales is needed to cover the fixed costs of a unit?
2. What level of sales is required from a particular unit to achieve £x's net profit?
3. What level of sales is required to increase the net profit of a unit by £10,000?
4. What will the effect of increasing prices by 5% have on net profit?
5. What will be the effect on net profit of increasing the average spend of customers by 50p per meal?
6. What increased level of sales must be obtained to cover the spending of £1,000 on advertising to promote the restaurant?
7. What will be the financial implications of discounting beverages during a proposed promotion?
8. What is the relationship between the capital invested in a restaurant and its sales and profit?

Answers to the above types of question are normally attempted by using the accepted technique of break-even analysis. Break-even analysis enables the relationship between fixed, semi-fixed and variable costs at specific volumes of business to be conveniently represented on a graph. This enables the break-even point to be identified and the level of sales necessary to produce a pre-determined level of net profit. The term break-even point may be defined as that volume of business at which the total costs are equal to the sales and where neither profit nor loss is made. The technique is based on the assumption that: the selling price remains constant irrespective of the volume of business; that certain unit costs remain the same over the sales range of the charted period; that only one product (e.g. a meal) is being made or sold; that the product mix remains constant in cost price and volume and that labour and machine productivity is constant.

Nearly every action or planned decision in a business will affect the costs, prices to be charged, the volume of business and the profit. Profits depend on the balance of the selling prices, the mix of products, the costs and the volume of business. The break-even technique discloses the interplay of all these factors in a way which aids food and beverage management in selecting the best course of action now and in the future.

Pricing is a multi-dimensional problem, which depends not only on the cost structure of a business and its specific profit objectives but also on the level of activity of the competition and the current business economic climate.

Activity 1

Saudi Enterprises is considering the acquisition of the Rumble-Tum Restaurant. The purchase price is £100,000 and the directors of Saudi Enterprises expect any new purchase to show a return on capital of 18%. The proprietor of the restaurant is able to provide the following information:

Rates, insurance, fuel costs, etc. £45,000 per annum

Franchise fee £5,000 per annum

Franchise commission 1% of turnover

Wages £1,000 per week

The restaurant operates for six days a week and for fifty weeks in the year. *Note:* Wages are only paid for fifty weeks.

A typical day's business shows:

200 lunches served with an ASP of £1.50

100 dinners served with an ASP of £3.00

The maximum number of covers which it is possible to serve without physical alterations to the structure is 250 lunches and 125 dinners.

The restaurant is expected to operate at a gross profit of between 55% and 65%.

Using the Saudi Enterprises example:

1. Prepare a profitability statement for the restaurant when operating at gross profit percentage of 55, 60% and 65%.
2. Making the calculations, using the break-even formula, state clearly the break-even points and their margins of safety.

Note: For the solution see the end of this chapter.

Example

A restaurant has seating capacity of 180 covers, enabling to serve a total of 10,080 customers per twenty-eight-day trading period over lunch and dinner. The ASP of the customers is £15 (total maximum sales of £151,200). The fixed costs of the restaurant are £35,000 per period and the variable costs are 40% of sales (maximum £60,480). The break-even chart of the restaurant would be prepared as shown in Figure 8.5. Drawing the diagram shows that 4,000 covers appears to be the break-even point however calculating the break-even point the accurate number would be 3,889. So the number of covers served between 3,889 and 10,080 will bring the restaurant some net profit. The output between the break-even point and the maximum output is known as the margin of safety. The size of the margin of safety is a measure of the stability of the profits.

The output between the break-even point and the maximum output is known as the margin of safety. The size of the margin of safety is a measure of the stability of the profits. The higher the proportion of variable costs (to fixed costs), the greater the margin of safety, while the higher the proportion of fixed costs the narrower the margin of safety. Should the variable costs

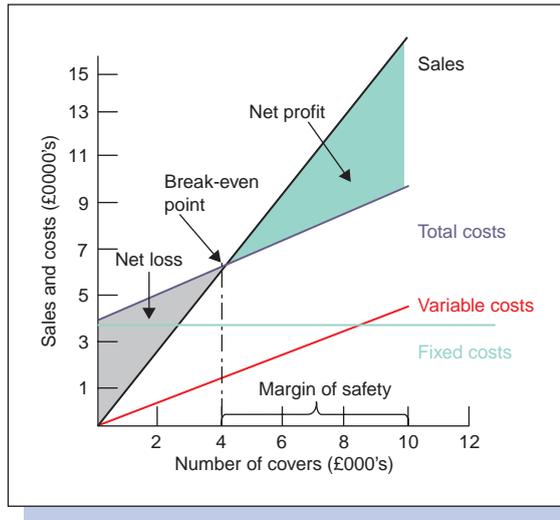


Figure 8.5
Break-even chart

be increased (with the level of fixed costs remaining static) the break-even point will be raised resulting in a lower level of net profit and a smaller margin of safety.

Although a break-even chart shows diagrammatically the varying levels of profit or loss from different volumes of sales, the level of accuracy of the information may at times be in doubt owing to the scale of the graph and the skill of the person drawing it. A precise break-even point may be calculated using the formula:

$$B/E = \frac{C}{S - V} = \text{units of output at the break-even point}$$

where

C = the total capacity costs, that is, the costs of establishing the particular production capacity for an establishment (e.g. this would include rent, rates, insurance, salaries, building and machinery depreciation)

S = sales price per unit

V = variable cost per unit

Essentials of a control system

With the advancements in points of sale technology, food and beverage control has become even easier to establish even to small operations. There are a number of companies that now offer software that will offer solutions to any restaurant. The main components of such a software system may include:

- *Menu planning* – historical data will enable to forecast menu item popularity and profitability making it easier for the manager to plan future menus.
- *Production control* – menus can be used to determine precise sales and production quantities, ensuring great control over kitchen production and usage of goods, reducing wastage of perishable goods.

- *Stock management* – the system may maintain stock levels in any number of individual store locations, tracking the issues and consumption of raw materials, as well as wastage and weekly or monthly stock checks.
- *Purchase ordering* – the system can base on minimum stock levels and/or forecast demand from production planning and match delivery notes and invoices. Some systems will even place an automatic order once stock levels are detected to be under minimum required.
- *Menu analysis* – individual customer menu choices can be automatically recorded and analysed.
- Financial management reporting.

These components are often fully integrated into the electronic point-of-sale (EPOS) system, so that all data inputting is automatically done.

It is important that when examining an existing control system or preparing to install a system into a new operation that the following points should be taken in consideration.

- Any control system should be comprehensive and cover all the outlets of an establishment and all stages of the food control cycle.
- The cost of maintaining the system should be in relation to the saving to be made, the level of sophistication of the control system usually increasing with the increase in the volume of sales and the complexity of the menu.
- The control system should be easy to operate and to be understood by all levels of staff.
- The control system should be seen by staff to be working. That is, that the management act in a positive way to adverse trading results and follow up on future results to check if the corrective action taken is effective.
- To be effective the information produced must be accurate and up-to-date.

BASIC CONCEPTS

Before we consider methods of food and beverage control we need to have an understanding of the four basic concepts in food and beverage production control. These are planning, standard yields, standard recipes and standard portion sizes (PYRS). When PYRS are practised in a food and beverage operation they should aid management in controlling costs, setting standards and achieving customer satisfaction. The production of beverages needs to be tightly controlled as the contribution to profits from beverages is usually higher than that from food.

Production planning

Production planning, or volume forecasting as it is also known, is the forecasting of the volume of sales for an establishment, for

a specified time period, for example a day, a week or a month. The aims and objectives of production planning are as follows:

- To facilitate food and beverage cost control for the establishment.
- To facilitate the purchasing of items, particularly perishable ones, and ensure appropriate stock levels are maintained.
- To reduce the problem of food that is left over and how it is to be re-used, beverage wastage or customer dissatisfaction when insufficient foods and beverages are available.
- To gear production to demand by forecasting the number of meals and drinks to be served for a given meal period.
- To enable a comparison to be made between actual and potential volume of sales, and for corrective action to be taken if necessary.

An initial forecast is made either at a set period in advance, for example a month, or when the major food orders are placed. This initial forecast estimates the total number of meals to be sold by the establishment and the estimated total of each menu item. In the case of a large hotel with a variety of catering outlets, a more detailed forecast would be made for each individual outlet. Factors that need to be taken into account at this stage are the season, and hence the weather forecast for that time of year; past popularity of menu items; major events occurring in the area – fêtes, shows, etc. that are likely to attract a larger than average number to the establishment's normal catchment area, any sales campaigns currently being promoted by the operation, etc.

The initial estimate is later adjusted, usually one or two days prior to the day of production, so that a more accurate forecast may be made. On the basis of this updated information, any changes that may need to be made with regard to staff scheduling, food purchases and requisitions, etc. should be made as soon as possible. There are a number of aids or management tools that may be employed by an establishment to assist the forecasting and planning of production.

Standard yields

The standard yield of a particular food product is the usable part of that product after initial preparation, or the edible part of the product after preparation and cooking; for example, the standard yield for a whole fillet of beef is the number of fillet steaks that will be available for cooking and final sale to the customer after the fillet is trimmed and any unwanted meat removed. Any usable trimmed meat should be taken into account with the standard yield.

In large establishments buying in large quantities of food per week, standard yields may be available for almost all the commodities – meat, fish, vegetables, etc. In smaller establishments standard yields may only be determined for the more expensive cuts of meat or fish such as whole fillets, lobsters, salmon, etc.

The development of standard yields by an establishment has a number of advantages:

- Standard yields determine the most appropriate and advantageous size/weight to buy a particular commodity in.
- They assist in determining the raw material requirements for the production levels anticipated from the production forecasts, and therefore act as an aid in the purchasing of the establishment's foodstuffs.
- They act as a 'double check' for the purchasing department. Should an unsatisfactory delivery of meat, for example, be made to an establishment and is unnoticed at the receiving bay, this delivery is subject to a second 'checking' procedure in the kitchen where the meat should yield a standard number of portions.
- They act as a safeguard against pilferage or wastage occurring in the kitchen as the actual and potential yields can be compared and this acts as a measurement of the efficiency of the production department.
- Finally, they are an aid to accurate food costing for particular dishes offered on an establishment's menu, as the cost factor can be established.

For beverages the standard yields of beverage products may, with few exceptions, be accurately calculated, because for the majority of beverages there is little wastage and all the contents of, for example, a bottle of spirits may be used. For the purpose of beverage control all beverages bought in to an establishment should have standard yields calculated, on which the pricing of each drink may be based, and to control wastage and pilferage. If, for example, a 75 cl bottle of wine is bought in, allowing 15 cl of wine to a glass, five good measures should be obtained.

Standard recipes

A standard recipe is a written schedule for producing a particular menu item, specifying the name and quantity of the item to be produced, the constituent ingredients necessary for its production and the method of preparation. This is the basic information contained in a standard recipe although it may also include such information as the costings of the dish, its nutritional value, etc. Detailed recipe cards are usually kept in the food and beverage control department for cost and price updating, only the basic information needing to be included on those cards that are displayed in the production area – often together with a photograph of the end product. Recipe management software has replaced the manual system. Along with the standard recipes the nutritional information of each item is readily available as well as the recipe costings (see Figure 8.6). Linked to an EPOS total food costs at the end of the day can be automatically calculated and easily reported to managers.

preparation procedure, and also as an aid to the training of new employees. More importantly the use of standard recipes in the production area ensures that the customer will always receive a standardized product.

- Standard recipes are an aid to menu planning. New additions to the menu, for example, may be accurately costed and balanced with the other items on the menu, not only in terms of price, but also in appearance, flavour, colour, etc.
- They may be used as a basis for compiling standard portion sizes which, if used in conjunction with standard recipes and standard yields, will together form the basis of a very effective production control system.

Standard recipes should also be compiled for the majority of beverage products offered for sale by the establishment. Like standard yields, standard recipes may be very accurately produced as all the contents of a drink may be itemized on the standard recipe.

Obviously only a certain number of standard recipes may be produced for an establishment, and this is where the sales histories discussed earlier may be particularly useful – they do at least ensure that the recipes for the most popular drinks have been standardized. With such a variety of components with which to make different drinks, it would not be practical to write standard recipes for every possible combination; so the bar staff should be provided with a book or books chosen by management on how to prepare those varieties of drinks that may be rather unusual or rare. Computer terminals and visual display units may be used in bars where the mixing and service details of various drinks can be displayed to order giving a speedier visual recipe than using a book.

Bar staff should also be provided with the correct equipment for measuring and mixing drinks. Standard bar equipment would include such items as a fruit knife and board, sticks for cherries and olives, ice bowls, fruit squeezers, a cocktail shaker and stirrer, etc.

Standard portion sizes

A standard portion is the quantity of a particular food item that will be served to the customer; the quantity may be measured in terms of ounces (e.g. a 4 oz portion of meat), or a numerical quantity (e.g. one bread roll per person). The portion sizes of the food items are determined by management in conjunction with the heads of both the kitchen and restaurant departments. Standard portion sizes in the operation may be established in several ways.

- By buying in pre-portioned food items, for example 8 oz rump steaks, pre-wrapped packs of butter and condiments, etc.
- By buying in food items in bulk and portioning them in the production kitchen before service, for example, pre-plating salads to be served in a display cabinet in a cafeteria line.

- By portioning food items as they are being served to the customer, for example, food in hot *bain-maries* in a cafeteria line being plated and served when the customer requests the food item.

In establishments operating more than one level of service, there may be varying portion sizes for the same food items, for the different catering outlets. For example, in a hotel the coffee shop offering a table d'hôte menu may serve a 6 oz rump steak, while the silver service restaurant offering an à la carte menu would serve an 8 oz steak.

Standard portion sizes, like standard recipes, are an aid to food costing, as once the standard portion size has been established the gross profit may be calculated for that dish. Any fluctuations in the sizes of the portions, for example serving larger portions, will therefore be reflected in the restaurant's gross profit, particularly so if this is occurring with a number of menu items.

Details of the standard portion sizes should be made readily available to all necessary employees. The food and beverage costing department should regularly review the portion size of a particular food item with reference to its current price, as it may be necessary either to reduce the standard portion size if the cost of a particular food item has increased substantially; increase the selling price; or possibly, remove the dish from the menu for a period until the cost price is acceptable. In the kitchen and restaurant, the standard portion sizes of a dish are often combined with the standard recipes, and together they may be displayed on a wall chart to which all employees may refer.

As with standard recipes, standard portion sizes for beverages should be easier to control than those for food products. With some beverages, for example a bottled baby orange juice, all the contents of the bottle will be emptied into the customer's glass. Other beverages such as spirits need to be measured before being poured into the customer's glass, the use of optics being an accurate method.

Another aid to control the portion size is to use standard glassware for specific drinks. In the UK, for example, alcohol measurements are specified by law and managers can be heavily fined or even lose a licence if they are found not to comply with specifications.

METHODS OF FOOD CONTROL

Depending on the size of the operation food control methods may be automated or manual. In Figure 8.6, we see examples of a recipe management software which can then produce automatic reports of daily/weekly/monthly food costs. Inventory or stock control is an imperative management tool to ensure that food costs are controlled and losses minimized.

The basic tools that enable the correct functioning of the inventory control cycle are:

- *Purchase order*: Completed by the Chef and are normally forms that are in triplicate with one copy for the supplier one for the accounting and one remains with the chef.
- *Delivery note*: Issued by the supplier and delivered together with the goods to the operation.
- *Invoice*: Issued by the supplier and normally send directly to the accounts department.
- *Requisition*: A note issued by the production unit (kitchen) to the storeroom requesting the issuance of goods.

Receiving and storing is explained in Chapter 6 however two methods of storing goods often used in storerooms are worth noting. These are FIFO and LIFO. FIFO stands for First in First out meaning the goods that were received first should be sold to customers. Because of the high levels of perishability of goods, FIFO is the method most commonly used in food and beverage operations. The LIFO method stands for Last in First out and in fine dining restaurants where the freshest ingredients are expected to be used this method is normally utilized. Depending on which method is used closing inventory may be valued differently using the oldest (FIFO) or the latest (LIFO) prices of the stock to value the whole stock. However with computerized systems, it is very easy to use actual cost of each item therefore allowing managers to be far more accurate than ever in the costings of their inventory.

Weekly/monthly food cost report

The following is an example for the calculation of the monthly food costs for an operation where detailed information is not thought to be necessary, or for a small or owner-managed unit where the control is an everyday part of the manager's activity, in order for the operation to be successful. The weekly/monthly food cost report is almost a reconciliation report on an activity that is tightly controlled daily by management (see Table 8.3). The advantages of this method are:

- It is simple and quick to produce.
- It can give an indication of the general performance of the unit.

The disadvantages though are:

- This information is only produced after seven or twenty-eight days of operation.
- It provides no intermediate information so that any undesirable trends (e.g. food costs too high) may be corrected earlier.
- It does not provide the daily or to-date information on purchases, requisitions and sales for a unit with an average of £2,700 a day turnover.

Table 8.3
A weekly/monthly food cost report

	£
Opening food cost	15,000
Purchases for period (4 weeks day 1–28)	28,525
Subtotal	43,525
Less closing food stock level at end of day 28	14,800
= Total cost of food consumed	28,725
Total food sales	75,836
Food cost %	37.87%

A daily food cost report

This food cost method is suitable for a small to medium-sized operation, or one where a not too sophisticated method is required, or where the costs involved in relation to the savings to be made do not justify a more involved method (see Table 8.4).

Activity 2

Complete the daily food cost report shown on Table 8.4. The formulas for columns E, H, and L are given to you in the table. The opening stock of the next day is the closing stock of the previous so for Tuesday, the 2nd of March it would be $2,541 - 290 = 2,251$.

The totals for columns D and F have been completed so that the closing stock at the end of week 2 is calculated. If you complete this report correctly then the total food available for Sunday, the 14th of March less the food requisitioned will give a total of 2,126.

The advantages of producing this basic food report are:

- It is simple and easy to follow.
- It gives a reasonably detailed account of the general performance of the business on a day-to-day basis.
- It records the daily stock level, daily purchases, daily food requisitioned and daily food sales and enables the daily food cost percentage to be calculated. This information is used for preparing to-date totals (i.e. running totals to date).
- The to-date food cost percentage smooths out the uneven daily food cost percentages and highlights the corrective action to be taken, if necessary, early in the month. The uneven daily food cost percentage is often caused when food is requisitioned on one day to be processed and sold on subsequent days.

The disadvantages of this basic food report are:

- Although simple and easy to prepare, the report relies heavily on the accuracy of the basic information to be collected, for example the total of daily purchases, daily requisitions, etc.

A	B	C	D	E	F	G	H	I	J	K	L
Date	Day	Today						To date			
		Opening food storeroom inventory	Purchases	Total food available (C + D)	Food requisitioned	Food sales	Food cost % (F/G)*100	Food purchases	Food requisitions	Foot sales	Food cost % (J/K*100)
March		£	£	£	£	£	%	£	£	£	%
1	M	2,220	321	2,541	290	820	35.37%	321	290	820	35.37%
2	T	2,251	385	2,636	370	980	37.76%	706	660	1,800	36.67%
3	W	2,266	404	2,670	440	1,100	40.00%	1,110	1,100	2,900	37.93%
4	T	2,230	480	2,710	480	1,050	45.71%	1,590	1,580	3,950	40.00%
5	F	2,230	890	3,120	405	1,005	40.25%	2,480	1,985	4,955	40.05%
6	S	2,715	203	2,918	535	1,490	35.91%	2,682	2,520	6,445	39.09%
7	S	2,383	0	2,383	240	720	33.33%	2,682	2,760	7,165	38.51%
8	M		380		310	920				8,085	
9	T		402		395	1,015				9,100	
10	W		425		345	925				10,025	
11	T		464		427	1,160				11,185	
12	F		844		463	1,220				12,405	
13	S		185		512	1,405				13,810	
14	S		0		265	690				14,500	
	Totals:		5,382			5,477					
Proof of inventory											
Opening stock:		2,220									
Plus purchases		5,382									
Subtotal		7,602									
Less requisitions		5,477									
Closing stock		2,126									

Table 8.4

A daily food cost report

- It is not totally accurate as it ignores such things as the cost of the staff meals; food transferred to bars, for example potato crisps, nuts, salted biscuits, trays of canapes, etc. which are given away free in the bars to customers and items such as lemons, limes, etc. which are included in certain drinks; and beverages transferred to kitchens, for example wine, spirits, beer, etc. for use in the cooking of specific dishes.

A detailed daily food cost report

This food cost report is a development of the previous report and refines the accuracy of the report by taking into account the cost of beverages transferred into the kitchen, the cost of food transferred out of the kitchens to the bars, and the cost of employees' meals (see Table 8.5).

- It is more accurate than the two previous food reports illustrated in Tables 8.3 and 8.4 in that it includes additions to the cost of food for beverages transferred to the kitchen (e.g. cooking wine, etc.) and deductions for the cost of food transferred from the kitchen to the bars (e.g. lemons, oranges, olives, nuts, etc.) and for the cost of all employees' meal. It also separates purchases into those that go straight to the storerooms and those that go direct to the kitchen and are charged immediately to the kitchen.

	Day	March-2001	March-2002	March-2003
		M	T	W
A	Stock levels at beginning of each day	2,220.00	2,250.50	2,265.50
B	Storeroom purchase	120.50	200.00	204.00
C (A + B)	Total food available in storeroom	2,340.50	2,450.50	2,469.50
D	Food requisitioned	90.00	185.00	240.00
E	Direct purchases	200.00	185.00	200.00
F	Beverage transfer to kitchen	0.00	5.00	5.00
G (D + E + F)	Cost of food used	290.00	375.00	445.00
H	Cost of employee meals	35.00	25.00	30.00
I	Transfer of food to bars	0.00	0.00	5.00
J (G - H - I)	Cost of food sold	255.00	350.00	410.00
K	Food sales	820.00	980.00	1,100.00
L	Food cost %	31.09	35.71	37.27
M	Cost of food sold (to-date, running total of J)	255.00	605.00	1,015.00
N	Food sales (to-date, running total of K)	820.00	1,800.00	2,900.00
O	Food cost % (to-date)	31.09	33.61	35.00

Table 8.5

Example of a detailed daily food cost report

The result of these additions and subtractions is that the true cost of the food sold to customers is more accurate than previously.

- The accuracy of the to-date food cost percentage is refined to take into account all daily transactions and these figures should be fully relied upon to be the basis against which corrective action may be taken.

The disadvantages of this type of report are that it is more detailed than the previous reports and it relies very much on the accuracy of the collected information, for example, the collection of all the requisition notes and the accurate extensions of the pricing of items; the collection of the goods received sheet and the checking of it against delivery notes, credit notes, invoices, etc.

Calculation of the potential food cost

The potential food cost is the cost of the food under perfect and ideal conditions. The potential food cost of an operation is the principal and most effective method of evaluating the actual food cost. Any variance higher than 1% between the potential and actual costs should be investigated. The potential food cost may be calculated in a variety of ways, but because of time it is usually costed per menu for each selling outlet twice a year or more frequently if the menu changes. This means that the potential figures will differ between breakfast, lunch and dinner menus and between selling outlets, where the prices of items may vary.

The calculations are in three main steps.

1. For each individual menu item multiply the number of portions actually sold during a 'sample' week as determined by the restaurant sales analysis, by the potential food cost per portion, to obtain the total potential cost of food sold for that week.
2. Multiply the same portions actually sold, as above, by the menu selling prices, and arrive at the potential total sales.
3. Divide the potential total food cost by the potential total food sales and arrive at a figure which, when expressed as a percentage, is the potential food cost percentage.

To be able to do the above calculations it would be necessary to have the following information to hand:

- A detailed sales analysis of all items sold in the various outlets, together with their selling prices.
- Standard recipe cards of all the menu items costed out.
- Summary of potential food cost, obtained from the standard recipe cards.
- Average market price for the main ingredients taken from invoices, food marketing reports or food cost indices reports.

It is not unusual for there to be a difference between the actual and the potential food cost figures. Usually the actual cost of the food sold is higher than the potential for such reasons as

food being a perishable commodity, the difficulty of being exact when forecasting food production requirements and that a small amount of waste is almost unavoidable. Any large differences in the figures will reflect a lack of adherence to established standards, or pilfering or sheer carelessness resulting in an excessive amount of waste. As stated earlier, any variance in excess of 1% should be investigated.

METHODS OF BEVERAGE CONTROL

There are many different methods in use today to control costs, the various methods depending on the size of the operation, the volume of business, owner or managed operation, etc. and the level of sophistication of control required. Each of the different methods in use could be classified under one of the following six basic types of beverage control systems. Whatever method is adopted, it would be of little value unless the previous steps of control had been efficiently implemented and enforced, that is, the control of purchasing, receiving, storing and issuing; production planning; the establishment of standard yields, standard recipes, standard portion sizes and inventory. The inventory control cycle (Figure 8.7) is of course applicable to beverage

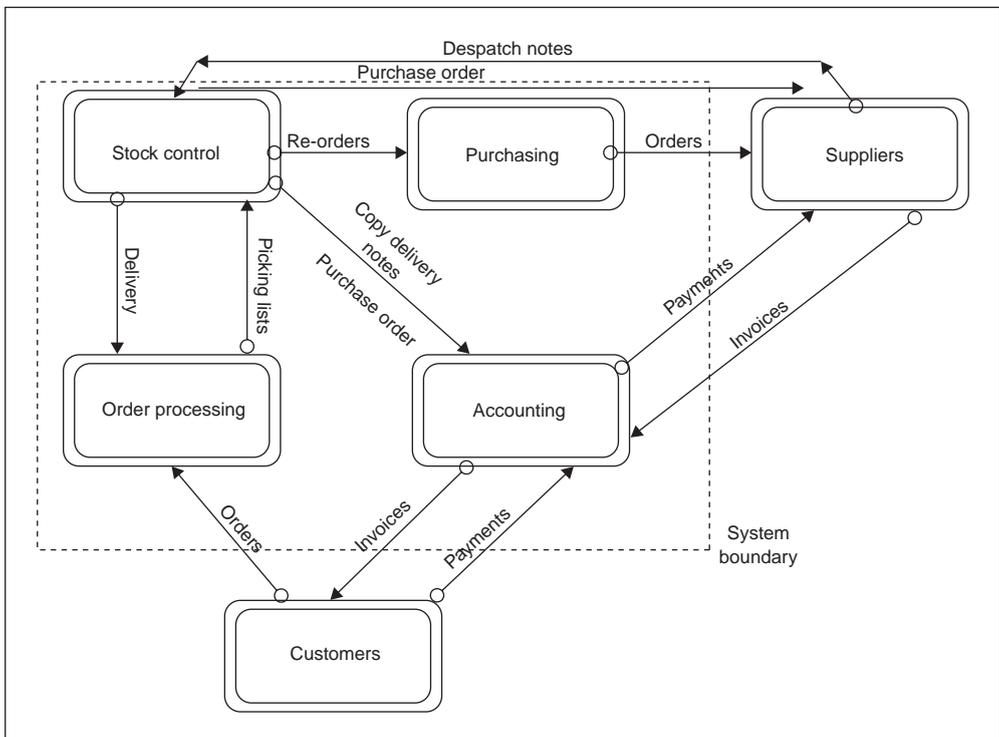


Figure 8.7 Inventory control cycle

inventory as well, with FIFO been the most used method whilst LIFO may find application in situations where some stock may be kept back for later use. For example, some wine may be kept in the cellar and not sold so that it may age a little more.

Bar cost system

This system is similar to that for the basic food cost report and the detailed food cost report. It may be produced for each bar separately or for all of the beverage operations.

Par stock or bottle control system

This is a simple yet effective method of beverage control and is particularly useful for the smaller type operation where there are few full-time control staff. The following points should be noticed.

1. The level of par stock is established for each bar, that is, to establish for each beverage the number of bottles required for a busy day plus a small safety factor. This number is determined to be the stock level to be held in the bar at the beginning of the service each day. To simplify the system only full bottles are counted, partial bottles are not counted.
2. The number and type of empty bottles are noted each day, this being the amount and type to be requisitioned for the day.
3. The potential sales are based on the quantities issued at selling price and are compared to actual revenue received.
4. Adjustments to be made to the initial selling price if many mixed drinks are sold. This may only be necessary if the difference between the potential and actual sales figures gives cause for investigation.

The particular advantages of this system are its simplicity and ease of operation. The system assumes that over a short period the level of partial bottles remains relatively constant so that it becomes unnecessary to count each bottle's contents to determine the total sales. Theoretically, the sales value of today's issues should equal yesterday's revenue. This would be unlikely, however, but over a short period the sales value of issues to date should equal the revenue to date figures.

Potential sales value system

This system is designed to control beverage sales and therefore beverage costs by setting a sales value on each bottle item carried in stock. The revenue value of each bottle is based on the standard size of the drink, the contents of the bottle and the selling price for each drink. The sales value of each drink is called the potential (or standard) sales value. The system requires as a basis for its operation, established standards for a bottle code number system, drink recipes, drink sizes, glassware and par stocks. Whenever the bottle size, drink size or recipe change a new calculation must be made and recorded, as this can affect the price of a drink and should require the price to be reviewed.

The various calculations which have to be made to establish the potential sales values are concerned with:

1. *Full bottles of spirits*: The potential sales value of a full bottle of spirits, etc. which at times may be sold over a bar is equal to the selling price established by management. As little handling is involved in selling a full bottle, its price will usually be lower than when sold by the individual glass.
2. *Spirits, etc. sold by the glass*: The sales value for a bottle of spirits, wine, etc. which is to be sold by the glass is calculated as in the following example.

Potential sales value for a bottle of whisky:
 Size of bottle 70 cl
 Size of a straight drink 2.5 cl
 Selling price per drink £4.50
 Number of drinks per bottle 28
 (as determined by management)
 $28 \text{ (number of drinks)} \times £4.50 \text{ (selling price per drink)} =$
 £126.00 (potential sales value)
3. *Soft drink and mineral water sales*: The potential sales value of soft drinks, etc. depends on the pricing policy of the establishments; it could, for example, be:
 - A fixed price when sold on its own or when with another drink, for example, gin and tonic water.
 - At a lower price when served as part of a mixed drink, for example, a straight 2.5 cl drink of whisky may cost £4.50; a split bottle of dry ginger may cost £0.99; as a mixed drink whisky and dry ginger may be priced at £4.99 and not £5.49 as would be the case in fixed pricing.
 - The cost of soft drinks is included in the price when selling spirits.
 - It should be noted that if a lower or inclusive pricing system is adopted, adjustments must be made when preparing the control sheets so that an accurate potential sales figure is calculated.
4. *Cocktails, etc.*: If all drinks served to customers were sold as straight drinks or full bottles, it would be simple to calculate the potential sales value. When drinks are sold as cocktails containing two or more high selling price items it often requires an adjustment to be made when preparing the control sheet.

When the sales of mixed drinks on analysis are found to be low, there would be little need to go into great detail to calculate the allowances for the various mixed drinks. It is only when the actual money taken in the bars differs from the potential sales value by say more than 2% that detailed analysis of sales and allowances needs to be done.

The millimetre system

This method is recognized as the most accurate (non-automatic) method of determining the amount of beverage sold. It is used at

times when investigating the cause of an unacceptable difference recorded between the actual and potential results in a beverage report. It is, however, a complicated and difficult system to operate for large units with a full range of beverage services unless aided by a mini computer. The system requires:

- An accurate and detailed analysis of all sales by type and brand of drink sold, for each selling outlet.
- The calculation of the actual consumption of each type and brand of drink based on the daily physical stocktake, giving opening and closing stock levels of bars, plus any issues, and minus any transfers out to other bars. All drinks sold are converted back to the number of millilitres of each type and brand of drink sold using the standard beverage recipes. The total consumption of each kind of drink per sales bill has then to be compared with the actual consumption determined from the physical inventory and any adjustments.

The main disadvantages of this control system are:

- The time required to analyse sales and to take stock levels daily.
- The time required to calculate the daily consumption for each selling outlet.
- Additional difficulties if a large number of mixed drinks are sold and if drinks of different sizes are sold in each selling outlet.

Banqueting and function bar system

Should the banquet department have its own storage and bar areas it can operate and be controlled in the same way as any other bar. If, however, a bar has to be set up for each separate banquet or function, it will be necessary for an authorized person to requisition for each event from the main cellar and then immediately at the close of the event to return all unsold beverages. Bottles issued would be the quantity issued from the cellar for that function. Bottles returned are the bottles and part bottles (calculated in tenths of a bottle) unused and returned to the cellar. The number of bottles issued minus bottles returned should be equal to the number of bottles and part bottles used. The actual cost is the purchase price paid per bottle, or half or split. The potential sales per bottle would be the selling price per drink multiplied by the standard number of drinks per bottle.

Automated beverage dispensing system

The use of automated beverage dispensing systems is becoming more and more of a norm. As the cost of technology drops these systems can be afforded by medium-sized operations and when linked to an EPOS system inventory control reports can be compared to sales reports and discrepancies of actual stock can be identified much easier. The bottles of beverage are inverted and connected with small bore pipes within a locked storeroom, to

each selling outlet. Large operations that may often use casual staff (e.g. food and beverage operations in stadia) will normally invest into such technology. The advantages of this method are numerous, but include the following:

- The drink size is pre-set and the drink automatically measured.
- The yield is consistently higher than when using other methods as the bottles drain completely into the dispenser.
- Each drink can be metered by the selling outlet. This helps with inventory control and the calculation of estimated bar revenue.
- It prevents bar staff from handling bottles. Every drink that they need for a customer is obtained by just pressing the correct drink button on the dispenser.
- Many beverage dispense machines are connected to micro-computers so that they can measure the drinks, dispense, display the prices, print the guest's bill, as well as maintain the inventory and analyse drink sales.

There are some disadvantages in using beverage dispensing machines, such as:

- Unsuitability for certain types of beverage operations, for example, a cocktail bar in a luxury type hotel where the clientele expect personal service with the mixing of their drinks.
- The cost of installing dispensing machines is high, although the higher level of control should help to repay the initial costs relatively quickly.
- In general, they are only suitable for use in bars with a very high volume of sales and where the customer is not so concerned with traditional bar service.

The management techniques used in beverage production planning are therefore very similar in concept and method to the techniques used for food production planning; if anything even tighter standards may be laid down for beverage production for the reasons already discussed. A similar recipe file for beverages may also be produced – either manually or by use of a computer and again the use of a computer for beverage planning should be seriously considered for the long-term cost savings and tighter control it can offer the establishment.

EPOS REPORTING

Electronic data storage has both been a blessing and a curse at the same time. The availability of so much information can often overload managers to the point that they end up not using any of the information after all. Here we briefly look at typical reports that a manager can extract from an EPOS system. It is important to understand that a manager can obtain such reports for any specific period be it daily, weekly, monthly or annually or it can even be a report between two dates. In that way reports



Figure 8.8 The Remanco series advance system (Source: Courtesy of Geac Computers Inc)

can be customized for the periods that are important to control for that specific operation (see Figures 8.8, 8.9 and 8.10).

Menu item preference

From a control point of view this report is extremely important. It allows the user to identify potential menu items that are not doing very well and possibly eliminate them from the menu, or identify the items that sell extremely well and ensure that enough ingredients are ordered to ensure no customers are left unsatisfied due to a menu item that was not available.

Menu item profitability

This report extracts information from the stock control module of the system and gives accurate profitability per menu item. This together with the menu item preference report can be easily converted into a menu engineering report. The example on Figure 8.9 shows the potential of the EPOS reporting provided the restaurant management wishes to input food costs into the system. In small operations that change their menu weekly and sometimes daily the management decision to not input all the data can often be made.

Back Office System				Summary Sales Analysis			
Date Printed: 8/9/2007 15:02:39				Page Number: 2			
Selection Criteria: All Product Group All Sales Areas				Outlet Surrey University Reference Code: 1000			
Date Criteria: Between 8-08-2007 And 8-08-2007							
Restaurant							
Beverage	Menu Item	Quantity	Voids	Sold	Total Net Sales	Cost of Sales	Cost of Sales%
Wine							
White Wine							
	Sbiraz Rose 175 ml	1.00	0	1.00	3.00	0.00	100.00
	Zonda 175 ml Glass	3.00	0	3.00	8.55	2.79	67.37
	Total For: White Wine	4.00	0	4.00	11.55	2.79	75.84
	Total For: Wine	5.00	0	5.00	13.98	3.39	75.74
Total For Beverage		33.00	0	33.00	60.61	3.39	94.41
Food	Menu Item	Quantity	Voids	Sold	Total Net Sales	Cost of Sales	Cost of Sales%
Desserts							
Desserts							
	Choccy Tart	2.00	0	2.00	7.23	0.00	100.00
	Lemon Sorbet	1.00	0	1.00	2.95	0.00	100.00
	Mango Sorbet	2.00	0	2.00	7.90	0.00	100.00
	Seasonal Creation	1.00	0	1.00	3.36	0.00	100.00
	Summer Pudding	5.00	0	5.00	16.81	0.00	100.00
	Total For: Desserts	11.00	0	11.00	38.25	0.00	100.00
	Total For: Desserts	11.00	0	11.00	38.25	0.00	100.00
Food	Menu Item	Quantity	Voids	Sold	Total Net Sales	Cost of Sales	Cost of Sales%
Mains							
Fish Mains							
	Catch of the day	3.00	0	3.00	21.70	0.00	100.00
	Total For: Fish Mains	3.00	0	3.00	21.70	0.00	100.00
Mains							
Meat Mains							
	Chicken breast	3.00	0	3.00	23.85	0.00	100.00
	Home cured Gammon	1.00	0	1.00	8.50	0.00	100.00
	Open Mains	6.00	0	6.00	61.28	0.00	100.00
	Tenderloin of Pork	2.00	0	2.00	17.00	0.00	100.00
	Total For: Meat Mains	12.00	0	12.00	110.63	0.00	100.00

Figure 8.9 Extract of an EPOS report (Source: Lakeside Restaurant)

Sales by meal period

Identifying how well the restaurant is doing for each meal period is extremely important as it allows the manager to identify the hours of the day that he may need less or more staff, as well as focusing any marketing and promotions to that particular day.

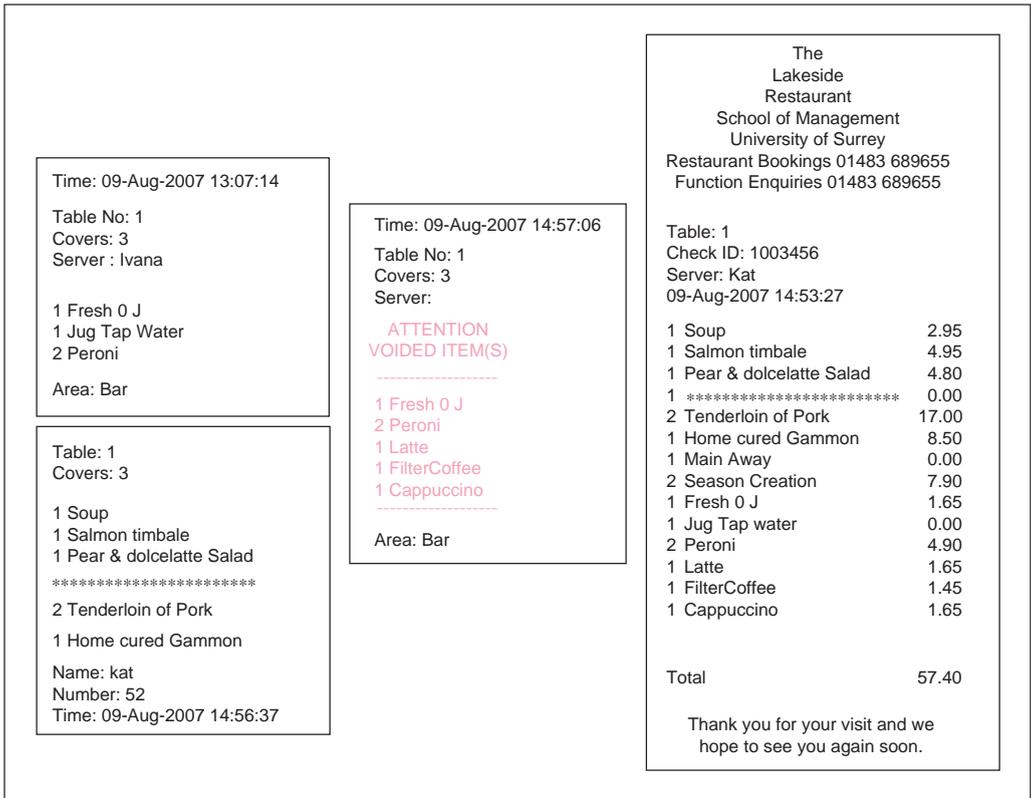


Figure 8.10

An EPOS receipt and bar and kitchen dockets (*Source*: The Lakeside Restaurant. *Note*: The waiter inputs the order and the top left docket prints at the bar whilst the bottom left prints at the kitchen. Pay attention how the starters and mains are clearly separated and information such as the table number, number of covers exact time and date of the order as well as the servers name are displayed. Voided items would appear in red. At a touch of a button the customer receipt can be printed (far right))

Sales by server

Sales by server help identify members of staff that may need further training to enable them to up sale items or reward members of staff that are doing exceptionally well.

Category report

Often food and beverage items are placed in a specific category, for example appetizers, seafood, whiskies or beer. This enables the manager to see at a glance as to how well a particular category of food or beverage might be performing in terms of popularity and profitability.

Table waiting times

Another interesting report is a report that illustrates the time passed between stages of the meal experience. This is not very accurate as the system will only start measuring from the time the order has been put through the system but it can keep

records of how long the meal has lasted and time lapsed between courses. Extremely useful tool in helping the manager to ensure quality of the meal experience in terms of service efficiency.

FOOD AND BEVERAGE CONTROL CHECKLISTS

Recent advances in technology have helped with food and beverage control but often one cannot understand the basics of the control system or what they should be looking for when trying to identify errors in the system. Although it would be impossible for us to address every corrective action that should be taken when standards are not being met we can produce a control checklist that can be used as a tool to identify the weak areas of a control system (see Tables 8.6 and 8.7). Although the checklists are not exhaustive for every type of operation, it provides a good starting point and can be adapted to fit the type of operation the reader may have in mind.

The major reasons for food cost (and gross profit) variances from the established standard for a unit include the following:

- Inaccurate arithmetic to paperwork. This also includes the paperwork of suppliers.
- Inefficient stocktaking.
- Poor revenue control. Lack of systematic procedures and practices.
- Poor menu. Unrelated to market conditions and requirements, lack of sales analysis and up-dating of menu.
- Poor purchasing, resulting in higher food costs, overstocking and wastage.
- Poor receiving, inferior goods being accepted, short weight of goods being signed for.
- Poor storing, poor rotation of stock resulting in wastage, poor security.
- Failure to establish and/or maintain standards for volume forecasting, standard recipes, standard yields and standard portion sizes.
- Failure to account accurately for all staff and management meals.
- Food control not being seen by staff to work, resulting in staff failing to maintain desired standards.

As mentioned earlier, beverage control is not so difficult or involved as food control. What at times is a problem is the dishonest employee and this is usually difficult to detect. The typical problems are bar staff who:

- Bring in their own bottles of spirits, etc. sell the contents to customers and then pocket the money. This results in a busy bar with disappointing cash takings.
- Drink at work. Bar staff who help themselves to the odd drink soon get into the habit of it unless it is quickly detected. This results in lower than should be cash takings or customers hav-

Purchasing, receiving, storing and issuing procedures	Food production	Food control procedures
Purchase specifications used for all main items.	Yield and product testing practised to establish and measure standard of products.	Check and marry up all delivery notes, credit notes, invoices and goods received report.
Purchase orders made for every purchase; the exception possibly being to the daily order of fresh fruit and vegetables.	Production to be related to volume forecasts.	Check arithmetic to all paper work.
All purchases made from nominated or approved suppliers.	Maximum use to be made of standard recipes.	Check correct discounts are being allowed.
Deliveries timetabled whenever possible so that quantity and quality checks may be efficiently carried out.	Efficient scheduling of production to be made so as to ensure maintenance of quality of dishes produced.	Check delivery notes to bin cards/ledgers.
All deliveries to be recorded in the foods and beverage received book and credit notes obtained for any variance between what is stated on the delivery note and what is actually delivered.	All equipment to be regularly maintained so as to ensure the standard yields and quality of dishes are maintained.	Maintain certain charges and credits for period inventory.
All deliveries of food to be entered into bin cards/ ledgers on the day of delivery.		At set periods complete a full inventory of all chargeable containers.
Issues of all food and beverages from the stores/cellars to be against authorized, signed requisitions only.		At set periods complete a full stocktake of all food stores and food held in the kitchens and compare to ledgers.
Entry to food stores or cellars to be restricted to authorized personnel.		Prepare a stocktaking report and stocktake variance report.
Cellar ledger and any other records kept to be up to date and accurate.		Maintain up-to-date food control reports.

Table 8.6
Purchasing, food production and food control checklists

ing short measure drinks which ‘compensate’ for the bar staff free drinks.

- Fail to ‘ring-up’ each drink sold and pocket the money taken from the client. This results again in lower cash taken.
- Provide free drinks for friends, again, resulting in lower bar takings.

Food service	Bar procedures	Beverage control procedures
Food service standards established and practised.	Bar stock to be replenished by written and authorized requisitions, or by using a 'full for empty' bottle system.	Check and cross-reference delivery notes, credit notes, invoices and goods received report.
Standard portion sizes adhered to.	Bars to use standard recipes, standard drink sizes and glassware.	Check arithmetic to all paper work.
Standard portion size equipment always available.	Bars to sell 'house brands' for all drinks unless specifically requested by the customer, as they will normally give a higher gross profit.	Check correct discounts are being allowed.
Careful control made to all food sent to restaurant. All unsold food to be accounted for and returned to the kitchen.	Check that all bar sales are properly recorded.	Check delivery notes, etc. to cellar inwards book.
	Periodically check proof of liquor in open bottles if tampering is suspected.	Maintain beverages perpetual inventory book.
	Check that beverage price lists are displayed and freely available to customers.	Maintain container charges and credits for period inventory.
	Check frequency of 'breakages' recorded.	At set periods complete a full inventory of all chargeable containers, for example crates, kegs, soda syphons, etc.
	Check 'shortages' or 'overs' recorded by accounts department for each bar.	At set periods complete a full inventory of cellar and compare to beverages perpetual inventory book.
	Check that bar staff have no access to till rolls, etc.	Prepare a stocktaking report of value and type of goods, rate of stock turnover, etc.
		At set periods complete a full inventory of the stock of each bar for beverage control reports.
		Maintain daily and to-date beverage control reports, the amount of detail depending on the size of the unit and the volume of business.
		Prepare end of period beverage reports for management and highlight any problem areas for corrective action.

Table 8.7

Food service, bar procedures and beverage control checklist

- Dilute drinks. When a group of customers order their third or more 'round of drinks', they are less likely to identify weak drinks, the difference being pocketed by the bar staff.
- Under-charge the customer. The customer, being an accomplice of the bar staff, orders a drink, pays for it and is then given change in excess of what it should be. This results in bar takings being lower than they should be.
- Short-change customers. This is the all too common problem of bar staff giving customers less change than they should do and pocketing the difference for themselves.

If the spirits are on optics, or beers, spirits and minerals automatically dispensed to controlled measures, any discrepancy will almost certainly mean an error in cash handling made deliberately or by carelessness.

The above types of problems are usually only discovered when good beverage control procedures are in operation, the identification of the dishonest employee being made as a result of such steps as changing bar staff duties and shifts, taking daily bar inventories, changing till drawers during a busy shift and checking the cash with the till reading, and by observation of the bar by an unknown member of the management or security staff. The above only highlights the necessity for the personnel department to carefully interview and take up several references before employing any new bar staff.

Checklist for the smaller operation

A quick checklist for the smaller operation for food cost (and gross profit) variances from the established standard would include the following:

- Check the arithmetic of all major figures (i.e. food report, stock report, etc.).
- Re-check stock figures and total, and in particular look for unusual figures in relation to the norm. The percentage of the total consumption of each category of commodities (meat, poultry, fish, dairy, fresh vegetables, etc.) should be constant for any given menu over a period. Once a standard has been established, variations from it will indicate a problem, for example, if the meat consumption percentage was up it could well indicate pilferage, fraud, wastage or an increase in price and management attention should be focused towards this.
- Re-check sales figures and check against meals served.
- Check for unusual variances in sales. This could be caused by a major change in the weather, a national holiday, etc.
- Check for unusual changes in the sales mix.
- Check for unusual changes in price of major and costly food items.
- Check stores, refrigerators and waste bins for evidence of over purchasing, over preparation and unnecessary wastage.
- Check on meals taken by staff.

REVENUE CONTROL

To control the revenue of a unit, particular attention must be paid to the major factors which can have an influence on the profitability. Therefore it is essential to control the main factors which can affect the revenue of a business, such as the menu–beverage list, the total volume of food and beverage sales, the sales mix, the average spend of customers in each selling outlet at different times of the day, the number of covers served and the gross profit margins.

It is important to note, particularly in commercial operations that somewhere in the total control system there is a need for the accountability of what has been served to the customer and the payment for what has been issued from the kitchen or the bar.

The payment for food and beverage may be made in many forms such as cash, foreign currency, credit cards, cheques, travellers' cheques, luncheon type vouchers and signed bills.

All staff handling cash should be adequately trained in the respective company's methods. It is a common practice for a cashier's or waiter's handbook/manual to be produced so that an established procedure may be followed with the specific aim of ensuring that cash security is efficiently carried out at all times. A typical handbook/manual would contain information on the standard procedure to be followed for such things as:

- *Opening procedure* – instructions here would include procedures about checking the float, having a float of specific denominations, checking the till roll, recording waiters' bill pad numbers, etc.
- *Working procedure* – instructions on how to accept payment and the procedure to follow.
- *Closing procedure* – instructions on any documentation and recordings to be completed, cashing up, recording of credit cards, cheques, etc.
- *Procedure for accepting foreign currency* – what currency is to be accepted, how to obtain the current exchange rates, how this is to be recorded, etc.
- *Procedure for accepting credit cards* – which credit cards are to be accepted, how they are to be checked, method of processing credit cards for payment, recording of credit vouchers, etc.
- *Procedures for accepting vouchers such as luncheon vouchers* – which vouchers are acceptable, how this is to be recorded.
- *Procedure for accepting cheques* – how cheques are to be made out, customers to produce a valid cheque guarantee card, checking that signatures correspond, etc.
- *Procedure for accepting travellers' cheques* – what travellers' cheques are acceptable, what currencies are acceptable, witnessing and checking signatures, how this is to be recorded.
- *Procedure for a complimentary or signed bill* – check against current list of authorized persons and their signature, how this is to be recorded.

PROFIT SENSITIVITY ANALYSIS AND MENU ENGINEERING

Maintaining and improving an adequate level of profit are essential for all businesses today to survive – particularly with the increasing level of competition tempting customers not only to change from their usual type of restaurant, but also from the many other types of leisure businesses all chasing the same customers' restricted amount of disposable income.

Among the problems often facing the food and beverage manager is how can the profitability be maintained or increased. Should the prices for some or all items be increased and by how much, and/or food and beverage items costs be reduced, and/or labour costs reduced, and/or the number of customers increased, etc. Two accepted methods of profit improvement are PSA and menu engineering.

Profit sensitivity analysis

PSA is concerned with identifying the 'critical' or 'key factors' (i.e. the determinants of profitability) of a business and establishing how they rank in influencing its net profit. The emphasis of PSA is on net profit and the examination of those areas that responded positively to change. In order to undertake PSA the 'profit multipliers' (PM) of the business must firstly be calculated. The method is:

1. Identify the 'key factors', financial and operational of the business (Key factors may be number of covers, food and beverage costs, labour costs, revenue, price per cover, etc).
2. Assume a change in one 'key factor' at a time of say 10%, whilst holding all others constant.
3. Calculate the resulting change in net profit.
4. Calculate the PM:

$$PM = \frac{\text{Percentage of change in net profit}}{\text{Percentage of change in 'key factors'}}$$

5. List the PMs in order of size.
6. Analyse the results.

Menu engineering

Menu engineering is a marketing orientated approach to the evaluation of a menu with regard to its present and future content, design and pricing. Its origins are based on the famous Boston Consulting Group (BCG) portfolio technique, a matrix specifically designed to analyse individual business performance in a company with a range of different business interests (see Figure 8.8). The concept of menu engineering requires food and beverage managers to orient themselves to the contribution

that menu items make to the total profitability of a menu. It highlights the good and the poor performers in a menu, and provides vital information for making the next menu more interesting and appealing to the customers, and hopefully more profitable. Menu engineering is a step-by-step procedure that focuses on the three main elements:

1. Customer demand – the number of customers served.
2. Menu mix – an analysis of customer preference for each menu item (popularity).
3. Contribution margin – an analysis of the contribution margin (GP%) for each menu item.

The pre-requisites for using this technique are:

1. The standardization of all recipes (including the presentation), so that the food costs can be accurate.
2. The accurate sales analysis of each menu item, daily and by meal period.
3. The use of a personal computer, so that simple spreadsheets, with standard calculations, may be done accurately and with speed.

Using the simple matrix, menu items can be plotted, representing their performance with regard to volume (popularity) and cash contribution (profit). The four squares of the matrix commonly have names indicating the performance of items in a particular square.

1. *Stars*: Menu items *high* in menu mix (popularity) and also *high* in contribution margin.
2. *Plowhorses*: Menu items *high* in menu mix (popularity) but *low* in contribution margin.
3. *Puzzles*: Menu items *low* in menu mix (popularity) and *high* in contribution margin.
4. *Dogs*: Menu items *low* in menu mix (popularity) and *low* in contribution margin.

The analysis of the data to undertake menu engineering can be done using a standard computer spreadsheet package (see Table 8.8). This takes the form of a large grid comprising of rows and columns where labels, formulae and values can be entered. When in operation, the formulae and values can be changed if required, giving instantaneous re-calculations of the figures, and hard copies printed and retained for easy reference. Whilst spreadsheets can be compiled by hand, the time taken would be lengthy and the opportunity to frequently undertake 'what if' exercises less likely (e.g. What would be the effect on the profitability of the restaurant with a menu of 30 main items, if the price of all the main items were to be increased by 3% or by 4%?). It should be noted here that the success in being able to move menu items 'up' the matrix to the status of a 'star' could

(A) Menu item name	(B) No. sold (MM)	(C) Menu mix%	(D) Item food cost	(E) Item selling price	(F) Item CM (E – D)	(G) Menu costs (D * B)	(H) Menu revenues (E * B)	Menu CM (G – H)	CM category	MM% category	Menu item classification
Chicken blue	420	2.7	5.95								
Steak	360		4.5	8.5							
Lobster tail	150		8	9.5							
Tenderloin tips	70		4	7.4							
Totals	1,000		19.2	31.35		I	J	M			
						K = I/J (FC%)		O = M/N (Av. CM)		Q = (100%/items) (70%)	

Table 8.8

Menu engineering worksheet

have an undesirable effect on the profitability of the menu, simply because customers do not always behave in a rational manner in spite of the wishes of the food and beverage manager.

Activity 3

Complete the Menu engineering worksheet seen on Table 8.8 and determine the Menu Item classification (Dog, Puzzle, Plowhorse or Star). **Q** is the popularity benchmark and **O** is the contribution benchmark. For the solution see the end of this chapter.

SYSTEMS OF REVENUE CONTROL

There are two basic approaches to recording and controlling food and beverage sales.

1. *A manual system* – which is commonly used in small and in exclusive type catering units.
2. *An automated system* – which is commonly used in units with several outlets, in units with a very high volume of business and in up-to-date companies with many units.

Manual system

As technology is becoming increasingly affordable even for the very small businesses we become more relied on technology without having an understanding of the basics of a system. Furthermore even the best EPOS will at some point malfunction or a printer may be out of order, and then the business will need to have a back up plan and know how to use a manual system. Here we examine two basics of a manual system the sales check and the role of the cashier which in a computerized system it becomes defunct as every server can have his/her own float as the adding and printing of the bill is automatically done.

Sales checks

One of the simplest steps to take when attempting to establish sales control procedures is to require that each item ordered and its selling price are recorded on a waiter's sales check. Using some form of a check system serves the following functions:

- To remind the waiting staff of the order they have taken.
- To give a record of sales so that portion sales and sales mixes and sales histories can be compiled.
- To assist the cashier and facilitate easy checking of prices charged.
- To show the customer a detailed list of charges made.

An additional aid is to use numbered checks and control these tightly, recording all cancelled and missing checks. It is more common to find *duplicate* or *triplicate checks* being used as an aid to control for the following reasons:

- They provide the kitchen, buffet or bar with a written record of what has been ordered and issued.
- They authorize the kitchen, buffet or bar to issue the food and/or beverage.
- They provide the opportunity to compare the top copy of the check with the duplicate to ensure that all that has been issued has been charged and paid for.

The cashier's role

In addition to following precisely the unit's procedure for the handling of all revenue transactions within the restaurant or bars, it is normal practice for the cashier working a manual system to be required to complete the following:

- To issue check pads to the waiting staff prior to a meal period, to record the numbers of the checks issued in each pad, and obtain the waiting staff's signature for them; and on the completion of the meal period to receive from the waiting staff their respective unused check pads, record the numbers, and sign for the receipt of those returned. This information to be recorded on the check number issue control sheet.
- To check the pricing, extensions and subtotals of all checks and to add any government tax charges and to enter the total amount due.
- To receive and check money, credit or, when applicable, an approved signature in payment for the total amount due for each check.
- To complete the missing checklist for each meal period. This is an aid to the cashier in controlling what checks are used. The respective check numbers on the list are crossed out when payment is made. When a missing check is identified, investigation to be carried out to find the reason for this, and if no satisfactory explanation is forthcoming, to inform a member of management on duty. Missing checks to be marked on the missing checklist.
- To complete the restaurant sales control sheet for each meal period. This form requires that all revenue received (or its equivalent) is recorded under specific headings such as cash, cheques, credit card transactions, etc. From this control sheet basic data – such as the number of covers served or the average spend per customer on food and beverages – is quickly obtained.
- To complete the necessary paying in of all cash, etc. in accordance with the unit's established practice. This could be direct to a bank whether a small independent unit, or a unit of a large company, or to the head cashier's office if a large unit with many outlets.

Problems of the manual system

In brief, the basic problems of controlling any food and beverage operation are:

- The time span between purchasing, receiving, storing, processing, selling the product, and obtaining the cash or credit for the product, is sometimes only a few hours.
- The number of items (food and beverage) held in stock at any time is high.
- A large number of finished items are produced from a combination of the large number of items held in stock.
- The number of transactions taking place on an hourly basis in some operations can be very high.
- To be able to control the operation efficiently, management ideally requires control information of many types to be available quickly and to be presented in a meaningful way.

The full manual control of a food and beverage operation would be costly, time consuming and data produced would frequently be far too late for meaningful management action to take place. Certain aspects of control such as regularly updating the costings of standard recipes, calculating gross profit potentials, and providing detailed sales analysis would seldom be done because of the time and labour involved.

A manual system providing a restricted amount of basic data is still widely used in small- and medium-sized units although they are likely to be replaced in the near future by machine or electronic systems. The day-to-day operational problems of a manual system are many and include such common problems as:

- Poor handwriting by waiting staff resulting in:
 - Incorrect order given to the kitchen or dispense bar.
 - Wrong food being offered to the customer.
 - Incorrect prices being charged to the customer.
 - Poorly presented bill for the customer, etc.
 - Human error can produce such mistakes as:
 - Incorrect prices charged to items on a bill
 - Incorrect additions to a customer's bill
 - Incorrect service charge made
 - Incorrect government tax (e.g. VAT) charge made.
- The communication between departments such as the restaurant, dispense bar, kitchen and cashiers has to be done physically by the waiting staff going to the various departments. This is not only time consuming but inefficient.
- Manual systems do not provide any quick management information data, any data produced at best being normally twenty-four to twenty-eight hours old, as well as being costly to produce.
- Manual systems have to be restricted to the bare essentials because of the high cost of labour that would be involved in providing detailed up-to-date information.

COMPUTERIZED SYSTEMS

EPOS technology and windows based software specifically designed for the food and beverage operation seem to have replaced every other type of machine based system. Although it is tempting to simply talk about EPOS systems only, it is important we also look at some of the older technology that still may be used in some countries and is still used in very small operations around the world.

Pre-checking systems

Pre-check machines are somewhat similar in appearance to a standard cash register and are designed to operate only when a sales check is inserted into the printing table to the side of the machine. The machine is operated in the following way.

- A waiter has his/her own machine key.
- A check is inserted into the printing table and the particular keys, depending on the order taken, are pressed giving an item and price record as well as recording the table number, the number of covers and the waiter's reference number.
- A duplicate is printed and issued by the machine which is then issued as the duplicate check to obtain food and/or beverages.
- For each transaction a reference number is given on the sales check and the duplicate.
- All data is recorded on a continuous audit tape that can be removed only by authorized persons at the end of the day when the machine is cleared and total sales taken and compared to actual cash received.

The advantages of the system are:

- The sales check is made out and a record of it made on the audit tape before the specific items can be obtained from the kitchen or bar.
- Analysis of total sales per waiter is made on the audit tape at the end of each shift.
- No cashier is required as each waiter acts as his/her own cashier, each keeping the cash collected from customers until the end of the shift and then paying it in.
- As each waiter has his/her own security key to operate the machine, there is restricted access to the machines and no other way by which pre-checks can be provided and used in exchange for items from the kitchen or bar.

Pre-set pre-checking system

This is an up-date on the basic pre-check machine. The keyboard is much larger than the previous machines, and has descriptive keys corresponding to all items on the menu which are pre-set to the

current price of each item. A waiter pressing the key for, say one cheeseburger would not only have the item printed out but also the price. A control panel, kept under lock and key, would enable management to change the price of any item, if required, very quickly. It is also possible to have a running count kept of each item recorded and at the end of a meal period by depressing each key in turn to get a print out giving a basic analysis of sales made.

Electronic cash registers

These are very high speed machines which were developed mainly for operations such as supermarkets and were further adapted for use in high volume catering operations. They are robust machines that apart from printing the customer bill they can also provide basic reports such as sales by type of product, payment method, etc. The advancement in EPOS technology and the low costs are making Electronic cash registers (ECRs) a thing of the past, although in small operations that do not require heavy inventory control and detailed reporting an ECR is still the choice due to its much lower cost.

EPOS control systems

At a basic level a point-of-sale control system is no more than a modern ECR with the additional feature of one or several printers at such locations as the kitchen (or sections of the kitchen) or dispense bar. Some systems replace the ECR with a 'server terminal' (also called 'waiter communication' systems), which may be placed at several locations within a restaurant, and is a modification of an ECR in that the cash features are eliminated making the terminal relatively small and inconspicuous. The objectives for having printers are:

1. To provide an instant and separate clear and printed order to the kitchen or bar, of what is required and by and for whom.
2. To speed up the process of giving the order to the kitchen or bar.
3. To aid control, in that items can only be ordered when they have been entered into the ECR or terminal by an identifiable member of the waiting staff and printed.
4. To reduce the time taken by the waiter in walking to the kitchen or bar to place an order and, as frequently happens, to check if an order is ready for collection.
5. To afford more time, if required, for customer contact.

Printers are at times replaced by VDU screens.

Server terminals are part of a computer-based point-of-sale system. These special terminals are linked to other server terminals in the restaurants and bars within one system and, if required to, also interface with other systems so that, for example, the transfer of restaurant and bar charges may be made via the front office computer system. The advantage of a computerized point-of-sale system is that it is capable of processing data as activities occur, which makes it possible to obtain up-to-the-minute reports for

management who can be better informed and able to take immediate and accurate corrective action if necessary.

This type of point-of-sale control system has been taken one step further with the introduction of hand-held terminals or mobile points of sale (MPOS). These hand-held devices can use radio frequencies or infrared or bluetooth technology to communicate from the guest's table direct to the kitchen and bar preparation areas. MPOS offer a number of advantages: food and beverage orders are delivered faster and more efficiently to preparation sites; waiters in turn can attend more tables; with a two-way communication service staff can be notified if an item is out of stock; all food and beverage items ordered are immediately charged to the guest's bill, which is accurate and easy to read; finally, operations can reassess their labour utilization and efficiency, certain members of the service staff, for example, can take the simple orders, while others can spend more time with customers to increase food and beverage sales.

Touch screen technology utilized by the systems enable the server to use EPOS and MPOS technology with minimal training as the systems often resemble a Microsoft windows type interface.

FORECASTING

For food and beverage control to be successful one of the important management tools is successful forecasting. In smaller restaurants managers may often have an intuitive idea about how many customers to expect on any given day. In larger operations however a more scientific approach is required. Lack of storage space and perishability of the produce are only two of the reasons why effective forecasting is imperative for the success of a food and beverage operation. The main considerations of forecasting is not only how many people will turn up at any given period but also what menu items are they likely to consume and at what time of the day. Getting it right all the time is an impossible task however with the correct techniques it is possible to have an educated informative guess that is based on research and not assumptions. Forecasting does not only affect purchasing of food and beverages but it also affect all other areas of the business such as the pricing, production, number of employees to hire, to name a few.

In order to be successful in forecasting accurately some of the type of information would need is:

- Sales history
- Turn down history
- Cancellations and no shows trends
- Competitor data
- Market trends at local, national and international levels
- The weather forecast
- Information about special events and new attractions.

Even a change in the weather can affect menu item sales, on a cold day, for example, chances are that customers would prefer a hot soup rather than a cold salad as a starter. There is a number of

forecasting software that is available to food and beverage managers and these use some of the methods briefly described here:

- *Multiple regression analysis*: Used when two or more independent factors are involved – widely used for intermediate term forecasting. Used to assess which factors to include and which to exclude. Can be used to develop alternate models with different factors.
- *Non-linear regression*: Does not assume a linear relationship between variables – frequently used when time is the independent variable.
- *Trend analysis*: Uses linear and non-linear regression with time as the explanatory variable – used where pattern overtime.
- *Moving average analysis*: Simple moving averages – forecasts future values based on a weighted average of past values – easy to update.
- *Weighted moving averages*: Very powerful and economical. They are widely used where repeated forecasts required – uses methods like sum-of-the-digits and trend adjustment methods.
- *Adaptive filtering*: A type of moving average which includes a method of learning from past errors – can respond to changes in the relative importance of trend, seasonal, and random factors.
- *Exponential smoothing*: A moving average form of time series forecasting – efficient to use with seasonal patterns – easy to adjust for past errors – easy to prepare follow-on forecasts – ideal for situations where many forecasts must be prepared – several different forms are used depending on presence of trend or cyclical variations.

OPERATING RATIOS

Besides the general operating ratios that have been used earlier in this chapter, for example, food cost in relation to food sales, beverage cost in relation to beverage sales, etc. there are many more that are used and found to be of value. The following is a brief explanation of those that are frequently used.

Total food and beverage sales

The total food and beverage sales should be recorded, checked and measured against the budgeted sales figures for the particular period (e.g. week or month).

The analysis of these figures is usually done daily for large establishments and for those that are not operating a manual control system. The analysis would show separately the food sales and the beverage sales per outlet and per meal period.

The importance of this yardstick cannot be emphasized enough other than to remind the reader that it is cash and cash only that can be banked and not percentages or any ratio or factor figures.

Departmental profit

As mentioned in Chapter 7, departmental profit is calculated by deducting the departmental expenses from the departmental

sales, the expenses being the sum of the cost of food and beverages sold, the cost of labour and the cost of overheads charged against the department, and the profit being usually expressed as a percentage of the departmental sales, for example:

$$\frac{\text{departmental profit (£1,200)}}{\text{food and beverage sales (£8,000)}} \times \frac{100}{1} = 15\%$$

The departmental profit should be measured against the budget figures for that period.

Ratio of food/beverage sales to total sales

It is worthwhile for food and beverage sales to be separated from each other and to express each of them as a percentage of the total sales. This would be a measure of performance against the established standard budgeted percentage as well as indicating general trends in the business.

Average spending power

This measures the relationship between food sales and beverage sales to the number of customers served. If food sales are £750 and the number of customers served is seventy, the average spend by each customers is £10.72. The ASP for beverages is usually related to the number of items recorded on the till roll, rather than to the number of customers, and the total beverage sales. Thus if £600 is the recorded beverage sales and an analysis of the till roll showed that 200 drinks had been sold, the average spend per drink would be £3.00. What is different here is that a customer may order several drinks during an evening and therefore the average amount spent on a drink is more important than the ASP per customer. To calculate the ASP for bottled wine sales in a restaurant or at a banquet though could be a useful exercise.

Sales mix

This measures the relationship between the various components of the total sales of a unit, for example:

Sales mix	%
Coffee shop sales	
Food	20
Beverages	5
Restaurant sales	
Food	25
Beverages	15
Banqueting sales	
Food	20
Beverages	10
Cocktail bar sales	
Beverages	5
	100

In addition, a sales mix may be calculated for the food and beverage menus for each outlet under group headings such as appetizers, main course items, sweet course, coffees, etc.; and spirits, cocktails, beers and lagers, etc. This would not only highlight the most and least popular items, but would at times help to explain a disappointing gross profit percentage that occurred in spite of a good volume of business; the reason often being that each item is usually costed at different gross profit percentages and if the customers are choosing those items with a low gross profit this would result in the overall gross profit figure being less than budgeted for.

Payroll costs

Payroll costs are usually expressed as a percentage of sales and are normally higher, the higher the level of service offered. It is vital that they are tightly controlled as they contribute a high percentage of the total costs of running an operation.

Payroll costs can be controlled by establishing a head count of employees per department, or establishing the total number of employee hours allowed per department in relation to a known average volume of business. In addition, all overtime must be strictly controlled and should only be permitted when absolutely necessary.

Index of productivity

This is calculated by the formula:

$$\frac{\text{sales}}{\text{payroll (including any staff benefits costs)}}$$

The index of productivity can be calculated separately for food sales, beverage sales or for total food and beverage sales.

The use of the term 'payroll costs' in the formula includes not only the appropriate payroll costs, but also any other employee benefits such as employers' pension contributions, medical insurance, etc.

The index of productivity would vary depending on the type of operation, for example, a fast-food restaurant with a take-away service would have a high index of productivity, as the payroll costs would be lower than a luxury restaurant employing highly skilled and expensive staff with a high ratio of staff to customers, which may have a relatively low index of productivity.

As payroll costs can be controlled and should be related to the forecasted volume of business, a standard index of productivity can be established to measure how accurately the two elements are related.

Stock turnover

This is calculated by the formula:

$$\text{rate of stock turnover} = \frac{\text{cost of food or beverages consumed}}{\text{average stock value (food or beverage) at cost}}$$

The rate of stock turnover gives the number of times that the average level of stock has turned over in a given period. Too high a turnover would indicate very low levels of stocks being held and a large number of small value purchases being made. This is costly and time consuming for whoever does the purchasing as well as costly for the purchases as no price advantage can be taken of the standard quantity offers made by suppliers. Too low a turnover would indicate unnecessary capital tied up in an operation and therefore additionally a larger control and security problem.

Sales per seat available

This shows the sales value that can be earned by each seat in a restaurant, coffee shop, etc. As in the section about rate of seat turnover, the seat is the selling point and is required to contribute a certain value to turnover and profits.

Rate of seat turnover

This shows the number of times that each seat in a restaurant, coffee shop, etc. is used by customers during a specific period. Thus, if in a 120-seater coffee shop 400 customers were served in a three-hour lunch period, the rate of seat turnover would be 400 divided by 120, that is, 3.33. As the coffee shop staff can only sell food to customers while they are seated at a table, the importance of the rate of seat turnover is highlighted.

Sales per waiter/waitress

Each waiter/waitress will have a known number of covers for which he/she is responsible. This would vary depending on the style of food and beverage service offered. As salespeople for the restaurant or coffee shop, their takings should be of a predetermined target level so as to contribute to a satisfactory level of turnover and profit.

Sales per square metre²

This is self-explanatory in that the space of all selling outlets needs to be used to its best advantage so as to achieve a desired turnover and profit. This can be calculated on a square foot/metre basis. As the square footage per customer varies with the type of food and beverage service offered, so must the costs to the customer so that an establishment is earning the desired turnover and profit per square foot of selling space.

Summary

In this chapter the fundamentals of food control both from a cost and a revenue perspective are explored more specifically:

- Basic issues of control at the planning the operational phases.
- Basic issues of control at the post operation phase.

- Basic but essential skills for any food and beverage manager, such as setting up a break-even analysis and the budget are explained.
- Basic concepts such as standard recipes and standard portion sizes, which are essential to a good control system.
- Cost control reports are also examined as well as the flexibilities of today's EPOS systems.
- Concepts of PSA and menu engineering.
- Issues with non-computerized systems are explored.
- Operating ratios useful in the assessment of an effective Food and Beverage control system.

Review questions

1. What are the objectives of an effective food and beverage control system?
2. What is a standard recipe?
3. What is a break-even analysis?
4. What are the key parts of an effective food and beverage control system?
5. What are the differences between a daily food cost report and a detailed food cost report?
6. Explain the millimetre system of beverage control?
7. What does 'DOG' mean in menu engineering terminology?
8. How do you calculate stock turnover and sales per waiter?

Further study options

Case study

The 'Coconut duck' restaurant was originally a 40 cover Thai restaurant in London, UK. In the first few years of operation, business was doing well and the restaurant was featuring in major tourist guides and newspapers as a 'must visit' restaurant not only for the great cuisine but also for the fantastic décor. As business picked up the restaurant owner decided to expand so when the opportunity appeared to acquire the lease for the property next door he did so and expanded the restaurant to a 120 seater. Things seemed to be going well and the owner was certain that he would get a good return on his investment. However, the original small team could not cope with the business and the new chefs and servers did not have the rapport that a small team had. Soon the restaurant was faced with problems of stock control especially in the bar area. Stock would go amiss quite often and wastage levels

both in food and beverages had hit an all time high. Worst of all the management could not identify if the problem was at the bar or the cellars and had no idea as to how to resolve the issue. Some suspected theft whilst others felt it was merely bad management.

The owner decides to hire a consultant to come up with an effective food and beverage control system that helps alleviate the problem. In his briefing to you he has suggested that money is not a problem.

Question 1: What do you think are the key issues or potential problem areas with the restaurant in terms of food and beverage control?

Question 2: Design a food and beverage control system that ensures that the problems are limited or eliminated.

Solution to activity 1

- SOLUTION TO GO AT END OF BOOK.
- A profitability statement is usually prepared in the form of a table in which the different types of costs (for example, food costs, fixed costs, franchise fee costs) are deducted from a known level of sales, thus showing clearly specific types (and the calculated amount) of profit (for example, gross profit and net profit) at particular levels of sales. The value of preparing a profitability statement is that it sets out basic information in an orderly way and frequently prevents mathematical errors occurring, as mistakes are usually easily identified in a statement.
- 1
- Purchase price £100,000
- Return on investment required £18,000
- Fixed costs:
- rates, insurance, fuel costs etc. 45,000
- Franchise fee 5,000
- wages 50,000
- £100,000
- Maximum number of covers
- = $375 \times 6 \times 50 = 112,500$
- Average spend per cover
- = $\text{£}1.50 \times 200 + \text{£}3.00 \times 100 = \text{£}2$
- Maximum sales possible
- = $\text{£}750 \times 6 \times 50 = \text{£}225,000$
- Typical number of covers
- = $300 \times 6 \times 50 = 90,000$
- Typical sales
- = $\text{£}600 \times 6 \times 50 = \text{£}189,000$
- Variable costs
- To achieve a return on investment of 18 per cent minimum when operating at full capacity:
- Maximum sales = £225,000
- less fixed costs 100,000
- 125,000
- less franchise commission 2,250
- 122,750
- less return on investment 18,000
- = Money available for variable costs £104,750
- To achieve a return on investment of 18 per cent minimum when operating at typical sales:
- Typical sales = £189,000
- less fixed costs 100,000
- 89,000
- less franchise fee 1,800
- 87,200
- less return on investment 18,000
- = Money available for variable costs 69,200
- 2
- Calculations of break-even points and margins of safety
- See Tables 8.5 and 8.6 for calculations.

Solution to activity 2

Menu engineering worksheet

Solution

(A) Menu item name	(B) No. sold (MM)	(C) Menu mix%	(D) Item food cost	(E) Item selling price	(F) Item CM (E – D)	(G) Menu costs (D*B)	(H) Menu revenues (E*B)	Menu CM (G – H)	CM category	MM% category	Menu item classification
Chicken blue	420	0.42	2.7	5.95	3.25	1,134	2,499	1,365	Low	High	Cow
Steak	360	0.36	4.5	8.5	4	1,620	3,060	1,440	High	High	Star
Lobster tail	150	0.15	8	9.5	1.5	1,200	1,425	,225	Low	Low	Dog
Tenderloin tips	70	0.07	4	7.4	3.4	280	518	238	High	Low	Puzzle
Totals	1000	1	19.2	31.35	12.15	4,234	7,502	3,268			
						K = I/J (FC%) 0.564382831		O = M/N (Av. CM) 3.268		Q = (100%/items) (70%) 0.175	

Further reading

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