

FOOD AND CANNED PRODUCTS MADE FROM CORN IN THE FOOD INDUSTRY

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Abstract. *This article provides information on a wide range of food products and preserves made from corn, such as chicken fillet with corn, canned sweet corn, canned vegetable mixtures, canned salted corn, marinated corn, Murmansk-style corn, and tomatoes with basil. It also covers the ingredients and preparation methods required for making these products.*

Keywords: *canned corn, ingredients, salt, corn cobs, kernels, meat, vegetable, chicken, vitamins, sunflower oil.*

Introduction. In recent times, the importance of canned products containing corn (*Zea mays L.*) mixtures has been increasing in the development of new types of food products. [1, 2].

Canned corn is considered more beneficial than fresh corn. Preparing this vegetable for long-term storage makes it highly sought after at any time of the year. People have become accustomed to consuming corn during the season, each in their own way: some add sugar, some butter, while others always salt it. With proper preparation for winter, it is possible to preserve all these flavor nuances. In any case, canned corn, especially when prepared at home for winter, will appeal to everyone without exception. For winter, corn cobs, canned corn, and corn kernels are prepared. Such preparations for winter are essential for replenishing our body's vitamin reserves.

Canned corn for winter is prepared as follows: first, the kernels are separated from the cobs, placed in boiling water for several minutes, with sugar and salt added to the water beforehand. The jars are sterilized in advance, then filled with kernels and the solution is poured over. Finally, sterilization is performed

for 3 hours. Home-prepared canned corn for winter is not inferior in taste to store-bought corn, only much more beneficial. Winter marinated corn has its own peculiarities, which are described in detail in each recipe. They usually use young corn. There are many types of winter preparation recipes. Each of them gives you the opportunity to choose how to freeze or preserve corn for winter.

Main part. Recommendations on some methods necessary for the correct preparation of this dish: young corn is more suitable for preparation. Test one kernel by crushing it with your finger; if it crushes easily and small drops form, it means this corn cob can be used;

when canning, the corn is boiled first, but this water should not be discarded, as it will become the basis for the future brine;

no vinegar should be added to canned corn;

frozen corn kernels can be stored for up to 6 months;

before preparing a dish from frozen corn, it is not necessary to thaw it; add it to the dish 10 minutes before the end of cooking;

corn for salad should be briefly boiled in salted and sweetened water;

corn should be frozen in single-use bags. This product cannot be refrozen or thawed;

corn should be frozen immediately after boiling and cooling, as its taste and turgidity will completely disappear after an hour of exposure to open air.

Common ingredients: sugar, corn, corn on the cob, tomatoes, vinegar, currant leaves, dill, black peppercorns, parsley, leaves, citric acid, peppercorns, cabbage, raw corn kernels, butter, dill inflorescences, onions, carrots, black currants, powdered sugar, spices, flowers, horseradish, apple, cherry leaves, bay leaf, ice, cherry tomatoes, basil, raw corn, boiled water, dried apricots, cinnamon, dill greens, sweet pepper, cucumber, plum, pear, garlic, cornflower, parsley.

For this purpose, the use of frozen corn as a non-traditional plant ingredient in the production of meat and vegetable preserves based on chicken fillet is proving effective. [3].

It is noteworthy that corn retains almost all of its properties during the heat treatment in the canning process. The nutritional value of canned corn consists of 2.2% protein, 1.2% fat, and an average of 15% carbohydrates.

In addition, it contains B vitamins, vitamins E, K, PP, C, beta-carotene, as well as gold, phosphorus, fluorine, iron, potassium, zinc, and other minerals [4]. Therefore, adding corn as a plant component in the production of meat and vegetable preserves, followed by sterilization, contributes to the preservation of

important elements.

Furthermore, the preliminary corn preparation process - cleaning from mechanical impurities, sorting, washing, partial boiling and separation - is aimed at ensuring the raw material meets high sanitary and hygienic requirements.

The use of such raw materials makes it possible to extend the processing time of corn and reduce the load on canneries during the mass harvesting season. After rapid freezing, the raw material is similar in technological properties to boiled raw materials, but unlike it, it can withstand mechanical stress when mixed with meat raw materials [5].

Thus, in the production of meat and vegetable preserves, the addition of chicken fillet and frozen corn as a meat base forms a dietary product with good nutritional properties, in which the use of frozen corn kernels eliminates the possibility of partial deformation of the kernels, which is important for the producer.

For the preparation of chicken fillet with corn, meat and vegetable preserves were selected. The process includes: cutting the chicken fillet, inspecting frozen corn kernels, inspecting vegetables, washing, cleaning and chopping them, preparing auxiliary materials, mechanically mixing the components, packaging in No. 8 tin cans, controlling the weight, adding broth, hermetically sealing, sterilizing, cooling, and storing. The sterilization mode is (20-40-20/120 °C, with a counter pressure of 2.5 At)(Table 1).

Table 1

Composition of the canned “Chicken fillet with corn” sample

№	Ingredient name	Content, %
1	Chicken fillet	31,0
2	Frozen sweet corn kernels	34,0
3	Fresh carrot	2,5
4	Salt	1,1
5	Broth	31,4
6	Total	100,0

The long shelf life of canned sweet corn and the ability to preserve the natural sweetness and nutrients of fresh corn are of great importance. After harvesting and delivering corn to the production plant, it is cleaned and then blanched to preserve its color, taste, and nutritional value. Subsequently, it is cooled, placed

in sterilized jars, and filled with a salt and water solution, after which the container is hermetically sealed. The jars are then sterilized at high temperatures to ensure disinfection and complete cooking, after which they are cooled, labeled, and sent for consumption.

Canned vegetable mixture. This type of canned food is a very nutritious, low-fat, vitamin-rich product that contains 4 (green peas, carrots, and corn), 5 (green peas, carrots, corn, and beans), or 6-7 (green peas, carrots, corn, beans, potatoes, and onions) different ingredients. This type of canned food is widely used for salads and is also an excellent ingredient for many delicious dishes such as soups, pies, and meat roasts. In this process, various vegetables are cleaned, washed, cut into small pieces and placed in canning jars, then sterilized with a salt and water solution before being released for consumption.

Canned salted corn. Approximately 8 cobs are placed in a three-liter jar. The ends of the cobs are cut off so that they fit up to the neck of the jar. The corn is boiled in unsalted water until cooked. Then brine is prepared: 300 grams of salt and 300 grams of sugar are added to 10 liters of water. The cooked corn is placed in jars, hot brine is poured over it, and the lid is placed on top but not sealed. After sterilization, the lid is tightly sealed, and the jars are cooled.

To prepare marinated corn, water is mixed with vinegar and boiled with sugar, salt, and spices. Then corn is added and cooked until the cobs become soft. The mixture is then poured into a ceramic container, covered with a lid, and stored in the refrigerator overnight. On the second and third days, the marinade is poured out and boiled, then poured back over the corn, and the process is repeated. On the fourth day, after everything has boiled, the corn is placed in a colander to drain and is cooled. Then the corn is placed in jars, covered with cold marinade and heated sunflower oil, bay leaves are placed on top, the jars are tightly sealed and stored in a cool place (Table 2).

Table 2

Ingredients needed to prepare marinated corn, for 1 serving

N	Ingredient name	Quantity
1	Corn cob	6-7 дона
2	Boiled water	1 л
3	Vinegar (6%)	2 ош қошиқ
4	Sugar	2 ош қошиқ
5	Allspice	3-4 дона
6	Bay leaf	1-2 дона

7	Cinnamon	1 дона
8	Sunflower oil	30 мл
9	Salt	2 чой қошиқ

Table 3**Murmansk-style tomatoes with corn and basil, for 1 serving**

N	Ingredient name	Quantity
1	Cherry tomatoes	3-4 kg
2	Fresh corn on the cob	3-4 pieces
3	Basil leaves	10-15 leaves
4	Whole black peppercorns	2 tablespoons
5	Sugar	4 tablespoons
6	Water	1 l
7	Citric acid	1 teaspoon
8	Salt	1 tablespoon

Conclusion. Corn is considered a globally significant grain crop, widely used in the food industry due to its versatility, nutritional value, and functional properties. Today, the variety of food and canned products made from corn or with its addition is increasing. In the food industry, the combination of corn with various vegetable and meat products, spices, broths, and other ingredients not only imparts a unique flavor to each product but also contributes to providing the body with necessary vitamins. Naturally, each canned product has a different composition, and the methods of preparation are also diverse.

REFERENCES

1. Tixonov S.L., Tixonova N.V., Priymak A.O. Pastoobrazniy konsentrat iz proroshennix semyan amaranta, obogashennix selenom, v proizvodstve pashtetnix konservov// Vestnik VSGUTU. 2018, № 1, 53–59 c.
2. Ba B., Zhamsaranova S., Zab Yu., Gerasimov A.A. and Zambulaeva N. Effe of lingonberry extract on the antioxidant capacity of meat paste. Food and Raw Materials. 2020, № 8(2), 250–258 c.
3. Syarova L.N., Ivanova N.G., Zabaluyeva Yu.Yu. i Niazbayev X.R. Vozmojnost ispolzovaniya kukuruzi v proizvodstve myaso-rastitelnix

konservov, VESTNIK Vostochno-Sibirskogo gosudarstvennogo universiteta tekhnologii i upravleniya. 2024. № 2 (93), 30-36 c.

4. Zhirkova E.V., Martirosyan V.V. and Sotchenko E.F. S corn: quality, safety, application in dietary nutrition. Problems of Nutrition. 2015. No. 84(5), 39 p.

5. Syarova L.N. The use of hydrocolloids for gelling broth in canned chicken meat. Food biotechnologies: innovative solutions and personnel training: Proceedings of the International Scientific and Practical Conference: K.G. Razumovsky MSUTM. M: Publishing House Direct-Media. 2021, 329–334 p.

6. Kobilov N. and Umurzakov E. "Formation of the corn root system depending on the norms of mineral fertilizers and biostimulants." Bulgarian Journal of Agricultural Science 30.3 (2024): 482-485.

7. Kobilov N.E., Dodaev K.O. The Biochemical Composition of Corn: Its Role in Human Health and Industrial Sectors. //International Scientific and Technical Conference on "Colloid Chemistry: Innovations and Solutions for Chemical Technology, Ecology, and Industry"//. 2025, -P.145-147.