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VETERINARY-SANITARY INSPECTION OF POULTRY, FISH, BEEKEEPING AND PLANT PRODUCTS

Tutorial

Альманахъ
издательский дом

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Slaughter and exsanguinations, plucking and evisceration of the bird produce without delay. It is forbidden to inflate poultry meat with air, cleaning with a rag, cutting carcasses before veterinary inspection.

After extraction of internal organs and veterinary-sanitary inspection, carcasses must be immediately cleaned and cooled.

Carcase washing reduces microbial contamination. This operation is carried out only by irrigation with tap water or chlorinated water, do not allow immersion of carcasses in baths. Cooling affects the quality of the bird. Semi-gutted carcasses are forbidden to cool in the baths with ice water, as there is a cross-overgrowth of carcasses by the most diverse microflora, including pathogenic - salmonella, causative agents of tuberculosis, leukemia, botulism, etc. Washing and cooling contribute to reducing the bacterial contamination of carcases and prevent reproduction and accumulation of microflora in carcasses. Violation of the cooling technology (increase in the duration of cooling, high temperature and contaminated water) reduces the quality of the carcasses. Semi-gutted carcasses after choking are air-cooled for 1.5-3 h in tunnel type installations for intensive cooling and for 18-24 h in cooling chambers.

Packaging, freezing and storing poultry carcasses are important technological operations that affect the quality of the poultry. The duration of freezing of carcasses depending on the type and fatness is: with natural air circulation and temperature -180C - 48-72 hours, with forced circulation of air and temperature -23'C - 24-36 h and -OZ-12-14 h. Freezing is considered complete when the temperature in the thickness of the pectoral muscle of the carcass reaches -8 ° C.

Chilled meat is stored at 0-2 0C and relative humidity 80-85% no more than 4 days. From the day of production. The temperature in the ice-cream storing chambers should not be higher than -12 ° C, relative air humidity 85-95%. Duration of storage in production refrigerators is no more than 15 days.

Storage of carcasses in bulk or in tightly placed boxes increases the duration of cooling and freezing, and this contributes to the development of psychrophilic micro flora, which is able to multiply at -5°C, mold at -18°C. Psychrophilic micro flora, such as pseudomonas and mold, causes green rot of bird carcasses. To avoid this, strict cooling, freezing and storage of bird carcasses must be strictly performed.

Frequent thawing and freezing contributes to the deterioration of carcasses, as they multiply the most diverse micro flora, including pathogenic (causative agent of botulism, clostridia perfringens, etc. are able to multiply and accumulate toxins at 80C). An indispensable condition for the production of high-quality products is the provision of enterprises with a sufficient amount of water corresponding to GOST "Drinking water"

Workshops of slaughters and processing are carefully cleaned at the end of the shift: first all the equipment is washed with water at room temperature, then hot water with brushes and a jet of water from the hose. Tare, tools and small tools are washed in a special separate room and daily disinfected in solutions of bleach or hot steam. Once a week after thorough sanitary cleaning and washing, the shops and equipment are disinfected with chlorine lime solution with 2% active chlorine or 2% sodium hydroxide solution or with a 5% solution (70-80 ° C) of soda ash and other

solutions according to the Instruction on washing and preventive disinfection at the enterprises of meat and poultry processing industry.

2. A bird sent for sale to the market must be examined by a veterinarian (paramedic) beforehand. The owner of the bird is obliged to provide a veterinary certificate (form% 1) or a veterinary certificate (within the administrative district), with obligatory indication of the data on the well-being of the locality for infectious diseases.

Poultry carcasses are delivered to the market intact in a semi-gutted form. The skin should be cleaned of feathers and hemp, without rupture; beak, tail and legs - without contaminants and blood clots. Together with the carcass, the parenchyma organs (heart, liver, spleen, lungs) are viewed for inspects

Post-slaughter veterinary-sanitary examination is carried out on the basis of inspection of carcasses and internal organs. At examining the head, attention is drawn to the color and size of the scallop and earrings, the state of the eyes and mucous membrane of the mouth, pharynx and larynx. Inspection of the internal organs starts from the heart, since in some infectious diseases (cholera, smallpox, salmonella), it has characteristic pathological changes. Then inspect the liver, which for a number of infectious diseases can be changed. Changes in the lungs and trachea are observed, as a rule, with plague, ornithosis, aspergillosis and laryngotracheitis. Explore also the spleen, kidneys, oviducts and yolk balls.

After examining of the internal organs determine the degree of bleeding carcass, fatness, skin condition, muscle and fat tissue, feel the limbs and joints.
Sometimes there are situations when it is necessary to distinguish the carcass of a bird killed in the agonistic state or killed after the case. At the corpse of the bird the skin is crimson - red or bluish, the crest and earrings are blue-violet, on the cut of muscles and internal organs appear dark drops of blood, the place of the cut is even, hypostases are present in the subcutaneous tissue.

The meat of a healthy bird has a pH of 6.0-0.6; sick -6.5 and above. At formulating the reaction in the extracts from the meat of diseased animals, flakes appear or a jelly-like clot forms.

In case of detection on internal organs or on serous and mucous membranes of pathological and morphological changes, the carcass and internal organs are subjected to detailed investigation. If necessary, the carcass and internal organs are sent to the veterinary laboratory for bacteriological and biochemical analysis.

Sanitary assessment of carcasses and organs is carried out according to the rules in force, depending on the established diagnosis and laboratory data.
Esophagus, goiter, cuticle of the muscular stomach, intestines, trachea, spleen, testes, ovaries, gall bladder are utilized.

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using water from open reservoirs and wells, the chemical-bacteriological analysis of water should be carried out at least once every ten days.

Studies are conducted according to the current standards.

For the disposal of waste industrial, household waste water, enterprises must be drained. The sewage network must be connected to the city (settlement) sewage system or have its own treatment facilities, in agreement with the territorial SES.

The connection of water drains from working units and apparatuses for the production of foodstuffs directly to sewers is not allowed.

Wastewater after washing the floors, from scissors, evisceration machines, poultry heat treatment baths, cooling of carcasses, equipment of the primary processing section of the feather-down raw materials, egg production shops are diverted through special ladders.

It is forbidden to dump waste industrial and domestic waste water without adequate treatment into open reservoirs.

For general lighting of industrial premises, fluorescent lamps should be used.

In rooms with excessive heat, moisture, or temporarily visited by maintenance personnel, incandescent lamps should be used.

The luminaire with fluorescent lamps should have a protective grid (grid), a diffuser or special lampshades, which exclude the possibility of falling out of lamps from luminaires; Lamps with incandescent lamps - continuous protective glass.

Light apertures are forbidden to clutter containers, equipment, it is not allowed to replace the glass in them with opaque material.

In the case of a change in the designation of the production premises, as well as when transferring or replacing one equipment to another, the room illumination should be changed in accordance with the new operating conditions without violating the standards of illumination.

Window glass should be kept clean at all times. Illumination in any part of the working space must be at least 325 lx. At the site of veterinary and sanitary examination of bird carcasses and checking the quality of raw materials and products, the illumination should not be less than 540 lux.

In production halls, storage and auxiliary rooms, natural or mechanical, or mixed ventilation, or air conditioning must be provided.

In the shops having systems of mechanical fresh air ventilation, it must be provided for cleaning the supplied outside air from dust.

In the shop for slaughter and primary processing, the birds are equipped with supply and exhaust ventilation, which prevents the formation of fog and condensation of vapors on walls, ceiling, equipment. Each room should have devices (windows, transoms) for natural ventilation, if this is allowed by the technological process.

Airing of premises should be carried out not less than 3 times a day: before the beginning of work, during a break for lunch and after work or before a new shift. Ventilation ducts, air outlets from the process equipment must be cleaned with contamination.

Heating appliances should be with smooth surfaces and arranged so that they can be easily inspected, cleaned, repaired.

the broth of broiler chickens and chickens is carried out at 58-60 ° C for 80 s), ducks and ducklings - at 58-65'C for 3 min, turkeys, turkeys - at 52-54 ° C for 2 min, goslings treated with steam-air mixture at 68-7b ° C and adult geese at 7b-83 ° C for 2,5-3 minutes.

In addition to weakening the feathering of the spurge at elevated temperatures, it kills many vegetative forms of microbes that are found on the feather-down and skin cover of birds. However, if you do not change the water for a long time, microbes such as Escherichia coli, Proteus, Salmonella, mold, fungi, viruses, putrefactive micro flora, etc., and spore forms of microorganisms accumulate in it, which can also cause spoilage of food and poisoning of people. After 4 hours in the scalding water, the amount of micro flora increases from 10 to 10 in 1 ml.

In the process of scalding, the temperature of the water in the bath, the exposure and the cleanliness are strictly monitored. Periodically (at least 1 time per shift) change the water in the bath. The scalding of a wet, polluted bird increases the microbial contamination and causes burns on the skin of the bird.

To decrease the microbial seeding of carcasses and to reduce the retention of their tail, hydrochloric acid is added to the heat treatment bath at an interval of one hour at a rate of 40 mg per liter of liquid.

At removing the plumage, they strive to ensure that it is completely removed and, moreover, the skin is not damaged. The water on the under padding should come in a clean and adequate temperature. Scraper machines should be periodically cleaned and washed. Dirty working organs of the machine promote the rubbing of a variety of microflora in carcasses of the bird, which worsens their sanitary condition. Waxing is used to remove stubs from waterfowl.

Evisceration is a very important operation that affects the quality of products. Only complete evisceration of the bird ensures that the carcasses are released safely in a sanitary, epidemiological and epizootic attitude. It is forbidden to release an uneaten bird.

With evisceration and semi-evisceration, the gastrointestinal tract of the bird can not be damaged, since the carcasses are seeded with a wide variety of microflora, including pathogenic ones. Even a healthy bird, especially a waterfowl, has a high percentage of salmonella carriers. Salmonella can be contained in the gastrointestinal tract, even in a clinically healthy poultry, harvested in safely infected farms. Dissemination of carcasses with salmonella reaches 25-64%. In case of accidental damage to the gastrointestinal tract, it is necessary to wash the carcass immediately with a jet of water, and wash hands and tools (knives) and disinfect with a 0.2% solution of bleach

Various damages of carcasses (hematomas, nasals, fractures, abscesses, etc.) are removed under the supervision of a veterinarian. Opal helps, in addition to removing a threadlike feather, to reduce the amount of vegetative micro flora on the surface of carcasses. If the burners are correctly positioned and the flames of the whole surface of the carcasses are seized for 30 seconds, the amount of Escherichia coli and other non-spore-forming micro flora on the skin is reduced by 90%. According to other data, opal reduces the amount of vegetative micro flora on carcasses by 4.5-7 times.

Theme 3. Veterinary and sanitary examination and sanitary assessment of the quality of poultry products

1. Poultry meat. Morphological and chemical composition, nutritional value.
2. Biochemical methods of bird research.

At slaughter of birds meat (carcasses and offal), a feather, fluff and technical waste are received. Slaughter yield of meat with complete evisceration of carcasses of birds on average 60%, half-eaten - 80%. In carcasses 58-63% of edible parts of meat.

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Meat obtained after slaughter of birds at poultry processing plants can be produced without restrictions, used for food purposes after heat treatment or for cooking sausages, canned food, and also sent for disposal or destroyed.

With poultry processing plants, poultry meat in the form of half-gutted and semi-gutted carcasses or gutted carcasses with a set of processed giblets is released cooled or frozen, sorted by species, age, fatness, as well as the method and quality of processing. Carcasses can be packed in shrink film, bags or unguarded. They produce pre-packaged meat in the form of half-breads, four-quarters, sets.

To the guts, i.e. edible products include the heart without a shirt, a liver without a gallbladder, a muscle without a skin and a neck without skin. They are packed into the cavity of a carcass or sold separately.

Technical waste, obtained by slaughtering birds, is considered not to be used for food purposes organs and tissues. These include evisceration - legs, heads, guts with cloaca, trachea, pyleschevod, lungs, kidneys, pericardial bag, oviducts, spleen, glandular stomach, cuticle of the muscular stomach, as well as blood and pieces of tissue. Technical waste alone or together with a low-value pen, other raw materials are used for the preparation of dry food or destroyed.

Feather and down, obtained during the processing of birds, are raw materials for making pillows, blankets, flowers and other items. Raw materials received from healthy birds are exported to processing enterprises without restrictions, and from sick with infectious diseases - in a disinfected condition or processed for dry food. Low-value raw materials are also sent for making feather or meat-feather flour.

Inspection. The state of health of live birds is determined on the basis of inspection without carrying out thermometry. Pre-bump inspection in conjunction with post-mortem research allows you to get the most complete and objective picture of the of the bird’s health. It should also be borne in mind that some diseases and

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Enterprises that have special dizitems for vehicles and poultry delivery containers, disinfection barriers at the entrance (exit) gate are built in consultation with the state veterinary supervision.

Raw materials on the territory of the enterprise must come without counter flows with the export of finished products, waste, auxiliary materials.

For the collection of garbage, tanks with lids or metal containers are installed on an asphalt or concrete site, the area of which must exceed the area of the base of the garbage disposal facilities by 3 times in all directions. The refuse collectors should be removed from production and storage facilities for a distance of at least 25 m.

Disposal of waste and debris from containers and containers should be made when they accumulate not more than 2/3 of the capacity, but at least once a day, followed by washing and disinfection of the refuse receptacles and the site on which they are located.

Enterprises of the poultry processing industry, both for technological processes and for production and drinking purposes, must be provided uninterruptedly and in sufficient quantity with benign water, which complies with the current standards for drinking water in terms of requirements and tests.

The choice of sources of water supply, the site of water abstraction in each individual case is subject to mandatory agreement with the territorial institutions of the sanitary-epidemiological service.

The water supply should be in an isolated, closed room and must be kept in a proper sanitary condition, with gauges, water sampling taps, drains for drainage, check valves allowing water movement in only one direction.

Enterprises should have schemes of a water supply network in the sewage system and present them at the request of controlling organizations.

For the compressor, equipment, vacuum pumping units and watering the territory, technical water can be used.

The service water pipe must be separate from the drinking water pipe. Both water supply systems should not have connections between themselves, and pipelines should be painted in a distinctive color.

In the corresponding points of the water analysis it is necessary to write "Drinking water", " Technical water ".

The number of water storage tanks for production needs must be at least two, while each tank should store half the volume of daily water consumption, taking into account the possibility of preventive maintenance. The exchange of water in the tanks should be provided within a period not exceeding 48 hours. For inspection and cleaning, hatches, ramps and stairs are provided.

The water in the storage tank must be chlorinated with mandatory control of the amount of residual chlorine. Water at the inlet, in the storage tank, supplied by the city water supply to the production departments and areas (production of poultry meat, egg products, canned food, mechanically deboned meat, sausage-culinary products, semi-finished products, feed and technical products, feather-down raw materials) established by territorial agencies of the sanitary-epidemiological service, is subjected to them by chemical-bacteriological analysis at least once a quarter; at

Bayantassova S.M. and other
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The training manual presents various topics that make it possible to work more effectively with academic and scientific literature, and critically comprehend the read and studied material.

Knowledge of the outlined issues in this training manual will broaden the horizons of the learner, deepen and supplement the material to be studied for the main program, will allow you to better navigate the materials of the disciplline.

The manual can be used by students, undergraduates in "Veterinary Sanitation" specialty.

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be adjusted depending on the species, live weight, age and sex of the bird.

Poultry processing plants mainly use electric stunning. Several types of electric stunning devices have been designed and manufactured: automatic with adjustable and unregulated voltage; manual for electro-stunning waterfowl, et

Theme 2. Peculiarities of processing poultry of various species

1. Peculiarities of processing poultry of various species.
2. Organization and methods of inspection of carcasses and internal organs.

1. After acceptance, the bird is sent to slaughter. At processing on mechanized lines, it is hung on the conveyor suspensions. The room for placing the poultry on the conveyor should be isolated from other poultry processing plants, since air is contaminated with this operation.

The marketing appearance of bird carcasses is affected by all technological processes of processing.

Electro-damping using water as a contact medium should be performed at 90-100 V for hens, chickens, broilers, guinea fowls and at 120-135 V for ducks, ducklings, goslings, turkeys; duration of stunning is 3-6 seconds.

Stunning, slaughtering, and bleeding are performed according to the Technological Instruction for the production of poultry meat. The violation of the technology of these processes worsens the quality of the products. For example, poor exsanguination of carcasses promotes the rapid growth of microbes in them, which causes damage to meat and poisoning of people. These carcasses can not be stored for a long time, since hemoglobin turns into green pigments-sulfgemoglobin, holeglobin, etc., causing green staining of carcasses.

Heat treatment of the birds is carried out strictly according to the instructions: scalding of chickens, chickens, guinea fowl at 51-55 ° C for 2 min, (in some cases,

Stunning is performed correctly if the bird loses sensitivity for a time sufficient for bleeding (3-5 minutes).

At stunned, you can use several methods: mechanical, electrical current and using carbon dioxide.

Mechanical stunning is the simplest and most accessible method. It is carried out by striking a solid object in the frontal part of the head with such force, in which the integrity of the bone is not broken and there is no hemorrhage to the brain, since otherwise instant death and bleeding does not occur. At the same time, the blow should lead to loss of sensitivity from one time within 3-5 minutes. At a shock occurs, muscle shaking occurs, the work of the heart and lungs does not stop, which contributes to good bleeding. A significant disadvantage of this method is the frequent death of a bird, since it is not always possible to calculate the impact force.

For a weak and lightweight bird, the impact force should be small, for a large one - stronger. For stunning use and special devices in which the impact force can

pathological conditions of birds can be established only for life. During the pre-slaughter inspection of separate groups of birds, attention is drawn to the presence or absence of sick, weak or dead birds; uniformity of development and fatness of individuals of the group; condition, color and purity of the plumage; pigmentation of the beak and skin of the legs; the reaction of the bird to sounds; appearance, quantity and consistency of the litter.

After receiving a general idea of the group, more closely examine individual birds, fixing attention on the shape and position of the body, head, legs, wings; The mobility of the bird; hour of breath; the presence of efflux from the eyes, beak, nasal cavities, cloaca; color and shape of the iris, the shape and color of the pupil; color, shape and size of the scallop, the furrow (in chickens); leg joint condition; purity of plumage in the eye and cloaca, degree of flow, color and shape of the feather.

Poultry fatness is determined organoleptically. To standard, i.e. suitable for slaughter for meat, include birds, in which the muscles are developed satisfactorily on the chest and with the keel of the thoracic spine form an angle without depressions, the keel is allocated above the muscles. In broilers the muscles are developed quite satisfactorily, the keel can also be allocated. The ends of the frontal bones are easy to feel, subcutaneous fat deposits may be absent.

In the lower part of the abdomen, the adult bird is probed with insignificant subcutaneous fat deposits, in young animals they may not be. The muscles of the hip are developed satisfactorily, in young animals a strip of subcutaneous fat on the thigh may be absent, in the adult bird - be weakly expressed. The color of the skin is light pink with a white or yellow hue. For turkeys, turkeys, guinea fowl pigmentation of the skin from light to dark gray is allowed.

In ducks and ducklings, geese and goose, the muscles on the chest should be developed satisfactorily. The keel of the breast bone can stand out. Under the wings of the geese, small deposits of subcutaneous fat are palpated. Ducks, ducklings and geese can not show fat deposits. Skin color from light pink to light red.

Poultry meat has some characteristics that distinguish it from other types of meat. The chemical composition of poultry meat, presented in Table. 6.6, indicates a high protein content.

Due to the fact that the connective tissue is relatively poorly developed in the meat of birds, it contains more valuable and assimilated proteins than meat of slaughter animals. At the same time, essential amino acids are part of the proteins of poultry meat in optimal proportions. Collagen connective tissue is well digested.

Unlike meat of farm animals in poultry meat, the content of intramuscular fat is small. Fat is mainly localized in the internal cavity of the carcass, as well as in the subcutaneous layer. At preparing the carcass for cooking, these large accumulations of fat can be separated, in contrast to the intramuscular fat of beef and pork.

However, if you take a bird carcass as a whole, the fat content in it, especially in geese and ducks, is very high. The fat content in the carcass depends on the species, sex, age of the bird and its fatness. Bird fat also has a high biological value and digestibility, since it contains about 70% unsaturated fatty acids.

In meat and especially in the liver of the poultry there are practically all known water- and fat-soluble vitamins and vitamin-like compounds

the inner part of the carcass. Most bird carcasses are only visually examined from the surface in semi-exhalation, therefore, the main focus in this method of cutting carcasses is given to pre-slaughter inspection, the careful conduct of which should prevent sick birds from reaching the slaughter conveyor.

Final inspection of the carcasses is carried out after they are placed in boxes or other packaging. Preventive inspection of birds and post-mortem examination of carcasses and organs can be supplemented, if necessary, with laboratory bacteriological, virological, chemical, biochemical studies, the purpose of which can be confirmation of a presumptive diagnosis of the disease, exclusion of infectious diseases, toxicoses, meat testing for residual quantities of antibiotics, pesticides and other harmful substances.

2.Access roads, roadways, pedestrian paths, loading and unloading areas and passages must have a hard coating that does not form dust, even, waterproof, easily accessible for washing and disinfection, with good drainage of atmospheric, melted waters, waters from flushing sites and driveways or open topography.

INTRODUCTION

Poultry meat is an important component of a healthy diet, a world-wide favorite among meat dishes. Poultry meat is considered lean and dietary, it is a useful and tasty source of easily digestible proteins, vitamins and fatty acids, and today it is available to everyone.

Vegetable foods (cereals, potatoes, vegetables, fruits and berries, mushrooms, vegetable oils) are of great importance in human nutrition. They include proteins, fats, carbohydrates, vitamins, organic macro- and microelements, acids, aromatic substances, mineral salts, fiber - all the necessary components of human food. Nutrition of plant products depends on good quality. Spoiled, contaminated with microorganisms, damaged by various pests and stale products not only lose their nutritional value, but can also acquire harmful to human health properties. Therefore, all plant products sold in the markets are subject to compulsory sanitary examination at meat and dairy and food control stations.

The nutritional value of fish is determined by the fullness of its useful properties, including the degree to which the physiological needs of man are maintained in the basic nutrients, energy and organoleptic virtues. It is characterized by the chemical composition of fish, taking into account its consumption in generally accepted quantities.

The biological value of fish is an indicator of the quality of fish protein, reflecting the degree of correspondence of its amino acid composition to the needs of the organism in amino acids for protein synthesis.

People have been engaged in beekeeping for a long time, as many ancient sources testify. Honey bee is a unique product created by nature itself. This is the nectar of the flowers of plants, processed by bees.

Veterinary and sanitary control of poultry products, fish farming, beekeeping and crop production is carried out in the markets. Experts of laboratories of Veterinary sanitary examination perform this work. In all matters of expertise and sanitary assessment, they are guided by the Rules of veterinary and sanitary examination of food products in laboratories for veterinary and sanitary examination of markets. The conclusion about the good quality of poultry products, fish farming, beekeeping and plant growing is given on the basis of organoleptic, and in necessary cases (controversial, suspicions of falsification, the presence of pesticides) and laboratory research.

Theme 1. Hygiene and technology of processing of agricultural birds

1. Sight inspection.
2. Modern technological lines for the slaughter and processing of poultry.

1. The bird is taken by quantity and quality by a veterinarian and the head of the workshop or master before entering the territory of the poultry processing enterprise. Check the accompanying documents - a veterinary certificate confirming that the bird has arrived from the farm free from infectious diseases, certify the type and amount of birds indicated in the accompanying document, inspect the bird for the presence of the case, determine its clinical condition, identify the diseases and selectively conduct the thermometry. All these operations are carried out on a special site before entering the poultry processing enterprise. If there is a discrepancy between the presence of the bird and the documentation, as well as the sick bird, before the documentation is clarified and the disease is diagnosed, the veterinarian sends the delivered bird to quarantine (no more than 3 days). Back to the farm does not return. The sick bird or suspected of the disease and without proper documents is processed in the sanitary slaughter available at the reception workshop, and in the absence of it - at the end of the shift in the general shop with complete evisceration and obligatory disinfection of the premises at the end of the work.

Pre-destructive veterinary and sanitary control allows you to give a correct conclusion about the sanitary well-being of a bird, feather and other slaughter products, since some diseases and pathological conditions of a bird can not be detected using only one post-mortem veterinary-sanitary examination. Identification of infectious and invasive diseases in the veterinary examination before slaughter of poultry enables timely conduct necessary anti-epizootic and veterinary-no sanitary measures and prevent the spread of infection from the territory of the enterprise to poultry farms and poultry farms.

At veterinary inspection of bird pay attention to its general condition, determine the position at rest and movement, identify lethargy, drowsiness or excitement, determine the condition of the feather-down and skin cover, detect damage to the skin (wounds, ulcers, tumors, condition and color of the comb, ear, rash, spots, scab on the skin), coughing, shortness of breath, sneezing, discharge from the nose and mouth, as well as contamination by the faces of cutaneous and feather-down cover around the cloaca, determine the condition of the mucous membranes of the eyes and mouth. Selectively measure the body temperature. A bird suspected of having infectious diseases is isolated and sent to slaughter for a sanitary slaughterhouse or killed after slaughter and processing of a healthy poultry, followed by disinfection of the workshop and equipment, according to the disease, by veterinary and sanitary examination and decontamination of carcasses.

At a gastrointestinal disease, exhaustion, anemia, swelling of the joints, swelling of the sinuses of the head, cyanosis of the skin or peritoneum (abdominal slack) are detected in the vet, the bird is sent to slaughter separately from a healthy

carcasses and internal organs is carried out after the internal organs are extracted from the body cavity.

Examining the carcass, pay attention to its shape, fatness, degree of bleeding, changes in the shape of the joints, cleanliness, color, integrity of the skin, as well as the presence of injuries, neoplasms, inflamed areas. At examining the carotid streaks of the carcass, the condition of the serous membranes is determined, the presence of hemorrhages, fibrinous overlays, neoplasms on them. If possible, all organs should be inspected. At examining the heart, the color and transparency of the pericardium, the volume, color and consistency of the pericardial fluid, the presence or absence of hemorrhages, fibrinous overlays on the epicardium, the shape of the heart, the color and uniformity of the color of the heart muscle are fixed.

Lungs are examined from the surface and determined by their color, equal color. In case of suspicion of abnormal changes, they are separated from the carcass, examined visually from the ocular pleura, probed, cut and determined on the incision color, the contents of the bronchi. Simultaneously with the examination of the lungs, attention is drawn to the color, transparency, blood filling of the vessels of the thoracic and interclavicular air sacs, and to study their contents, if any.

During the examination of the liver, they are interested in shape, color, size, blood filling, body consistency, presence of fibrin on the surface, hemorrhages, necrotic foci, neoplasms; at examining the spleen - its size, shape, color, blood filling, consistency and the presence of necrosis, hemorrhage.

The digestive organs are examined from the surface, focusing attention on their color, the blood filling of the vessels, the presence of hemorrhages on the serous membranes, fibrinous overlays, and neoplasms. The kidneys are examined from the surface when the inner part of the carcass is examined, determining their size, color, shape, size. At examining the organs of egg formation, attention is concentrated on the size of the egg follicles, their shape, color, the presence of neoplasms in the place of their localization.

In the process of semisintegration, only the female with the cloaca, the oviduct and the goiter are removed from the carcass (if it is filled with food, liquid). The intestine and the oviduct remain in the carcass before the post-mortem examination, which is carried out immediately after evisceration. If there is a suspicion of a disease, then through the incision of the abdominal wall, organs are involved, they are examined, and also the inner part of the carcass. Most bird carcasses are only visually examined from the surface in semi-exhalation, therefore, the main focus in this method of cutting carcasses is given to pre-slaughter inspection, the careful conduct of which should prevent sick birds from reaching the slaughter conveyor.

At examining the organs of egg formation, attention is concentrated on the size of the egg follicles, their shape, color, the presence of neoplasms in the place of their localization.

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Theme 4. ECI and sanitary assessment of carcasses and internal organs of birds

1. Methods and ways of inspection of carcasses and internal organs of birds and their organization.
2. Veterinary and sanitary regulations for processing enterprises and products.

1. Post-mortem research of birds in connection with the peculiarities of the anatomical structure and the technology of cutting carcasses differs significantly from the examination of carcasses and cattle organs. Because of the absence of anatomically formed lymph nodes, the lymphatic system is not examined, and in order to preserve carcasses, tissues are not dissected. In the birds' carcasses, the serous cavities of the medullary cavity are poorly accessible for examination, especially its anterior part; lungs, impressed by the dorsal surface in the intercostal space; kidneys located about 2/3 in the recesses of the lumbosacral and ileal bones. With semisintegration, only the surface of the carcass and the intestine can be examined.

At poultry processing enterprises, a healthy bird is processed with full or partial evisceration. Carcasses of birds from the parties, unfavorable for diseases, subject to complete rebuilding. During complete evisceration, remove all internal organs (sometimes leave unchanged lungs and kidneys), head (between the second and third cervical vertebrae), neck (without skin) at the level of the shoulder joints, feet along the joint or below it, but no more than 20 mm. Post-slaughter inspection of such

bird and, as a rule, also killed health slaughter. Slaughter of such a bird is carried out with complete evisceration.

The bird from the tuberculosis points, which are unsuccessful, regardless of the results of tuberculinization, is immediately killed and a thorough veterinary and sanitary examination of carcasses and organs is carried out.

At veterinary examination of infectious, invasive or mass non-contagious diseases, delivered to slaughter for birds, veterinarians should immediately inform the supplier farms and the regional state veterinary service about this. The results of a veterinary examination of birds are recorded in special journals.

2. Slaughter and processing of poultry is expediently carried out on conveyor lines, which ensure high productivity and favorable sanitary conditions.

Technology of poultry processing consists of the following basic operations: hanging on a conveyor; stun or immobilization; slaughter; bleeding; heat treatment; removal of plumage; operations for semis integration or complete evisceration; cooling; sorting, marking, weighing and packing of carcasses; freezing meat, storing and selling meat.

The processing begins with hanging the birds on the conveyor. This operation is simple in execution, but very important for maintaining the quality of the carcass and for performing all subsequent operations for the processing of poultry.

In order to reduce manual labor costs and loss of meat quality, a special device system has been developed. The container from the machine is rolled into the platform and placed above the chain conveyor. The conveyor finger grabs the container by the earring and delivers it to the discharge point on the bird receiving conveyor where there is a special rectangular hole in the platform. The container is installed above this opening, the worker alternately pushes the bottoms, and the bird enters the belt conveyor, which feeds it to the hanging place.

The bird is hung on the conveyor (back to the worker), fixing the legs in the grooves of the conveyor belt.

The hanging process is a factor of strong stressful action on the body, which adversely affects the subsequent stages of immobilization, bleeding, removal of plumage and the quality of meat. In this regard, it is necessary to allow the bird to calm down somewhat, which can be achieved during a certain time of quiet hovering it on the conveyor belt. It is considered sufficient for this purpose 90 seconds.

Stun or immobilization of a bird. The task of stunning is to immobilize the bird, but in any case not to allow its slaughter on this section of the processing line. The process of stunning leads to muscle relaxation, loss of pain sensitivity, which facilitates the subsequent operations on the conveyor belt. At stunned, the work of the heart does not stop, which contributes to better bleeding.

At slaughter without stunning, fright and sharp pain lead to an instant redistribution of blood from the internal organs to the muscles, there is a mobilization of energy reserves, which is spent to intensify efforts to save life. Consequently, the bulk of the blood remains in the muscles and is not extracted by bleeding. Such meat contains a lot of blood, damp, poorly stored.

The number of vitamins in the muscle tissue of farm animals and birds is approximately the same.

Poultry meat is a good supplier of many micro- and macroelements, including phosphorus, iron, manganese, zinc

Extractive substances, as well as volatile fat-soluble compounds originating from meat lipids, create a pleasant taste and aroma, the "bouquet" of which is formed during heat treatment. It should be noted that poultry meat is distinguished from the meat of farm animals by a lower purine content.

Poultry meat in terms of chemical composition and quality properties meets the requirements for dietary products. Meat of broilers is a lean and low-calorie dietary product.

Meat of waterfowl basically differs from flesh of the land bird by the raised maintenance of fat, and, hence, power value. The dietary value of poultry meat increases due to good digestibility.

Infectious laryngotracheitis. Infectious laryngotracheitis - contagious disease mostly of hens and chickens, caused by a virus from the group of herpes viruses and respiratory disorders manifested, especially the larynx, trachea and conjunctiva.

The causative agent is not highly resistant to the external environment: the egg shell surface temperature at 37 ° C it retains virulence of not more than 12 hours at 60 ° C - 2 minutes, in poultry houses - 9 days.

Diagnosis is based on epizootic data, clinical and pathological changes detected after slaughter. At laringotrahea form the mucosa of the larynx, trachea hyperemic, edematous, sometimes mixed with blood. In the oral mucosa located fibrinous deposits. If conjunctive form the major changes observed in the head: eyelid swelling, increasing congestion of the third century, and under it cheesy masses, conjunctival hyperemia, sometimes cerat of talmiya. The definitive diagnosis is based on bacteriological laboratory bioassays and virus isolation in chicken embryos. Affected organs and parts of carcasses, head to the windpipe are disposed of and carcass is neutralized with boiling.

Infectious bronchitis - acute highly contagious disease it is not only respiratory but uremic sindrom of laying hens sharply reduced egg production, and chickens, had been ill with the disease at an early age, develop abnormalities of the oviduct. The causative agent of infectious bronchitis - a virus belonging to the coronavirus group. Resistant virus is negligible: at a temperature of 370 C in the die for 9-30 hours at 56 ° C - after 30-120 min in poultry houses stored 6-21 day.

With the infectious bronchitis sick chicks and adult chickens. At autopsy establish inflammation in the trachea, bronchi, clogging of lumens fibrin seal lungs (dark red). Ovaries and fallopian tubes are subject to atrophy. Tracking the germination of cysts and connective tissue signs or yolk peritonitis.

The depletion of chickens with a strong visceral is utilized. At normal fatness and focal lesions of the internal organs disposed of the last, and carcass boil.

Smallpox birds. Smallpox birds - very contagious disease, which manifests itself in the form of small-pox exanthema or mucosal lesions difteroid membrane mouth, more often - in mixed form in the presence of both the lesions. Sometimes the disease is atypical with lesions of the conjunctiva and respiratory system. Get sick chickens, turkeys, guinea fowl, ducks and geese rarely. The causative agent is a virus dermotrophy. Under the microscope, in the smallpox epithelioma is visible in the form of elementary cells.

Viruses in cells seized ospinok (epithelium) in poultry houses is preserved up to 4-5 months., It is not resistant to high temperatures.

At the form of smallpox lesions are localized mainly in the areas of the head unfinned of rowing, earrings, lobes around the mandible of the beak and feet and skin, as well as around the cloaca, as in generalized form and feathered wings areas of the skin, head and neck, etc. When diphtheritic form on the oral mucosa observed small, yellowish-white, round elevations, sometimes they merge into a white solid golden, yellowish-brownish curdled overlay, which may be in the larynx and trachea, as well as the eye mucosa, cornea and gastrointestinal tract.

In the event of a generalized process of carcass with internal organs sent for recycling; if only struck his head or feet, they disposed of, and carcass bodies and released after boiling.

The tumors of the blood - leukemia. At present, the histological classification and nomenclature of neoplastic lesions of the hematopoietic and lymphoid tissues are divided into the following diseases: Marek's disease, lymphoid leukemia, reticuloendotheliosis, calm surroundings, myeloid leukemia, mielotsitomatoz, erythroid leukemia with various options. Pathogens - sarcoma virus-leukemic group; there are many options and varieties: poor resistance to heat, long preserved by drying.

The disease is easily installed in the evisceration of carcasses. At a form of paralysis in birds observed at the opening of an increase in the thickness of the brachial and sciatic nerve pallor and jaundice of mucous and serous integument; when the tumor shape - presence of lymphoid sprouting in almost all the internal organs, sometimes tumors are very large, occupying all the phrenic cavity. Most of them are affected, ovary, liver, spleen, oviducts, heart, bone intestinal. Tumors in the section have salovidnost, homogeneity, different colors and smeared as tuberculosis. Pathological changes are so characteristic that the diagnosis is not difficult.

In the absence of anemia and jaundice or pathological changes in the musculature liver, spleen and other damaged organs disposed of, and carcass released after provarivaniya. In case of pathological changes in muscles carcase together with the viscera directed to technical utilization.

Pasteurellosis - (cholera) birds - is an acute disease of birds, characterized by phenomena of septicemia and hemorrhagic diathesis. The causative agent - Pasteurella multocida - short, oval-shaped, Gram-negative rod bipolar-resistant bacteria in the environment is low. Pasteurellosis suffer all kinds of poultry.

Shortly before its death in poultry temperature rises to 4 3.5-4 4 ° C, there are oppression and blue crest. During the autopsy reveal hyperemia parenchymal organs, isolated hemorrhages in the epicardium and the effusion of serous fluid in the heart shirt.

At acute pasterelleze are observed depression, fever, cyanosis of the comb, earrings, nose and wheezing expiration. Feces are yellow or green, often with blood. Death occurs within 2-3 days. The autopsy reveal hemorrhagic diathesis in the internal organs, especially the heart; it is as if sprinkled the blood, which is characteristic of pasteurellosis. On the basis of the characteristic pathological changes (heart splattered with blood, hemorrhagic duodenitis, necrosis of the comb and earrings) and bacteriological research diagnosed.

All the internal organs from sick birds are sent to technical utilization, carcass (without visible organic changes) – by boiling, roasting or processing on canned food. At a very strong inflammatory phenomena carcass with internal organs are disposed of.

Salmonellosis (paratyphoid). Salmonellosis - infectious disease of birds of different species. Most ducklings and goslings suffer with stand Salm.enteritidis, Salm.anatum etc.. In addition, poultry and egg products can be a source and other

cause is poor and unbalanced fodder. Diseases can be subjected adult and young chickens.

Symptoms:

- increase in the volume and shape of the abdomen;

- flaccidity and shortness of breath;

- body temperature is normal.

Treatment

This disease is secondary, it is necessary to establish its true cause, which in

Theme 5. VSE and sanitary quality assessment of eggs

1. Nutritional value of eggs.
2. Structure and chemical composition of eggs.

1. A high-quality food egg is a high-value dietary food product. It contains all nutrients and biologically active substances necessary for a person in a well-balanced form, which determines its high digestibility (by 96 - 98%). One hen's egg, according to its nutrition, is approximately 40 grams of meat and 200 grams of milk. It provides for 4-6% daily need of an adult in protein and 10-30% in basic vitamins.

The quality of eggs depends on the species, breed, line, cross and individual characteristics of the bird. The relative content of yolk is greatest in duck, goose and quail eggs.

Nutritional value is mainly eggs, obtained from chickens of egg breeds. Eggs of chicken meat, turkey, duck and goose should be used as much as possible for incubation, and those not used for laying are put into industrial processing, with the exception of eggs of meat hens, which can be sold to the trading network.

The species variability in the quality of chicken eggs is manifested mainly by weight, to a lesser extent in form, quality of the shell and the ratio of internal fractions. The quality of the eggs also depends on the linearity and the cross-chickens. The most significant linear differences, reaching 7-16%, are observed according to the weight of eggs, the density of egg fractions, the mobility of the yolk and the content of carotenoids in the yolk. Hybrid chickens lay eggs with thicker shells and somewhat better quality indicators.

The most distinct influence on the quality of eggs is provided by the individual characteristics of the bird.

With the age of hens, the share of the shell is significantly reduced, and its quality. Nutritional value of eggs increases almost to the end of the first oviposition cycle. The lowest quality of eggs (especially the shell) is observed during molting.

The quality of eggs deteriorates sharply with poultry diseases and the effects of various stresses. These factors in the practice of poultry are most sensitive to the quality of the shell, sharply increased the battle of eggs.

The decisive influence on the nutritional, taste and commercial quality of eggs is provided by poultry feeding.

The weight of eggs depends mainly on the level of exchange energy and crude protein. The greatest influence on the increase in the mass of eggs is provided by vegetable fats, animal feed, and the content of raw protein in the diet. Positive on the mass of eggs affects the inclusion in the diet of herbal flour, vitamins D3 and C.

The thickness and strength of the shell depends, first of all, on the mineral-vitamin nutrition of the bird.

The quality of protein eggs is mainly affected by the level of protein and vitamin nutrition. The amino acid composition of the diet is of particular importance.

The quality of the yolk depends entirely on the feed, especially on the content of carotenes. There are a lot of them in yellow corn, herb flour. It is mandatory to include in the diet of vitamin preparations. At feeding vegetable fats, the fatty acid

composition of the yolk changes for the better, the dietary properties of the eggs increase. However, when a large amount of fat is incorporated in the yolk, the cholesterol content increases. The mineral composition of the yolk significantly reflects the level of mineral supply of fodder.

Abnormal pigmentation of yolks (greenish, olive, brown hues) is the result of feeding chicken rapeseed, cottonseed meal, sorghum. At some medicinal substances are included in the feed mix, the yolk spot is observed.

The presentation of eggs declines with the appearance of blood spots on the yolk. Their number is influenced by genetic factors and the quality of the diet, in particular the high level of crude protein and the lack of vitamins A and K.

The negative effect on the quality of eggs, especially on the weight, thickness and strength of the shell, has an elevated temperature, especially in combination with high relative humidity. Therefore, sudden temperature changes in poultry houses should be avoided, and if it is impossible to normalize it, it is necessary to increase the concentration of nutrients and biologically active substances (by 15-20%) with the mandatory addition of vitamin C, and provide the bird with cool drinking water.

The quality of the eggs depends on the duration and intensity of the lighting. With differentiated illumination, in comparison with a long stable one, eggs of higher quality are obtained. The quality of the shell and the vitamin composition of eggs is positively affected by ultraviolet irradiation of the bird.

The laying hens carry eggs of a larger mass, with a thicker shell, a high content of solids in the protein and yolk, but with a lower content of vitamins, an increase in the number of defective eggs. With this content, contamination of eggs decreases, but the battle and incision of the shell increases compared to the floor content.

The quality of eggs, especially the contamination and magnitude of the fight, largely depends on the technological characteristics of the cellular equipment. Advantage is given to cells of the OVH type.

To preserve the quality of eggs, it is very important to follow the rules for handling, transporting and storing them.

2. The egg consists of yolk, protein, yolk and protein shells and shell. Located in the center of the egg, the yolk is held in this position by strands of dense protein - khalazami ("hailstones"). The double shell, the crumbling layer of the protein, at the blunt end of the egg stratifies and forms a pugus-air cavity, the value of which varies with the storage of eggs. Its height by the end of the 1st week: after masonry it is only 2-3 mm. The egg protein has a layered structure: the bulk of it is dense; The protein adjacent to the yolk in the shell has a more liquid consistency. The average weight of a chicken egg is 50 g with fluctuations in the range of 40-60 g.

The egg shell consists of 93% calcium carbonate. Its surface has a large number of pores (up to 12,000). With sudden fluctuations in temperature, air, and with it microbes, can penetrate into the egg, infecting the contents. In this case, a significant part of the microbes in the egg white die due to the antibacterial action of the lysozyme contained in it.

Eggs of birds have high food and biological value due to a significant content of a high-grade protein, balanced by amino acid composition, fat and other substances important to humans. Different parts of the egg are heterogeneous in

Sedentary life is also harmful to the bird. Hypodinamy increases the risk of disease not only in chickens, but also in chickens. There is a delay in the growth and development of the bird, oviposition, cannibalism or cell paralysis may appear.

At feeding poor-quality feeds, ingesting a large amount of salt, in cases of scaling of poisonous plants or fungi, chickens can get poisoned. This can also occur due to excessive contamination of the hen house or adjacent territory and insufficient ventilation, when the content of ammonia, hydrogen sulfide or carbon dioxide sharply increases in the air. Poisoning can cause instant death of a bird, or, acting regularly, but not in a lethal dose, to serve as a source of chicken diseases such as salpingoperitonitis, cloacitis, various abnormalities of the organs of egg formation.

Often, if the chicken content is too tight, they can receive various kinds of injuries. The cause may be pinch, bruises, bumps, attack of other animals or neighbor chickens. The result is various external and internal injuries. The most dangerous are internal injuries, which are very difficult to establish. They often lead to a fatal outcome for the bird.

2. Avitaminosis in chickens is a deficiency in the body of a bird of any vitamin. With respect to chickens, the following avitaminosis can develop: A, B1, B6, B12, C, D, E, K, PP. All these vitamins play a huge role in the life of the bird. They regulate the activity of the heart, liver, nervous and immune systems, participate in the metabolism, exert an active influence on the development and growth of the bird, the activity of the reproductive organs (in cocks) and egg formation (in chickens).

Diseases associated with a lack of vitamins can affect a bird of any age. However, it is most difficult for young animals to tolerate them up to three weeks.

Symptoms:

- stunting, weight loss;
- scallop and earrings are white;
- depressed state, weakness, convulsions of limbs;
- decreased appetite;
- violation of coordination of movements;
- in laying hens, these diseases reduce egg production;
- digestive tract disorder;
- blurred vision, conjunctivitis;
- on the skin are various affected and scaly areas.

Treatment

Treatment for diseases of this kind is enough simple. It is enough to introduce into the diet a vitamin in which the bird lacks. The difficulty lies precisely in how correctly to diagnose the type of vitamin deficiency. In this matter, only the veterinarian can help.

Prevention

Avitaminosis is much easier to prevent than cure. For the prevention of chickens should be given the necessary adapted multivitamins regularly with food.

A dropsy of the abdominal cavity is a disease that is accompanied by the accumulation in the abdominal cavity of a significant amount of serous fluid. This disease is secondary. It appears as a result of renal or hepatic insufficiency, heart disease, violations of water-salt balance, intestinal obstruction and others. The main

frozen carcasses stored more than 6 months., In water - for 165 days, its disinfectant solutions kill after 30 minutes.

At external examination cyanosed comb and earrings with a dark purple hue, swollen eyelids, corneal opacity, swelling of the subcutaneous tissue of the head, neck and crop. The body temperature of the sick chickens raised to 43-44 ›> C. At examination of the internal organs and the phrenic cavity are multiple hemorrhages of different sizes and shapes, the presence of hemorrhage in the mucosa of the glandular stomach at the border with muscular considered a characteristic feature. The final diagnosis is made in the veterinary and bacteriological laboratory bioassay.

Carcasses and organs of sick birds are destroyed. Carcasses and internal organs obtained from the slaughter of birds suspected of infection, in the absence of pathological changes boiling disinfected at 100 ° C for 60 min. Feather and down, collected over the last 15 days before the onset of the disease, disinfect by immersing in 3% of formalin solution.

Chlamydia (psittacosis / bird psittacosis) - an infectious disease of birds caused by chlamydia. The most susceptible ducks, turkeys and chickens get sick, as well as people. The virus is slightly resistant: killed when heated to 70 ° C for 10 min.

The final diagnosis is determined when setting bioassays and isolation of the elementary cells of the pathogen. Pathological changes is the accumulation of mucus in the nasal cavity exudate with cheesy films. Mucus and film accumulate in the larynx, trachea and bronchi. Celebrating hemorrhage. Mild swelling, seroplastic exudates found in the air sacs and pleura. Necrosis and inflammation in the intestine. At the heart of the watch fibrinous inflammation peri- and epicardium. The liver and spleen are enlarged, sometimes there are necrotic foci.

Birds clinically is suspected patients and disease, kill and dispose. Relatively healthy, suspected of infection, kill, meat is used to make food products. During the processing of the birds they comply with the measures of personal hygiene precautions and protection as psittacosis - a dangerous zoonotic disease.

Avian influenza. Avian influenza - an acute contagious disease of many faces, ranging from lethal generalized form to the respiratory or asymptomatic latent infection. The disease is a virus serological three types: A, B and C now provided more than 100 different strains of 15 species of birds. A virus has 8 species, similar to the human influenza virus. The virus is not stable in the environment and reliably disinfected with conventional disinfectants.

Birds are in a depression, coma, death rate to 100%, subcutaneous tissue edema, wheezing, foot and ankle swollen and covered with purple spots, comb and earrings swollen, black and blue. At the opening show hemorrhage in all serous cover and mucous surfaces of the gastrointestinal tract.

Sick birds are killed and subsequent disposal of carcasses, suspicion of infected birds are killed with subsequent use for the manufacture of carcasses of culinary products, ie carcass with Poultry Processing are available only in the neutralized form. During the processing of a bird comply Personal precautions.

Pullorоz - Leaky acute infectious disease of young animals caused by Salmonellapullorum. Chickens less turkey poults, ducklings and goslings and adult birds ill whose disease is in a latent form.

At evisceration by characteristic pathologic sign of pullorоz from young animals is the presence of necrotic lesions in the heart, lungs, liver (a yellowish color of clay). In adult birds the main changes noted in the ovaries. They have a kind of lumpy, its follicles hang on long and short legs, their contents bloody dirty brown color, softening. The shell is thin follicles and hypperemia. often note the yolk peritonitis, observed an increase in the liver, spleen, lungs, the heart, the presence of small necrotic foci.

Typhoid birds. Typhoid of bird - sharp, flowing enzootic disease. The causative agent is Salm. gallinarum. A dult chickens, turkeys, guinea fowl, especially in the laying period, much less ducks and geese are sick with Typhoid . The disease occurs in an acute form. At post-mortem examination are watching a pale coloring comb, earrings, enlargement of the heart, in the heart serous exudate shirt, pale, or yellowing of the heart muscle. In the case of a chronic course of the disease on the heart are units of various sizes and forms grayish-white color. Permanent sign of the disease is the enlargement of the spleen to the size of a walnut, dyeing her dark purple color. The liver is also increased with the presence of degenerative changes and small necrotic foci gray or yellowish color, the color of the liver is reddish-brown, bronze, sometimes dark green, gall bladder stretched accumulated bile. Selected portions or all of the intestine is in the intestine catarrh are varying intensity.

At salmonellosis the sanitary assessment is overall. In the presence of pathological changes in muscle carcass with internal guide for technical utilization. In the absence of depletion and changes bad carcass boiling neutralize at 100 ° C for 1.5 hours, severing them along a portion, or directed to the preparation of canned food. Tuberculosis. Tuberculosis - a chronic infectious disease caused by Mycobacterium tuberculosisavium. Tuberculosis suffer various kinds of poultry. TB germs can become infected birds and people.

dangerous human pathogens salmonella. Certain diseases in birds described pullorоz caused Salm.pullorum and typhoid birds caused Salm.gallinarum. Bacteria of the genus Salmonella - Gram-negative rods, mobile, except Salm.pullorum and gallinarum. They are resistant to heat, a thick piece of meat weighing 400 g a thickness of 9 cm at reflux maintained for 2.5 hours, but when heated to 80 ° C in water for 20 min killed.

For paratyphoid most susceptible is waterfowl (ducks and geese), less - turkeys, chickens and other. In the acute form, which occurs most often in young, celebrate catarrh bowel bleeding, presence of erosions and necrotic lesions in the cecum. Characteristic changes in the liver: an increase in size, the color of clay, uneven coloring, laxity. At the ducklings liver there are small necrotic foci yellowish-white. The spleen is enlarged, cherry color. Cardiac muscle is flabby, sometimes there is a hemorrhage. In chronic course of necrosis in the mucosa of the gastrointestinal tract, inflammation in the ovaries.

detected by methods of only one post-slaughter veterinary and sanitary inspection. Detection of infectious and parasitic disease the veterinary inspection before slaughter poultry enables to conduct the necessary anti-epizootic and veterinary-sanitary measures and prevent the risk of infection from the territory on a poultry farm, poultry farm.

At veterinary inspection of bird draw attention to its general condition, define the position at rest and movement, reveal weakness, drowsiness or agitation, determine the state of feather-down, and the skin, reveal skin lesions (wounds, ulcers, tumors, condition and color comb, earrings, rashes, spots, scab on the skin), cough, shortness of breath, sneezing, discharge from the nose and mouth, as well as faecal contamination of skin and feather-duvet cover around the cloaca, determine the state of the mucous membranes of the eyes, mouth. Body temperature is selectively measuring. Bird is suspected of diseases, isolated and sent for slaughter in the sanitary slaughter or killed after the slaughter and processing of healthy poultry followed desinfection plant and equipment, respectively disease veterinary and sanitary examination and disposal of carcasses.

If at the veterinary inspection of bird will be revealed gastrointestinal disease, exhaustion, anemia, swelling of the joints, swelling of the sinuses of the head, cyanosis of the skin or peritonitis (pendulous abdomen), it is sent to be slaughtered separately from healthy birds and, as a rule, also killed on sanitary slaughter. Slaughter of birds spend with a full evisceration.

Bird came from dysfunctional tuberculosis points regardless of the results of tuberculin immediately killed and conduct a thorough veterinary and sanitary examination of carcasses and organs.

At establishing a veterinary inspection at slaughter of poultry delivered to infectious, parasitic or mass non-contagious diseases veterinarians should immediately put notify suppliers of the economy and regions of the State Veterinary Service. The results of the veterinary inspection bird recorded in special journals.

2. In the currently described more than 100 infectious and parasitic diseases of birds, including 22 diseases caused by bacteria; 17 diseases caused by viruses, in addition to 9 disease related to leukemia, also caused by viruses; 14 protozoal disease caused by protozoa organisms; 27 helminth diseases of nature; 8 diseases are arahnoentomoza. More than 80 diseases classified as non-infectious birds diseases, 14 of them disease avitaminous character 15 - metabolism, 5 – the digestive system, 3 - liver disease, 1 - of the circulatory system, 4 - respiratory, 4 - disease egg formation, and 35 - illness, poisoning by various chemicals.

At mounted on the party of received birds in meat processing plant sick contagious disease, the whole batch is immediately sent to slaughter, which is produced separately from healthy birds. Upon detection of psittacosis, influenza, tularemia, Newcastle disease sick bird kill and burn, and destroy carcasses in establishing their acute infectious disease process flow for any infectious diseases (carcass is directed to the production of dry food of animal origin by autoclaving).

Newcastle disease - an acute contagious disease of poultry of chicken, caused by a virus. Waterfowl birds are not sick. Virus quite stable in the environment: in

Pathogen - thin acid-resistant Gram-positive rods. The microbe is resistant in the environment and to the effects of physical and chemical factors. In the beef sausages thickness of 9 sm at 90-95 ° C die within an hour. The affected organs (heart, lungs, liver, spleen, bowel, serous cover, ovaries) are units of various sizes (from poppy seed up walnut egg), protruding above the surface, off-white or yellowish-gray, with a soft, smeared content. Carcasses with generalized tuberculosis or depleted with the defeat of the body sent to the technical utilization. In the absence of exhaustion and defeat just one organ internal organs destroyed, and the carcass is cut in half and cook for an hour (after boiling broth) or direct the manufacture of canned food. Carcasses obtained from the slaughter of poultry, positively reacting to tuberculosis, but in the absence of tuberculous lesions produced after boiling or sent for processing into canned food.

At slaughter of poultry coming from farms unfavorable for tuberculosis, but not examined for tuberculosis, proceed as follows: in the case of the establishment of tuberculosis carcasses and internal organs do as above. The rest of the carcass of the parties who have no tubercular lesions release after boiling or sent for processing into canned and internal organs - for technical utilization.

Respiratory mycoplasmosis of birds. It is chronically leaking contagious infectious disease, characterized by a primary lesion of the respiratory system. The causative agent - Mycoplasmagallisepticum, weak-stable in the environment and to heat the microorganism. However, veterinary and sanitary assessment of carcasses must take into account that this disease is almost always complicated by pathogens colibacillosis, salmonellosis, stafilokokkozand others. Mainly chickens and turkeys, guinea fowl of all ages are susceptible, but the most severe disease occurs in broiler chickens and pullets at puberty. Lesion occurs through inhalation and infected eggs.

Clinically, the disease is characterized by coughing, sneezing, runny nose, tracheal wheezing, shortness of breath, swelling rarely infraorbital sinuses. Pathological changes in young depletion in the upper respiratory tract inflammation of serous and fibrinous to caseous, neoolshie banded hemorrhage; blood circulation in the lungs, alopecia, diffuse catarrhal or lobar pneumonia, necrotic foci, encapsulated sequesters; air sacs in the wall of focal or diffuse thickening or blurred, the presence of serous fluid or fibrin, or fibrinopurulent caseous mass. The defeat of the air sacs uneven: they may be affected by one or at most, sometimes germinate connective tissue. At the heart of the watch serous or fibrinous pericarditis, liver and kidney congestion and degenerative phenomena. The final diagnosis is established, as in all infectious diseases on the farms to send birds for processing on the basis of laboratory research by isolating mycoplasmas.

If it affects the air sacs carcass entirely sent for recycling; in the absence of lesions disposed head and internal organs and carcasses are used in food after boiling.

Coliseptitsemiya (colibacillosis) - an infectious disease of birds, characterized by dystrophic and necrotic changes in parenchymal organs and the brain. Pathogens - serovariants pathogenic E.coli, in the external environment will remain until 4 months. At infections contribute to a weakening of the body of birds due to poor

Sarcosporidiosis - a disease is caused by protozoa organisms of the genus of sarcocyst. They are parasitic in skeletal and cardiac muscles of many species of animals and birds. Poultry (chickens, turkeys, ducks) sarcosporidiosis rare. Sarcocyst is detected in birds only at autopsy. Diagnosis is based on the discovery in sarkosporid in sarcocyst pre-split in a drop of saline and crushed between the panes. Muscles cause degenerative, inflammatory changes. The affected muscle fibers break down and calcify dead parasites and encapsulated.

Carcasses with extensive lesions by sarcocyst and degenerative lesions are utilized. At focal lesions utilize only the affected parts of the carcass and unaffected parts of release after boiling.

Scabies of feet. At scabies legs the finless of the foot are sent to technical utilization. Carcass release without restrictions.

Theme 8. Bird diseases, veterinary and sanitary examination and sanitary assessment of the quality of poultry products in connection with diseases of birds

1. Classification of non-contagious diseases of birds.
2. Sanitary assessment of the quality of poultry products in non-contagious diseases of birds.

1. The most common are various kinds of avitaminosis (insufficient intake of any vitamin in the body) and hypervitaminosis (excess). It is necessary to use very carefully the multivitamin preparations and strictly observe their dosage.

An unbalanced amount of proteins in feeds leads to a number of diseases in adult chickens. Lack of protein promotes the emergence of apterosis, dystrophy of alimentary or ovarian dystrophy, difficulty in laying, and egg-laying. It is overabundance is also harmful. Fatty degeneration of the liver, gout, yolk peritonitis, hepatosis - the effects of overfeeding the bird with protein.

Diseases associated with impairment of the gastrointestinal tract may occur when the bird is contaminated by a large amount of clay or sand feed. This can lead to a blockage of goiter, stomach or cloaca, gastroenteritis, cuticulitis, dyspepsia, cloacitis, etc. Also, these diseases can lead to a lack of macronutrients in food.

Diseases that appear in connection with the violation of the zoohygiene regime they occur when the poultry does not comply with the external conditions of life of the bird. For example, excessive illumination of the chicken coop can lead to yolk peritonitis, sowing, apterosis.

Subcooling causes pneumonia, conjunctivitis, bronchitis, and aerosaccuilitis. But overheating is harmful to the bird. It leads to an inadequate formation of the eggshell.

Bad ventilation of the room leads to ammonium blindness and chronic asphyxia, and high dustiness - to rhinitis, conjunctivitis and otitis.

Theme 6. Veterinary and sanitary examination and sanitary assessment of the quality of eggs and egg products

1. Working of eggs.
2. Eggs, as a possible source of infectious diseases of humans and animals.

1. Depending on the quality the eggs are divided into food, food defective and technical marriage.

For food include fresh benign eggs with a clean shell, without mechanical damage, with an air chamber height of not more than 13 mm; with protein dense, translucent (allowed weakened); with a yolk pure, viscous, uniformly painted in yellow or orange color, occupying the central place (the displacement is supposed).

Food eggs include eggs with the following defects: combat, pouring out, stocking, small spot and poultry, as well as eggs with the height of the air chamber on the major axis of more than 13 mm.

Battle - injury to the shell as a result of negligent handling of eggs during harvesting, transportation and sorting; to combat are: incision of the shell, i.e. insignificant insect cracks detected when viewed on an ovoscope or tapping an egg on an egg, as well as a crumpled side - more damage to the shell while preserving the undercover film.

The yolk makes up 1/3 eggs (about 35%) and includes the most complete protein of ovovitellin. Its content in the yolk is 18%. Yolks also contain a significant amount of fat (31.2%), lipids (lecithin 10%), cholesterol (2%), vitamins A and D mineral salts. Yolk fats are rich in unsaturated fatty acids (oleic, linoleic, arachidonic). On average, eggs contain (per 100 g of product) vitamin A 0.7 mg, vitamin D 140-390 IU, thiamine 0.16 mg, riboflavin 0.8 mg, nicotinic acid 4 mg, tocopherol 20 mg.

The content of mineral salts in the egg (in milligrams per 100 g of product) is as follows: calcium 50, phosphorus 214, magnesium 12, iron 2.5. The yellow color of the yolk is due to the pigments carotenoids xanthophyll and carotene. Eggs of waterfowl (geese, ducks) slightly differ in chemical composition from chicken. The protein content is (13-14%) and fat (13-15%) are somewhat higher. The digestibility of eggs varies between 95-97%. The yolks of eggs (raw and boiled) are best absorbed, as well as boiled eggs, or steep, since they excite stomach glands more than crude proteins and cause more separation of gastric juice. Raw proteins are almost not digested and in large quantities are transferred to the large intestine.

chemical composition. Part of the egg, called protein, consists predominantly of high-value proteins: ovalbumin (69.7%), ovoglobulin (6.7%), conalbumin (9.5%), and also contains less valuable proteins-ovomucoids (12.7%), Ovomcin (1.9%) and lysozyme (3%). Egg protein is characterized by a relatively high water content, practically free of fat, vitamins and mineral salts. Yolk eggs are of the greatest food value.

Pouring - mixing yolk with protein; the defect arises at careless handling of the egg during transportation (sudden shocks, jarring, etc.).

Filling - the acquisition of eggs by strangers, easily volatilized odors when stored together with odorous materials

A small spot is the presence under the shell of small immobile spots with a total size of 1/8 of the surface of the egg; it appears during storage of eggs at elevated temperature with high humidity.

Drying - the drying of the yolk to the shell due to the emergence of the yolk, which occurs when loops are loosened or broken due to long storage of eggs in boxes without turning over, but without mold.

Pumping (overflow) - the rupture of the white film in the region of the air chamber and the movement of air under the film, accumulating it in the highest part of the egg; The reason - negligent handling of eggs during harvesting, transportation.

Food defective eggs are sent to the baking industry.

The technical discard includes eggs with defects: tech, red blood, blood ring, large stain, cuff, eggs, eggs, with a sharp non-volatile smell, eggs with foreign inclusions.

Tek - eggs with damaged shell and shell under the shell with full or partial leakage of contents; The reason is the same as when pumping occurs.

Krasyuk is a mixture of yolk and protein as a result of rupture of the vitelline membrane due to the increase in the volume of yolk that occurs when water is transferred from protein to yolk during prolonged storage of eggs.

Blood ring - on the surface of the yolk, a patch of rusty hue or blood vessels of the embryo in the form of a ring are visible on the surface of the yolk, resulting from the development of a fertilized embryo in the conditions of storage of eggs at room temperature (at + 21 ° C and above).

The big spot is the spots under the shell with the size of more than 1/8 of the surface of the egg, formed by colonies of molds and bacteria at high humidity and high air temperature.

Cuff moldy - the egg is opaque when it is transparent, except for the pug, as all the contents are affected by mold, the protein and yolk are mixed, the smell of the egg is moldy;

Bacterial tuff is - the egg is transparent, except for the pug, which is enlarged and mobile; The outer surface of the shell is grayish or marbled, often with putrefactive odor, the contents of the egg in the form of a cloudy mass of gray-green and dirty-yellow color, the egg has a putrid smell; There is a defect due to the development of putrefactive bacteria;

The presence of foreign inclusions - inside the egg can be helminths, blood, solid particles.

Eggs with a "tuff" defect are destroyed on the spot in the presence of the owner. Eggs with other listed vices are not returned to the owner, they are either sent for processing into fodder flour or destroyed, which is the act.

Laying hens in feed or water are added large amounts of antibiotics, which accumulate in the body of the bird, and fall into the egg. As a result, eggs containing an increased amount of antibiotics last longer. This method of preserving eggs is

joints, changes in organs) along the entire carcass with the bodies sent to technical utilization.

3. Coccidiosis of birds. This is widespread invasive disease, occurring in the form of enterocolitis, nephritis rarely. Chickens, turkeys and geese, ducks, mostly young sick. Pathogens - coccidia - parasitic organisms belonging type Protozoa, a group of Coccidia and old Eimeria. Coccidia - strictly specific parasites can develop only in certain species of birds in the environment persist for years. With the opening of carcasses observed anemia, dehydration, increased: the volume of the blind gut lumen are filled with blood, and in cases of prolonged illness - fibrinous exudate. The main symptom of the disease are purplish edematous mucosa is eroded, gangrene and rupture of the blind gut. Carcasses with low fatness. At renal coccidiosis, which is often observed in geese to 3 months of age, there are kidneys in increase at two or more times.

All the affected organs are subject to technical utilization, and carcass released without exhaustion after welding. Exhausted with a strong visceral subject to technical, recycling.

Gistomonoz (tiflogepatit, enterogepatit) - a disease characterized by a primary lesion of the blind gut and liver, which are developing the typical granulomas undergoing necrosis.

The disease is Histomonas meleagridis, belongs to flagellates, like all simple, poorly stable in the environment and to high temperatures. Turkeys, chickens rarely other species sick in age from 2 weeks to 4 months.

Sick birds with depression, low mobility, ruffled feathers, diarrhea, with abdominal palpation stand thick strands blind gut. The autopsy found the blind gut in the form of sausage, intestinal wall thickness of more than 1 sm thick, light color, sometimes there is no clearance, inside there diphtheritic overlay underneath - ulceration. At the same time reveal fibrinous peritonitis: the liver is enlarged, full-blooded and with multiple foci of serous size of a grain of millet. All the affected organs are sent to technical utilization, and carcass released after welding. At exhaustion and defeat peritonitis carcass with internal organs are disposed of.

Spirochetosis-triponemoz. This is an acute septic toxic disease is characterized by anemia, an enlarged spleen, liver, and a relatively mild hemorrhagic diathesis phenomena. They get sick chickens, geese, less ducks, turkeys and other birds. Pathogen - Trepanoma ansermum, the main carrier - a mite of Argus persicus.

During the external examination of birds observed or light brown - yellow color crest anemic and pale mucous membranes of the beak. On examination of the internal organs are found in the heart shirt seroplastic exudate on the myocardium - petechial hemorrhages, degeneration of the heart muscle (a kind of cooked meat); hemorrhagic and necrotic foci in the intestines and bleeding diathesis in the intestine, ovary and oviduct, spleen, increased by 2-5 times, purple-red, flabby; the same change has liver. The diagnosis is confirmed by finding spirochetes (protozoa S-shaped) in smears of organs and blood of sick birds.

Internal organs and emaciated carcasses with the presence of lesions in the muscle of sick birds sent for technical utilization. In the absence of lesions in the internal organs of the carcass disposed of and carcass is released after boiling

maintenance, vitamin deficiency (especially lack of vitamin A),respiratory diseases (respiratory mycoplasmosis, infectious bronchitis, etc.).

At septic form observed depression, drowsiness, exhaustion, sometimes nervous phenomena; with the intestinal form - lethargy, increased thirst, profuse diarrhea. Autopsy reveals exhaustion seroplastic change of heart, liver, spleen, on serous integument of the stomach and intestines, air sacs, lung; with the intestinal form - intestinal catarrh, the contents of blood, defeat the oviduct. For a definitive diagnosis to be detected patotemic serotypes of E. coli.

Emaciated carcasses or carcass with septic inflammatory changes in the internal organs sent for technical utilization. With good fatness of carcasses and focal lesions of the internal organs marriage only affected organs and tissues, and produce carcasses after boiling.

Streptococcosis. It is an infectious disease of birds septic or local nature, occurs acutely or chronically. The disease is more common in chickens and hens, at least -

called low-temperature pasteurization. Eggs with a longer shelf life, but they can not be used by children and patients with a violation of the immune system.

2. Eggs can be a transmission factor and a source of spread of various infectious diseases. With the eggs of chickens can be transmitted pathogens of salmonella, tuberculosis, streptococcosis, pullorosis, pasteurellosis, colibacteriosis, infectious laryngotracheitis, mycoplasmosis, ornithosis, Newcastle disease, influenza, etc.

Pathogens of infectious diseases are found both on the surface of the shell and inside the egg. So, the causative agent of infectious laryngotracheitis is on the surface of the shell. Eggs in such cases are contaminated with secretions of a sick bird or bird-virus carrier.

In eggs received from chickens after 15-20 days and even 2-3 months after recovery, it is possible to detect pathogens of Newcastle disease, influenza and other viral diseases. Tuberculosis is most often affected by chickens. A sick bird is the source of infection, since a large number of pathogens are excreted with feces and eggs. Pasteurells retain their shelf life for 48 hours, and in dead embryos - up to 30 days.

As a source of causative agent pasteurellosis, fresh eggs are dangerous within 2 days after collection.

The causative agent of respiratory myco-plasmosis is stored for a long time on the mucosa of the genital tract. Eggs, passing through the oviduct, are seeded with mycoplasmas. On the eggshell, mycoplasmas remain viable for up to 5 days. The most dangerous as a source of hatching eggs, because they are derived from patients with mycoplasma chicken.

The bird, having had an ornithosis, remains a virus carrier for a long time. Eggs are seeded with the causative agent of ornithosis for a second time when contaminated with various secretions of the bird, under poor conditions of maintenance, contributing to the dispersion of the virus in the external environment.

The pathogen is usually found in the yolk or eggshell. The protein is often sterile. Salmonella carriers are most often ducks and geese. In this regard, the eggs of waterfowl play a big epidemiological role in the occurrence of foodborne diseases (toxicinfections and toxicoses) in humans

Theme 7. Diagnosis of infectious disease of birds.

1. The pre-slaughter and post-mortem diagnosis of infectious disease of birds
2. Sanitary assessment of carcasses and internal organs in bacterial and viral diseases.
3. Sanitary evaluation of carcasses and internal organs in invasive disease of birds.

1. The pre- slaughter veterinary and sanitary control allows you to give an opinion on right sanitary conditions of poultry, feathers and other products of slaughter, since some diseases and pathological conditions of the birds can not be

ducks, geese, turkeys, and others. The disease is hemolytic streptococcus from serogroup C (Streptococcuszooepidemicus), resistant micro-organism in the environment: in milk, with 8 killed 5 ° C after 30 minutes. In acute illness a fever, depression, diarrhea, vomiting, seizures, paralysis of the wings, conjunctivitis, ducks - swelling of the joints; in chronic form - anemia, dry ridge, exhaustion, diarrhea (diarrhea), lack of lay swollen earrings. In the case of the acute form of the internal organs are painted red. Subcutaneous tissue infiltrated serous-hemorrhagic exudate, anemia mucous membranes; Similar infiltrates are intramuscular connective tissue, skeletal muscle, and pericardial phrenic cavity, bloody infiltration. Spleen loose, increased by 2-3 times; lungs and kidneys with blood, red; catarrhal-hemorrhagic intestine is inflamed. In subacute and chronic course dominated seroplastic inflammatory processes in internal organs. The final diagnosis is made in the allocation of pathogenic streptococci.

Carcasses of diseased birds with internal organs sent for technical utilization.

Stafilokokkoz (contagious staph infection, staphylococcal arthritis, vesicular dermatitis) - infectious disease of birds. The causative agent - Staph.aureus, less Staph. albus or Staph. pyogenescitreus, highly resistant in the environment. The disease occurs sporadically or enzootic, acute and chronic. Chickens, turkeys, ducks, geese are susceptible.

Diagnosis of the disease is based on characteristic features: the defeat of the ankles, swollen, floating on the crest and legs, vesicles, passing into gangrene wings cloaca, abdominal wall.

At the opening show an increase in parenchymal organs, inflammation in the joints, intestinal catarrh, bloody infiltration in the subcutaneous tissue, muscle resemble cooked meat, inflammation in the umbilical cord, the yolk sac with foul-smelling odor.

The defeat of the joints, combined with septicemia, and vesicular dermatitis allows a suspect stafilokokkoz. The final diagnosis is made in the allocation of the pathogen. If struck by one joint, remove the affected part and let the carcass after boiling, frying or sent to canned. With the spread of stafilokokkoz (abscesses in the

Atlantic Ocean off the coast of Europe and Africa. Mackerel gill is caught by purse seines and trawls.

Mackerel is quite valuable fish it is suitable for the preparation of various snack foods. It is used mainly for cooking of canned and smoked products. In cooked meat it is somewhat dry, has a light sour specific taste. Horse mackerel's fat is very rapidly oxidized.

Tuna family. It is widespread in tropical and subtropical waters of the Atlantic regions, Pacific and Indian Oceans, although some forks of tuna are caught in colder waters. Tuna - are large, gregarious, pelagic fish inhabiting mainly in the open ocean. Tuna can reach lengths to 3 m and weight of 600 kg. Greatest commercial importance have ordinary, or blue fin tuna, albacore tuna and ordinary small tunas - striped and spotted mackerel. Tuna are foraged by smooth loglines and purse seines. Tuna's meat differs among the largest of all fish by content of protein 22 -26%. In this respect, it can be likened only to the calf of some commercial fish species. Fat content of meat varies from one percent till 19%.

Tuna meat can be used for preparation of various products - good canned food is made from in culinary products it like a pork or beef, in particular, very tasty baked ham is cooked. However, tuna meat can cause quite severe poisoning if not immediately after the fish catch has undergone treatment. Meat in this case, can rapidly deteriorate and become poisonous. It should also be noted that large tuna meat can contain high amounts of mercury. Liver of tuna contains up to 30% fat, very high in vitamin D.

2. Body of fish is usually divided into three parts: head, body and tail. For proper orientation and accuracy of description, each department is divided into even smaller pieces. Space from the end of the snout to the anterior edge of the eye called the snout, the gap between the eyes - the forehead and the area from the eye to the rear edge of preopercle - cheek . Area between the gill membranes (folds bordering behind the gill covers) and the base of the pectoral fins called the throat, and the distance from the lower jaw to the point of attachment of the gill membranes - chin. The gill of membranes are supported and straighten gill rays.

The isthmus - is the space separating the gill cavity. Tail region is lying behind the origin of anal or anus. Maximum height of body is measured before the dorsal fin, the lowest - on the caudal peduncle, which stretches from the end of the anus to the root of the tail.

Important adaptation to life in certain conditions is a form of body. Fusiform characterizes most of the pelagic fish living in the column water.

Valium characterizes the best swimmers perfectly adapted to a long and speed swimming (mullet, mackerel, tuna, etc.). Flattened fish in sedentary benthic stingrays, various catfish (hacks aspredov, bronyakov), etc.

Symmetrically is compressed at the height of the body, greatly exceeding the length and width, is found in metinnisov, angelfish, discus, plataksov, imperial coral fish, etc. Sagittal inherent in matter predators barracuda to armored schukam mecherots silvery needlefish schukoglavs etc. overtaking prey sharp throw from the ambush .

Parusovidnaya implies the strong growth in the length and height of the dorsal fin (alepizavr, marlin, Spearman, sailboat, loopback, Amazon pterigopliht etc.).

Ribbon form when a long body is strongly flattened laterally, herring feature kings vogmerov, volosohvostov partly kosteyazychny fish and moray eels. Asymmetric beam- type properties are acierated to tongues and flounder - needles and sea indost and globular, accompanied by a significant loss sub kinds - fourteeth fish, urchins and lumpfish.

Covers fish scales are presented (in cyclostomes body naked) and mucus, which provide protection from damage, toxic substances dissolved in water, mechanical suspension, lubricant, reducing friction during the voyage, and bactericidal action, participating in blood coagulation. Silver fish scales are used to generate artificial nacre. It is the most archaic placoid scales - plate with conical teeth. It is characteristic of cartilaginous fish and unlike other types of scales is subject to periodic moulting. In ganoid - a three-layer, diamond-shaped, with the appendage for coupling dressed many fossil forms (dipnoimanypens). Sometimes, it is isolated kosmoidnuyu - bone disc is topped tubercles as like dentin substance - Cosmin. Then the cycloid scales (Clupeiformes, Ami, pikes, eels) are consisting of a smooth bone plaques (without ganoina) overlap with imbricate scales and implementation grounds in special pockets. The most progressive - ctenoid (bone with spines along the edge) is characteristic of most living fishes (Perciformes , etc.). Marine grammikolepids have needlelike scales, furry fish - mirapinna all covered with thick brown hairs are scattered over the body sturgeon several rows of bony plates, scutes, microscopic scales eel and giant , palm-sized child, barbel and Amazonian Indian arapaimy. Artificially leathery are bred and mirror carp breeds, crucian carp, tench, roach, rudd, etc. According to the annual rings on the scales, bones and thin sections SPILI otoliths (alternation of light and dark areas) calculated the age of fish.

Breathing apparatus fish gills. Surface of fish gills are active of result of a more long gill filaments and a larger number of secondary folds. As additional respiratory organ function in different species: leather (from 25 to 80 %) hobotnoryly, eel, blennies, white-blooded pike, bullheads, jumpers; gut - armored, catfish, loaches, slitnozhaberniki the blind outgrowth stomach - lorikarii, ototsinkly; gillnet maze - anabasovye; snail on the fourth gill arch - milkfish, Nile geterotis; razrascheniya gill cavity - ksenoharaks, tsitarinus, wrasse, and sea swallows amfipnous; modified swim bladder - dipnoi, mnogopery, Ami armored pike eritrinus, gimnarh, arapaima, umber; doubles outgrowth in the throat - snakeheads; unpaired nadzhaberny body - klarias, Kner; nadzhaberny plate body - schukoglav; sacciform education from the swim bladder to the tail section - meshkozhaberny catfish .

The chemical composition of fish is unstable. It undergoes to significant changes, depending on the environmental conditions, the state of food resources, the time of the catch and other local features.

The protein content in fish of different species is quite stable. Variations in protein content are recorded in a small range - 8 to 14%. The greatest amount of protein contain sturgeons having cartilaginous skeleton (sturgeon, beluga). The smallest amount of protein in the fine-mesh fish (bream, carp, etc.)

Overgrowth of fungus disease is expressed in form of a soft whitish gun. Then fluff thickens and the fish turns brown as it acquires " moss ." Mycelium of fungus can grow into deep into the muscle tissue around fungal growths looms area of inflammation in the form of a red border. In severe cases the fish flesh becomes putrid smell unpleasant, such fish is sent to the technical utilization. After cleaning fish are processed for canning or cooking products at weak defeat.

Theme 12. VSE and sanitary evaluation of fish and fish products in invasive disease

1. Classification and brief description of parasitic diseases of fish.
2 . Animal health assessment of fish and fish products in invasive disease.

1. Invasive fish diseases are divided into five groups: protozoan, helminthiasis, krustatseozy and diseases are caused by the larvae of bivalves and coelenterates organisms. Particularly prevalent protozoal diseases are caused by protozoa (flagellates, ciliates, Spore) and various parasitic worms, or helminths (trematodes, monogenetic trematodes, Acanthocephala). For fish farms are very dangerous diseases are caused by helminths and protozoa.

Larval stages of parasites that can infect people and animals live in the body of fish in most cases in the muscle tissue, but can also be found in eggs, gills, intestinal walls and other organs. These larvae are imperceptible to the naked eye and therefore represent a hidden danger. People become infected by eating raw, insufficiently is cooked or deep fried fish containing larvae of parasitic worms. In the body, these larvae settle in various organs: liver, pancreas, gall bladder, kidneys, intestines, causing severe, often intractable disease. Opisthorchiasis - the most common helminthic disease of humans and fish-eating animals are caused by helminth flat length of 1,5 cm and a width of 2 mm. The disease is characterized by lesions of the liver and gallbladder, at least - of the pancreas. Parasites are cause inflammation of the bile ducts, causing mucus accumulates there, moves thicken patency bile difficult and sometimes it becomes quite impossible as a result of accumulation of a large number of worms. There are cases where individual parasites are killed and around gallstone deposited salt, which can lead to the formation of stones. There are cases of cancer of the liver as a result of constant mechanical tissue irritation when moving worms. In addition, parasites secrete waste products, which have a devastating effect on nearby cells of the liver, which leads to their degeneration and dysfunction.

A person with strong infection attacks of pain are marked in the right upper quadrant it is not related to food intake, nausea, dizziness. Yellow mucous membranes of the digestive system disorder are later marked. Helminth development occurs with the participation of three hosts: final - man, cat, dog, fox, wolf, otter , additional - fish of the carp family : ide, dace, tench, roach and others (26 species), intermediate - Clam Bithyniidae snails. In humans and animal parasites secrete mature eggs, which the bile to the intestine, and then go outside with the stool.

Common diseases of chickens today include gastroenteritis or intestinal flu, although few decades ago no one knew about this disease of chickens.

The cause of the disease lies in the irregular and poor-quality feeding of birds, ingestion of poor quality grain, salts of heavy metals, drugs in large doses. The cause of gastroenteritis can also be the allergy of the bird to any type of food, persistent stress, as well as internal defects of the stomach and intestines (for example, polyps).

Symptoms:
- weakness, depression, blueing of the scallop;
- feces a liquid frothy yellow-green color with a sharp unpleasant odor;
- appetite is reduced;
- the temperature is elevated.

Treatment

Treatment of this disease consists in eliminating the causes that caused its development. Cours are transferred to a half-starved diet rich in easily digestible substances and vitamins. For faster elimination of the results of poisoning, it is possible to give chickens antibiotics in usual doses, and to purify the intestine from accumulated toxins, laxatives can be used.

Prevention

Regular disinfection in the hen-house, keeping the feeders and drinkers clean is the main preventive measure. The bird should always receive only high-quality feed. Try to exclude the occurrence of stress in the chickens.

Dyspepsia

Diseases associated with poor feeding often begin with dyspepsia or indigestion. Most often it is exposed to young animals up to 3 weeks of age because of the early introduction into the food of coarse, malnourishing, as well as difficult

Treatment

There are no medicinal treatments for cannibalism in chickens. First of all, it is necessary to introduce enough protein into the feed. If there is no result, the tip of the beak is cut off - the debixing. This operation is absolutely harmless for poultry, but it is often the only effective method in the fight against chicken cannibalism.

Prevention

Chickens should always receive a full feed. It is necessary to adjust the density of the planting of the chicken herd to the norm. As an effective preventive measure, debiquing is used.

Gastroenteritis

to digest fodder. Dyspepsia can also provoke sweating with dirty or foul water. The disease can occur in the acute (inflammation of the intestinal mucosa and stomach) or chronic (toxic poisoning) forms.

Symptoms:
- weakness, lack of mobility;
- the appetite is lowered, the stomach is firm, because of the gut-filled gullet;
- feces are liquid, containing undigested particles;
- fever, massive intoxication of the bird;
- cramps, severe exhaustion.

Treatment

Treatment begins with the introduction of a diet for chickens. Food should be rich in digestible fodders, unacceptable occurrence of fermentation or putrefaction. Instead of water, chickens are given weak disinfectant solutions of baking soda or potassium permanganate. If there are symptoms of toxic poisoning, the bird should be treated with antibiotics or sulfanilamide preparations.

Prevention

Regular sanitation of poultry house and inventory, keeping feeders and drinkers clean - the main preventive measures. Also, chickens and young animals should always receive high-quality full-value feed.

Cloacite

Cloacite occurs in chickens because of a lack of phosphorus salts, calcium, and vitamins in their feed. A contributing factor for the development of the disease is poor maintenance. The disease more often affects the hens of layers and on the symptoms at the first stage resembles an intestinal disorder.

Symptoms:
- an intestinal disorder with secretions containing uric acid salts;
- inflammation of the cloacal mucosa with the subsequent formation of hemorrhagic ulcers;
- chickens sharply grow thin and stop carrying eggs.

Treatment

Treatment of this disease in chickens should be carried out by isolating the sick laying hen from the rest of the herd, since joint exposure can provoke stroke. Inflammated mucosal cloaca washed with rivanol solution (1%), then smeared with ointment consisting of 200 g of Vaseline, 1 g of terramycin and 1 g of anesthesin.

Prevention

Fluorescent necrosis. Disease in carp pond farms it is often manifested with intensive use of ponds. Pathogen - small Gram-negative motile rod B. Pseudomonas fluorescens. At the beginning of the disease on the skin appear red spots and blemishes. As the process occurs patchy melting, necrosis and rejection of grafts of skin tissue. Nude muscle tissue in such cases is the wound surface covered with sluggish granulations gray and has no inclination k healing.

Sanitary evaluation. It is performed as well as rubella. At appearances on the farm carp fluorescent necrosis commercial fish catching and subject to implementation for food purposes .

Furunculosis (Aeromonas) . Salmon diseases is often recorded in trout farms. It is also susceptible carpopodite and hake. Pathogen - small, short (kokkoobraznaya) fixed gram-negative bacilli. V. aeromonoz salmonicide. In the initial period of the disease intestine is inflamed, which is accompanied by release of stool or bloody mucous strands. Filled ihorozny mass mixed with blood appear on the skin boils. Ulcers are formed after opening boils. Ulcers bottom is clean as ihorozny weight quickly is rinsed of with water. It is possible exophthalmia and pale gills. Microscopy of smears from the spleen, liver and kidney are gram-negative bacilli .Sanitary evaluation . Sick fish with extensive necrosis of the skin, boils and abscesses ulcers are directed in technical utilization as carcass and organs are heavily contaminated with water putrid microflora. Sometimes after procooking it admitted in animal feed.

Pseudomonosis - common name of cyprinids diseases are caused by bacteria of the family Vibrionaceae, the genus Pseudomonas. Pseudomonosis are recorded more often in the form of enzootic and cause significant economic losses due to the death of fish fingerlings and commodity wintering in ponds, cages and pools. Pathogens - pathogenic strains of fluorescent bacteria of the genus Pseudomonas. The fish are more common following: Pseudomonascyprinisepticum, Ps. fluorescens, Ps. putida, Ps. aureofaciens, Ps. chlororaphis, Ps. dermoalba, Ps. intestinalis. Each of these types can cause disease on their own or together with other microorganisms. The most dangerous from those are bacterium Ps., cyprinisepticum.

Carp and white variegated, white and black carp, buffalo and other cyprinids, including aquarium are sick with Pseudomonosis . Sick fish in age from year lings to manufacturers, but often – year lings and two year olds.

Sanitary evaluation of fish. During the chronic disease patients with ulcers after cleaning fish are sent for processing (provarku, smoking , etc.). Fish with signs of acute course of the disease (ascites, exophthalmia) are boiled and used for animal feed, fishmeal is processed or disposed. Healthy fish in the trade network, without limitation, avoiding it in contact with other reservoirs is conditionally implemented.

4. Carp less bream, pike, tench, ides - (gill rot) are often suffered from Branhiomikoz. Pathogens - parasitic fungi. Blood vessels of gills are clogged by fungus hemorrhage, it occurs necrosis, gills are become mosaic consisting of pink, gray, brown, and red patches. In severe cases the fish dies. Fish is struck by branhiomikoz almost does not lose its identity and quite suitable for human consumption. Saprolegnioz (ringworm) fungi are developed on the skin, fins, bronchial apparatus, in the oral and nasal cavities of fish of various kinds.

yellow-bellied, starry flounder .Fishing is carried out is by trawls, tiered and fixed nets.

Halibut is one of the largest fish in the North Atlantic. Individual species reaches 300 kg weight at a length of 4 m in meat yield halibut more than flatfish and up to 65 % by weight of the animal. Turbot meat tastes very good and it is used to prepare a wide variety of products. In small instances halibut meat is more tender than larger, and the fat content in meat halibut increases with age. In cooking halibut used for first and second courses. Thanks to a dense consistency halibut meat is suitable for cooking and frying. Jellied halibut is differs with very good taste.

Sinekory or Greenland halibut is smaller than Khingan. Individual specimens reach a length of 120 cm Medium size fishing Greenland halibut is 45 ... 65 cm at a mass of 1 to 5 kg.

On the chemical composition Greenland markedly halibut differs from Khingan - meat it is much fatter, but poorer in protein. Due to the greater fat content of saturated and unsaturated fatty acids fish oils are very different from terrestrial animal fats. They are less saturated fatty acids (13-15 %) than in beef and mutton fat (up to 23-30 % of their total number). Due to the high content of saturated fatty acids in the fat of animals is significantly reduced their digestibility. Fish fats are high in unsaturated fatty acids of high molecular weight.

Theme 10. Transport of live fish, principles of technology processing and manufacturing of fish products

1. Transport of live fish.
2. Fundamentals of technology and methods of processing fish.

Every spring and autumn pond farms carry live fish (fry, yearlings, producers for planting in ponds or for sale through retail chain) in different ways: in the water and without water (in a humid atmosphere and packaging) in special vehicles and rail wagons on airplanes and cartage etc. In specially equipped vehicles is mounted centrifugal pump acting on motor cars, fashion moves continuously in tanks and oxygenated .

Live fish in containers installed on the platform of the car are transported. The wooden or metal frame are made which is placed inside a canvas chan. Tran on 2/ 3 of its volume is filled with water from is covered with a tarpaulin. Live fish in special barrels are transported on short distance having a flattened oval shape and the bottom. Above in the barrel there is bore of size 25-30 cm, which is close by mesh. You can use ordinary clean barrels are provided that they are well rinsed and odorless.

In an aircraft may transport live fish in plastic bags (100 cm, length different). Water is filled with fish and it is poured into the package the right amount of oxygen is injected, tied and placed in a box or drawer. At transporting live fish in open containers it is need periodically measure the water temperature. For it is cooling ice

Biological efficiency - an indicator of quality fat product components, reflecting the content of polyunsaturated (essential) fatty acids. According to the

The fat content in fish is exposed to large fluctuations - from 0.3 to 28 % and more. Indicator fat fish is most unstable and labile. Depending on the fat content the fish divided into thin - 4% of fat, medium fat - 8.4 % fat and fat - fat content 8%.

Nutritional value of the fish is determined by the fullness of useful properties, including the degree of physiological needs provide essential nutrients, energy and organoleptic virtues. It is characterized by the chemical composition of the fish because of its consumption in conventional amounts.

The biological value of fish - fish protein quality index reflecting the extent to which it amino acid composition to body needs amino acids for protein synthesis. Fish protein content of lysine, tryptophan and arginine exceeds chicken protein content as valine, leucine, arginine, phenylalanine, tyrosine, tryptophan, cystine and methionine - an optimal amino acid composition of human food.

is used (5 kg per 100 liters of water), which is placed in burlap, a basket and hung above container. The ice melts and cools the water. Live fish are transported in special ships – Soimy (slotszhivorybki). The middle part of a Soimy is as floating cage, the walls of which are made of slots that provides water exchange at its Sojm trailering. Towing of speed should not exceed 3-4 km / h, since at higher speeds for strong pushes the fish to the rear walls Soimy, whereby it can be injured and die.

In organizing of the transportation of live fish should consider the following requirements: caught fish from the ponds should be inspected, culled sick and injured, healthy plant in cages with running water, where withstand 2-3 hours to rinse well its gills. Container is filled with water for 3/ 4 of its volume. Water temperature in the container and in the pond should not exceed 2-3 ° C, the abrupt change in water temperature during transplantation is unacceptable , otherwise the fish can get sick and die. Fish should be transported in cool weather, early in the morning or evening. Take water for transportation from unpolluted waters, lakes and rivers. Transportation into account the duration of transport and the relevant rules in this vitamin than fish meat without bone skeleton.

2. Fish - a perishable product. The rate of development of post-mortem processes depends on the death of the fish and the ambient temperature. When the life of fish mucus produced by the skin is constantly washed, worn soil , plants , etc. After lifting the fish mucus even is stronger. Therefore, on the body, " asleep " fish accumulate a lot of mucus. In fresh fish, like the living, mucus clear, transparent . If the fish is a long time without treatment mucus loses its transparency and becomes sharp " fishy smell ", then the smell of souring, rolling over time due to reproduction putrid microflora.

Putrefactive bacteria under favorable conditions of development penetrate the tissue of fish and cause spoilage, and developing enzymatic (autolytic) processes make fish tissue more favorable environment for bacterial growth. Therefore it is necessary as soon as possible to conserve fish (cold sterilization, salting, drying). The rate of development of autolysis processes leading role by temperature and handling of fish after production. What: less throw it, crush, trample , beat, rolled over the longer period of rigor mortis . Mortis starts with the head and tail ends. Autolysis occurs in the same order . If fish jaw tightly clenched, and the tail is not stiff , it means that the stiffness is just beginning and the product is completely fresh. If the muscles are stiff tail and the mouth can open and close freely, the stiffness is coming to an end, but this fish is quite high quality. The lower the temperature of the fish and it is fatter and bigger, the slower autolysis begins. It should not be removed from the fish mucus, so it is better kept . Mucus with raw fish is washed only before it is processed. For preparing the fish products it is used live, fresh, chilled, frozen , pre- salted or salted fish .

Cutting fish. It is produced to expedite the process of freezing , salting , for remove of the inedible or low value nutritionally body parts , as well as parts of having a nasty form (pink salmon - head catfish) for remove the digestive tract occurring parasites , for extracting and separating the valuable parts and organs of the body that require special handling (caviar and salmon , cod and burbot liver, backs and bellies in balyk production) and for the production of fillets - boneless

Sigi - the most numerous in species composition of fish of the salmon family. These include cisco , whitefish, whitefish, peled, whitefish and other Sigi live in clean water with high oxygen content . Of whitefish have communicating (cisco, whitefish) and freshwater (peled, whitefish, whitefish) forms. Meat whitefish also has good gastronomic properties.

Various food and snack foods are prepared from salmon, but perhaps the most delicious salted fish is considered. For example, salted salmon can be put on a par with sturgeon caviar. Well salted pink and chum salmon little inferior. Salmon , chum and pink salmon although taste in good cooked, but quickly stale.

Family Scorpaenidae .Scorpaenidae inhabit in the coastal waters of tropical and subtropical seas. In our waters, they are found in the Barents Sea and the Far East. Great commercial importance have redfish and redfish Redfish has a significantly larger than Mycteria. The largest instance of golden perch had a length of 89 cm and a weight of 9 kg . The main mass is produced bass fishing has length 26. .50 Cm. They are extracted perches by trawls.

Mass composition of groupers has a relatively low yield of meat, usually not more than 50 % by weight of the whole fish . Meat of groupers is mid fatted protein (2 to 10 % fat).

Redfish can be used for making different culinary products. Fillets and smoked sun-dried perch are enjoyed with good consumer demand.

Herring family. Herring - a key of fishery. In our country, the basis of oceanic fisheries and the Caspian- Black Sea constitute - herring. Herring gill are mined by nets and trawls.

One type of herring with several local races is mainly fished in the North Atlantic and the Barents Sea. In the western Atlantic is encountered in a small number of very large shad, reaching lengths of up to 75 cm and a weight of 3.5 kg and menhaden shad , stopping in to spawn in the river. Atlanto - Scandian herring live 20 ... 25 years. The average length of herring fishing from 25 to 31 cm and a weight of 200 to 500 g

During the year, the conditions of feeding herring is vary greatly. They are fairly long periods of starvation. Herring adapted to alternating abundance and shortage write, summer accumulating in its body of large amounts of fat that is consumed in the winter. Besides fat herring is able to accumulate a small margin of protein. Consequently, the chemical composition of herring is subject to significant seasonal fluctuations. It is reflected in its mass composition.

Herring is one of the fish that can mature into salted, so the main type of its treatment is ambassador. Slightly salted products have a pleasant taste and aroma. Herring can be prepared well spiced and marinated products are in high demand. Subtropical and tropical waters in warm temperature sardines of three kinds are inhabited : sardines and sardinopssardinell. The most important commercial value has sardine pilchard, European sardine.

Flatfish family. These are marine, sedentary, demersal fish with asymmetric, strongly laterally compressed body. In most species, the eyes are located on the right side of the body. The greatest commercial importance halibut, sea, yellowfin,

form of cartilaginous growths on the skin of gray and fins. Limfotsistoz is affected fish, depending on the extent of damage they are vented for canning and food products after cleaning the affected sites.

Vibrios of fish is observed in the Caspian Sea, affected carp, perch, gobies. The disease is accompanied by the formation of ulcers and sores on the skin of fish. Resistant pathogens (Vibrio) is low, at thermal processing die quickly. Fish with sores and ulcers on the skin for human consumption are not allowed to direct deposit. The disease is enzootic is accompanied by a massive loss of fish and requires a significant investment for rehabilitation of disadvantaged households.

The source of the pathogen are diseased fish, their isolation, the corpses. The disease is transmitted by direct contact and through contaminated water. Infection occurs through the gills of fish, skin and digestive tract. Water pollution by organic substances contributes the emergence of vibriosis.

Sanitary evaluation of fish. Commercial fish in the absence of external signs of the disease is allowed to eat without restrictions. At the loss of sick fish after processing is used in animal feed or it is disposed .

3. Rubella (pseudomonosis, hemorrhagic septicemia, infectious dropsy). Predominantly it affects cyprinids out wardly is manifested skin lesion. Carp, bream, tench, carp scale are susceptible (hybrid carp and common carp), as well as perches and acne. Pathogen- short mobile Gram-negative bacilli - V. Pseudomonas punctasta. Sick fish of all ages, yearlings ill relatively rare, are more susceptible fish in 2 to 3 years of age the disease of them runs hardly. At the beginning of the disease on the skin of fish scales and reveal fins, especially anal, red and on the bottom and side walls of the abdomen red spots are irregularly shaped. In addition, strong and noticeably exophthalmia bloating of the abdomen. In later stages, when the disease takes a chronic course, skin ulcers are formed red, sometimes covered with detritus, usually round, on their periphery has white bezel. At opening the fish detect inflammation of the peritoneum, the abdominal cavity are bloody serous fluid, liver and kidneys giperimirovany, gallbladder increased heart muscles flabby, pericardium fuses with the myocardium , blood vessels of the swim bladder strongly filled with blood. In some fish on the scales visible scars violet- bluish color as a result of the healing of ulcers. Smears of blood and internal organs of fish, rubella patients find a large number of Gram-negative microorganisms. We often observed banded eels are spotted or diffuse hyperemia fins and the destruction of their walls. In the presence of ulcers on the body of the disease is sometimes accompanied by mass mortality of fish

Sanitary evaluation. At detection of single red spots or necrotic ulcers and wounds are not penetrating into the muscle tissue, fish are allowed to implement for food purposes not later than 6 hours after the catch. Such fish are used in catering after cleaning the affected sites and procooking or roasting at least 30 minutes . In the presence of extensive skin red spots, dropsy, mucous discharge from the anus formations (with pressure on the abdomen) or detecting necrotic ulcers, lesions and polyplasmia in the deepest parts of the fish intestinal tissue is sent to the technical or its disposal but we can use animal feed after a good procooking .

In the poultry house it is necessary to regularly disinfect. In the diet of chickens should always be present vitamin flour, alfalfa, chopped root vegetables and other vitamin and mineral supplements.

Theme 9. Fishing. Commercial fish of Kazakhstan. Morphology and chemistry of fish meat

1. Brief characteristics of commercial fish familie.
2. Morphology and chemistry of fish, food and biological value.

1. All commercial fish species can be divided into marine, freshwater, semi-anadromous, who spent most of their lives in estuarine areas of the ocean or brackish seas, lakes, and for spawning in the lower reaches of rivers (some whitefish, roach, bream, etc.) and communicating committing spawning migrations from the seas to the river (herring , sturgeon, salmon) or from the rivers in the sea (eel, tropical species sums).

To sea fish never the setting in fresh water are most Gadidae, flounder, mullet, mackerel, etc. Strictly as most are freshwater fish carp, trout, pike.

Representatives cyprinids can be found in almost any body of water in our country. Major carp fish of ponds are bream, crucian carp, roach, carp, bleak, white-eyed, blue bream, sabrefish, bitterling, bream, bystranka, barbel, gudgeon, tench, verkhovka, chub, rudd, minnows, ide, chub, dace, undermouth, shemaya, syrty, rybets, zebrafish, roach, roach, carp and others.

Bream – fish of carp fish representative who do not live and do not feed in random places. How would fisherman is trying to attract the fish bait, if the place is not like bream, it will not come to him , though a ton of bait eruption.

Karas is a fish of the carp family of fish, the carp has several subspecies. The main types of goldfish - this golden (gold) and silver (silver) carp. There are many subspecies of this fish, which turned out as a result of crossing the main types of carp.

Carp - fish, the most important representative of cyprinids it is cultivated form of carp. From its wild ancestor, river carp, has a more blackish scales, wider body, a pronounced transition from the back of the head. The main difference between them is greater vitality, endurance and high fertility carp pond .

Family Gadidae. Fish of this kind live in the seas of the Northern Hemisphere. They most common in the North Atlantic Ocean. The main target species of the cod family are cod, haddock, saithe, whiting, hake, whiting , saffron cod, pollock, Arctic cod and from like the tresk - burbot. All of them are characterized by a relatively large head, a small amount of bone and the presence of a large fatty liver. Despite the large proportion of head meat yield almost all cod species is more than 50 % of the total weight .

solid flesh . Obtaining by cutting waste is used for the production of fish meal and technical fat.

Main types of cutting fish before being sent to the ambassador: zyabrenie (removal of the viscera and the pectoral fins with the adjoining portion of the abdomen) gutting, beheading plastovaniya, cutting back on , amuse and bokovnik, as well as filleting . After dressing the fish thoroughly is washed in running water, better in the sea. Cooling by ice is more, rarely salt is added to the ice. Chilled fish is supported from +5 ° to -1 ° C for freshwater fish, marine - 2 ° C. At this temperature and under good hygienic conditions fish is stored between 4 and 12 days. Fresh chilled fish in hygienic and nutritionally is better than frozen. It is better to considered to preforming live and chilled fish. Live fish are kept in special cages located in clean flow waters. Freeze the fish is better to do at a temperature of -28 to -40 ° C, the temperature in the body of frozen fish at -18 C does not provide full quality frozen fish .The best fish is frozen in a live state. Store frozen fish should be at the same temperature it is better at -18 to -25 ° C. Temperature above -12 ° C, especially for sturgeon, salmon , herring and other fatty fish, for long-term storage should not be allowed.

It is better to keep frozen fish in Glazed form, covered with ice, which protects it from drying out, loss of smell, fat oxidation and moldy . The fresher fish entered the freezing, the faster it is frozen and the lower the temperature storing it , the better it is saved .

Block fish freeze with glaze blocks is rather than individual fish, well preserves the quality of the product. Periods of storage of frozen fish vary depending on fish species, its quality, the method of freezing, storage temperature, presence or absence of glaze and range from 0.5 to 12 months. Salting is one of the best ways of preserving, especially herring and small herring fish. Its essence lies in the fact that at least the formation of a hypertonic salt solution, and its penetration into the cells of the fish tissue is displaced water from plasma cells. Colloids cells are denatured, compressed, become more stable, which prevents germs multiply in them. Through this salted fish lasts longer, though loses its original taste and nutritional quality. When salted whitefish, white salmon, barbel and some other fish.

Balyk . Balyk is used for production only fresh. In sturgeon beheading, cut the abdominal wall, take out the insides. After washing the back is separated from the abdominal wall (bellies) and salt in special baths longitudinal dry curing mixture (salt, nitrate, red pepper) for 15-25 days. At salting halves sturgeon fish should not touch one another. After salting fillets are soaked 12-14 hours, then hang out under a canopy on hungs and dry 28-45 days, depending on the weather. Fillets are obtained beam with Sheha quality in spring. Sturgeon fillets with amber-colored surface, and the cut yellowish pink, bedding visible muscles. Keta salmon and fillets are pink. All fillets have a specific smell and taste. Fillets premium salts contain no more than 6 %, 8% of the first - and second-

Smoked fish. It gives fish sustainability and most importantly, flavoring and aromatic qualities . It is applied hot and cold smoking. For hot smoking large fish are nutria and small left block (unshaven). Fish are placed in rows in wooden vats (bath), and each row pour salt, 4-5% of the weight of the salt fish. Big fish is salted

the same pleasure , which can not be said about many kinds of fatty fish, although they are having a very pleasant taste.

Dietary value of Gadidae is as great. Thanks to its low fat content, the cod’s meat sis a valuable source of protein for people predisposed to corpulence. For middle aged people Gadidae meat is valuable it contains a lot of methionine which promotes normal cholesterol metabolism, i.e. prevents the development of atherosclerosis. Great importance in the treatment of use cod’s liver has use other than high-fat and fat-soluble vitamins content. Natural canned cod’s liver are used with wide demand.

Salmon family. Salmon and freshwater fish and communicating the northern hemisphere. They are distributed mainly in the basins of the Arctic Ocean, North Atlantic and Pacific Oceans. Fish salmon are distinguished from other by adipose fin have commercial importance salmon, trout, whitefish and Far Eastern salmon. In total catch of fish they represent a small proportion, but the high quality of salmon makes them an important target species.

Dex of most salmon spawning is timed to move them into the river. During the upstroke the river, they do not eat all the work to promote the upstream is made from the accumulated reserves in the sea of fat and protein. Therefore, the chemical composition and nutritional value of salmonids vary greatly after entering the river - oxen content increases and decreases fat.

Salmon has the greatest commercial value of all salmon in the European North. Its fry lives in the river from one to five years and then migrate to the sea, where they spend time to reach sexual maturity between one and three years. In the sea salmon is growing much faster, so how early it is rolled out of the river, the growth will be more. For example, if it spent five years in the river and one year into the sea, when approaching the spawning its weight will be from 1 to 3 kg, if , on the contrary, it is slipped into the sea in a year after hatching, its weight can be more than 20 kg. The larger salmon, the richness of its more. The average mass of harvested salmon from 5 to 15 kg, but there are specimens weighing more than 30 kg, with a length exceeding 150 cm.

Brown trout from salmon has a more vivid coloration of the body. Average sizes of trout 30 ... 70 cm with weight of I to 5 kg., But some specimens are weighing up to 20 kg

Far Eastern or Pacific salmon - chum, pink salmon, chinook, coho, sockeye and Sim - have great commercial importance. Far Eastern salmon, as well as salmon are spawn in the upper reaches of rivers, making this during the spawning migration. During the course of spawning, they do not feed. After spawning due to exhaustion and severe violation of the vital functions of the body the die. Greatest commercial value and widespread in compare with other types of Far East salmon have chum and pink. Chum salmon depending on the time course of spawning has two forms - summer and autumn. Summer chum fishery length 58 ... 60 cm, weight 2 ... 3 kg, body length of autumn chum salmon 70 ... 75 cm, weight 4 ... 5 kg. Meat and eggs of chum salmon have high palatability. Pink salmon - small salmon.Average body length of 45 ... 50 cm, weight 1 ... 1.7 kg.

Chemical composition of cod meats is low in fat, most fish in this family it is less than 1% and only saffron cod and hake share fat accounts for an average of 1.6 and 2.8 %. The average content of crude protein in meat most members of the cod family ranges from 16 ... 18%.

Cod is the most important in its economic importance representative of the family. It is a large fish, reaching lengths of 160 cm, the average length of fishing - 50 cm is harvested mainly in frozen form. It refers to the dining fish.

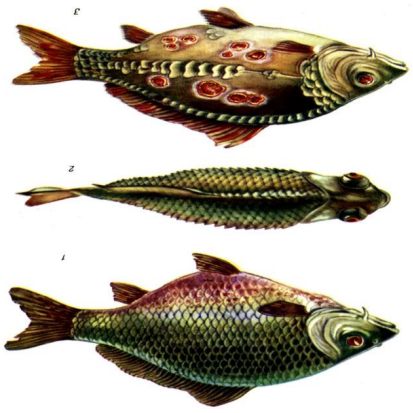
Saffron cod is caught in winter time ryuzhami on approach to the shores to spawn. Laminaria is caught under ice decomposes thin layer on the frozen ice and naturally, usually in intact form. It is fried in breadcrumbs, saffron cod is the most delicious dish that can be prepared from all cod species. Hake and silver hake are very close to their nutritional qualities. Taste they are resemble saffron cod. Silver hake has a length of 25 to 40 cm

Whiting are caught mainly in the region of Iceland, although its distribution area is almost the same as haddock. Blue whiting is a relatively small fish, reaching a length of 40 cm in the weight and chemical composition, as well as on the gastronomic qualities of whiting is clouded to cod and haddock. Fishing whiting is carried out by trawls.

Saika - small bib. In catches are dominated individuals of 16 ... 28 cm and weight 30 ... From 110 g of cod species is the most cold-loving fish. Inhabits the eastern part of the Barents Sea and the Kara Sea. Meat loaves are watery and low in protein, so its using is limited to food.

Pollock - the largest having the greatest commercial value of the cod fish it is found in the North Pacific. Pollack reaches a length up to 90 cm average length fishing about 40 cm.

Characterizing of value gadoid fish should be noted that with a relatively small calorie (60 calories per 90 ... 100 g) they are usually refer to the protein of fish. As a food product, they are good because of them can cook a lot of dishes. It is noted that cod and other fish of this family is stale and they can eat for a long time with



for two days, and a fine day. Then the fish is removed from the vat and soaked for 30-40 minutes to remove excess salt from the surface of larger fish (carp, mackerel, cod, etc.) penetrate the wooden stick , an arrow through the mouth along the spine to the tail. This is to ensure that the fish does not decay during smoking. Small fish strung on a thin rope through the eye holes. Smoked fish in the hot smoke at a temperature of 110-120°C, the temperature inside the fish reaches 60-65°C. Duration of smoked small fish is 30-60 min of large is 2-6 hours.

Hot-smoked fish is stored at a temperature not exceeding 8°C. It is subjected to rapid realization. For cold-smoked fish, cleaned or block (herring) are salted : 10-12 days large and shallow 2-3 days. Salts are consumed 10-15 % of the weight of the fish. Salt large fish is soaked for 24 hours, small for 2 hours.

Theme 11. VSE and sanitary evaluation of infectious diseases of fish

1. Classification and brief description of infectious diseases of fishes .
2.Virual diseases, veterinary and sanitary examination and evaluation of fish in these diseases.
3. Bacteria diseases, veterinary and sanitary examination and assessment of fish in these diseases.
4. Mycoses, veterinary and sanitary examination and assessment of fish in these diseases.

1. Diseases occur in fish as a result of actions or appearring pathogens of various environmental factors and lead to the destruction of the activity of digestion, respiration, metabolism, etc. Fish diseases are divided into infectious and noninfectious. Non-infectious diseases occur as a result of different environmental factors. Infectious diseases in turn are divided into infectious and parasitic. For infectious diseases include viral, bacterial and mycotic, their agents, respectively, are viruses, bacteria and fungi. Invasive disease caused by parasitic worms (helminths), crustaceans (krustatseozis) and protozo (protozoa). For viral diseases include smallpox carp spring viremia of carp virus bronhionekroz fish limfotsistoz, vibriosis, etc. For bacterial diseases include diseases such as rubella, Aeromonas carp gemofilez salmon, salmon korinobakteriоz. To mycotic diseases of fish include: branhiomikoz, saprolegniozis disease Staffa, nefromikoz, ihtiosporidiozis etc.

2. Carp pox - a viral disease that has no relevance to human small pox. Ill also tench, perch, carp, roach, catfish. At the beginning of the disease in different parts of the body and fins appear dark gray spots. Then at these places are formed pinkish - white cartilaginous marks, tight to the skin. Fish as if doused with stearin . For minor injuries after cleaning the fish used for food on a common basis. Fish, strongly affected by smallpox is unsightly and is for disposal or destruction .

Limfotsistoz - a viral disease that occurs in the Black and Azov Seas in flounder and Azov and Caspian seas in walleye, ruff sick is rarely. The disease is expressed

significant reduction in the amount of dissolved oxygen in the water, which often leads to massive fish kills by suffocation.

Sanitary evaluation of fish. Marketable fish which died from asphyxiation, implement, depending on its freshness. If its organoleptic category corresponds fresh fish is permitted in food without restrictions. Fish are questionable freshness and subjected to laboratory tests depending on it to decide how to use it. Conventionally acceptable fish is subjected to heat treatment or sent to animal feed.

Gas bubble disease (air embolism) - a pathological condition of fish caused by occlusion of small bubbles of gas, mainly gill, blood vessels. Sanitary evaluation of fish. Commercial fish with lesions Gas bubble disease allowed to eat without restrictions.

Branhionekroz (environmental, or autologous, toxemia, ammonia necrosis, necrosis gills) non-contagious disease of cyprinids , which occurs in the leading role played by violations of environmental conditions in the reservoirs associated with a high degree of intensification of fish farming. Non-infectious branhionekroz is manifested not only yourself, but often is complicated by saprolegnioz infected with pathogenic microflora and ectoparasites. For the prevention of non- infectious branhionekroz it is regularly after descending ponds to dry bed and process freese lime, as well as provide optimal environmental conditions on the main hydrochemical avoid compacted landings of fish in ponds. Sanitary evaluation of fish. Marketable fish is affected by branhionekroz, it can be eaten with the ammonia content in the meat of not more than 300 mg / kg.

Theme 14. Beekeeping, meaning and economic efficiency of the industry. Bee products and their meaning

1. Brief characteristics of beekeeping, information about the species of honey bees, bee family apiaries and bee products.
2. Types and characteristics of bee products.
3. Honey, chemical composition, properties and nutritional value of honey.

1. People engaged in beekeeping long as evidenced by many ancient sources. In Russia, the honey and wax were one of the main items of trade. The first executive orders on beekeeping dates back to the reign of Peter I. In the history of beekeeping can be identified 4 specific period.

Hunting for wild bees. Beekeeper hunter limited of little knowledge and skills: - how to find a hollow - how to prevent yourself from stings - how to cut a cell contained in honey and wax. During this period people already know how to use smoke as restraints of bees.

Onboard beekeeping. It was arisen as a result of the accumulation of knowledge about people living bees. The man has caved himself in artificial tree hollow (board) and the expected settlement of his insect nests of selecting only the surplus honey, cutting cell was interested in the preservation of the family, protects sides of bears,

martens and other enemies. Thus, the beekeeper started to invest in this particular case work. As a result, private ownership on the bees formers.

Kolod beekeeping. It came when people started caving board is not generally a tree stump and in his deck. First deck climbs a tree, and then began to have on the cleared sites - Kolod glades. Since then the beekeeping industry is developing as agriculture.

Modern beekeeping. It arose on the basis of a thorough study of the life of bees, which was made possible by three discoveries. The first of these inventions collapsible frame beehive. It belongs to the Ukrainian beekeeper P.I.Prokopovich (P.I.Prokopovich (1775-1850) had the largest beekeeping farm . Based on this, he organized the first Russian school of beekeeping in which 3 years taught the peasants sent from different provinces by landlords and monasteries). In 1814 he developed the design of the hive, consisting of two parts: a socket for brood rearing and shop space, which put in a frame with cells designed for folding honey. Original folding hive of Prokopovich has spread not only in Russia but also abroad. In 1857 collapsible hive perfected Frenchman L. Langstroth, who lived in America , he proposed the construction of the hive, the top opening that allows hanging frame with honeycombs on the tabs (hanger) on each side of the top bar frames. As a result, beekeepers were able to inspect and rearrange all the cells in the nest and most importantly, act on bee colony to increase the yield of honey and wax.

2. Beeswax - it is a solid granular substance synthesized by the workers. This miracle product has not yet been able to create an artificial way. The secret of getting beeswax is known only to bees.

Bees have on the abdomen eight special wax glands located under the four pairs of wax tapetum (so- called chitin thinner portions of abdominal segments of bees) and secrete wax on their surface. Under the influence of air extending from the wax glands wax hardens on the mirror in the form of tiny translucent plates. This is an excellent material for the construction of cells for honey, pollen and for the development of the offspring. They are sealed with wax and honey cells. The greatest number of bees secrete wax aged 12-18 days with abundant food fresh honey and pollen. Free space has the meaning in the hive. To select 1 kg wax (it consists of 4,000,000 wax platelets) bees consume about 3,5 kg of honey and pollen. Strong bee family can develop in a season two and more than a kilogram of wax. 86-100 % of wax cells contain in the bright new buildings and in brown and dark brown of - 49-60 %.

Propolis - a substance produced by a specialized group of individuals working families. Bees do it on warm days, when the temperature is over 20°C and only 10 to 15 hours a day.

Bee balm - its second name. What is propolis? This fragrance is a natural substance with a persistent and very pleasant balsamic odor. It felt aroma of honey and wax, poplar and birch buds. Propolis is produced by bees from resinous substances of plant origin, they collect from the buds, young branches and leaves of poplar, birch, aspen, willow, chestnut, alder, ash and other trees. In our Crimean places most like to visit the bee leaves of black currant, raspberry, strawberry, strawberry and kiwi. Propolis collectors often see on apple, quince, irge and even

overheating nests and nests in the absence of pollen. Infection occurs during the flight of bees, combs permutation. Pathogen - RNK - containing virus ellipsoidal size 20 -27x45- 70 them.

Characteristic feature of the disease - the emergence of migratory on board and on the ground near the hive set crawling not able to fly with wings and body trembling, paralyzed limbs, sometimes spinning top and the dead bees with elongated proboscis. Some insects are deprived of hairs black with reduced belly. Healthy bees expel sick from the hive. At opening the hive sometimes felt a peculiar smell brood adults not covered by bees. For determining the causes of death they are sent to the laboratory 30-50 bees with signs of defeat in a 50% glycerol solution.

Animal health assessment. At confirmation of the diagnosis of the apiary impose quarantine. In patients families uterus is replaced. Honeycomb with infected brood is removed. In severe cases do family distilled into a clean, sanitized hive artificial honeycombs . They are collected on site and bottom dead bees hives ejected brood and burn them. Events are applied.

Acute paralysis - an infectious disease of adult bees caused by a virus of the genus acute paralysis Maratorivirus. It is observed in the summer active beekeeping season. Development of the disease contribute to other bee diseases (Varroa). Sick bees lose their ability to fly, crawl on the ground and die in migratory ground . Diagnosis of acute paralysis put on the basis of serological studies by setting diffuse precipitation reaction in agar gel, taking into account the clinical signs of the disease.

Animal health assessment. At confirmation of the diagnosis of the apiary are imposed quarantine and introduced a ban on the export of apiaries disadvantaged farms to other farms bee colonies , queens and bee products for use in the apiaries prohibit migratory beekeeping dysfunctional family. Migratory of grounds are subjected to disinfection, hives, frames, honeycomb, tools and clothing.

Dead bees are collected, dumped brood and burned. Be sure to carry out activities at the struggle with other diseases attendant bees identified in this apiary. For the prevention of acute paralysis bacterial end nuclease are used (according to the instructions) .

Filamentovirozis - a disease of adult bees caused by a DNK virus filamentous thickness of 30-45 nm and a length of 285 ± 300 nm. The virus is shed from honey affected families. Disease is recorded in the winter-spring period. Filamentovirozis often occurs simultaneously with nosema. Nonspecific clinical manifestation of the disease. It is characterized by a large number of dead bees on the bottom of the hive in the hive or so families wintering bees. In spring after the exhibition are revealed many crawling unable to fly and dying bees. Hemolymph from bees unable to fly has a milky white color. Bee colonies are gradually weaken and die in March-May. Strongly affected families are poorly developed .

Animal health and assessment activities. At detection of a filamentous virus apiary are announced dysfunctional and it is appointed a quarantine. According to the requirements and conditions of the quarantine prohibits the export of other farms in apiaries bee colonies, queens and bee products for use in the apiaries, transhumance and dysfunctional apiary. Honey bee colonies derived from disadvantaged apiaries, it is stored in a sealed container. To use it for feeding bees

To avoid contamination with these parasites, you need to eat properly cooked fish. When cooking small fish soup (thick back to 0.5-1.5 cm) should cook for 20-30 minutes after boiling , the larger (2 cm thick or more) - 40-60 min. To better fish to fry, it should be cut into small pieces and fry respectively 20-30 and 40-60 min dried and cold smoking does not kill parasites, they can be cleaned only when salting . Therefore, small fish larvae affected helminths before or smoked jerky is necessary to maintain a 12 % solution of sodium chloride for 7-10 days, and larger - 14-20 days . In a well- dried fish larvae die.

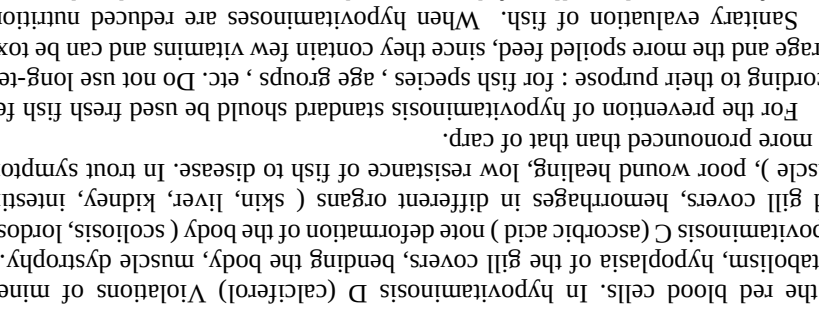
It should be remembered that parasites resistant to freezing. At minus 8-12 ° they die only on the fourth - fifth day, and the big fish in the meat - only after two or three weeks. When cooked fish can not try the raw mince and meat in certain species of fish contain up to 20,000 larvae. To better understand the role of epizootic infected mammals, it suffices to note that one sexually mature parasite in humans and animals during the day is able to allocate the external environment to one thousand eggs. In the liver and other organs of mammals, these parasites can accumulate up to 5-10 thousand, and parasites live up to 10 years. Animals infected with a lesser degree, daily released into the environment to 20,000 parasite eggs in heavy infection - up to 15 million or more. Fish caught from the reservoirs, disadvantaged by gelmintozoonoz can be fed to animals only proven form. Animals that periodically eat fish from troubled waters, you need at least twice a year to give hloksila or hexachloroethane. These drugs kill and expel parasites from the liver. The measures also include prevention opistorhoza destruction of stray dogs and stray cats, pets timely treatment against this disease.

2. Opisthorchiasis - bot to attack the bile ducts of the liver, gallbladder and pancreatic ducts. Opistorhoza pathogens are two kinds of trematodes: fluke and fluke Siberian cat . Fluke has a flat body, at the front end of the body is oral sucker, on the border of the first and second quarters of abdominal body. In the stage of puberty parasite intra-and extrahepatic bile ducts, gallbladder, pancreatic ducts man , cats, dogs , foxes, fox and some other carnivores. Intermediate host helminth is a freshwater clam gill. Additional hosts are fish of the carp family: ide, dace, rudd, roach, European, roach, tench, rudd, carp, bream . Sources of infestation are infested

Further development of eggs is only in contact with them in the water. In the water swallow eggs shellfish in the body which in 2,5-3 months from one egg by a series of transformations leaves to 30 live larvae it is called cercariae hook freely floating in the water. Larvae are imperceptible to the naked eye. Their way out of massive clams is observed in spring and summer. In the water they live two or three days. Larvae are at the head end sharp stiletto, with the help of which penetrate the skin of fish to move they have a tail twice the length of the body. Larvae pierce the skin of the fish's tail longer required, and they penetrate into the muscle, where surrounded by two shells.

By ingestion of larvae of helminths in the stomach of a human or animal shell is dissolved, larvae, possessing special sensitivity to bile, rush into the bile duct and three hours later found in the bile ducts of the liver, where two weeks grow into mature parasites and begin to produce eggs. Most often the larvae of these parasites are affected ide, dace, rarely - tench, roach, bream.

people, domestic and wild carnivores. Stand out with their feces helminth eggs when released into freshwater clams ingested Bithyniidae snails. In the latest development occurs and asexual reproduction larval generations opistorhisov ending access to water having a tail larvae - cercariae. Cercariae actively penetrate into the cyprinids and intsistiruyutsya in their subcutaneous tissue and muscle, turning into metacercariae. Infection of man and mammals occurs when eating raw (thawed, frozen) , insufficient and poorly fried salted fish with metacercariae helminth. Parasite larvae, get eaten by fish in the human intestine , emerging from their surrounding membranes and penetrate into the liver, gallbladder and pancreas, where in 2 weeks to reach sexual maturity, and a month later begin to lay eggs. Opisthorchiasis injure the mucous membranes of the pancreatic and bile ducts, obstruct the flow of bile, promote development of extensions and cystic neoplasms of the liver. Toxic effect, contribute to sensitization of the organism.



Opisthorchiasis

Sanitary evaluation. It is multiple lesions muscles metacercariae opistorhisov fish sent for technical utilization. In cases solutions opistorhozom issue affected fish for food purposes it disinfected for at least 30 minutes, processed for canning or freezing subjected at minus 11-15 ° C for at least 30 days, and at minus 28 ° C - not less than 24 hours. Perhaps disinfection fish also strong or moderate ambassador of not less than 2 weeks. Infected larvae opistorhoza fish can be fed to fur animals after freezing and subsequent thawing. In markets for disadvantaged Opisthorchiasis terrain post ads on the need of eating fish of the carp family only after disinfection cooking, freezing or salting.

Diphyllobothriasis - human disease and fish-eating animals, caused by tapeworm (tapeworm). Its length reaches 10m, width - 1.5 cm This is the most representative of a large parasitic worms. Worms live in the small intestine of mammals. Man and animals are infected with them only through the fish. Parasite develops with three hosts: basic - man, dog, cat, pig, fox, additional - predatory fish (pike, burbot, perch, ruff, perch, etc.), intermediate - copepods, Cyclops and diaptomids. Humans and animals are infected by Diphyllobothriasis and they are released into the environment eggs that fall into the water and of them ripen larvae.

3. Non- infectious bee diseases . Sanitary evaluation of bee products in non-infectious diseases.

1. Bees are exposed to various infectious and non-communicable diseases. Sick bees emerge from hibernation with a lot of dead bees, and the survivors are weak, die quickly, they are not able to raise their offspring, disjointed fly to honey collection.

Bee diseases etiology divided into two groups: non- infectious and infectious.

Non- infectious diseases do not appear every year in the same families. They are not transmitted from sick to healthy families and do not apply to some other apiaries. Causes of non- infectious diseases may be a violation of necessary conditions of feeding, keeping and breeding.

Infectious diseases result from ingestion of bee parasite. They are transmitted from sick to healthy families, from infected apiaries prosperous. Depending on the type of pathogen infectious diseases of bees divided into infectious and parasitic. If diseases are caused by pathogens flora (bacteria, viruses, fungi, rickettsia), they are called infectious. Bacteria cause bacterial diseases: American foulbrood, European foulbrood, paragnilets, salmonellosis (paratyphoid), colibacillosis, septicemia, gafnioz. Viruses are the causative agents of viral diseases of bees: sacculated brood chronic paralysis, acute paralysis, filamentoviroz. Fungi cause mycoses: melanosis, aspergillosis, askosferoz and Rickettsia - typhus .

Bee diseases caused by pathogenic unicellular and multicellular organisms of animal origin (protozoa, mites, worms, insects) are called invasive. The simplest cause protoozy: nosema, amoebiasis, gregarinozis, leptomonoz; mites - arahnoidozy: akarapidozis, Varroa; helminths - helminthiasis: mermitidozis ; insects - enthomosis: braulezis, senotainiozis, fizotsefallezis, meleozis. Pathways in the body healthy bees are infective skin, intestines, vagina and spiracles. Sources of infection are sick bees that produce the pathogen into the environment with the saliva, feces, through the trachea and spiracles, and sick of the uterus - in the ovipositor with deferred in egg cell. Honeycomb, honey, pollen and hive of bees from a sick family also serve as sources of infection.

Sacculated brood - infectious viral disease of bee brood, which pathogen (Moratoraetatulae Holmes) racks in the external environment. In the honey retains viability 3-5 days. At heated water or honey to 60-70°C it dies in 10 minutes. Mass mortality of larvae is observed most frequently in May and June (aged 8 ~ 9 days). Investing tissue from dead larvae just dense, and the inner part is filled with a watery fluid grainy. Color of larvae is grayish-brown, when it bends to the desiccation of the letter "C" and turns brown. Disease should be differentiated from the American and European foulbrood, powdered brood.

Animal health assessment. Affected hives are cleaned and disinfected. Nest of bee colony are reduce by removing affected and empty cell. Beehive is insulated. Bees are fed with sugar syrup during the first 10 days. The uterus is removed in a week, after which it returns to the hive or replace or healthy.

Chronic paralysis - an infectious disease of adult bees caused by a virus of chronic paralysis. Development of the disease contributes to the hot weather,

pieces of herbs. I admire them for a long time. This coordinated work is impossible to convey, it is necessary only to see.

Resinous substance, which is a protective release plant bee - pickers carry on their legs in the same way as pollen. In the hive, they treat it secret maxillary glands, prepared by adding to the weight of the wax in a ratio of 2:1 (by 50-60 % -25-30 % vegetable resin wax) and pollen . High quality propolis contains up to 70 % of the plant tar and secretion glands of bees, propolis is low quality - up to 65-70 % beeswax and pollen.

This product of beekeeping can be a different color. If the apiary is located in the coniferous forest, the propolis dark green or dark brown in color , if deciduous, then yellow- gray or brown. Propolis from the steppe zone is usually brown, from steppe - green or dark green, sometimes reddish, brownish-yellow or lemon- yellow and other colors depending on the source plant resin.

Old lain down propolis is usually darker, may be even black, dense and brittle. At 15-17°C it is solid at 30-38°C - soft, plastic and sticky. Fresh propolis is more odorous and is a sticky mass that resembles tar. Its structure is heterogeneous. Propolis has a complex of chemical composition. It contains aromatics, resins, flavones, minerals - is a 55 % resin, 30 % of wax substances, 10 % essential oils, 5% pollen rich with vitamins and microelements. Pollen is little used in human nutrition. One of the reasons for this - lack of understanding of the true value technologically properly collected and canned product. For the normal functioning of the body it is necessary to provide with nutrients in certain proportions among themselves. Paramount important has a balance of about 50 essential components of food .

More than 100 thousand kinds of proteins in our body is created from only 22 amino acids. Essential of them is eight. They must come from food because the body itself does not synthesize them. With a lack of even one of them breaks down the process of protein synthesis. Pollen in quantity and balance of essential amino acids, vitamins and minerals is superior to most human food. We emphasize balance of its constituent components, thus represented in considerable quantities. Tremendous value of pollen it is sorbent. After the destruction of micropores of pollen grains in the gastrointestinal tract occurs digestion and assimilation of their contents followed by grain - filling liberated capsules undigested remains of other food, largely toxic. Experiments of scientists showed that 100 g of pollen are surface of adsorption of 100 m^2, which has a positive effect on the processes in the gastrointestinal tract.

Pollen is valuable as a means of treatment and prevention of many diseases, as a biological stimulant beneficial effect on the body. Royal Jelly " apilak " (it is also called " royal jelly ") - is a unique active current product produced by bees. The composition of royal jelly include many of the elements needed by the body, which is why this substance is the food product and medication, reducing living cells and on the human body as a tonic and rejuvenating effect .

Scientists claim that royal jelly is one of the first places , especially during aging, as its members , in addition to multivitamins , minerals and amino acids include gamma globulin - an element of paramount importance in the treatment of diseases and aging. Royal jelly rejuvenates the body , removes radionuclides,

value of meat. Heading allow fish to eat without restrictions in the absence of exhaustion, loss of presentation. Lipoid (cerоid) trout liver - a disease resulting from metabolic disorders using defective and substandard feed. In acute during sick fish in a short time becomes a dark, sometimes almost black color body, it is marked edema and abdominal exophthalmia . Fish stop feeding, going off in the shallows. They disturbed coordination of movement, and in some cases, there are convulsions and soon there is a mass destruction of trout. Large individuals are more susceptible than small.

During the chronic diseases of the body and the color changes of fish behavior disorders are not marked. Sometimes exhibit loss of appetite, abdominal dropsy and exophthalmia; appearance anemia sharp gills, where they become gray-white color. Rare inflammation of the intestinal mucosa. Fish mortality occurs gradually and lasts a long time.

Sanitary evaluation of fish. Commercial fish after evisceration can be tolerated in food without restrictions, if it has not lost its presentation and has a normal nutritional state. Sick fish with severe liver disease and changes in the muscles are sent to animal feed after procooking.

Hepatoma trout - one of the forms of mycotoxicosis fish is caused by aflatoxins, which are producers of fungi Aspergillus flavus and A.parasiticus, affecting fish feed. In addition, fish feed are infected and other mycotoxins: vomatoksinom (produced by fungi of the genus Fusarium), ochratoxins, patulin (producing mushrooms Penicillium), etc. However, their toxic effect on fish has been insufficiently studied. Suspicious feed is tested for general toxicity and the positive results they determine aflatoxin content. The disease should be differentiated from lipoid degeneration of the liver trout.

Sanitary evaluation of fish. Marketable fish is affected Aflatoxicosis should be assigned to conventionally acceptable and implement in food or animal feed after examining meat for the total toxicity bioassays. With a negative result in the implementation should avoid depletion of apparently healthy fish. Asphyxia (Zamora hypoxia) fish - a condition that occurs in fish as a result of a lack of or a neurological disorders, anemia, shortness of breath, abdominal dropsy, convulsions, high mortality of fish. Lack of folic acid causes the darkening of the body, anemia, ascites, exophthalmia, slowing the pace of growth. Deficiency of vitamin B $_{12}$ (cyanocobalamin) causes a loss of appetite, growth retardation, severe deformation of the red blood cells. In hypovitaminosis D (calciferol) Violations of mineral metabolism, hypoplasia of the gill covers, bending the body, muscle dystrophy. In hypovitaminosis C (ascorbic acid) note deformation of the body (scoliosis, lordosis) and gill covers, hemorrhages in different organs (skin, liver, kidney, intestine, muscle), poor wound healing, low resistance of fish to disease. In trout symptoms are more pronounced than that of carp.

For the prevention of hypovitaminosis standard should be used fresh fish feed according to their purpose : for fish species , age groups , etc. Do not use long-term storage and the more spoiled feed, since they contain few vitamins and can be toxic.

Sanitary evaluation of fish. When hypovitaminoses are reduced nutritional

increases the potency, regulates blood pressure, lowers blood sugar levels, has anti-radiation properties, accelerates excretion of various poisons, anti-inflammatory, antitumor and bio-stimulating effect.

Bee venom - the product of activity of venom glands, ducts that are located on the sting. It is produced its bees and the uterus (the drones have venom glands and stinging apparatus). When one bee sting venom allocates 0,2-0,7 mg (apitoxin) is a white , colorless, thick liquid with a bitter , pungent taste . Its pungent is smell, like the smell of honey. Solids is about 41% .

The chemical composition of bee venom is quite diverse and it is still not completely understood. It was presented a complex set of amino acids, proteins, minerals and fat-like substances. In bee venom contains hydrochloric acid, formic acid and phosphoric acid. Pronounced therapeutic effect is not only these acids (which, incidentally, cause a burning sensation at the bite), but very active compounds - biogenic amines. This histamine (approximately 1% of it) and acetylcholine. They have very diversified action on the organism: dilate blood vessels, increasing their permeability, lower blood pressure, etc.

Many proteins are found in Apitoxins. They constitute 80 % of the dry matter , determine its biological activity and physiological properties of the venom, 50 % of its composition falls on milittin protein - the main active ingredient of Apitoxins. It is resistant to high temperature.

Bees sting is long been used in folk medicine in many countries. It is known, for example, hard facts similar method cure for gout such historical figures as the Russian Tsar Ivan the Terrible and the Swedish king Charlemagne. But not only gout treated and treat the people bee stung. They benefit and rheumatism, muscle pain, etc. Treatment with bee venom (apitoksinoterapiya) is proved most effective in diseases of the peripheral nervous system (radiculitis, neuritis, neuritis, neuralgia), arthritis and rheumatism and allergic diseases . And today, despite the rich arsenal of hormonal drugs, antibiotics and other supernovae and potent chemotherapeutic drugs , bee venom is among the most effective treatments , the use of which is broadening . This is the most valuable asset of traditional medicine.

3. Honey bee is an unique product created by nature itself .This nectar of flowers plants processed by bees. Honey is sweet, viscous liquid with a pleasant odor (bouquet), obtained by honeybees from the nectar of flowers or plants paddy (honeydew - a sweet selection on leaves of plant or animal origin). There are two types of natural honey: floral and honeydew. Honey is considered unnatural which is processed sugar honey bees and honey sweet juices of fruits, vegetables and artificial honey.

trout. Diseases are caused by the influence of unfavorable environmental conditions include:

disease resulting from exposure to low (cold) and high temperatures;

hypoxia and asphyxia (Overseas);

gas bubble disease ;

non- infectious branhionekroz .

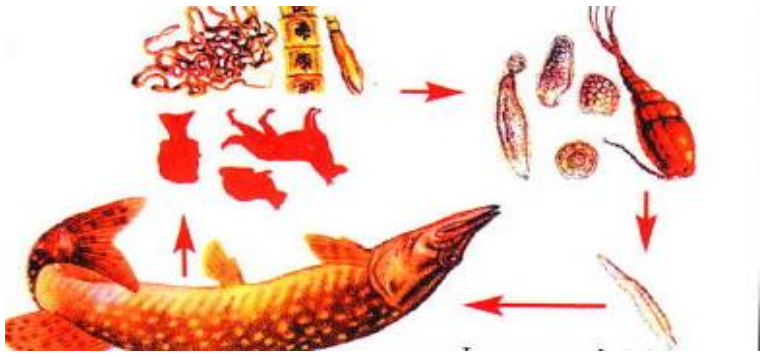
If you violate biotechnology of reproduction and cultivation of fish deformities noted, edema of the yolk sac larvae white salmon disease, traumatic injuries of fish of different ages .

Diseases of alimentary nature are most frequently observed in fish farms intensive type (trout, basin, cage, aquarium), in which fish feed animal feedstuffs. Concentrated feed is not always nutritionally balanced, low in vitamins, biologically active substances required for reproduction, development and growth of fish. They often suffer from lack of protein and excess carbohydrates , their often misused or after a prolonged storage, etc. Particularly are sensitive to errors in feeding salmonid fish (trout, salmon, salmon and the Far East, etc.), channel catfish and other predatory fish as vitamins and other biologically active substances they receive only food. Omnivores (carp) and herbivorous fish vitamins can be synthesized by intestinal microflora and this made up for the lack of them in the compound feed . Therefore, the problem is particularly acute salmon culture hypovitaminosis fish. Carp hypovitaminosis occur only when grown in the warm waters of the pools, cages, etc. Another cause of foodborne diseases is fish feeding poor quality forages, overwhelmed by pathogenic fungi containing harmful products of oxidation of fat or residues of toxic substances - seed disinfectants, pesticides, etc.

2. Hypovitaminosis - non- infectious diseases group of young and adult fish resulting from insufficient intake of vitamins in the body of fish with food or violation of their synthesis in the bodies of fish.

It is especially hard hypovitaminosis proceed with a deficiency in forages complex of vitamins and minerals that contribute to a better absorption of vitamins fish , their synthesis , exchange and utilization . For example, copper and zinc are closely connected with the exchange of vitamins A, B, C, zinc, vitamin B is a synergist, cobalt is part of the vitamin Bn, contributes to the accumulation of vitamin A and better absorption of vitamins A, E and C. Primary deficiency of a vitamin note some specific features. So, in hypovitaminosis A fish observed corneal clouding , bleeding on the fins , in the shells of the eyes, carp - proptosis, deformation of the gill covers, color brightness, sharp weakening of the fish, especially the aquarium, the decrease in liver weight, etc. In channel catfish marked accumulation of fluid in the abdomen and exophthalmia .

At mixed A and B avitaminosis fish are decreased hemoglobin level, erythrocyte count, increases the number of monocytes, as well as fatty liver is observed. With a lack of B vitamins in fish mark various kinds breakdowns. Thus, when a lack of vitamin B1 in fish balance is disturbed, the body color darkens, they refuse to eat, there are edema and paralysis. With a lack of vitamin B_2 (riboflavin) indicate bleeding in the covering of the eyeball and in different parts of the body, photophobia, cataract. With a lack of vitamin B_6 (pyridoxine) is observed



keep only in a dry place with humidity not more than 60 - 70%. Increasing of moisture in honey leads to action available to it the yeast, resulting in honey and sour cream begins. Particularly at active fermentation of honey at room temperature 11 - 19 degrees. Therefore, it is recommended to store honey at lower temperatures (-10 degrees 5) in a clean, ventilated area. Honey can easily absorb moisture from the air and smells of kerosene, herring , ammonia and other odorous substances, and therefore can not be stored together with such substances or products .

Containers for storage of honey should be hygienic and convenient. It is considered the best container is glass jars of different volumes with tight lids or enameled ware is also sealed. In bowl of iron, zinc, aluminum and copper to store honey is not recommended, as these metals form compounds with acids and sugars of honey and can form toxic compounds. For storing honey in large quantities use fake drums or stainless steel tanks.

Nutritional value of honey is very significant. We know that food is a basic human need. It is essential to the lived, grew and developed organisms. Numerous data show that in our country since ancient times, honey has been known as a fine food and medicine. It was found by science that more than half of all the energy produced in the human body, it is formed by the input from the food sugars - carbohydrates. Honey is a high-calorie food. One kilogram of honey provides 3150 calories, while one kilogram of beef fatness - 1330, one kilogram of eggs (20 large eggs) - 1590 , one liter whole milk - 620 calories.

Honey is rich in the human body the most necessary vitamins : thiamine , riboflavin, ascorbic acid and others. The presence of vitamin obliged by the presence of pollen there. Vitamins found in honey are more aggressive action than synthetic vitamin preparations. This happens owing to that honey vitamins are interconnected between the mineral salt in this case playing a catalytic role, reinforcing the action of vitamins. At receiving honey there is no danger of overdose of vitamins. Proteins also have a great important in honey. Their importance as part of a living cell, especially great for the kids when they can not make the proteins in milk. In this case copper is the only source of supply child's body of proteins.

It is also important to note that the use of conventional sugar residues under the influence of its human oral bacteria decompose to form acid, particularly lactic acid, which leads to tooth decay. Honey on the contrary, having with antimicrobial activity, at frequent using disinfects the mouth.

Theme 15. VSE and sanitary evaluation of bee products in various diseases of bees

1. Infectious diseases of bee. Sanitary evaluation of bee products in infectious diseases.

2. Invasive diseases of bee. Sanitary evaluation of bee products in invasive diseases.

They float freely in the water, they swallow the copepods, which in turn it is eaten by fish. In the intestine, they are digested fish crustaceans and larvae penetrate the intestinal wall, muscles, liver, gonads, where the larvae turn into disease ranging from 0.3 to 0.6 cm Man and animals become infected by eating infected diphyllobothriasis fish. In their gut after 2 - 2.5 months and grow mature worms begin to lay eggs. Human and animal infected by fish at any time of year. Patients treated diphyllobothriasis people and sick animals degelmintizirugut. Larvae difillobotry visible to the naked eye and resemble circ meat pork. At minus 10-12 ° C they die within two weeks. Salted and dried fish kills larvae only three weeks, and the high temperature (boiling) - 20-40 min. Therefore, fish from troubled waters should disarm by cooking, roasting, salting and freezing.

Diphyllobothriasis

Sanitary evaluation . Fish struck pleroceroids fishworms necessarily subject of cooking at least 30 minutes or used for cooking canned . Disinfection of such fish is allowed freezing at minus 18 ° C for 48 hours or at -12 ° C for at least 6 days , and the treatment medium or strong salting for 14 days (at sturdy salt content of salted fish meat above 14%, with an average -10 -14 %). It is strongly affected Pleroceroids fish sent to the technical utilization. In areas disadvantaged by difillobotiozn in places fish trade must be posted ads about buying it only after the veterinary- sanitary inspection and the need for careful procooking pike, perch, burbot, ruffs and fish of the salmon family .

Diktofimoz. One of the most dangerous diseases transmitted from fish. Sick people, pets - dogs, horses, cows. Pathogen - large parasitic nematodes in the renal pelvis, ureter in, bladder main host. Nematode eggs in the urine of infected animals or humans when ingested water ingested oligochaetes, which occurs in the body of their further development. At eating fish oligochaetes is their infection. Humans can be infected through the use of not only fish, but also by ingestion of infected oligochaetes (small free- oligochaetes, aquatic) with water while drinking. In this way, can be infected horses, cows. To remove nematodes from adult kidney requires surgical intervention.

Honey can be centrifugal (if it is pumped from the comb using the extractor), cellular and sectioned. Sectional is called honeycomb, which is in the small - framed sections .Coloring honey is all shades, from pale yellow to brown and brown, depending on the plant species from which the bees collected nectar. Honey collected mainly from one plant species (Monophlore) is called clover, buckwheat, heather, lime, etc. and honey collected from many species of honey plants (Polyphlore), commonly referred to as the place of its collection - forest, meadow steppe, mountain. Willow honey - golden-yellow color with a typical aroma and willow little bitter aftertaste, with crystallization becomes coarse and gets creamy shade . Evacuated in June, along with other bee honeys.

Fruit honey - light amber color with a delicate pleasant aroma, extremely tasty, long crystallized. It is evacuated only for dietary purposes at the end of May. Clover honey - almost colorless and transparent, has a bland flavor clover flowers after crystallization becomes white mass has good taste. It is prevails in families of gray Caucasian mountain bees. Raspberry honey - light golden color with an exceptionally pleasant aroma and taste it is in great demand as a remedy. It is collected in many apiaries.

Krushinov honey - light brown, turbid color with a faint aroma and original taste. It often has an admixture of willow or raspberry honey. After crystallization becomes dull brown. Buckwheat honey - has a bright light brown color with a bit of a reddish tinge, has a strong pleasant aroma and good taste. Buckwheat honey contains 0,3 % of protein and significantly more iron than light honeys.

Heather honey is a reddish -brown color, has a strong peculiar odor and slightly tart taste, after crystallization it is brown. Heather honey is the richest on the amount of protein (1,86 %) and mineral salts, it is not suitable for wintering. In taste it belongs to the inferior honeys. From honey bee Polyphlore is the most common field, forest and meadow.

Field honey - has many shades, from light amber to light brown. Bees collect it mostly with clover, colza, cornflower blue, clover, sunflower and buckwheat. This honey of high quality, with a strong flavor and good taste data, and therefore is in high demand.

Forest honey - also has many shades, from pale yellow to dark brown. It is always darker than the field and meadow honey. In taste honey is collected from the forest grasses, meadows and is not inferior to the field, but in the presence of a large

Ichthyaftyrios - extremely dangerous invasive carp disease of carp and their hybrids, silver and golden carp, tench, pike-perch, trout and other freshwater and saltwater fish, farmed in ponds. The disease occurs mainly in ponds and fish farms spawning and nursery farms, as well as trays, basins and apparatuses hatchery fish in close planting .By disease susceptible fish of all age groups, but most severe in young and producers aged 4-5 years and older. Source of infestation are sick fish, so you need to very carefully monitor the transportation of fish. In the downstream ponds pathogen also carries water and wild weed fish being natural focus of invasion.

Sanitary evaluation. Fish affected by miksobolyusami, with signs of deformation of the body, if polyplasmia depletion is rejected and sent for production of fishmeal. With minor changes boil and fed to farm animals, birds and animals .

Gnastomoz. The causative agent of the disease - a parasitic nematode, which is localized in the subcutaneous tissue in the lungs and other body organs. The first intermediate host - Cyclops, the second - the fish (carp, perch). People become infected by eating raw infected fish.

Metorhoz. Pathogen - fluke, a parasite in the liver, gall bladder and human predators. The first intermediate host - shellfish, second - fish such as roach, ide, rudd, carp, black carp, carp, white and bighead carp and other fish. Metacercariae from fish are in the muscles, the gill filaments in the eye. The disease occurs at using a crude fish food.

Nanofietoz. Human pathogens and carnivores - fluke, a parasite in the small intestine. The first intermediate host - gastropod, the second - chum salmon, whitefish, trout, grayling and other fish. Metacercariae of fish are placed in kidney, heart and other internal organs, muscles fins. Human infection occurs by eating raw, poorly processed fish in the body which are the larvae of the helminth.

Theme 13. VSE and sanitary evaluation of fish and fish products in non- infectious diseases

1. Classification of non-infectious diseases of fish.
2. Sanitary evaluation of non- infectious diseases of fish.

1. Non- infectious diseases in fish farms are most often cause various violations of environmental conditions (pH and temperature variation of water shortage or excess of oxygen, increasing concentrations of ammonia, hydrogen sulfide), fish feeding substandard or defective feeds, as well as water pollution by toxic substances of exogenous origin (xenobiotics) which often leads to mass death of toxicosis. They can be divided into two main groups : nutritional and disease caused by violations of environmental conditions.

The group of nutritional diseases include hypo hypervitaminosis, metabolic diseases (disproteinozy, disturbances of carbohydrate, fat and mineral exchanges), nutritional toxicosis (hepatoma trout), lipoid degeneration of the liver and other

Clonorchiasis - helminth disease of humans and carnivores caused by flatworms 13-20 mm long, 3-4 mm wide. Mature parasites live in the bile ducts of the liver of humans and animals. The larval stage of a parasite in more than 70 species of fish, mainly carp. In the development of the parasite are involved as intermediate hosts - the clams from the family Bitinide. This tapeworm is distributed mainly in the countries of Southeast Asia and the Far East. Called fluke that attacks the liver, gallbladder, and other organs of humans and animals. Development occurs involving two intermediate hosts - shellfish and fish. The second intermediate host, pathogen enters through which to man, are more than 70 species of fish.

Metagonimoz. It is called fluke parasite in the small intestine of humans. The first intermediate host - shellfish, second - carp fish. The fish parasite cysts are localized on the scales. Cyst sizes – 0,2 mm. Human infection occurs by eating poorly purified infectious fish.

Trienoforoz. It is a disease of freshwater fish, the person does not participate in the biological cycle of development. Pathogens - Triaenophorus nodulosus and Tr. crassus. Definitive host is the pike, sexually mature parasite in the intestine which reaches 30 cm in sexually mature parasite eggs into the water , they develop coracidium . They ingested crustaceans. These are the first intermediate hosts . Later crustacean into the intestine perch, burbot, walleye, trout , smelt - second intermediate hosts . From the intestine of fish larvae penetrate into the body cavity settle in the liver or mesentery, turning into plerocercoid .

Animal health assessment . Pike should be issued in the form of implementation of gutting . In fish infected with plerocercoids, establish the degree of contamination, weak - used for food purposes. If whitefish struck muscles, then disposed of such fish.

Ligulosis. Disease registers with cyprinids, they are an intermediate host. Pathogen - Ligula intestinalis. Definitive hosts - gulls, ibis , ducks. Helminth eggs into the water, turn into coracidia which swallow crustaceans, and they formed procercoid. In fish, crustaceans such swallowed , the larvae develop - plerocercoid, who a few years in the abdomen reaches a length of up to 1 m are called ligula (ramnetsami). Abdomen fish greatly swollen, sometimes is marked polyplasmia .

Animal health assessment. Given the safety for human ligula, after gutting fish can be implemented for food purposes, if not polyplasmia. If there polyplasmia fish sent for recycling or for animal feed .With the defeat of fish and crustaceans, leeches are removed, and the fish was used without restrictions. In detecting the presence of ulceration or exhaustion sent for recycling

Trihodiniozy - parasitic diseases of freshwater and marine fish is caused by parasitic forms of peritrichous ciliates family Urceolariidae. Under favorable conditions, ciliates reproduce very quickly and in bulk settle on the skin and gills of fish, causing a disease that often causes massive death of fish. The disease is characterized by lesions of the skin and gills.

Sanitary evaluation. In disadvantaged households general veterinary- sanitary measures and recommended hold to breed Amur carp or hybrid forms of Amur carp carp as the most resistant to infection by Trichodina.

the amine compound reacts with monosaccharides and form dark-colored compounds. In the honey bee has malic, lactic, tartaric, oxalic, citric acid, succinic acid and other acids. Acidity floral honeys (pH) is 3,78, honeydew – 4,57. Floral honeys have a significantly lower (0,14 %), minerals (ash content) than the honeydew (1,6 %). In bee honey contains enzymes such as invertase, diastase , catalase, lipase, and other vitamins in honey from predominates thiamine (B_1), riboflavin (B_2), pyridoxine (B_3), pantothenic, niacin (PP), ascorbate (C), etc.

Viscosity of honey depends on the temperature and maturity of honey the amount of water contained in them.

Honey just taken out from the hive and having a temperature of 30 degrees and a viscosity of 4 times less than the copper, cooled to room temperature, 20. Therefore it is recommended to evacuate honey extractors immediately after taking frames from the hive, preventing cooling. Fermented honey with water content of 18% has a viscosity of 10 times greater than the immature with 25% water content . In practice, the maturity of honey is determined by its viscosity. For this honey at room temperature tablespoon scoop and quickly turn its: mature honey is " filling with " on a spoon, and quickly drains and immature to screw it onto the spoon fails. To the first sort bee honeys include lime, kiprey, Sweet Clover, sunflower, buckwheat, acacia, made floral and others; to low-grade - heather, chestnut, honeydew, etc. To the high-grade even linden honey can not be attributed, unripe having conductivity higher than normal. In the mature honey contains on average 18,8 % of water.

Rich and diverse chemical composition, exceptional aroma and taste of honey bee created fame not only tasty dishes of man, but of the national remedy. In folk medicine it is used for treatment of medical conditions of the gastrointestinal tract, cardiovascular system, nervous diseases and disorders as well as diseases of the liver, lung, and many others. Exceptionally valuable nutritional qualities of honey peoples all over the world have long been used in cooking for making honey drinks and a variety of dishes. Honey retains its good taste and aroma only when stored in the mature form under strictly defined conditions.

Fermented honey is highly hygroscopic . It can absorb moisture from the air, when it exceeds 60 % , and give up their moisture at low humidity. It should be percentage of honeydew or buckthorn and heather it loses its flavor. Forest honey with spring honey plants are in great demand among the population.

Meadow honey - from pale yellow to light brown in color, has a very fragrant bouquet (especiallyRosaceae) and taste and therefore not inferior to other honeys. The most fragrant honey with Rosaceae plants collected by the local bees. The processing of bees nectar into honey or honeydew honey is called maturation. When ripe honey evaporates water, cane sugar is converted into glucose and fructose using enzymes invertase and diastase, which are produced in the body and the bees turn into honey. Honey is containing more than 20% of water, it is considered immature.

Honey has a complex chemical composition. It contains about 20 % water and 80 % solids of which glucose is 35 % or fruit - 40 %. Furthermore, honey contains sucrose (1,3 - 5%) , maltose (5 - 10 %) dextrin (3 - 4%). Number of proteins in the flower honey is 0,04 – 0,29 % and honeydew – 0,08 – 0,17%. In the honey bee contains up to 20 amino acids. Darkening of honey when heated due to the fact that

(cabbage, cucumbers, etc) must have sufficient sugars that are nutritious material for microorganisms. In case of insufficient amount of sugar in the raw and fermented foods acidity of salting does not reach the desired level of firmness and taste of fall.

Pickling and salting occurs spontaneously fermented by micro flora present on the surface of the raw materials, mainly various species of lactic acid bacteria. Application of special races sourdough lactobacilli provides a more rapid accumulation of lactic acid, improves the quality and durability of fermented products.

Lactic acid bacteria are facultative anaerobes which do not need oxygen. Fermentation should be conducted under anaerobic conditions. At pickling Sauerkraut is compacted and vats are filled stand out of juice, with pickles and tomatoes pour brine.

Best fermentation process takes place at a temperature of 18-20°C, which is favorable for the development of the group of lactic acid bacteria. Increase or decrease in temperature creates an environment conducive to the development of harmful organisms, butyric acid, prop ionic acid , putrefying bacteria, molds.

2 Sauerkraut. Cabbage and medium of late varieties are used for pickling. Early varieties of cabbage are not pickled, they have a reduced sugar content, loose tissue and give a product of inferior quality.

Purified from green cabbage and damaged leaves and cut stump. At cleaning cabbage is graded for quality in two classes: dense with white cabbage leaves used to prepare cabbage 1st grade and forg less dense with a greenish - to produce cabbage 2nd grade. Peeled cabbage is chopped into strips not more than 5 mm chopping machines or cut into pieces of a size not exceeding 12 mm and at chopping machines, but with a different blade profile and loaded prepared by adding , depending on the type of formulation salt carrots, berries, apples, and other seasonings and spices evenly distributing them. To accelerate the fermentation process and improve the quality of saurkraut is recommended to use in pure cultures of bacteria species Lact. plantarum. Cabbage is tamped, the top is coved mouthpieces leaves, cloth or gauze and then cover with mechanical oppression .

contained in fermenting products. Accumulation of 0,7 – 0,8 % lactic acid is sufficient to suppress the development of harmful micro flora (butyric, putrefying bacteria, etc.).

Salt is added at fermenting in an amount of 2 - 3 % of the weight of raw materials. At first the salt inhibits the development of butyric acid bacteria, bacteria of coli, but it has little effect on the development of lactic acid bacteria. Salt causes plasmolysis cells, contributing to the output of the cell sap and dissolved there sugars and other substances in the brine, which creates favorable conditions for the development of lactic acid bacteria. Furthermore, the salt increases the density of tissue and affects on their taste. At fermenting along with lactic acid occurs. Alcoholic fermentation is caused by yeast. In fermented vegetables alcohol content can reach up to 0,7 %, and pickled apples - to 2%. Alcohol, dairy and connecting with other acids form esters, which give a specific flavor fermented products.

For the normal development of lactic acid bacteria fermenting raw materials sink into the cell. Dead larvae light coffee color emit sour smell of wood glue.

Animal health assessment. Families affected by American foulbrood are destroyed along with all of their products and burning hives. Honey from the comb other apiary bee colonies considered relatively healthy are pumped and stored separately in places inaccessible to bees. Such honey in the winter can be used in the manufacture of bakery and confectionery products. Wax for 2 h is sterilized at 127°C, the Mery and sweet are burnet. European foulbrood - an infectious disease of bees caused by a group of microbes Str. pluton, you alvei, Str. apis. The causative agent is stored in a nest on a comb, honeycomb, honey, bee bread to a year outside the hive - up to six years. Pathogen resistance is low. If the honey is heated to 80°C, it is killed in 10 min after formalin vapor from - 30 minutes in an aqueous solution of formalin an one hour. In hot alkaline solutions streptococcus dised instantly in the honey bee combs are in the hive - 5 days. It is believed that during the winter streptococcus may be stored in Perge. At thermo processing sushi in wax streptococcus dies thermo processing.

Animal health assessment. Nests of sick families are cut, well insulated and treat bees as well as in the defeat of American foulbrood. In severe cases colonies are distilled in clean disinfected hives. Beehives cleaned of wax and propolis and disinfect all beekeeping supplies: wooden and glass objects - 2 % of sodium hydroxide ash or 10 % solution of technical soda.

Honeycomb with dead or diseased larvae and honey and pollen are busy in melted wax, free of pollen, honey and brood - disinfected , richly moisturizing for 40 min with 4% aqueous solution of formalin or within 3 hours 4 % aqueous solution of chlorine bleach (within 30 min - 2 % sodium hinozola). At detection of the apiary of European foulbrood migrations, sale of honey, beeswax, bee colonies and queens, as well as harvesting of bee venom, royal jelly and bee kids is prohibited. Quarantine is imposed at the apiary.

Foul brood an infectious disease of bee colonies caused by spore-forming bacillus paraalvey (Vys. Psaraalvei), swamps and open the sealed brood and the chronic course - and pupae .Clinical signs of Foul broad resemble chronic form of painting and for European foulbrood disease American foulbrood. Dead larvae is prohibited. Dead bees are collect and brood ejected for combustion. It is carried out disinfection work and anti-burrowed measures.

American foulbrood - an infectious disease caused Vas.larvae. Forming spores, the causative agent for a long time may persist in the environment. In the honey, even when direct sunlight irradiation, the spores up to 6 months do not lose their viability. However, after boiling honey (diluted with an equal quantity of water) for 20 min spores are killed. As the wax, they die within an hour after the sterilization at 120°C. Such strong disinfectants as mercuric chloride, formalin and other weakly act on disputes of Larve bacilli. The source of the disease are affected larvae and their corpses that bee hives removed from infecting themselves at this time . Source of spread of the pathogen can be honey and wax obtained from bee colonies affected by American foulbrood.

Diagnosis of the disease. At viewed diversity combs brood of healthy larvae are found sick and dead .Covers with dead cells in these larvae become flat or deep

Fusariosis or dry rot affects the tubers during storage. Fusarium on tuber grows in areas of mechanical damage or injuries Phytophthora. It affects mainly the early varieties of potatoes. Fungus destroys cells and intercellular substance, where in the starch granules remain intact. On the surface of the tuber exhibit wrinkled skin and brown, like depth blur. In the colony may appear (mycelium and spores) in white, yellow or pink. Tuber shrinks in volume and, if there is a cavity with a cross-sectional dryish yellow- white mass (spores mixed with starch grains). At storing potatoes in wet conditions tuber occurs in the form of wet rot. Tubers are affected, it is not allowed on sale.

Tubers Scab are damaged in the soil. Initially, on their surface are appeared bright and darkening flat spots that crack they are getting dirty brown color. Soon on the spot of spots are formed ulcers. They are separated from the healthy tissue in the center and west towering along the edges ("Bony" potatoes). Severely affected tubers are become watery, their starch content decreases. Such potatoes are not allowed for sale.

Black scurf (Rhizoctonia) affects stems and tubers. There are black warts on tuber easy removing, similar to particles of earth. This so-called sclerotic (solid colonies) of parasites. They penetrate into the flesh of the tuber, soften it and cause decay. Rotten tubers are not allowed for sale.

First blackleg affects the leaves and stems of potato then tubers . Disease is in a progression during storage. On examination they are found brown or black spots. This unobtrusive spot outside, but inside most of its tuber rots. Potatoes affected by black leg sale is not allowed for sale.

Ring rot affects the vascular ring of the tuber. Detect disease in the context of the tuber. First appear yellowish softened islands, and then they merge and form a ring of grayish- brown or black. Sometimes reveal the emptiness inside the tuber, and outside - wrinkled and cracked. The disease is more observed in the wet summer and the storage of potatoes in a wet location. Affected potatoes with ring rot are not allowed for sale.

Wet rot. Thick mucous mass dirty gray or dark brown color and odor are discovered on the cut tuber. Potatoes are infected with the disease are not allowed for sale.

Button sewing disease. Brown spots are appeared on tubers, as if depressed pockmarks, and spots - tiny black dots - pycnidia (mast colonies). Through these stains penetrate into the tuber bacilli and fungi, causing its decay. Rotten tubers are removed and they are not allowed for sale.

Cancer. Incrustation of large up to sizes are near on tubers till hazelnut. They are initially white, they are darken, how they would mortify and fall off. In their place tissue destruction is in the tuber, which is populated by various fungi, bacteria, rotting and tubers unfit for food purposes. Such potatoes are not allowed for sale.

Potatoes are withdrawn from the market strucking with wireworms, Khrush and nematode (Heteroderarostochiensis) and damaged by rodents.

Dinner carrot. Carrot Root contain sugar (10,7 %), carotene (5-20 mg %), vitamins B, B_2, PP, C, etc.) and mineral salts which include calcium, iron, phosphorus.

Organoleptic parameters. Benign fresh carrots must be clean, solid with no mechanical damage is not affected by diseases and pests (wormhole, insects), with a smell peculiar to fresh carrots with no signs of mold , at the turn yellow or orange color, the taste of its sweet is not bitter gentle, with a cropped head level with the tops of root crops. Benign carrot sinks in water, breaks when bent. For the sale are not allowed limp, wet, damaged, dirty, flabby, coarsened, rotten, self-ignite and frostbitten carrots.

Diseases of carrots. Black rot. Gray spots which they are later darken borne coating are at the top and side of the taproot. Stains are sharply demarcated from healthy tissue, they are rounded and dented. Such roots are not allowed for sale.

White rot. On the affected parts (usually the tail end) there is a white flaky plaque with large black spots (sclerotia), root transformed into a solid mass with an unpleasant odor .

Rotten roots in food are not allowed. White rot can also damage the beet, parsley, parsnip.

Brown rot. On the tail root crops show there brown spots, gradually rising up and depressed (as smallpox dimples) 0,5-1 cm. Sometimes roots are cracked and are found mycelium. It is stored in the roots as psevdosklerotsy. Carrots (and beets, cabbage) are stronger affected in raw storage. Root are affected by brown rot they are rejected and are not allowed in food.

Gray mold. Gray ash lush mycelium and fruiting bodies are found on roots. Sclerotia is found in the affected areas. Rotten roots are not allowed for sale.

Carrots may be affected by pest - the carrot fly, which lays its eggs at a temperature 15-17,5°C.

Pale yellow and the larvae are appeared from the eggs an penetrate into the root tip of young plants. Larvae pierce the root and it gets rusty color. Tuber becomes woody and it is unsuitable food. Carrot fly also affects celery, parsnips and parsley.

Beet. Beet roots contain 8-14 % of sugar, lots of vitamins (C, B_1, B_2, PP), organic acids and mineral salts.

Organoleptic parameters.

Benign beets should be fresh, clean, solid, dense, without leaves, non-woody, juicy, sweet taste, on a section of dark - red color in different shades. Limp, wet, damaged diseases , pests and sprouted beets are not allowed for sale. Young beets with greens are allowed to sell they are, provided that its roots are clean, whole, fresh greens, clean with no signs of rot the rut root is washed. Beet roots are limp, they are wrinkled, dirty and wet, yellowed and faded greens, roots pulp white or yellowish in substandard (feed grade) and flabby; roots crushed and broken, rotten, moldy and moth- pests and frostbitten. Young beet with having these symptoms unsuitable for food and for sale is not allowed.

Beet root disease. Tuberculosis roots. At the neck and on the body of the root are appeared detect growths or warts. They are rough, cracked and tubercles they are quickly decomposed and rot.

Cancer. Smooth, without bumps and cracks growths are appeared at the root, sometimes they fall and remains destroyed tissue, which then rots.

brood soft open and sealed brood - soft, doughy, sometimes oppressive, becoming putrid odor. After drying the larvae crusts are formed. Affected pupae are underdeveloped, dark, slightly are softened, at removed from the cells are easily torn asunder, have an unpleasant putrid smell.

Animal health assessment. They are collected on migratory site and bottom of hives of bees, dead bodies, dumped and burned their brood. They are subjected to disinfection their grounds hives, frames, honeycomb, inventory, clothing. Antiburowed measures are applied. They are not allowed the content and weak of sick families and patients colonies in distilled disinfected hives and honeycombs. Cell containing the dead brood are of overheat on the wax and the sweat and are burn Merv. Apiaries of disadvantaged wax are used only for technical purposes. To use honey for feeding of bees is prohibited. At detection on the apiary foul brood export of bee colonies, queens replacing of apiaries is disadvantaged, as well as the export of bee products for using in the apiaries is prohibited. The quarantine is established on the apiary.

Salmonellosis (paratyphoid) and gafnioz colibacteriosis - infectious diseases of bee colonies caused by bacteria of the genus , respectively, Salmonella, Hafniaalvei, Escherihia coli. These diseases occur in late winter and spring at the conditions of detention and foraging bees. They are characterized by intestinal lesions and intense multiplication of pathogens in the hemolymph. Sick bees during the flyby are emit a fetid, sticky and semi-liquid stool of yellow- brown color. Intestines of distended dead bees and has dirty gray or yellow- gray color.

The spread of salmonellosis and colibacillosis gafnioza of bees coming into contact with healthy sick bees, honeycombs of permutation from families in healthy patients at attacking bees, their use of water from stagnant, polluted water. Diagnosis is based on laboratory research .

Animal health assessment Migratory site, hives, frames, honeycomb, inventory, clothing, and other equipment of Pasechnoye are subjected to disinfection with warm (30-40 ° C) with an alkaline solution of formalin.

Empty cell decontaminated with the solution of containing 2% hydrogen peroxide and 1% formic acid or acetic acid or 5 % of sodium iodine monochloride. Bodies of bees dumped brood are collected and burned them. Antiburrowed activities are applied. They are not allowed of content and weak families. Honey of disadvantaged apiaries should be stored in a sealed container and it is used only within the farm. To use honey for feeding of bees and to remove bees, queen bees and beekeeping products is prohibited.

Septicemia - an infectious disease of adult bees. Pathogen is Pseudomonas apisepticum - polymorphic, gram-negative, motile, no spore-forming bacillus. The disease is often recorded in spring and autumn under unfavorable conditions of detention and is accompanied by the weakening of families and the loss of adult bees. Penetration of the pathogen into the body contributes to a violation of the integrity of the bees of the digestive tract (nosema, honeydew toxemia), the tracheal system (akara - pidoz) or integument bees with Varroa, high humidity in the nest of bees and the use of substandard food. Sick bees are in a strong excitation , which is replaced by oppression. Bees are refused from food, they are lost the ability to fly,

ragged if for apricot halves torn by hand and cutting when the fruit is cut with a knife. Last is higher in quality.

Peaches are dried, as well as apricots. Peaches, pitted dried as halves fruit - apricots are issued by enterprises. Dried apricots are of torn or cut fruit fumigated and fumigated with sulfur. Dried apricots and peaches should have natural flavor , with no signs of mold and fermentation.

Dried apples. Depending on the method of preparation before drying. Dried apples are divided into the following types: peeled, without seed chamber, sulfur fumigated or treated with a solution of sulphurous acid, crude, without seed chamber , sulfur fumigated or treated with a solution of sulphurous acid; unpeeled with seed camera fumigated gray or treated with a solution of sulphurous acid, dried without pretreatment (simple drying), dried wild (forest). In assessing the quality of dried apples: taste, smell, color, shape and size of the slices or circles, the presence of defective or lobules circles (ruptured, with traces of damage garden pests), fine particles, crumbs and debris peduncles, skin particles. Dried apples are divided into the 1st and 2nd commercial grades (wildly growing on varieties do not share). Humidity of dried apples are not more than 20 %.

Dried pears. Pear cultivars and wild are used for drying. Color of the final product from raw materials from greenish-olive green olive or yellow to light brown nonsmoking- from light brown to dark brown, taste - sweet. Dried pears are divided into 1st and 2nd commercial grades (on wild varieties do not share). Hums ion is no more than 24 % (from pears wildings -16 %).

Dried plums. Large fleshy fruit with a small bone and a high solids content are more suitable for drying. The best dried product is called "prunes" obtained from different varieties of the Hungarians. When drying the other varieties of plums, a product is called "dried plums of local varieties."

Take into account in assessing the quality : taste, smell, color, fleshy, fruit size, number of fruit in 1 kg, for damaged, burnt, mottled, unripe, candied fruits, peduncles debris, twigs, dry leaves. Quality of dried plums is divided into 1st and 2nd grade commodity. Humidity of dried plums should be no more than 25 %.

Dried cherries. Cherries are dried in the sun or in special dryers. On the quality it is divided into upper, 1st and 2nd grade commodity. Color of dried cherry of top and 1st grades from dark cherry to dark brown, glossy, and the second - from brown to dark brown.

Theme 19. Examination of pickled, salted and frozen vegetables, fruits and berries

1. Methods and techniques of preservation.
2. Basic technological processes of preserving vegetables, fruits and berries.

1. Preparation of fermented foods and meats are based on preservative action of lactic acid formed as a result of lactic acid bacteria fermentation of the sugars

Grains (oats, wheat, rye, millet, etc.) could reach markets in kind or in the form of flour and cereal products

Nutritional value of all plant products depends primarily on their purity. Therefore, all herbal products sold in the markets, are subject to mandatory veterinary-sanitary inspection. Plant foods can be sold in the markets in fresh, dried, salted or pickled.

The following home-made products are not allowed to sell in the market: mushrooms cooked, salted, pickled in closed containers, mushroom salads, mushroom spawn, other articles of shredded mushrooms, tomato paste, jam, jam from berries and fruits, convenience foods and culinary products, loose tea, herbs. It is also prohibited to trade any herbal products are not tested in LVSE market.

Herbal products are basically checked by organoleptical method in special smoking rooms; define sorting quality, appearance, size, maturity, form, pollution, freshness, smell, color, consistency, mechanical damage, signs of spoilage and fungal spoilage damage by pests , and where appropriate - taste. An important indicator of the suitability of vegetables and fruits to eat is the absence of nitrates and radionuclide's. Herbal products are containing nitrates and radionuclide substance as traumatized, quickly lose turgor and resistance to microbial spoilage. Therefore, at suspicions of falsification or presence of various hazardous substances, additional laboratory studies are conducted. By binding requirements for plant products are ensured the safety of health risks.

At establishing the purity of the product and the consumer property on the container or glued label owner give permission for the sale of goods , the name and quantity of the product , owner's name , room examination , dates , names of laboratory signed veterinarians who performed the examination.

2. Disease of potato tubers .Sometimes potato tubers during storage are affected by parasitic fungi or putrefying bacteria that reduce the eating quality of the product. Recognition of these lesions has not only economic, but also the value of health .

Late blight - a fungal disease is more common in wet years at damaged tubers. Leaves and the tubers initially are affected. They are found on the cut grayish or brown spots coming from the periphery to the center. Then on the are tuber appeared wet or dry rot. Sick potatoes are not allowed on sale

Turnip dining, radishes. Turnip roots are rich in vitamins A, B_1, B_2, PP and C, minerals, which include potassium, calcium, phosphorus, magnesium, etc. radish roots have high taste, they are rich in vitamins B_1, B_2, PP, C.

Organoleptic parameters. Allowed to buy turnips fresh, clean, solid, dry, healthy, without greenery, trimmed level with the head . They are not allowed to sell roots if they are dirty and wet, sprouted, flabby, crushed, rotten and corroded pests and frostbitten.

Diseases turnips and radishes. Turnips may be affected by botrytis - Root on discovering small black sclerotia, white rot - Root appears on white fur with big black sclerotia; Kila - on the roots appear flecked growths; Fusarium (or dry rot), causing brown spots under a loose white bloom. Then plaque becomes orange-yellow or reddish - yellow color, the root becomes stringy.

Radishes affected white rot - on its surface appear black sclerotia, vascular bacteriosis - on the surface of root exhibit black spots, stripes, and inside - black cavity. Damaged roots with diseases are not allowed for sale.

Celery root vegetables and other food. Celery, parsley root, parsnip, radish, horseradish, chicory roots and other food should be fresh, clean, whole, dry, juicy, dense, healthy, with no greenery. These roots are not allow to sale if they are dirty or wet, flabby, crushed, damaged by pests and diseases, gnawed by rodents, rotten, moldy and frostbitten .

Apples. Seeds of fresh ripe apple must be dark brown, the fruits are clean, undamaged, without subcutaneous spot and darkening of the fruit flesh are not damaged by pests (weevils, scale insects, moth, scab, sooty fungus, etc.). Apples are packed in a sturdy, clean, dry containers (baskets, boxes, etc.) with a soft, dry wood chips. Immature apples, dirty, damaged, rotten and foul smell (musty, oil, naphthalene, etc) are not allowed for sale.

Pears. Fresh pears benign must be clean, mature, no damage and losses by pests and diseases. They are packed in rows in a clean, dry, solid containers (boxes with gaps, baskets, etc.) with a layer of excelsior, veiled paper.

Dirty and spoiled, damaged by pests pears are not allowed for sale.

Plums. It is allowed to sell fresh plum, if they mature, clean, without mechanical damage and losses by pests and diseases. They are packaged in a sturdy,

Pimply scab. Little warts are appeared on the roots which are disintegrated forming ulcers with raised edges. Ulcerative places are rot, roots are deteriorated, acquiring an unpleasant odor.

Fusaria or Clamp Rot. Longitudinal cavity is formed in the central part of root. Its walls are brown, softened, decayed, odor.

Scab. In the cervical root crops there are small cracks. They are rough and depressed. Sometimes in the middle part of the root lesion appears as a belt scab. The core rot . Grayish blue spots are shown on the roots. The fungus penetrates. In this vascular tissue blackens first becoming hard then softens.

Bacterioses. Bacilli are decomposed roots and turn them into a mucous mass. They destroy the parenchyma of roots, their tissue becomes fibrous (dry rot) destroy tailpiece beet tissue turns brown, becomes stiff and then softened .

clean, dry container, nestled on top of the paper and the lid. For sale is not allowed fresh plum immature, dirty, rotten, wrinkled and damaged diseases, pests

Cherry. It is allowed to sell cherries, if it is clean is not moisture, green and not overripe, no injuries and diseases. Cherries are packed in a clean and sturdy containers (baskets, boxes) in bulk, top shelter paper and cover with gauze or sheathe. Soiled, crumpled and moldy , immature cherry are not allowed for sale.

Apricots. In benign apricots fruit is clean, ripe but not overripe is not green, no injuries and damage by pests (weevils, caterpillars, etc.). Dirty, ripe or green, wrinkled and damaged by pests apricots are not allowed for sale.

Peaches. In fresh peaches fruit is clean, mature without cracks and breaks with no damages by pests (weevils, caterpillars, etc.) and diseases (sooty fungus). Dirty, spoiled, crumpled, damaged by pests peaches are not allowed for sale.

Grapes. In fresh grapes brushes benign solid or non-integral, with ripe, clean, is not wrinkled and berries, with characteristic color of different shades, without damaging pests and diseases. Grapes are placed in a container brushes tight rows, ridges inside and covered with paper on top and cover. It is allowed the suction grapes with cork sawdust of softwood or rice hulls without spines.

It is not allowed to sell mature, crumbling, crushed or cracked, faded, dirty, diseased grapes with a foul smell and taste.

Diseases and pests of fruits. It is not allowed unsuitable for food and to sell fruit affected by certain diseases.

Black rot (pathogen - Sphaeropsusmalorum). Fruit blackens the top is covered with small black swellings and becomes wrinkled and glossy .

Pink (plesnevidnaya) rot (pathogen - Trichodeciumroseum). It affects pears, apples and grapes. Dry rotten spots, furry spawn are appeared on the fruit. Healing brown stain of fruit are appeared colonies white bloom which they are turned pink. Affected brown areas of fruit become bitter.

Bitter rot (pathogen - Glocosporiumfructigenum). Sunken round brownish spots are appeared on the fruit (apples, pears, grapes) and pale pink slimy colonies (sporulation of the fungus). Affected fruits are harden, wither, shrivel, are hanging on the tree. They are bitter in taste.

At storing in a humid environment may be affected by damaged fruit green (pathogen - Penicilliumglaucum), gray (pathogen - Botrytiscinered) and black rot (pathogen - Rhisopusnigricens).

Scab (pathogen - Fusiladiumdendriticum). Circular spots with gray rim covered velvety bloom (sporulation of fungi) are limited on the fruit limited. In the center of rusty brown spots there are crust cracks , they are deep penetration into the tissue. On site cracks fruit are rot.

Scab disease reduces grade fruit and fruit with strong affection for sale and they are not allowed.

Citrus fruit may be affected by anthracnose, Alternaria, Fusarium, etc. These diseases reduce the grade of fruit and fruit with strong affection for sale are not allowed. Among the pests affecting fruit, the apple moth are the most common and garden weevil.

Theme 17. Examination of the quality of fresh root crops, vegetables, herbs, fruits, berries, mushrooms and melons

1. Definition. Commodity classification.
2. Sanitary evaluation to diseases of root crops, vegetables, herbs, fruits, berries, mushrooms and melons.

1. Depending on the biological characteristics, morphological structure and consumer characteristics and areas of growth plant products are divided into classes (vegetables, fruits, grains, mushrooms), divisions, groups , species and varieties .

Class vegetables are divided:

- Vegetative:

a) The tubers (potatoes, Jerusalem artichokes);

b) Root vegetables (carrots, beets, radishes, turnips, radishes, celery, parsnips and turnips);

c) Cabbage (white and red , Savoy , color , Brussels sprouts);

g) onion (onion, garlic , leek, Bunching, chives, Slizunov, fragrant, multi-tiered, etc.);

d) salad - spinach (lettuce , spinach , Mongol);

e) Spicy (dill , thyme , tarragon, coriander);

g) Dessert (rhubarb, artichoke);

- Fruit :

a) Tomato (tomato, eggplant, peppers);

b) Pumpkin (pumpkin, melon, watermelon, zucchini, squash, cucumbers) ;

c) Legumes (peas, beans, sweet corn).

The class is divided into groups of fruits and types depending on the characteristics of the structure and composition Pome fruit are often bring to the markets (apples, pears, quince, rowan, Saskatoon, loquat), stone fruits (cherry, plum, plums, apricots, peaches, etc.) fruit (grapes, currants, gooseberries, strawberries, strawberry), nuts (walnuts, pine, almonds, peanuts, hazelnuts, etc.) and subtropical citrus fruits (Apelsina, tangerines, lemons, grapefruits, pomegranates, persimmons, figs, pineapple guava, kiwi), tropical fruits(pineapple, banana, mango, avocados and others).

Mushrooms are a large group, which has more than 200 species. They are harvested and delivered to the market for the implementation of 32 species of mushrooms which of 18 and 14 of the tubular plate . According to the food and beverage values mushrooms are divided into four categories:

1 - the most delicious and useful white, agaric, mushrooms, poddubniks;

2 - boletus, boletus, white butterfly, volnushki, greasers;

3 – flywheel Valuoja, Russula, serushka, chanterelle, honey agarics, morels, line;

4 - low value is not always collected: Kozlyak, rain, etc.

The natural drying is used in the south. The sun dried grapes, apricots, apples, peaches, cherries, plums, plum, pear, fig, melon. Solar drying is carried out at special sites equipped sheds and racks and all the necessary equipment and supplies.

Artificial drying is carried out on various types of dryers: cabinet, revolving, channel, drum and belt

A promising method of drying is freeze drying. The essence of this method consists in the fact that in special installations moisture is removed from frozen fruits and vegetables at a temperature below -5 °C under high vacuum. Under these conditions, the ice is converted into steam, passing the liquid phase (water). Fruits and vegetables, dried by sublimation, contain 4-6 % of water and of high quality. They retain the original shape, color, taste, smell and vitamins feedstock.

During the drying process, not all of the dried product particles are equally dewatered. For equalizing the moisture dried fruits and vegetables are poured into GEL, where they are kept for several days, while part -dried moisture from not well dried perceive and recent dry up , and the whole mass gets the same humidity. The finished product is packaged.

Dried vegetables have a fairly large amount due to the voids between the individual pieces. This facilitates aeration of the product and enhances the oxidation and spoilage processes. To save packaging, management of transport, warehousing and storage to increase the resistance of dried vegetables are often compressed (briquetted) in the form of regular tetrahedral bars - briquettes. For retail sale are made small briquettes (50-200 g), and for catering a large (2-5 kg).

Dried fruits and vegetables are packed in wooden crates and plywood drums capacity of 25-30 kg lined paper. Dried fruits are also packed in boxes of laminated corrugated cardboard, four-ply paper kraft bags, and plum, pear and apricot - in jute or linen bags. Dried fruits in small packages may be packaged in the form of briquettes weighing 100-500 g, wrapped in cellophane. Vegetable concentrate used for packets of paper, laminated foil and resin films.

Vegetables, potatoes and fruits, dried to a moisture content of 4-6%, packed in hermetically sealed containers from a tinlined paper, or in polyethylene bags.

2. Drying of beets and carrots. Well ripened roots are washed and cleaned, cut into narrow strips, laid out in a single layer and dried on the sun until no juice. Then a thin layer stacked on a sieve and dried at a temperature of 70-80° C. They are ted periodically.

One can dry in the sun. Cool and put in a sealed container. It is thoroughly wash and cook mature roots about 20 minutes after the water boils. Then cut into narrow strips and dried in a thin layer of sieves at a temperature of 70-80°C.

Drying onions. Solid healthy bulbs are selected for drying, then they are cleaned, washed and cut into thin slices. Onions process of drying identifies sharp, unpleasant smell. Therefore, it is better dry onion premises. To speed up the drying process, the onions are blanched for 1-2 minutes in boiling water. Bow are loosely laid on the sieves and dried at 70 ° C. Final drying is carried out at a temperature of 40°C. In this case, the bow will be white.

Dried apricots and peaches. Apricots are dried whole fruits with pits are called apricots, whole fruit, pitted - Kaisa and halves - dried apricots. There are apricots

1. "Veterinary-sanitary inspection of food crops, fisheries and beekeeping" as a discipline is based on knowledge of biology, chemistry, physiology and biochemistry of animals, animal morphology with Latin veterinary terminology, biophysics, microbiology and virus logy, ecology, pharmacology, toxicology and toxicological analysis and in training high professional veterinarians of specialist physician expert of food crops, fishing and beekeeping, great role play such special disciplines as veterinary service organization, biology of plants, hydrology, hydrochemistry, radiobiology, ichthyology, invasion and infectious diseases, etiology, veterinary sanitary inspection in border, transport and many other directions of science.

Naturally, in the prevention of diseases of both human and animals food borne vegetable and fish products, of negative impact on human health and well-being of poor quality of bee products, as well as the further spread of disease in plants, fish and bees. Veterinary-sanitary examination has a resolving power and plays an important role for the whole of humanity.

Practice shows that the relative intensification of the processes of natural and artificial fish farming is often accompanied by a large number of fish in licking as infectious and invasive and non-contagious diseases and poisoning, which leads to a minimum of return of investing means and labor, reducing both the quantity and quality of fish production. This must be added the fact that some diseases, especially gelmintozoonoza are transmitted from fish products to man and animals they are posing a threat to life and health of humans and animals and causing them to spread. Important role in the national economy in plans of increased productivity and quality of seeds entomophilies plants seeds give honeybees. It is known for their "permanent" labor productivity increase till 35% or more, the quality of seeds till 15% or more causing them keeping good and weighty significance are produced bees and processed foods that human society uses and consumes for their needs, especially in health promotion, prevention and treatment of many diseases. Therefore substandard bee products in varying degrees are affected the well-being and health.

Theme 16. Basic concepts and classification of plant foods

1. The role and importance of food crops, fishing and beekeeping training veterinary sanitation.
2. Classification of plant foods
3. Chemical composition and nutritional value of crop products.

crawl on the ground and later they are becoming inactive. Hemolymph of sick bees of milky is white. Muscles at the beginning of dirty gray, then - light brown , and finally - black . Characteristic feature of the disease - at a light touch of corpse bee is rapidly decomposed into segments.

Thus, plant foods in their composition and physiological roles are vital for a healthy human diet. However, they are as animals food products are subject to various vices , disease and injury, which reduces their nutritional qualities. The concept of health examination and evaluation of plant foods include: sanitary inspection of all food products of plant origin in fresh, canned (salt, dry, sterilized), and in other forms: Root crops, vegetables, greens, melons, fruits, berries, mushrooms, corn and cereal products (flour, cereals, etc.), potato flour, legumes, seeds (poppy, sunflower, pumpkin and others)edible vegetable oils, as well as convenience foods and culinary finished products from plant material produced on state or cooperative enterprises, control the location and conditions of trade herbal products; monitoring of compliance with sanitary requirements for packaging, which are products, demands from food sellers in the markets of personal hygiene; seizure and denaturation of plant food products on sale and recognized poor quality and not suitable for human consumption, preparation of the report in triplicate.

1. The indicators characterizing the nutritional value of products include:

- energy value, the amount of energy produced in the body by dissimilation product;
- biological value - an indicator of the quality of protein, depending on the balance of amino acids and reflects the degree of delay of protein nitrogen in the body;
- digestibility - matching the chemical composition of the product enzyme systems of the body;
- digestibility - the relative degree of the body to use certain nutrients coming from the food;
- monotony - the rate of generation of the negative stereotype of a dynamic selection and use of a food product.

2 Vegetable foods (mushrooms, vegetables, Root crops, berries, beans, cereals nectarine) occupy an important place in human nutrition. They are the primary source of carbohydrate, vitamins and minerals. Many plant foods are widely used as condiments (spices, herbs) to various meat and fish dishes, increasing their digestibility.

Most of the traditional diet are differ: milk and dairy products, meat and meat products, bread and bakery products, cereals, vegetables, herbs, fruits, berries, eggs, butter and vegetable oils.

Herbal products are evolutionarily constitute a significant share of the diet as the total number is about 1300-1400 g.sut and the range - at least 10-15 names (as separate products or as part of individual dishes) daily.

Plant foods are the only natural sources of starch in the diet, non-starch polysaccharides (dietary fiber), vitamins C and E, B-carotene, bioflavonoid, and the main sources of polyunsaturated fatty acids, potassium, magnesium, manganese, nickel. Traditional products from grain flour and grains are sources of vegetable protein, carbohydrates (polysaccharides), vitamins B, B_6, PP, folic acid, magnesium, potassium.

Vegetables, herbs, fruits, fruits and berries (fruits and vegetables) are a group of plant products mandatory daily use. This group is one of the largest in its scope and includes dozens of names of traditional foods. Generally speaking, fruits and vegetables make up a significant part of the second group of plant products, adding grains and beans.

Vegetables and fruits are exceptional sources of essential nutrients important: ascorbic acid, B-carotene, bioflavonoid, they contain a significant amount of dietary fiber, magnesium, potassium, iron, folic acid, vitamin K. Natural forms mono-and disaccharides are the most widely represented from carbohydrates and some vegetables (potatoes) and a significant amount of starch. Protein in vegetables and fruits is 0,3 – 2,5% and has a deficit of essential amino acids (leucine and sulfur).

Meanwhile, vegetables and fruits are indicated low fat content (less than 1%), sodium and chlorine. They generally contain a lot of water and a relatively low in calories (except dry fruits). Fruits and vegetables in the diet are the sources of alkaline components.

In the composition of fruits and vegetables the body receives a number of biologically active compounds, which play an important role in human life. Among them, special attention is paid to organic acids and essential oils, natural regulation providing digestion by increasing enzyme activity and motility throughout the gastrointestinal. Daily human diet with 2800 kcal energy expenditure should be included: 300 g potatoes, 400 g of other vegetables, legumes 50 g, 200 g of fruits, citrus fruits and berries.

product depends on the modes and methods of drying. In recent years, due to improved of drying technology nutritional value and quality of dried fruit and vegetables are significantly improved.

Consumer value of the finished dried product - taste, aroma, color - depends on the varietal composition of raw materials, quality, preparation for drying , drying methods, terms and conditions of storage.

The higher the quality of raw materials, the quality of dried products. Sushe are made from unripe fruit is always worse than that of the well- ripened. However, over-ripe fruit are not suitable for drying. Therefore, the fruit and vegetables are intended for drying must be a so-called consumer stage of maturity.

Drying of fruits and vegetables comprises the steps of washing, sorting by quality and size, cleaning, cutting, blanching, drying, moisture alignment , removal of metal application , sorting, packing .

Washing fruits and vegetables exempts from dust, dirt, sand, possible residues of pesticides by spraying the plants in the control of pests and diseases. Washing is conducted in elevator, drum, fan dishwashers.

Calibration on size facilitates subsequent operations - cleaning, cutting, blanching and it improves the appearance and quality of the finished product. It is done manually or by a screw, rope or universal calibration machines.

Rotten, musty, ugly, small, mechanically damaged and pests, faded copies are removed at sorting by quality. Sort is conducted manually on tables or moving conveyors.

In order to preserve the natural color of the fruit, such as apples, apricots, grapes, pears, before drying are fumigated with sulfur dioxide or treated with a solution of sulphurous acid. Oxidative enzymes and eliminates are inactivated possibility of regeneration of one of them - peroxidase is frequently observed during storage of dried products. Fumigation prevents fetal tissue it helps protect Vitamin C protects and dried fruit from attack by pests. Prepared raw material is sent to drying.

Drying of fruits and vegetables based on the fact that the moisture in their tissues, passes into the gaseous state and is removed in the form of steam. Drying can be natural (sun or shade) and artificial - in various types of dryers.

They affect fruit doing the moves and get inside. Brownish stains are appeared around moves. Fruits lose their taste they are not stable to storage. Codling moth infestation reduces grade fruit.

Scale insects infect apple, pear, quince, apricots. On fruits are revealed pinkish-brown spots up to 0,5 cm in severe cases reduce their fruit quality and at long-term storage are affected by fruit rot.

Berries. Fresh berries (strawberries, strawberry, raspberry, blackberry, currant, mountain ash, gooseberry, etc.) which are authorized to sell, should be mature, clean and homogeneous, not wrinkled, no injuries and diseases, free of smell and taste. Berries are packed in clean buckets, glass containers free of smell sheltered gauze or parchment. Dirty, damaged by pests berries are not allowed to sell.

Theme 18. Examination of dried root crops, fruits, berries, vegetables, mushrooms

1. Bases and drying methods of vegetable products.
2. Drying technology.

1.To keep most of the harvest of fruits and vegetables it is evenly throughout the year to provide population with horticultural commodities, including those areas where vegetable and fruit growing poorly developed or absent and they have resorted to various methods of processing of fruits and vegetables. Recycling can not only keep perishable fruits and vegetables, but also to expand the range of fruit and vegetable products.

Processed fruit and vegetables are of the following forms: dried, pickled and salted, in airtight containers canned, pickled, frozen.

Drying is a simple, cheap, widely used method of preservation, which allows getting well conserved and transportable product. At drying of fruits and vegetables moisture is removed and it increases the concentration of carbohydrates, organic acids, minerals and other substances that creates a high osmotic pressure , preventing the development of microorganisms.

Dried fruits contain 16-25 %, and vegetables - from 6-7 to 12-14 % moisture; their caloric several times higher with fresh fruits and vegetables. However, the dried fruits and vegetables nutritionally unequal raw materials from which they are prepared , as the drying process occurs chemical and biochemical changes in the components of the dried raw material: changing the ratio between complex and simple carbohydrates, sugars portion is oxidized to acid caramelize forms melanoidins, proteins are denatured and partially hydrolyzed; also hydrolysed pectin; flavoring (esters, alcohols, aldehydes, etc.) volatilize, ascorbic acid, carotenoids, vitamins and other polyphenols, some partially exposed decay.

As a result, change the taste , color, decreases swelling of tissues and their ability to retain moisture, the digestibility of dried fruit and vegetables less than fresh. The nature and intensity of these changes and the quality of the finished

impurities sand, metal, seeds poisonous plants. The product does not meet the purity, the sale is not permitted.

From dietetics point of view may be called universal cereal products and used for any disease. The same cereal suitable for various dishes in a variety of ailments. Using a variety of culinary processing it can provide the most gentle treatment digestive organs (liquid and pureed porridge) or cause activation of the motor function of the intestine (crumby porridge).

Some cereals (rice, oats, barley) for cooking of isolated protein- starch mucilage, which is used for cooking soups mucous. These Soups are compared with other entrees slightly smaller excite gastric secretion does not cause significant intestinal peristalsis. Mucous soups are included in the diet in acute gastric ulcer and duodenal ulcer, chronic colitis and there are accompanied by disorder of the intestine, chronic pancreatitis.

Corn grits are unique in they are its composition. They contains substances which regulate cholesterol, preventing its deposition on the walls of blood vessels.

Large role in the diet - and all around the world - it is difficult to overestimate.

Depending on the mode of production, cereals are divided into the following types:

• uncrushed(of whole kernel);

• crushed , crushed polished ;

• cereal of increased nutritional value derived from several different types of cereals and enriched skimmed milk;

• cereal which does not require cooking , the resulting heat treating conventional grains.

Rump , generated from most cultures, depending on the quality is divided into numbers and varieties.

All cultures are used for the production of cereals, they are called cereal grain. Grouts grain quality has a great impact on the quality of the output produced from corn thereon. For assessing the quality and grain grouts possibility of obtaining it from cereals is determined its technological properties which are a combination of features and parameters that affect the behavior of the grain during its processing in cereals and cereal yield.

Rice - is the most common and valuable culture of grain grouts. Rice cereal is well absorbed by the human body and serves as a dietary product. According to the classification of rice divided into two subspecies: the ordinary and small. In Russia, the ordinary common subspecies of rice, which has two branches of Origin: Indian and Japanese, differ mainly in the ratio of the length to the width of the grain. In the Indian branch is the ratio of 3,0 - 3,5 : 1,0, the Japanese – 1,4 – 1,9 : 1,0.

Depending on the shape of a grain of rice can be of three types: to the first type include alongated in shape and wide, the second type - an elongated narrow and thin, to type III - rounded shape. Each type of grain is subdivided into subtypes, given the consistency of the endosperm: 1st subtype - vitreous, 2nd subtype – part of glass. The exception is type III, which emit more and third subtype - floury grain. Regardless of the type of grain rice is bearded and beardless. Structural feature of

the rice weevil is the lack of grooves. Weevil has a different shape, more oval and different colors from white to dark brown.

According to its structure consists of a grain of rice flowering films (18 - 25%), fruit and seed shells (3 - 5%), aleuronic layer (6 - 8%), endosperm (65 - 70 %), an embryo (4 - 5%). Consistency of rice endosperm is mainly vitreous or part of glass and depends mainly on the state and properties of starch is the main part of the endosperm .

Buckwheat grain used for the production of buckwheat: ungrounded and slipped, and special meal. Structural feature of buckwheat - the location of the embryo. A smaller portion is located directly below the aleurone layer and in the center of large - core in the form of a curved plate. At crushing cereal germ is easily separated from the brittle core.

Buckwheat grouts are divided into three classes on the content of the pure kernel (no films). By class I refer to the content of pure buckwheat kernels not less than 77 %, class II , at least 74 % as a class III not less than 71 %. The higher the class buckwheat groats the higher the yield of it. Buckwheat grains comprises 57 ... 65 % of the endosperm , 10 - 15 - embryo , 3 - 5 - aleurone layer, 1,5 – 2,0 - seed coats and 18 - 24% of amniotic membrane (luzsch). Mealy endosperm of buckwheat, fragile is easily destroyed by processing.

Millet is the raw material for the production of millet, which refers to a valuable food product, while inferior in this respect, buckwheat grouts and rice. Of the large number of different kinds of millet is the most common and has a production value for the ordinary form of the milling industry millet.

Flowering color glumes and accessories to one or another variety of millet is divided into four types : I type - white and cream with light cream and cream shade, II type - red with shades from light red to dark red and brown , III type - yellow with shades ranging from light yellow to dark gray and yellow, IV type - with different shades of gray . Improved properties has millet grain types I and II . It is easier to peel and less crushed. In millet type III and IV large Beer body and harder to peel. According to the number of glumes different varieties of flowering and millet batch is divided into three groups: lowglumed (10 - 15% of the films) midglumed (15 - 20 % of the films) highglumed (more than 20 % of the films). Ratios of the various parts of the millet grain: the endosperm 65 ... 75% , fruit and seed shells 3 - 5, flowering 12 - 20 films, 4 embryo - 6%. Millet has a vitreous endosperm part of glass and powdery consistency. From vitreous grain are produced a higher yield of better quality wheat.

Oats are using for the production of oat uncrushed grouts, rolled, cereal and oatmeal. Among the many kinds of oat seed hulled is the most common forms. Depending on the form of a coloring oat grains are divided into two types. For the production of cereal grains is used mainly type I, having two subtypes: 1st subtype - oats white with large, well -filled grains, cylindrical, pear-shaped or elongated, narrow shape, 2nd subtype - oats yellow with long and narrow grain needle form.

According to its structure grain oat grouts consists of kernel endosperm (49 - 53%), aleurone layer (10 - 12%), hairs on the surface of the nucleus (1,0 - 1,2 %), seed and fruit membranes (3,0 – 4,0%) flowering glumes (26 - 30 %), and germ

The whole cabbage is placed in rows and fill doshnik of 4% brine or inter bedded slaw.

Depending on the temperature of the cabbage fermentation lasts for 10 to 30 days at a temperature of 16-18°C. Its taste is determined readiness amount accumulated lactic acid in the minimum quantity which has to be finished cabbage 0,7 %. Quality indicators cabbage must meet standards: cabbage should be elastic, crisp, pale straw color with a yellowish tinge, with a distinctive flavor, sour, salty, without bitterness. Preferred taste cabbage obtained having 0,7 to 1,3 % lactic acid and from 1 to 1,5 % sugar.

By way of preparation cabbage is divided into shredded, chopped. Headed with chopped or shredded cabbage, mayonnaise shredded or chopped for industrial processing.

Depending on the formula produce sauerkraut: carrots, apples and carrots, with berries and carrots, carrots, apples and berries, carrots and cumin, carrot and bay leaf, bell pepper, carrots and beetroot, carrot and parsnips .

Taste, texture, appearance, color, transparency, juice, acid and salt content, ie quality, sauerkraut is divided into 1st and 2 nd grade. Salt content: 1 st grade – 1,2-1,8 % , 2nd – 1,2-2,0 % acidity , 0,7-1,3 and 0,7-1,8 , respectively %. After the free flowing juice should remain cabbage: Cole - 88-90% , chopped - 85-88 % of the total mass.

Sauerkraut is stored in doshnik without cooling and cooling under ice shelter where it is possible climatic conditions. Under the ice shelter doshnik cabbage can be stored until August or even later. The most favorable temperature storage of sauerkraut 0-2°C. For holiday shopping doshnik shift of cabbage prepared in barrels; first barrel is filled with cabbage and topped up with juice.

When storing sauerkraut and fermented sugar residues lactic fermentation stops completely, secondary processes (alcohol, acetic fermentation) are becoming active. On the surface of the brine consumers develop lactic acid - mold, which affects the composition and quality of cabbage. Gradually, it decreases the amount of lactic acid accumulates alcohol, volatile acids, mostly acetic acid, vitamin C content decreases and tissue density, deteriorating the taste. Thanks to the development of mold and other microorganisms, using lactic acid as a nutrient material, cabbage can be created conditions favorable for the development of putrefactive , clostridia and other bacteria that cause spoilage of cabbage, it may appear unacceptable defects. The most frequent defects of cabbage: darkening pinkness, mucilaginized, rot .

Darkening of cabbage can be leakage of brine, high salt, cabbage contact with bare cement walls doshnika . Pinkness development called special form of yeast and mucilaginized - development of mucus-producing bacteria. Rot - an outgrowth of spoilage bacteria and some fungi in the wrong fermentation, insufficient quantities of lactic acid , high temperature storage.

Pickles are selected for salting cucumbers dark green with a thick cloth with under developed seeds, small or medium-sized, with a small seed chamber (preferably not more than 25 % of the total fruit). Cucumbers must contain at least 2 % of sugars. Before salting calibrated by the cucumbers on gherkins length up to 50 mm from 51 mm to 70 mm, from 71 to 90 mm at Zelentsy small (91-110 mm),

crushed cake (or seed) oil is dissolved in gasoline and almost completely removed. The defatted residue (grist) contains less than 1 % fat. Extraction oil is different in quality from forging: it contains more colorants, free fatty acids, phosphatides. After distilling off the fuel being subjected to further purification.

Refining (cleaning) consists in oils that are removed from the accompanying substances and impurities: phosphatides, pigments, free fatty acids, odorants, impurities in the form of tissue fragments oilseed material.

The diversity of related substances causes a variety of methods refining : physical methods (sedimentation, centrifugation, filtration) chemical (neutralization), physicochemical (hydration, deodorization, bleaching, freezing waxes).

Manual (primary) treatment of oil is performed for removing different solids and partially dissolved colloidal substances. This purification is carried out by settling, centrifugation or filtration of oils.

Hydration oils is performed for removing phosphatides, mucous and other substances with hydrophilic properties. At processing of oils phosphatides with hot water swell, they are not dissolved in the oil and precipitate in the form of flakes.

Neutralization of oils consists in treating them with alkaline solutions to remove free fatty acids. Resulting salts of fatty acids (soaps) are adsorbed other accompanying substances (phosphatides, pigments), however the neutralized oil is more refined compared with hydrated .

At bleaching (adsorption refining) of the oil colorants are removed (pigments). For clarification of oils solid adsorbents are used: bleaching clay, activated charcoal. Oils are subjected for bleaching using at processing to produce margarine and cooking oils.

Deodorization of oils is removed of substances which cause the smell and taste. The deodorization is carried out by distillation under vacuum aromatics with steaming passed through the oil at high temperatures (210-230°C). After deodorization of oil is impersonal taste and smell.

In the oil refining process may be disposed of substances having antioxidant properties and also having a physiological value such as vitamins. Therefore, the oil entering the retail trade is not always advisable to expose deep refining.

For the production of refined deodorized oil should be used unrefined sunflower oil is not below the second grade.

3. Oil is considered defective if it is found defective in taste and smell:

- Musty smell that can occur with defective materials;
- Unpleasant taste and odor as a consequence of non- commercial neighborhood in storage;
- Rancid taste, feeling sore throat or when tasting the taste and smell of linseed oil as a result of non- temperature-humidity conditions of storage;
- Intense haze or precipitate in the refined oil as a result of moisture in the oil, excessive cooling;
- The presence of gasoline in the oil extraction with incomplete clean it up.

Color defects:

- Too dark coloring oils due to higher temperatures;

medium and large (111-140 mm) as well as sorting on quality 1st and 2nd grade. To the 2nd class includes cucumbers more than 110 mm but not exceeding 140 mm, irregular and ugly forms .

At salting spices are added that enhance the flavor, aroma and increase the resistance of cucumber during storage due to the presence in them of volatile production, essential oils. Distinguish mandatory spices (dill, garlic, red pepper, horseradish) and recommended spices (black currant, cherry and oak leaves, tarragon, marjoram, savory, basil, parsley, celery, etc).

Prepared cucumbers and spices are placed in barrels washed capacity for 1st grade of not more than 100 liters and 2 - 120 liters. Initially, the bottom of the barrel lay third laid amount of spices, then filled up to half a barrel of pickles and put the second third of the spices , and then fill the barrel of cucumbers and put on top the last third of spices. After filling the barrel inserted into her bottom closure and roll back to the fermentation area. Through the hole in the tongue and groove barrel and pour the brine after short delay depending on storage conditions (12 to 48 h) directing the barrel fermentation (fermentation) and storage .

Fortress brine depends on the size of cucumbers and their storage conditions. In cold storage (glaciers, refrigerators, etc) brine fortress next (in %) for large cucumber - 8 medium - 7 small - 6. At storing cucumbers in brine uncoiled warehouses fortress are increased by 1 %.

The fermentation ends when stored in non-refrigerated warehouses cucumber about 30, and cooled in - 60 days.

In quality (texture, taste, smell, color, size, wrinkling, deformation, the fruit of the voids content soil lactic acid) pickles are divided into 1st and 2nd commercial grades, their diameter should be no more than 55 mm. For gherkins length to maximum transverse diameter should be less than 2,5. Cucumbers of 1st grade must be strong, dense flesh crisp, green- olive color, salty- sour taste, aroma and flavor with spices, without foreign flavor. 2nd Class cucumbers are ugly shape, with poor crunch, more salty- sour taste, with yellowed ends of the fruit. Total acidity cucumbers: 1st grade – 0,6-1,2 % and 2nd grade – 0,6-1,4 % salt content respectively 2,5-3,5 and 3-4,5 %. Weight of the total weight of cucumber (cucumber brine) -55 % by weight of spices, 2,5 to 8,0% (depending on formulation) .

Pickles are stored in uncoiled warehouses, cellars, refrigerated warehouses, glaciers, ice piles, trenches iced in reservoirs under water. The best storage temperature is 0-1 °C.

At storing may appear such defects: softening of cucumbers and brine mucilaginized puckered appearance hollow (empty) cucumbers. Softening occurs under the action of pectolytic enzymes of microorganisms. Mucilaginized brine development is called mucus-producing bacteria. Shrinkage associated with the use of strong brine, and the appearance of empty fruit happens in salted cucumber seed with large cameras in the rapid fermentation, if fermentation is at a high temperature.

Plastic liners that are run in barrels or doshnik are used at pickled cucumbers, tomatoes and cabbage. Polyethylene liners are isolated of fermented cucumbers and cabbage from contact with the walls of containers that do not leak brine increase

For better quality of oils and their fuller releasing seeds are subjected to preparatory operations. First, they are cleaned on separators from mineral and organic litter (leaves, stems). Oilseeds in nature shells divided into two groups – coating (sunflower, cotton) and uncoating (flax, canola, winter cress, sesame). Coating seeds processed after separation membrane uncoating - without its branches.

Caving - the destruction of shells oilseeds by mechanical action. As a result, seed hulling rushanki obtained is a mixture of several fractions: whole seeds - tselyaka partially paddy seeds - nedorusha, whole kernel, the core halves destroyed kernel - broken rice, oil and dust husk (shell sunflower in cotton - husk). Standards of levels of tselyaka, nedorusha, chaff dust and oil are set.

Rushanki divided into kernel and husk (husk). Division of shells from the nuclei is of great importance. This increases the quality of the oil , as it does not pass lipid membranes containing a large number of other substances, improving the performance of the equipment; reduced oil loss with husk by oiling.

Shredding nucleus. The aim is the destruction of the cellular structure of the core for maximum oil recovery in subsequent process steps. SINGLE-PAIR is used for grind core and seeds, two-pair machines are used for grind core and seeds grooved and smooth surfaces. The result is a loose weight myatka.

Oil seeds and fruits of plants with woody shell , having separated from the shells of the nucleus, it absorbs a lot of oil. The resulting kernel is ground into Roller machines in myatku and subjected to moisture- heat treatment. Damp - heat treatment is carried out in special devices - braziers at 105-120 ° C. In this ground material acquires a certain structure (pulp), which facilitates the subsequent release of oil. Extract oils are carried by compression methods and extraction (extraction) by organic fat dissolve solutions.

Pressing - a mechanical squeezing of oil from oilseed prepared material (pulp) on special screw presses. It can be single or double. Depending on the magnitude of pressure is applied during the spinning cake may contain from 6 to 14% oil. Bagasse is used as cattle feed, and some cake of oilseeds (soybeans, mustard, peanut, etc) for food purposes. Liquid vegetable oil (salad) is obtained pressing way are mostly implemented in retail outlets.

As a result of compression is removed 60-85 % of the oil it is carried out a preliminary extraction of oil – for pressing. Different designs of pressing are used. Depending on the pressure on the compressible material and oil cake is leaving the screw presses and it is divided by the press prior removal of oil and for press final removal of oil - expeller.

Screw press is a double-diameter cylinder, there is a screw shaft inside of it. Cylinder walls consist of steel plates between which there are narrow slits to exit the filter material. As a result, the pulp is obtained for pressing oil (and it is often called forging) and for pressing cake. Content of oil in the cake is 14-20 %. It was sent for additional oil recovery. Pulp is directed to the final pressing or obtaining petal.

Final spinning oils - ekspellirovaning it is performed under more severe conditions, resulting in an oil content in the press cake is reduced to 4-7 %.

Extraction of oils is based on their ability to dissolve in nonpolar organic solvents (benzene, hexane , etc). With repeated passage of gasoline through the

Flour peeled - seeded larger and contains a large quantity of particles of bran. Wholе meal flour - the most common variety of rye flour obtained by milling low.

Barley flour is obtained either by direct milling of barley wholе meal flour type, or as a byproduct (in form of a second grade flour) during processing of barley grits. Barley flour can be used in pure form for the preparation of pancakes, cakes, as an impurity or to wheat and rye flour.

Oat flour is obtained by grinding oats (with preclеaning and hulling grain) by type of wholе meal flour. It is used in the form of impurities in rye and wheat flour in a limited amount.

Corn flour is widely used in nutrition of the population. At home very delicious pastries can cook the cornmeal. Especially, hot corn tortillas have good taste. In relatively small amounts depending on the kind and quality of corn flour and the type of cereal products, corn flour can be added for baking bread. Application of cornmeal finer grind little impact on the quality of bread and, on the contrary, larger corn meal significantly reduces it's quality. Better quality flour is obtained from white-grained corn. Yellow - grain varieties produce intensely colored flour.

Corn was preclеaned with separation membranes and the embryo is produced flour type of wallpaper, flour monosort coarse flour and monosort finer grind. In assessing flour of pancakes is also taken into account the indicators of sorts. It is prepared from wheat flour of the second grade of the first or a higher grade by adding milk powder, sugar powder, egg white powder, salt and as disinter grants - citric, vinnokameition, lactic acid and baking soda (sodium bicarbonate).

Storage of flour must comply with the relevant guests. Flour readily absorbs moisture and odors, so it should be stored in dry, well-ventilated area, away from pungent foods. If the flour is stored in bags, they can not be held directly on the floor, and should be placed on a wooden lattice, the bags should not adhere well to the wall. Flour is periodically (about once a month) need to sift and aerate, otherwise there will be flour worms (larvae of the grain moths) . If the flour store in a damp environment, it becomes stale and gets an unpleasant odor when stored in a warm unvented it gets rancid and foul smell, which may persist after baking bread products. In the household in urban flour supplies can be stored in a dry cool place in canvas bags. In paper bags to store flour is not recommended, as they are easily torn.

2. Krupa - one of the most important foods, has high nutritional value and takes the second place after flour. It contains essential amino acids, vitamins, mineral salts. The main part of all types of cereals is starch : 47,4-73,7 %. Highest starch content of different cereals rice, wheat, corn. Proteins make up 7-23 %, the most complete protein in the rump of beans, but by the content of essential amino acids are the most valuable of buckwheat grouts, rice, oats.

Grains are used in our diet, carbohydrates deliver the body (in their various cereals contain from 65 to 77 %), vegetable proteins (7 - 12%), fat (6%), minerals including phosphorus, iron, potassium, magnesium, calcium, vitamins such as B_1, B_2, PP, etc.

Cereal should be clean, dry with a humidity of 15,5 % is not affected storage pests, not contaminated by faces of rodents without other flavors, bitterness, (3,0 – 4,0%). Available grains of oats - high Beer body and the presence of hairs on the surface of the nucleus. Oat endosperm has a floury texture, loose, white. Most valuable for the milling industry is high in oat endosperm nucleus and well-executed a minimum content of glumes (up to 24 %).

Barley is the raw material for the production of barley and pearl barley. Among the many kinds of barley is distributed one type - barley seed, which is subdivided into three subspecies: the multi-row, double row and in between. Industrial importance are the first two subspecies. There are membranous and hull-less barley. In membranous barley lodicular is tightly fused with the nucleus from golozerno are not fused with the nucleus, so they can be easily separated shelling of corn.

According to its structure a grain of barley consists endosperm, aleurone layer, fruit and seed shells, flowering glumes and fetus. In the grain contains 3 -69% of the endosperm, which is the consistency of the vitreous, part of glass and mealy . For the production of barley grouts are used the most glassy barley, which allows you to get a higher yield and better quality grains and to produce pearl barley - part of barley glass or mealy. Aleurone layer of barley grain is different from other cereals in that it consists of not one, but three or four rows of thick-walled cells and is 12 - 14% of the grain mass, so it is very durable.

Fruit shell of 3,5 – 4,0 % by weight of grain and seed – 2,0 – 2,5%. The latter contain pigments light yellow or blue- green. For the production of cereals barley is used with light- yellow color of seed coats. Barley grain with blue- green coloring seed coats can be applied to produce cereals with enhanced grinding only kernel, which requires significant energy and reduces the yield of grains due to increased output fasciculi. Flowering glumes consist of large woody cells of the same color, they are yellow, gray-green, orange, their content in cereal grain barley ranges from 10 - 12 %. By glumes the barley is divided into three groups: 10% low glumes mid glumes 10 - 12% of the films , more than 12 % and high glumes. During the processing of the best in the rump believe low glumes barley. Embryo in barley is 2,5 – 3,0%.

Corn on cereal plants produce polished rump, rump big for cornflakes and small - for the production of corn sticks. Corn is distinguished by shape, color, texture and size of the endosperm. The shape and texture of corn endosperm is flint and dent.

In different parts of the ear of corn grain differently by size, chemical composition, and consequently, on the value and suitability for production of cereals. Most valuable for to the milling industry consider large fraction of grain corn.

Given the above characteristics of corn grain it is divided into eight types: I type - tookhkind yellow , II type - tookhkind white , III type - siliceous yellow, IV - type siliceous white, V type - floortoothkind yellow, W type - floortoothkind white, VII type - burst white, VIII type - yellow burst. For the production of cereals are used mainly maize following types : II, IV, VI and VII, from which it is possible to obtain high quality corn grits .

Maize weevil (endosperm consists of 80 - 83%), membranes (4,0 – 5,0), the embryo (8,0 – 15,0) and the shaped case (1,2 - 1,8%). Corn germ is strongly developed, which is connected to the rod by means of an ear of corn shaped case.

The main differences lie in the types of flour largest grain milling and purity of the membranes. So, grain of wheat is covered by brownish shell giving when ground bran, which is richer than whole grain protein, vitamins, and especially cellulose. Aleurone layer of fine granules is under cover. Germ grains rich in the base oil, as well as proteins and mineral substances. The rest of them it's thin cells of the endosperm. Filled with starch grains and particles of gluten, which gives dough viscosity. There are often peeled consisting mainly of the outer parts of the grain and in fact a flour is consisting of a core of milled grains. In the second case flour comprises more gluten. It is divided by grades: top grade, first grade, second grade. In the lower grades are contain vitamins B_1, B_2, PP and E, the highest in the flour and in 1st grades are almost none of them. It is also contains a variety of enzymes that have a major impact on the process of making bread and its quality. Flour has a specific smell.

Wheat and rye are generally milled on flour and significantly is less barley, maize, oats and other grains. All types and varieties of grinding can be reduced to two basic types: low (or simple) milling and high (or varietal) grinding. In a simple grinding grain is crushed completely and turns one type of flour, chemical composition differs little from the original grain.

High grinding can be a one-sorted when all flour obtained when grinding, and is mixed in a single class and multigrade when in the process of grinding flour obtained several distinct varieties. When monosort high grinding part bran necessarily is destroyed. Therefore, when a high flour milling according to chemical composition differ from the original grain.

Yield is determined by its amount of flour from grains, and refining the consumable on the percentage. Amount of flour obtained individual varieties defined requirements for these grades. One of the main indicators of quality of flour, and determining its variety, is the content of the flour particles crushed bran. In bran the shell grains and remnants of the embryo. The fuller removed bran particles, the smaller the percentage yield of flour.

To first class flour include with the lowest - hour tichekbran, to the second - with a little more, etc.

Wheat flour is estimated depending on the number of particles of bran and flour from the grain size itself on the size of the particles constituting it. For sale are available: krupchatka, top grade, I Class, II grade and regular wheat flour.

Semolina - wheat flour, is the mass of loose, individual particles of which eyes can be distinguished with eyes.

Higher grade - soft flour contains little fiber, fat and minerals. First grade - soft flour. Compared with high grade contains more worn shells and slightly darker in color. Flour of second class contains shells worn more than the first grade flour and darker it.

Plain flour is produced by milling low, the content of bran particles are more and darker than wheat quality flour. Rye flour is assessed in terms of grades are produced. There are three varieties of rye flour: seeded, peeled and whole meal. Seeded flour - the highest grade of rye flour. The least particles of bran are in, it is lighter and peeled than wallpaper.

Embryo is located in the part of endosperm so its part is associated with considerable difficulties.

Peas belong to legumes and used for the production of pea grits whole shelling crushed and shelled peas. The most common form of pea is seed. It has generally spherical shape with a smooth surface. There are forms of brain peas with wrinkled surface, but for the production of cereals are practically is not used. Important technological feature of this pea is seed color, it can be white, yellow, pink , green. More technological advantages of peas is a plain color shade without impurities pea other shades. Depending on the purpose pea is divided into two types : I type - peas food, II type - feed peas. I type peas are divided into two subtypes: 1st - yellow peas, 2nd - green peas.

Pea seeds are not characteristic of cereal endosperm. They consist of two cotyledons (90 - 94 %), and the seed coat (6 - 10 %). Cereals in the human diet is from 8 to 13% of the total consumption of cereals, and rice is the staple food of more than half the world's population.

Efficiency of using crops in the development of cereals depends largely on structural perfection shelling and grinding machines.

An important way to improve the nutritional value of cereals is cereal production it is improved nutritional value, which produce different kinds of powdery mixture of products derived from rice crushed, slipped, oat grouts from crushed rice first grade (Sport) with the addition of skim milk powder, egg albumen. Naval rump, South and Strong also are prepared by mixing powdery products of various kinds of grain with the addition dressers.

Quality cereals are produced and determined by its chemical composition, technological and consumer properties. Chemical composition of cereals is the increased carbohydrate content (65 - 77% of dry matter), as well as protein, which explains the high calorie cereals (320 - 360 kcal per 100 g of cereal).

High nutritional value are also oatmeal, rice cereal and shelled peas . In oatmeal it contains about 12 - 13 % of the proteins, which contain essential amino acids such as lysine, histidine, tryptophan, etc. For food grade protein oat proteins surpass all other cereals except buckwheat and peas peeled. The peculiarity of the chemical composition of oats is the high fat content (6 - 7 %), fiber (1.5 – 2,8%) and pentosans (3,0 – 3,5%). In oatmeal revealed a high content of minerals, especially potassium, phosphorus , magnesium and iron as a result of falling into cereal aleurone layer, shells and embryo.

Due to the high saturation of carbohydrates and many valuable nutrients cereals have become a universal dietary product. They are recommended for almost any disease. And from a practical point of view, they are good: easy to prepare and diverse, well - connected with beef broth and milk; their carbohydrates are well absorbed by the body .

Nutritionally valuable buckwheat is considered, which contains about 13% of high-quality protein, rich in essential amino acids such as arginine and lysine. In buckwheat contains the largest amount of B vitamins (B_1, B_2). There are many favorable combination of minerals in buckwheat. Potassium, phosphorus, calcium

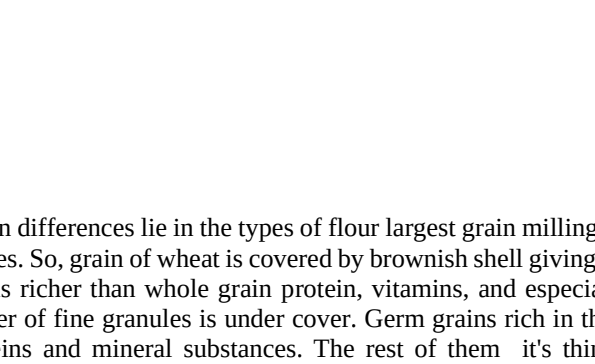
tightness closures, which positively affects the course of fermentation, storage, quality products.

Salted tomatoes (tomatoes). Ambassador of tomatoes is similar of salting cucumbers. Green milk, brown, pink and red tomatoes are salted. For salting varieties with fleshy brown fruits are taken. To improve the taste and aroma of salted tomatoes fresh parsley and celery leaves of black currant, cherry, oak and spices (tarragon, savory, marjoram, basil, etc) are used.

Pickled tomatoes are divided into 1st and 2nd grades. Red tomatoes must be integers, with mild pulp; brown and milk - whole, with a dense, brine -soaked flesh. Green tomatoes are to the 2nd grade, they must be whole, with dense, but structurally unstable pulp. Color of savory tomato is closed to natural. Taste and smell sour-salty, with the aroma and flavor of spices. Depending on the variety and maturity of tomatoes contain acid salt from 0,7 to 1,5 % salts, - from 2 to 4%.

Pickled watermelon. It is better to use of salting watermelon of small size (diameter 15 cm), slightly immature or matured, but not overripe, no mechanical damage, firm flesh. Green crushed, cracked, decayed, frostbitten watermelons can not be to ambassador.

There are several ways of salting: pouring watermelon packed in barrels, 5 % brine, brine fill watermelons, to which is added crushed flesh watermelon; alternation of watermelons in a container with clean sand and fill with brine. Watermelons after washing are cut off the stalk prick in several places for penetration into the brine.



Pickled watermelon should not have voids in the middle a taste should be of sweet- salty- sour, refreshing, and the smell - typical for fermented products. Except cucumbers, cabbage, tomatoes, watermelons and other vegetables are salted: carrots, beets, sweet peppers, eggplant.

Pickling is based on preservative action of acetic acid. Concentration of 1,7-2,0 % acetic acid is able to suppress the development of molds, yeasts and other organisms, but such large concentrations of acid give the product unnecessarily sour taste and pungent smell and it enjoys low demand. Therefore, marinades are prepared with less acetic acid (0,2-0,9 %), but their packaged in glass or lacquered

number, color number, iodine number, the content of fatty impurities, phosphorous, unsaponifiables, flashpoint, the sample to the soap.

Acid number - one of the main characteristics of the oil suitability for food purposes. It characterizes the content of free fatty acids in the oil. The presence of these acids in the oil is mainly due to the flow of the process of splitting molecules of triacylglycerols under the influence of unfavorable storage conditions, as well as the formation of molecules incompleteness processes triacylglycerols. Accumulation of free fatty acids in the oil indicates a deterioration of its quality. Defects are caused by vegetable oils mainly non-compliance conditions or shelf life of these oils and determine the course they chemical or biochemical processes of deterioration. Quality of oils depends on the degree of freshness of raw materials (oil seeds), observance of technological modes of obtaining and refining of oils. The most frequent defects of following vegetable oils. The musty odor may be an oil derived from the seeds of defect. Foreign or unpleasant tastes and odors - a consequence of non-compliance with commercial neighborhood in storage. Rancid taste, feeling sore throat or when tasting the taste and smell of linseed oil are the result of chemical or biochemical processes of deterioration during storage of oils in high temperature, humidity, in the light, as a result of contact with air or long-term storage . Intense haze or precipitate in refined oils , as well as in the types and grades of oils that standard should be transparent, without sediment - the result of moisture in oil, strong cooling, which can cause loss of waxes.

2. All cultures, which are raw materials for oil manufactured industry can be divided into two groups:

- oil plants that are grown for vegetable oil;
- the plant which are used to obtain other products, and then the oil obtained from them .

The first group includes sunflower, castor, rapeseed, etc. The second group includes:

- Spinning and oil plants (cotton, flax, hemp);
- protein- oil plants (soybeans and peanuts);
- mustard plants;
- essential oil plant (coriander);
- oily wastes (cereal germs , grape seeds , fruit seeds , etc).

Depending on the fat content in the core of all oilseeds are divided into three groups: low oil with 15-35 % fat (soybean); mid oil a fat content of 35-55 % (cotton); high oil a fat content of 55% and above (sunflower peanuts, flax, etc).

The technological basis of all production processes are conventionally divided into six groups:

1. Storage Preparation and storage of oilseeds.
2. Preparation of seeds for oil extraction.
3. Actually extracting oils.
4. Refining of obtained oils.
5. Bottling oils.
6. Packaging and labeling.

tin container is hermetically sealed and pasteurized. Sugar, spices and salt add to marinades. Essential oils are volatile spices enhance preservative effect of acetic acid. For quality marinades matter which apply vinegar. Biochemical vinegar is produced by fermentation of wine and alcoholic solutions, has a mild taste and pleasant aroma, synthetic acetic acid is more rough on the palate and has no flavor.

Vegetable marinades. Marinade is prepared from fresh or pre- pickled vegetables: cucumbers, tomatoes, onions, squash, beets, bell peppers, carrots, pumpkins. Vegetables are pickled whole or sliced, each species is separately or mixed vegetables are called assort.

Before marinating are sorted by quality, size, maturity, remove inedible parts. Some cut into pieces (cucumbers, squash, green beans, etc.). All vegetables are blanched, except cucumbers, squash, garlic and tomatoes. Pickled vegetables are desalted steeping in water to the salt content of 1-3%.

Prepared vegetables are placed in jars, pour marinade filled, sealed and pasteurized. In prepared marinades the process of maturation, which consists in the diffusion of acetic acid in the fruit and fruit juice to fill, and they acquire a peculiar taste, flavor. Length of diffusion depends on the type of raw material, size, concentration, storage temperature and pouring of ripening blanched vegetables lasts about 20 - 30 days no blanched - 40-50 days.

On depending on the content of acetic are produced pasteurized marinades slightly acidic (0,4-0,6 % acetic acid) and acidic (0,61-0,9 % acetic acid). Pickled onions produce only sour and pepper - sweet red tomatoes and cucumbers - only slightly acidic.

Vegetable marinades should have vegetables of uniform size and configuration, healthy, clean, not wrinkled and unwrinkled, with no damage. Color - a uniform, close to natural , texture - dense. Taste and smell sour or sweet and sour, with the aroma of spices.

On the quality of vegetable pickles are divided into upper and 1st commercial grades. Marinade except cuts of chopped vegetables (cabbage, cucumbers, beans, zucchini, squash), and from whole green tomatoes measured no higher than the 1st grade. In vegetable marinades are standardized content (in %) for a net vegetables canned - 50-55 1-3,4 sugar, salt, 1,5-2,0, total acidity, expressed as acetic acid – 0,4 -0,9.

Fruit and berry marinades, cherries, plums, grapes, apples, pears, gooseberries, currants, cranberries, etc. are used for their manufacture In addition, manufactured from a mixture of fruit pickles (assorted). Depending on the content of acetic acid fruit pickles divided into pasteurized acid (0,61-0,8 %) and weakly acidic (0,2-0,6 %).

Pickled fruits and berries must be identical in size, regular shape, healthy, undamaged, whole, tenderized, not cracked, retain their shape, uniform close to the color of fresh fruit coloring. A sour - sweet or tart, with the aroma of spices.

Fill - transparent. Fruit marinades are standardized the content (in%): mass of fruits to the net mass of the finished product - 45-50, sugar - 10-15, acetic acid 0,2-0,9. Fruit marinades for commodity grade are not divisible.

Vegetable and fruit marinades are stored at a temperature of from 0 ° to 15 °C.

Theme 21. Examination of vegetable oils

1. Definition. Classification.
2. Basis of technology and production of vegetable oils.
3.Types of defects spoilage.

1. Vegetable oil - high-calorie product. It is used in food in many sectors of the food industry (confectionery, canning, baking) and cooking. It is used for technical purposes, for the production of detergents, varnishes, lacquers and paints, waterproof fabrics, oilskin, plastics, artificial leather, linoleum and many products of chemical and textile industries. Vegetable oil and its products are used for the preparation of pharmaceuticals, cosmetics and pharmaceuticals. Its waste - cake and meal, they are concentrated high protein feed for a / c animals.

Vegetable oil is produced from oilseeds - sunflower, flax, soybeans, cotton, hemp, etc. The oil content of the seeds depends on the species and varietal characteristics of cultures, places, and growing conditions, time of ripening and harvesting .

Oil industry produces the following main types of vegetable oils: sunflower, soybean, linseed, castor, mustard, corn oil, tg oil, cottonseed kernel. Small amounts are also produced peanut, sesame, rapeseed, poppy, and sesame oil. There is no standard classification of fat covering all their diversity and meets scientific requirements. Most of the classification is based on the fatty acid composition of triglycerides according to the ratio of saturated and unsaturated fatty acids. The ratio of saturated and unsaturated fatty acids depend such important characteristics as texture , melting point (solid) , the ability to form films when dry (liquid). In the classification of vegetable oils are guided by the following: consistency at 20 ^{0} C, the ability to polymerize in the presence of oxygen, a method to extract from the seeds, purification and processing methods.

Tung oil is derived from peanuts Tung, it has an unpleasant odor, toxic, dries quickly in the air, the light is converted into a solid mass, forms a matte glumes. This oil is used to produce top-notch varnishes, very fast drying and giving strong glumes that are resistant to the action of atmospheric precipitation, acids, alkalis .

Linseed and similar oils (sesame, pine) are used for the manufacture of paints, lacquers, varnishes, oilcloth, linoleum, they form a good drying brilliant glume. Poppy and similar oils (sunflower, cottonseed, soybean, corn, peanut, pine nut, pumpkin seed, melon, watermelon) dries slowly, forming a sticky film. Olive and similar oils (almond, mustard , rapeseed, apricot, coriander) do not form glumes. Formation of glum is possible only with the red lead .

Castor oil is produced from the seeds of the castor plant. At comparison with other vegetable oils, it has the highest density and high viscosity. Castor oil is widely used in various fields of technology and medicine. This oil does not dry out completely.

Physical - chemical quality. For most of the vegetable oils in the standards are included the following characteristics: moisture content and volatile matter, acid

Pickled cabbage, red, cauliflower, beets, carrots should be stored in a dark place to prevent of discoloration.

Pickled apples. Autumn and winter varieties of apples of sour-sweet taste, with a dense, white or slightly yellowish pulp unpainted varieties are used for pickling. Before pickling apples are kept 15-20 days for sugaring of starch containing in the fruit. Before placing in containers (barrels) apples are graded for quality and size (for large, medium, small), and then washed. Bottom and walls lined with barrels rye or wheat straw bed in the 1-2 cm top row also harbor cottage, sometimes is inter bedded with each row . Straw is used to improve the color, taste and pickled apples in order to protect them from browning at points of contact with the barrel. Barrels and sealed sheet-pile through grout holes of sugar (2-3%), salt (1 to 1,5 %) and malt (0,5-0,7 %), mustard sometimes added (in powder).

Drenched barrels are left to preliminary fermentation temperature 12-18 °C for 8-12 days to accumulated 0,3-0,4 % lactic acid. Thereafter the barrel is placed on ice. A month later the apples are ready.

At pickled apples are two types of fermentation, alcohol and lactic acid. In pickled apples accumulate relatively large amounts of alcohol (0,8-1,8 %) and lactic acid (0,6-1,5 %). When alcoholic fermentation CO_2 is released, part of which is retained in the apples, giving them a pleasant refreshing sharpness.

Pickled apples should be firm, pleasant, refreshing sweet-sour taste, with flavor, acidity brine – 0,6-1,5 %, volatile acids – 0,06-0,10, alcohol – 0,8-1,8, salt – 0,5-1,0 %. Apples are stored at 0-2 °C can be before the summer.

Soaked cranberries. Suitable for ripe berries. They are sorted, washed are poured into barrels and pour a solution containing 1% glucose and 1% salt. Ripe berries are suitable for pickling.

Theme 20. Examination of flour, cereals, starches, grains and legumes

1. Flour. Definition, classification.
2. Examination. of cereals, starch and legumes

1. Flour - powdered product obtained by grinding cereal grains, buckwheat or legumes.

The chemical composition of flour depends on the quality of grain and grinding.

Flour valuable substances - are proteins and carbohydrates. Wheat flour proteins (insoluble - glutenin and gliadin) are swelling in water form an elastic mass - gluten. Baking properties of flour depend on the amount of gluten-free. Proteins of rye flour are soluble.

Type of flour is determined by the type of grain, which is made this flour. The main types of bread flour is wheat and rye. Flour is manufactured more than rye. It is associated with the specific zoning cultivation of wheat and rye, as well as due to the pleasant taste and high nutritional value of products is made from wheat flour.

and iron. Buckwheat has a high consumer properties: a large increase in the volume and great taste.

Chemical composition of rice is typical high carbohydrate content (about 80 %) with small amounts of fiber and ash. Rice cereal contains the smallest amount of protein (approximately 7 %) compared with other types of cereals . In its low content of B vitamins, which are in the peripheral parts of the kernel and it is removed at grinding.

Rice cereal has a high consumer properties: it quickly fall apart , increases in volume four - six times during cooking retains crumbly texture and has excellent taste.

The protein content of cereals is as follows: 7,3% in rice, rye in 9,9, 10,1 oats, wheat 12,7 %. However, the biological value of the first place is rice as its digestibility of protein is 95 % and 87 % wheat protein. Rye on the biological value of rice is approaching and some indicators even surpasses it. Thus, if the predominant rice food leads to insufficiency of vitamin B1 that when feeding is not observed rye.

The third place of protein content is oats. The biological value of it is as rice. Consumption of oats gives acidic metabolic products, which brings on this indicator to products of animal origin: meat, eggs and not to milk and dairy products.

Potato starch and corn are implement. Starch must be white, sometimes with a gray tint, odor and bad taste; mouth feel should not crunch on the teeth. Moisture content and acidity does not exceed 13% and 25 % - to 13% corn and 20 % and for potato starch. It is unfalsified of starch by flour and chalk. In starch exception of impurities and traces of parasites of rodents.

Peas are divided into food and feed. By fodder peas refers gray (delyushka) having seeds with opacus light or dark skin tones as a monochromatic color (green, brown, purple, black) and spotted - with bitmap. To carry food peas peas white and green, having seeds with translucent skin.

Benign peas are clean, ripe, whole, dry (moisture content not exceeding 16 %), do not suffer from self-warming is not damaged by pests, odor (musty, mildew, oil, etc.) and without the bitter or sour taste.

Shelling peas has the same qualitative indicators and sanitary assessment of its examination at the same as food and peas.

Pea flour. It should be fluffy, yellow, fragrant, with a specific smell and taste, free from rancidity and mustiness is not infected by pests and have no impurities. The sale of pea of flour abnormal form are not allowed. Caked, musty, moldy and other smell, bitter, rancid or sour taste are pest infestation and adulterated.

Beans. Food benign - clean, dry with a moisture content no exceeding 23% they are not affected by pests, free of smell and taste. Food in contaminated beans, underdeveloped clogging impurities, damp, rotten, moldy, battered, sprouted, with a foul smell and taste (musty, moldy, etc) are not allowed to sale.

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CONTENT

number, saponification number. These figures describe the fatty acid composition of oil and that the allocation processing is not significantly changed.

Differences in the fatty acid composition of oils due to the fact that the process of producing oils in plants depends largely on the climatic conditions. Particularly it is strongly manifested in a ratio of content of saturated and unsaturated fatty acids and various degrees of unsaturation in the unsaturated fatty acids.

Oil plants grown in northern areas contain more oil than in the south and southeast. Plants are cultivated in the north, produce oils with an iodine number greater (higher percentage of unsaturation of fatty acids). Features of the fatty acid composition cause physical-chemical constants of oils.

Vegetable oils of the same trademark name, but isolated from the seeds of plants are grown in different areas, different physical - chemical parameters: iodine

physical- chemical parameters are divided into grades. Refined oils are produced by one grade.

According to the standard vegetable oils according to their organoleptic and colored and have their inherent taste and odor in the case of deodorization. concomitant substances. In contrast, refined oils transparent bottoms lack less are observed turbidity and a noticeable amount of sludge that is caused by purification. For example, crude oils have intense color, have distinct taste and smell,

Oils of similar quality indicators are closely related to the degree of technology.

shaping the quality of vegetable oils include raw materials and production

The color intensity is normalized standard oils in terms of color. Factors

- Bleaching oils are not protected from sunlight.

Self – examination

1. Which fish belongs to sturgeons ?
2. Which diseases is related botulism ?
3. What is most calorie fish?
4.Which organs and tissues of fish are more rich in vitamins A and D ?
5.What belongs to trash fish ?
6.In what are transported live roe ?
7.Who is destroying poor quality fish in markets ?
8.At what fish intraperitoneal glume is poisonous ?
9.Sprat is made from?
10.Which fish is the long years?
11.From what part of the body does mortis begin ?
12 What is the maximum weight beluga ?
13.What fish is called cool ?
14.At what temperature is carried out hot smoked fish?
15.At what fish meat is red ?
16.What is the best temperature for ripening of salted fish?
17.What is the content of salt in well salted fish ?
18.What is the duration of smoked fish ?
19.At what fish is liver valued ?
20.What refers to the dry vices of salted fish?
21.What is the data of ripening of salted fish?
22.What is the natural canned?
23. From what disease is Aeromonosis the second name ?
24.At eating of what fish can man get with opistorhoz ?
25.Which fish is hidden poisonous ?
26.At what temperature roe is pasteurized ?
27. What disease is called feline fluke?
28. What is the duration of salted caviar ?
29. What do we mean by raw fish ?
30. What is lengh of Metotserkary opistorhis length ?
31. What Cestodes can catch people at eating fish ?
32. What is the acidity of honey Turner degrees ?
33. What is the size of Plerotsirkoid in fish difillobotrioze?
34. At what temperature is sterilized canned fish?
35. Can people catch "fish infections?"
36. What do with conventionally acceptable fish?
37. What are the dates of sterilization of natural canned fish?
38. How long should the purified sample fish for cooking?
39. Which fish diseases are to viral diseases ?
40. How do we call the canned fish where they are preliminary subjected to hot smoked?
41. When shoud catch the fish from polluted waters?
42. Can a man to catch fish pathogens infections?

43. Which fish diseases are mycotic?
44. What is the structure of the heart of a fish?
45.What is the water content in honey?
46.Who produces wax?
47.What is the duration of salted salmon roe?
48.What is the weight of sample caviar for laboratory studies (in barrels)?
49.How can you identify in the tissues of fish larvae opistorhis?
50.What is added to the caviar as antiseptics?
51.Which gelmintozy of fish are dangerous to humans?
52.Which diseases are helminthes?
53.What is the maximum weight of catfish?
54.What is the danger for human fish disease in our area?
55.Which pH has fresh fish?
56.In what fish not do determine the consistency of muscle at organoleptic?
57.In what ratio, an aqueous solution of honey for laboratory research?
58.The party honey of 21-30 packs and how many packages are sampled?
59.At what temperature pasteurized eggs?
60.What the cestodes can people catch by eating fish ?
61.What is the content of protein in the fish meat ?
62.What color do the crabs acquire at cooking ?
63.Which fish from the carps is the most susceptible to infection by metacercariaeo pistorhis?
64.Which instrument can determine the moisture content of honey?
65.What is invert sugar?
66.How much of inverted sugar in natural honey?
67.How long does honey begin to crystallize?
68.How can determine the toxicity of honey?
69.What is the adulterated honey?
70.What is the artificial honey comb?
71.What is the content of vitamins in the fish meat ?
72.How to get propolis?
73.At what temperature does propolis melt?
74.How to determines the presence of starch in honey?
75.How can determine the maturity of honey?
76.From what products does wax receive?
77.Which product is called bee glue?
78.What is the Apitoxins ?
79.What alcohol solution is called a balm ?
80.The candle is made of?

Tutorial for students of
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