MENU ENGINEERING MECHANISM FOR RESTAURANTHOUS ELD ESTABLISHMENTS THAT SERVE THE ORGANIZED GROUPS OF CONSUMERS IN RECREATIONAL REGIONS

Restaurant household establishments in health and tourist centers, children camps are obliged to implement fully food rations in the menu engineering during the term of staying the contingent of consumers according to the requirements of physical needs. Therefore, during the menu engineering is selected a certain menu variety, calculated the cost of raw materials for its implementation and certainly compared with established standards. This publication is designed to provide accurate and authoritative information in regard to the subject matter covered. This article has been developed for use in courses introducing food, beverage, and labor cost controls to students preparing for careers in food and beverage management as well as hotels and other enterprises where this knowledge is necessary: menu engineering is the study of the profitability and popularity of menu items and how these two factors influence the placement of these items on a menu

Key words: menu of the enterprise, principle variables, structuring principle, principle of adaptation.

MECHANISM OF MENU ENGINEERING

It identifies working definitions for the termscost and sales, discusses the control process in some detail, and introduces the basics of cost/volume/profit analysis; the application of the four-step control process to the primary phases of foodservice operations: purchasing, receiving, storing, issuing, and production.

Specific techniques and procedures for each phase are explained and discussed in detail: to determining costs and using them as monitoring devices in foodservice operations, for example – deals specifically with food sales control, offering a broad definition of the term and providing detailed discussion of several approaches to sales control [1].

Information component specified service type – the menu enterprise which can not be permanent because the company restaurants should change technology program to meet demand, improving the quality of products, improve its nutritional value. The choice of products is carried out by visitors to familiarize them with the menu enterprise.

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The goal of the work. The menu usually developed empirically for all types of enterprises. For businesses open type empirical approach to developing the menu, based on monitoring product demand is acceptable. For businesses serving organized groups (students, athletes, tourists, etc.) and for which developed the diet, this approach is not acceptable. Disadvantages of this approach is discussed below.

Formulation of the problem. In the restaurant business enterprise responsible employees are required in the preparation of the menu to implement food rations during the stay of these groups in the institutions on which is fed. The accounting cost of raw materials for foods included in the menu, according to food rations, time consuming, as carried out in several steps by the selection of dishes. That is the basis of experience, a selected menu option, calculated the cost of raw materials for its implementation, then compared with established norms. Further analysis of the magnitude of deviations of various raw materials. In order to reduce these deviations menu adjustments are made. The procedure lasts as long as these values are acceptable.

The level of acceptability set arbitrarily by experts of the company. That practice creates a situation in which specialists difficult to design menus, fully adapted to the diet. From the foregoing it appears that the actual problem is scientifically proven approach to developing the menu, particularly for businesses serving organized groups.

Research results. Today there are plenty of studies on nutrition, the impact of certain products and substances for health. However, the methodology for drawing up the menu for the restaurant industry enterprises available.

Menu as an object of research in the scientific literature is not widely considered. Most often makes recommendations on its development based on practical experience [1–3]. However, recent research conducted by the authors showed that the process of developing a menu can be scientifically justified [4, 5–12] and this process must be preceded by the formation of a system of technological development principles menu.

Aim:
- to set forth principles of development of menu for the enterprises of restaurant economy;
- to formalize the process related to procedure of development of menu;
- to provide the higher level of professionalism implementation of this work;
- to undertake the first steps from creation of methodology of development of menu for some types of enterprises of restaurant economy.

The main material research. It should be noted that food service whose content reflects menu consists of three components - production, sale and consumption organization. Therefore the drop can be seen as part of the information, first, the production process (plan menus, menu-layout developed for production workers) and, secondly, the implementation of products to consumers. Thus, the menu should vary both in its content and functionality. Menu according to the French chef Fernand Puana performs three functions: "caresses the eye, causing appetite and informs visitors about what it costs await" menu actually performs other "duties", and in each facility they will be different. For example, the menu original design can become a "highlight" in a club-type institution in a democratic and cafes, while not accepted gastronomic restaurants detract from the culinary delights nor extravagant interior or intricately decorated menu. However, there is a general requirement for the menu of any type and establishments of any category, which can be expressed briefly: the menu should be effective, that trigger appetite and liking for school, help guests make the choice, and the hosts-selling and most profitable fashion dish.

However, the menu – a result of the production staff. Therefore, in accordance with GOST R ISO 9000-2001, the menu is the production company within which the modern approaches to solution quality. Assessment of quality services, including its information component, today is important.

The basis of assessing the quality of design menus to put criteria such as compliance menu business type and form of service that forms the view menu. Type menu to identify it with the type of company, look - with its intended purpose. In fact, the type, form and functionality of the menu can be viewed as its classification features.

The classification allows systematize information component services of food - the menu, and develop common approaches to its development.

Our studies allow to formulate the following basic design principles menu: the principle rationale list of dishes that are appropriate to include a menu variability principles, structuring drop adaptation to the type of business, the type of food, the principle of ensuring the implementation of technical menu that characterizes the technological capabilities of the company, principle of adapting the menu to the recommended diet.

Each of these principles is based on a set of rules, Guided by which you can avoid errors when developing menus. An analysis of each of the defined principles.

The principle of justification complexes selected dishes is that the menu should be tied to the type of enterprise, its technical capabilities, and taking into account that the list of foods that used to turn the menu is not stable, helped by a number of factors. First, the specific location of the natural resources of institutions that form the tradition of food. Secondly, commercialization businesses restaurants. Third, the use of new forms of customer service.

The principle of variability menu is to quickly respond to changing menus popytu.v It is based on
monitoring consumer demand for different groups of culinary products.

The principle of structuring menu is to separate it into parts, representing the range of certain groups of products which the consumer can order: cold dishes and appetizers, hot appetizers, first and second courses. This development approach allows menu standardize the work process and a prerequisite for its proper execution.

The principle of adapting the menu to the type of enterprise is to provide a menu structure that determines the approach to drawing up menus. Recommended standardized menu structure. Thus, adaptation to the type of menu enterprise is subject normative documents regulating requirements for range of products now (Table 1, 2). [2].

The menu is developed for both existing businesses and those that open. Analysis menu specific type of existing enterprises, monitoring consumers the advantages in choosing foods will help to map the dishes that are ordered most often, and dishes "outsiders" sale.

### Table 1 – Signs of accordance of menu to the different types of enterprises of feed

<table>
<thead>
<tr>
<th>№</th>
<th>The type enterprises</th>
<th>Signs describing the menu line business type enterprises</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Restaurants specialized</td>
<td>The corresponding range of dishes and products complex manufacturing all groups. The corresponding range of wine-vodka products, confectionery manufacturing.</td>
</tr>
<tr>
<td>2</td>
<td>Bars</td>
<td>The corresponding range of drinks, cocktails snacks, desserts and pastry products.</td>
</tr>
<tr>
<td>3</td>
<td>Cafe</td>
<td>Wide range of hot and cold drinks. The corresponding range of confectionery and desserts.</td>
</tr>
<tr>
<td>4</td>
<td>Dining: Scope – general type, diet; contingent on consumers - at sanatoriums, the recreation, the estate, the industrial enterprise. school, student, etc.</td>
<td>A wide range of snacks, cold and hot dishes. culinary products, confectionery, fruit and vegetables.</td>
</tr>
<tr>
<td>5</td>
<td>Snack common type, specialized</td>
<td>The narrow range of culinary products from a certain type of raw material.</td>
</tr>
</tbody>
</table>

### Table 2 – Classification and characterization of dietary menus on board

<table>
<thead>
<tr>
<th>Cheats</th>
<th>Name</th>
<th>Allowed</th>
<th>Not allowed</th>
</tr>
</thead>
<tbody>
<tr>
<td>VGGML</td>
<td>Vegetarian</td>
<td>Vegetables and fruits of all kinds</td>
<td>Meat, fish, animal products</td>
</tr>
<tr>
<td>AVML</td>
<td>Asian-vegetarian</td>
<td>Vegetables and fruits of all kinds</td>
<td>Meat, fish, animal products</td>
</tr>
<tr>
<td>WVML</td>
<td>Western-vegetarian</td>
<td>Vegetables, fruits and dairy products</td>
<td>Meat, fish, animal products</td>
</tr>
<tr>
<td>VLML</td>
<td>Vegetarian for Lacto</td>
<td>Vegetables, fruits and dairy products</td>
<td>Meat, fish, animal products</td>
</tr>
<tr>
<td>HNML</td>
<td>Hindi of menu</td>
<td>Chicken, lamb, fish, dairy products, vegetables</td>
<td>Beef, veal and cheese</td>
</tr>
<tr>
<td>MOML</td>
<td>Moslem</td>
<td>Fruits, vegetables, chicken</td>
<td>Pork, alcohol</td>
</tr>
<tr>
<td>KSML</td>
<td>Koshsrne</td>
<td>Kosher food</td>
<td>Not kosher food</td>
</tr>
<tr>
<td>BBML</td>
<td>For kids</td>
<td>Special meals for kids</td>
<td>Alcohol</td>
</tr>
<tr>
<td>CHML</td>
<td>Child's food</td>
<td>mild dishes</td>
<td>Alcohol</td>
</tr>
<tr>
<td>NLML</td>
<td>Delactosed</td>
<td>Fruits, vegetables, meats of all kinds</td>
<td>Dairy products</td>
</tr>
<tr>
<td>LSML</td>
<td>With mionective maintenance of salt</td>
<td>Food without salt, low fat</td>
<td>Salt, nuts, alcohol, salty marinade</td>
</tr>
<tr>
<td>LCML</td>
<td>With mionective content of calories</td>
<td>Lean meat, fish, raw vegetables, fruits, dairy foods low in fat</td>
<td>Fatty milk fat fish, meat, sugar, pasta, desserts, dried fruits</td>
</tr>
<tr>
<td>LFML</td>
<td>With mionective content to the cholesterol</td>
<td>Chicken, lean meat, low-fat dairy products, raw vegetables, fruits</td>
<td>Fatty foods, egg egg yolks, fatty dairy products</td>
</tr>
<tr>
<td>FPML</td>
<td>Fruit</td>
<td>Fruits, vegetables of all kinds</td>
<td></td>
</tr>
<tr>
<td>DBML</td>
<td>Diabetic</td>
<td>Apples, pears, lean meats, dairy products</td>
<td>Bananas, grapes, pineapple, fatty meat, sugar, honey, bread</td>
</tr>
<tr>
<td>SFML</td>
<td>seafood</td>
<td>Fish of all kinds, fruits, vegetables</td>
<td>meat</td>
</tr>
</tbody>
</table>

Developing menu is important to represent all groups of culinary products that reflect the potential of the company, taking into account the required range, seasonality.

For each type of enterprise can be their approaches to offer a menu of various dishes.
For example, for recreational region in restaurants and catering enterprises, the main rule include menu of dishes is a triad: local fame; dish should be functional, aesthetically appealing and the main motivation for inclusion dishes to the menu should be the formula: “Our company considers the average consumer’s taste.”

However, the menu should not be permanent. A role in improving the menu design should take advertising and presentation of foods, allowing customers to focus on all positions range. A popular trend in the preparation of the menu is offering meals, cooking which is carried in the dining hall of the company. semi dishes or cooking for those wishing to go on a picnic.

The principle of adapting the menu to the type of food. Its use in restaurants and catering enterprises, serving visitors who have certain religious beliefs, yet with health problems (diet), children (baby food). The basic rule to include food menu is full compliance with recipes and food technology type.

The principle of technical support in the implementation dining menu is to analyze the technical capabilities of the company to expand the range of dishes included in the menu, ensuring customers’ expectations.

The principle of adaptation to the menu of food rations is particularly important for businesses serving populations over time, providing breakfast, lunch, dinner.

In order to scientifically based implementation of this principle prompted us to use mathematical models and methods to optimize the choice of recipes of dishes from the existing process documentation developed and adapted the menu to the food rations [3, 13–17].

Determined following algorithm development menu:
- Determination of the daily requirement of raw materials and nutritional value of diets;
- Definition of technical documentation that regulates food recipes for a particular category of consumers;
- Determination of the multiplicity of use dishes that are made for specific recipes for the planned length of time;
- Differentiation dishes based meal times;
- Arrangement of dishes for different meals given daily requirement of food;
- Analysis menu developed in terms of the use of the daily requirement of food;
- Analysis of the nutritional value of the developed menu.

Multidimensional problem of choosing types of food and multiplicity of cooking using specific formulations for the scheduled time can be reduced to a series of one-dimensional problems (according to types of dishes of meat, fish, etc.).

All foodservice businesses, regardless of size or type, have certain processes in common. Whether the foodservice business is a fast-food restaurant or a fine dining establishment, it must purchase supplies from purveyors either by phone, computer e-mail or Web page, fax, letter, or from a salesperson who calls at the establishment. Both types of establishment must receive the supplies when they arrive, and someone must verify that the quantity, quality, and price are the same as ordered. The food must be put away in dry storage, refrigerator, or freezer. When needed, the food must be taken from storage and prepared for customers who order it. Finally, the food must be served to them.

All foodservice establishments, then, have the following sequence of operation: Purchasing; Receiving; Storing; Issuing; Producing; Selling and serving. In each of these steps it is possible for unwanted and unwarranted costs to develop [1]. Menu engineering is the study of the profitability and popularity of menu items and how these two factors influence the placement of these items on a menu.

**Conclusions.**

In the first phase we considered only the choice of dishes. The task was formulated as follows: how often and at what recipes should prepare main dishes that carried out certain conditions which take into account the operating capacity of the process at different stages of cooking; turnover dishes on different days of food and limitations:

1) the total number of cooking main dishes of meat and fish for the entire planning period (24 days) must be at least 48;
2) the total number of main dishes (including dishes with cheese, eggs and vegetables) should be 72;
3) restrictions should be performed at the minimum and maximum use of specific formulations.

As a result of studies using the developed mathematical models and computer technology, we found the optimal solution of the problem for one of the types of companies – dining at the tourist complex.

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