

4. Obtaining a formula for calculating water consumption cabbage.
5. Determination of biological coefficients, as well as coefficients that take into account soil moisture.

Methodology and research methods :As a methodological basis, a system of research methods for water consumption, consumption, removal of nutrients, productivity, quality of varieties of white cabbage was adopted, which ensured the achievement of the goal set in the work. The system included experimental methods - field, laboratory experiments, and statistical methods - analysis of variance and correlation.

Expected results Determination of water balance in acidic soils in watershed areas in the Moscow region. Obtaining the highest efficiency in the irrigation cabbage system. Humidity control for a calculated layer when planting cabbage. Determine a formula for calculating cabbage water consumption. Access to biological parameters, as well as those that take into account soil moisture.

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DEVELOPMENT OF STORAGE TECHNOLOGY OF WHOLE-BODY PRODUCTS FROM POULTRY MEAT WITH APPLICATION OF PRESERVATIVES

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Abstract: *This article highlights the role of preservatives in extending the shelf life of poultry meat and preserving its quality. It was found that when a complex food*

additive (citrine Arriva Spice), 0.6% and 1.2%, was added to the brine for extrusion, the output of the finished product was not significantly affected. After 7 days of storage at 0°C, the acid and peroxide numbers were lower compared to the control samples. Density measurements of finished products showed a finer meat texture of experimental finished samples. The tasting evaluation of the finished broiler fillet showed that all samples of the finished product had a high taste appeal.

Keywords: *poultry products, preservatives, food additive.*

Introduction. Poultry is the most dynamic agricultural sector in many countries of the world. The growth of poultry production and increased demand for it forced poultry farmers to switch from selling poultry meat in carcasses to their deep processing [1]. This processing of poultry meat provided for the allocation of the most valuable parts of the carcass (fillets, chicken legs), which were used for the production of semi-finished products and finished products [2].

For the production of poultry products, various preservatives are widely used - food additives created to protect food from microbiological spoilage and increase the shelf life [3]. They provide various effects: bactericidal, bacteriostatic, fungicidal and fungistatic [4]. Natural and artificial preservatives are used to increase the shelf life. They not only increase the shelf life, but also improve the taste of the finished product [5]. In this regard, the study of the shelf life of whole muscle products from poultry meat using food additives that extend the shelf life of finished products is an urgent task.

The experiment was carried out at the Department of Technology for Storage and Processing of Animal Products of the Russian State Agrarian University – Moscow Timiryazev Agricultural Academy.

The aim of the research is to determine the effectiveness of the use of preservatives for storage of broiler fillets and develop a technology for storing whole muscle products from poultry meat using a complex food additive (citrin Ariva Spice). To achieve this goal, the following tasks were set:

- To develop methodology of the research;
- To produce poultry meat by extrusion using preservatives in the amount of 0.6% and 1.2% by weight of brine;
- To prepare experimental and control samples of breast of chicken;
- To calculate the meat yield in experimental and control samples of broiler fillets;
- To provide chilled storage of experimental and control samples of poultry meat at a temperature of 0 ° C for 7 days;
- To measure the density (texture) of the finished product after 7 days of storage;
- To evaluate the organoleptic properties of control and experimental samples of finished products after 7 days of storage;
- To make conclusions and suggestions for domestic production.

Materials and methods. The object of research were chilled broiler chickens of domestic production. To prepare aqueous solutions of preservatives, cold drinking

water was poured into a container in an amount of 50% of the required amount and sugar and phosphates were dissolved in it, followed by constant stirring to prevent any undissolved lumps. After that, the Arriva Space City ring Complex Food additive was added in the amount of 0.6% and 1.2% and the solution was thoroughly mixed to completely dissolve all the components. At the end, pepper, garlic and nutmeg were added and mixed together. After adding all the components, the remaining cold water was added. The solution was infused for 30 minutes and then filtered. Before using, it must be mixed. For the experiment, fillets were selected and divided into three groups (Table 1).

Table 1

Scheme of the experimental

Group	Control	1 Experimental	2 Experimental
1	-	-	-
2	-	12 (0,6%)	-
3	-	-	24 (1,2%)

Carcasses of the first control group without preservatives, the second group and the third group were sprayed with a complex solution of preservative in the amount of 0.6% and 1.2%. During extrusion, aqueous solutions of preservatives 30 wt.% was introduced into the carcasses of the second and third groups. After that 2 hour massage was performed. Chamber temperature was + 2° C. The temperature of the preservative solution was +4°C. The temperature of the raw material was +8° C, pH = 5.9. After massaging the fillet was subjected to heat treatment with hot air at the temperature of 120°C. Then it was dried for 15 minutes at 40° C. The samples were then stored in refrigerators at the temperature of 0°C for 7 days. The temperature in the chamber was 0°C. Relative humidity was 75%.

Result. The data in Table 2 show that in the first, second and third groups, the yield of broiler fillets was 82.2%, 82.0% and 81.5%, respectively. Therefore, the highest yield of the finished product was obtained from the samples of the first group - 82.2%, where preservatives were not used. In this group, compared to the second and third groups, the output of the finished product was higher by 0.2% and 0.7%, respectively (Table 2).

Table 2

**The yield of finished products
(in each group n = 3)**

Samples	The mass of raw materials, g	Weight of products after extrusion, g	Mass of finished products, g	Loss,%		Output, %
				g	%	
Control	900	1035	740	160	17,8	82,2±8,0
1 Experimental	890	1023	730	160	18,0	82,0±7,6
2 Experimental	870	1000	709	161	18,5	81,5±7,2

After 7 days of storage of the finished product, the acid number of fat slightly exceeded the standard value in the range of 0.14-0.18 mgKOH/ g. The amount of fat peroxide after 7 days of storage of the finished product met the upper level standards.

However, it can be noted that when adding 1.2% complex food additive "Ariva Spice Citrin" to the brine for extrusion, the acid number and peroxide number were lower by 0.12 mgKOH/ g or 10.2% and 0 compared to the control, 04 mmol act.acid / kg or 1.4% (Table 3).

Table 3

Indicators of finished products freshness

Group	Fresh meat		After 7 days of storage of finished products	
	Acid number of fat GOST 31470-2012	Peroxide fat, mmol act.acid / kg GOST 31470-2012	Fat acid value, mgKOH / g GOST 31470-2012	Peroxide fat, mmol act.acid / kg GOST 31470-2012
Standard	0,5-1,0	0,2-3,0	0,5-1,0	0,2-3,0
Control	0,92±0,11	1,95±0,48	1,18±0,18	2,88±0,48
1 Experimental	0,90±0,15	1,85±0,51	1,08±0,16	2,44±0,46
2 Experimental	0,88±0,20	1,70±0,47	1,06±0,14	2,84±0,44

Next, we measured the texture density of the finished products after 7 days of storage at 0°C using a Texture Analyzer (Figure 1).

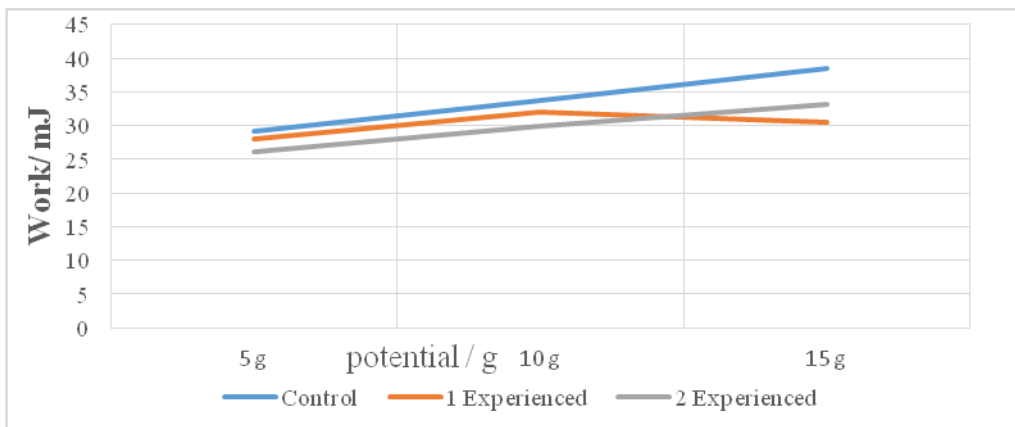


Fig. 1. Density (texture) of the finished products after 7 days of storage

The results showed that the broiler fillet 2 of the experimental group of samples had the lowest texture density. Consequently, the prototypes of the finished products with the addition of 1.2% of the complex food additive "Arriva Space Citrin" were more tender and juicy.

Tasting of the finished product. After 7 days of storage at 0°C a cooked fillet from the finished product was tasted to compare the organoleptic characteristics of

poultry meat from different experimental groups. The product was evaluated using a 5-point indicator panel (Table 4) by a team of experts.

Table 4

Organoleptic evaluation of the finished product after 7 days of storage at 0°C

Sample	Appearance	Colour	Odour	Taste	Consistency	Mellowness	Average
Control 0°C	4,5	4,3	4,0	4,0	4,0	3,8	4,1±0,5
1 Experimental 0°C	4,5	4,3	4,0	4,5	4,5	4,3	4,4±0,5
2 Experimental 0°C	4,3	4,3	4,5	4,3	4,3	4,0	4,3±0,6

The results of Table 4 showed that according to the tasting evaluation, all products received high ratings. However, the highest score was given to a sample of the finished fillet from group 2 - 4.4 points.

Conclusions. Based on the results of the study, the following conclusions can be drawn:

1. Research results showed that when a complex food additive (citrine Ariva Spice) of 0.6% and 1.2% was added to the brine for extrusion, it did not significantly affect the yield of the finished product.

2. It was found that when adding 1.2% of the complex food additive to the brine for extrusion after 7 days of storage at 0°C, the acid and peroxide numbers were lower by 0.12 mgKOH / g or 10.2% compared to the control samples and 0.04 mmol act. Acid / kg or 1.4%. It showed that the product had the best quality indicators.

3. The results of measuring the density of the finished products showed that the experimental finished samples had the lowest texture density, which indicated a finer texture of these products.

4. The Tasting evaluation of the finished broiler fillet showed that the finished product with the addition of 0.6% of a complex food additive received the highest rating.

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