

A STUDY ON EFFECTS OF STANDARDIZED RECIPES OF LOCAL BAKERY PRODUCTS IN TERMS OF TIME MANAGEMENT

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Abstract

This paper addresses a scheduling problem in an actual industrial environment of a baking industry where production rates have been growing every year and the need for optimized planning becomes increasingly important in order to address all the features presented by the problem. This problem contains relevant aspects of production, such as parallel production, setup time, batch production, and delivery date. We will also consider several aspects pertaining to transportation, such as the transportation capacity with different vehicles and sales production with several customers. This approach studies an atypical problem compared to those that have already been studied in literature. In order to solve the problem, we suggest two approaches: using the greedy heuristic and the genetic algorithm, which will be compared to small problems with the optimal solution solved as an integer linear programming problem, and we will present results for a real example compared with its upper bounds. The work provides us with a new mathematical formulation of scheduling problem that is not based on traveling salesman problem. It considers delivery date and the profit maximization and not the makespan minimization. And it also provides an analysis of the algorithms runtime.

Keywords: Effects of Standardized recipes, Time management factor, Bakery products, Importance of time management, "Local bakery".

Introduction

The study is conducted in hotel management colleges & bakeries of five star hotels in Pune to find out importance of the standardization of recipes in bakery products. Standardization of recipes is necessary for many reasons. The use of standard recipes ensures the product will be consistent in quality each time they are made. By using standardized recipe planned number of portions will be produced. Every organization has their own standard recipe. There is not any universal recipe in the world which everyone follows. It is manipulated according to the need of the customer & organization. The user of the recipe can be chef, teachers, students & housewife etc. A questionnaire was circulated to bakery chefs to obtain their response. The majority of population agree that standardization of recipe is required for preparing bakery products. It is strongly recommended to follow the standard recipes for making bakery product as it gives same result every time. It is suggested to make different varieties of products to give a choice to the customer.

Production planning problems have been studied extensively since the early twentieth century, and they can be found throughout literature. One of the pioneers in the work on these problems was Henry Gantt in his book "Work, Wages and Profit" [1] in which he demonstrates the need for a job schedule in order to increase production efficiency.

Importance of Standardized Recipes

Standardized recipes are important because it pre determines the cost required for the recipe, nutritional value which everybody is more concern & customer satisfaction for the repeat business. — Cost: Standardized recipes have the list of the ingredients & its quantity is given. Sometimes specific quality of the ingredient is also mentioned. Once the quantity & quality of ingredient is known, it is very easy to calculate the cost of the recipe. As the quantity increases even the cost of the recipe also increases. But in bakery preparations purposely the quantity of ingredient cannot be changed it will affect on the quality of bread. Scientifically the capacity of every ingredient is different. It changes texture, colour& taste of the end product. — Nutrients per Serving: Every ingredient contains some kind of nutrients in it. As the quantity is increased or decreased its nutrient contains also changes. For the nutrient, dominant material cannot be changes it affects on the entire product but definitely small quantity of the food can be added which not really affect the product. Nutrients are one of the important components in any type of food; preservation of it should be taken into consideration. Customer Satisfaction: Standardized recipes produce the same product every time irrespective of who is making the recipe. This is what every customer also expects the same good product every time he is having or buying. The instruction is so clear that even new joiner also can read & make the same quality of product. Customers will be happy & satisfied when his expectation of product is met. Guess work is avoided in the standard recipe. Customers satisfactions is the most important milestone in organization which can be achieved through standard product served to the customer.

Traditional Local Bakery

The traditional bakery has different opening hours (10:00a.m. to 8:30 pm, Monday to Saturday) and does not open on holidays and Sundays. French bread is only made in the afternoon. The manager says that no chemical additives are used in the bread dough, which is baked immediately after mixing the ingredients. The quantity produced is calculated so that there are no leftovers; usually, the bread runs out before the bakery closes. When there is small production surplus, the items are divided between employees, or they make toast for sale the next day. The staff consists of confectioners, bakers, cashier operators, attendants, and a manager. The machines and equipment are ovens (three electric and one gas), refrigerators, freezers, slicing machines, and scale.

Phases of Recipe Standardization

There are three phases of recipe standardization: recipe verification, Product evaluation and quantity adjustment. Recipe verification phase consists of checking of the recipe in detail, making it, verifying its yield, and write any changes occurred while verifying. The acceptability of the product produced from the recipe is checked in product evaluation phase. At this particular stage sensory evaluation of the product is conducted & acceptability is decided on parameters like appearance of the product, texture & finally the taste of the product. If the product doesn't meet the standards, then quantity of the ingredient is changed. These all are laboratory experiments where product goes through the different phases. The different quality & quantity of the raw

material is used for the desired quality of product. Small quantity of ingredient changes the products appearance etc.

Benefits of Standardized Recipes

Standardized recipes provide many benefits which are necessary for many reasons.

Food quality is Consistent: The first benefit of the standardized recipe is that each time the food quality is same when it made & served to the customers. The consistent product can be achieved through a standardized recipe only as it tried & tasted several times before it is declared as standardized recipe.

Yield is Predictable: Before preparation of the actual product its yield can be forecasted based on the standardized recipe. The advantages of the predictable yield are that overproduction or under production of the recipe can be avoided which saves money because of the wastage food or dissatisfaction of customers.

Increased Customer satisfaction: Customer's satisfaction is increase by giving them consistent quality of food item. Standardized recipe produces the same & good results every time it is made. Customers are happier when the expectation are met & gives recommendation to colleagues.

Consistent nutrient content can be predicted: Standardized recipes will ensure nutritional values of the food item produced as quantity of each ingredient is mentioned in the standard recipe. Now a day's customers are very conscious about the nutritional content of food items the inclination of the customers is towards the healthy product along with the other characteristics.

Conclusion

The majority people agree that standardization of recipe is required for preparing bakery & confectionery products. Verifying yield is the most important phase in standardizing of recipe while other phases are also important. The biggest challenge in standardization of recipe is documentation of recipe & food cost is the smallest challenge. Taste is the most important factor which affects the buying decision of the customer

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