USAID
FROM THE AMERICAN PEOPLE

FOOD STORAGE AND PROCESSING AT THE HOUSEHOLD LEVEL IN THE KYRGYZ REPUBLIC

USAID ADVANCING NUTRITION

May 2023

About USAID Advancing Nutrition

USAID Advancing Nutrition is the Agency's flagship multi-sectoral nutrition project, led by JSI Research & Training Institute, Inc. (JSI), and a diverse group of experienced partners. Launched in September 2018, USAID Advancing Nutrition implements nutrition interventions across sectors and disciplines for USAID and its partners. The project's multi-sectoral approach draws together global nutrition experience to design, implement, and evaluate programs that address the root causes of malnutrition. Committed to using a systems approach, USAID Advancing Nutrition strives to sustain positive outcomes by building local capacity, supporting behavior change, and strengthening the enabling environment to save lives, improve health, build resilience, increase economic productivity, and advance development.

Disclaimer

This report is made possible by the generosity of the American people through the United States Agency for International Development. The contents are the responsibility of JSI Research & Training Institute, Inc. (JSI), and do not necessarily reflect the views of USAID or the U.S. Government.

Recommended Citation

USAID Advancing Nutrition. 2023. *Food Storage and Processing at the Household Level in the Kyrgyz Republic*. Bishkek, Kyrgyz Republic: USAID Advancing Nutrition.

Photo Credit: Maxime Fossat for USAID. Jalal-Abad Oblast onion fields.

USAID Advancing Nutrition

JSI Research & Training Institute, Inc.
2733 Crystal Drive
4th Floor
Arlington, VA 22202

Phone: 703–528–7474
Email: info@advancingnutrition.org
Web: advancingnutrition.org

Acknowledgments

Authors

T.R. Koshoeva, Candidate of Technical Sciences, Associate Professor, Department of Technology of Public Catering Products, Kyrgyz State Technical University

A.U. Deydiev, Ph.D., Associate Professor and Head of Department of Food Engineering, Kyrgyz-Turkish Manas University

Chris Vogliano, Ph.D. in Public Health Nutrition and Food Systems, Food Systems Technical Advisor, USAID Advancing Nutrition

Reviewers

U. B. Bekturganov, Minister, Ministry of Healthcare of the Kyrgyz Republic

K.A. Alymbekov, Doctor of Technical Sciences, Prof., Head. Department of Commodity Science, Commodity Expertise and Restaurant Business, Kyrgyz Economics University, named after M. Ryskulbekova

Zh. M. Maatkerimova, Candidate of Chemical Sciences, Associate Professor, Head Department of Processing Technology of Agricultural Products, named after Prof. B. Sydykov under Kyrgyz National Agrarian University, named after K.I. Skryabina

D.A. Kodzhegulova, Candidate of Technical Sciences, Associate Professor, Head Department of Technology of Canning, Kyrgyz State Technical University named after I. Razzakova

The primary goal of this guide is to increase food security by helping communities and households improve year-round availability of nutrient-rich foods necessary for a diverse diet and better health. Safe food storage and processing using simple methods within households help diversify family diets by allowing year-round access to fruit and vegetables. Additionally, this guide suggests national Kyrgyz food products.

Contents

Foreword

This guide is designed to help promote healthy and nutritious diets for you and your whole family through the process of food preservation. Food preservation can help improve the diet of Kyrgyz families by ensuring year-round availability of vegetables, fruits, and other foods. This guide describes how families can use simple home storage and processing methods. Findings from recent research conducted in the Kyrgyz Republic found that those who preserved food were more likely to have improved diet quality and consume more essential nutrients, particularly during the lean seasons in late winter (Mukuria et al. 2020). This guide was supported by USAID Advancing Nutrition and complements previous project manuals produced by **Strengthening Partnerships, Results, and Innovations in Nutrition Globally (SPRING).**

CHAPTER 1:
Introduction to Food Preservation

Food, particularly perishable foods such as fruits and vegetables, start to deteriorate as soon as they are picked. Food preservation techniques can help slow the spoilage and extend the shelf-life of your foods. Food preservation can help you and your family enjoy healthy, nutritious foods all year. Preserving food can be an affordable way to ensure a healthy diet, particularly during seasons of limited food availability. Many different techniques are used to preserve food: drying, refrigeration, freezing, smoking, acid/vinegar, fermentation, and salt preservation.

Food spoils for a variety of reasons. Physical damage to foods is usually caused by improper handling during harvest or storage, which can puncture the protective skins of fruits and vegetables, leaving them vulnerable to germs. Food spoilage is also related to chemicals and enzymes naturally found in foods, which cause the foods to continue to ripen and, eventually, overripen. Last, and most important, germs can cause food to spoil. Germs—micro-organisms that cannot be seen with the human eye—can reproduce and potentially make food unsafe. Food preservation techniques can prevent the spoilage of food, safely extend the shelf life of food, and preserve many of food's important nutrients.

1.1 KEEPING HARMFUL GERMS OUT OF FOOD

Food in storage can pose serious health risks if not properly maintained. Improper storage of foods can result in the growth of harmful germs, including bacteria, mold, and yeasts. For example, crops stored in basements are at risk of mycotoxin contamination (toxins released by mold fungi). Home-canned products, similarly, may contain botulinum toxin (a strong toxin released by the bacteria Clostridium botulinum) due to poor sanitation and improperly treated raw materials. Therefore, it is important to follow food safety guidelines to ensure your food is safe for you and your family.

Food poisoning is any illness resulting from eating contaminated food. Most foodborne illness outbreaks result from improper handling or contamination during food preparation. Following food sanitation and hygiene practices, proper preparation and refrigeration will prevent food poisoning.

Certain foods can lead to food poisoning if they are not sanitized, such as raw or undercooked animal products, unpasteurized milk, fruits, and vegetables washed in contaminated water, or foods that have been in contact with other contaminated foods in the kitchen, such as raw meat. Below are the six conditions in which harmful germs will multiple most quickly.

THE SIX CONDITIONS GERMS NEED TO MULTIPLY QUICKLY

Food

Bacteria require food to survive. Moist, protein-rich foods, such as meat, are at the highest risk of bacterial growth.

Acidity

Bacteria grows best in a neutral or slightly acidic environment (between 6.6–7.5 pH). Therefore, making food more sour or acidic is one useful food preservation technique.

Temperature

Germs don't grow well in very hot or very cold environments. Harmful germs grow most quickly on foods in the temperature danger zone, or between 5°C–57°C. Keep food outside the danger zone as much as possible.

Time

Harmful germs on food require time to multiply, which is why it is important to ensure food does not remain in the danger zone. Heat or cool foods quickly to ensure harmful germs do not multiply.

Oxygen (air)

Most dangerous food germs require oxygen to reproduce. However, certain germs like botulism are anaerobic, meaning they do not require oxygen for survival or reproduction. Properly sterilizing materials during the canning process will avoid these germs.

Moisture (water)

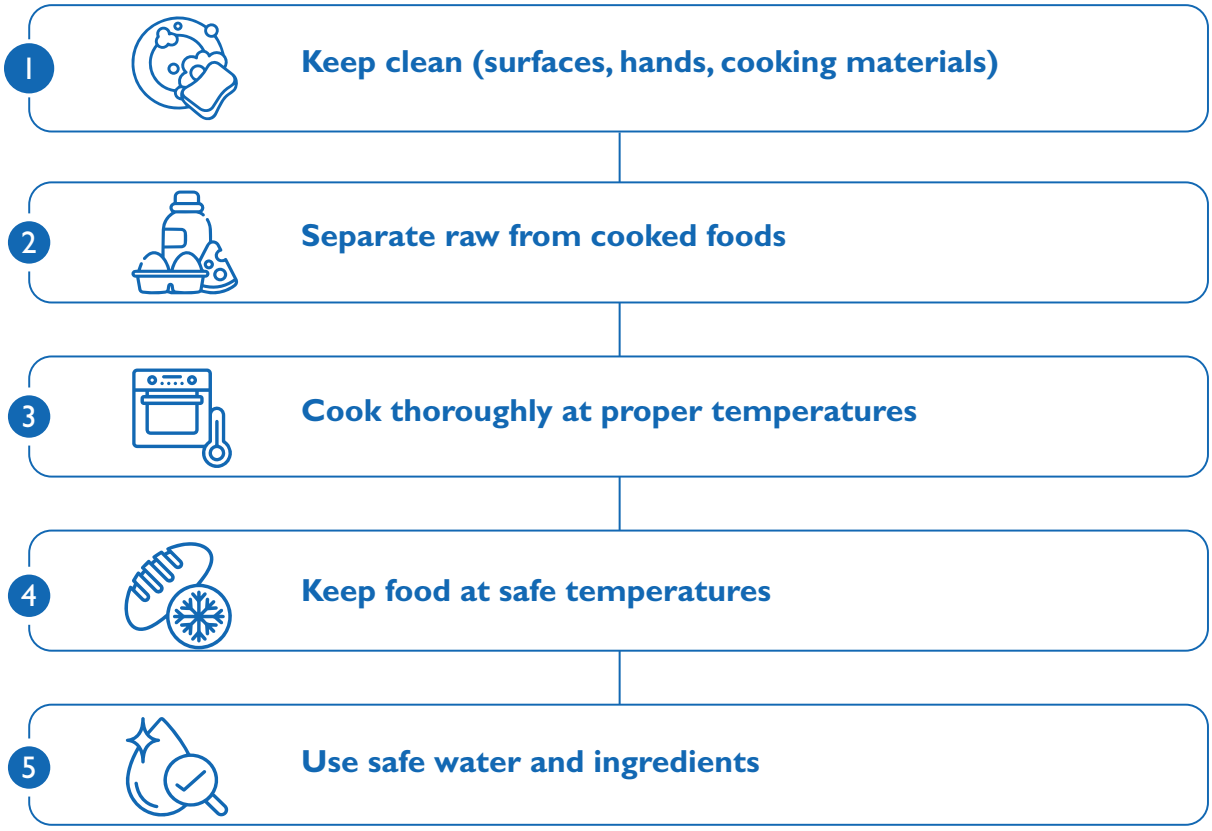
Most germs cannot grow without adequate water. Foods such as dried beans, rice, and lentils have a low risk of containing harmful germs because they are dried.

Source: (BC Cook Articulation Committee 2015)

Poor quality food or spoiled food can lead to various diseases and even to health risks. Foodborne diseases have serious consequences, especially for children and pregnant women. These diseases can be more severe in children, affecting their physical and mental development and, therefore, their quality of life.

Simple and affordable measures can help prevent food poisoning. Below are five simple steps to food safety recommended by the World Health Organization (WHO).

THE WORLD HEALTH ORGANIZATION'S FIVE STEPS FOR KEEPING FOOD SAFE (WHO 2006):



1.2 SIMPLE FOOD PRESERVATION METHODS

Below are some common techniques for food preservation (Naika 2020):

1. **Drying:** Removes water to reduce germ growth.
2. **Preservation by salt or sugar:** Sugar/salt binds with water, making the water unavailable for germ growth. Consuming too much salt or sugar, however, can be harmful to your health.
3. **Refrigeration:** Setting your refrigerator between 0°C–4°C will slow the growth of germs.
4. **Freezing:** Set your freezer at or below -18°C. At this temperature germs may remain alive, but will not actively multiply.
5. **Preservation by heating:** Pasteurization (heat treatment at temperatures below 100°C), blanching (heat process with boiling water or salt/sugar solution), and sterilization (heat treatment above 100°C) are the three primary heating preservation methods.
6. **Preservation by smoking:** Removes water (moisture) from food over hot smoke. Typically used for meat and fish.
7. **Preservation by acid/vinegar:** Increases the acidity or sourness of foods, making it difficult for germs to reproduce.
8. **Fermentation:** Harnesses beneficial germs to prevent harmful bacteria from growing. Can improve the nutrient quality of foods.

1.3 FEATURES OF SAFE STORAGE OF FOOD IN HIGH ALTITUDES

When cooking at higher elevations, cooking and processing time for food preservation takes considerably longer than when prepared at sea level. The Kyrgyz Republic is ~2,500 meters above sea level, which requires significantly longer cooking and processing times (for canning, pressure canning, and blanching) to prevent foodborne illness. To minimize the risk for heat-resistant bacteria, such as botulism, follow these **adaptations**.

- Boil all home-canned, low-acid vegetables for 18–19 minutes (compared to 10 minutes at sea level).
- If processing time is 20 minutes or less, increase processing time by 1 minute for each 300 meters above sea level.
- If processing time is 20 minutes or more, increase processing time by 2 minutes for each 300 meters above sea level.

1.4 TIPS FOR STORING FOOD IN THE REFRIGERATOR

- Avoid overcrowding your refrigerator or freezer, as cold air needs room to circulate and properly cool your foods.
- It is best practice to clean your refrigerator regularly. Discard any foods that have been in the refrigerator for more than 4 days. Each family member can take a turn to help with this task.
- Keep raw meat, poultry, and fish in a sealed plastic bag, bowl, or pan separate from all other foods. Keep raw meats on the lowest shelf to avoid juices contaminating other food items.
- Refrigerate all dairy products promptly. Cover all foods so they don't pick up odors from other foods.
- After milk is poured, never return it to its original container.
- Write the date on all leftovers and keep them at the front of the refrigerator where you can see them and use them within 4 days. After 4 days, discard leftover foods.

Source: (Academy of Nutrition and Dietetics 2016)

Photo source: https://ru.freepik.com/photos/food

1.5 INCLUDE THE WHOLE FAMILY

Preserving foods can be a fun activity for the whole family. After your family agrees on a recipe, make sure you have the required materials for preserving your selected foods. When you are ready to begin, assign a task to each participating family member; ensure that children are supervised. Tasks can include washing, peeling, chopping, blanching foods, and cleaning the workspace. Be sure to follow the food safety guidelines in this document.

Give more time to breastfeeding mothers for feeding and resting as well.

Food preservation carries many benefits for the family, but it also takes a lot of planning and work to complete. The family should carefully consider who in the family has the time and energy to participate in food preservation tasks, as they can be very labor intensive.

In the Kyrgyz Republic, many activities related to food preparation are considered a woman's domain. However, it may not be logical to assign all of the food preservation tasks to the women in the family. For example, the time in the year for preserving food from the harvest may coincide with a period when the husband/father has less work than usual. It may be best for the family to have him lead the work of food preservation.

Even in cases when it is most appropriate for the wife/mother of the household to lead food preservation activities, the family should think about the other labor burdens for which she must also be responsible (for example, working outside the home, caring for children, cooking, and household chores) and see how the rest of the family can take over these responsibilities so that she is not overburdened. Remember that pregnant women need more care and rest to keep themselves and their babies healthy. Lactating women also need support from the family to have the time to feed the baby, and this should be considered when assigning roles in the family's food preservation activity.

By including fair participation from all family members in food preservation, the family benefits from fast completion of preservation activities, avoids overburdening any one member of the family, and passes along valuable cooking skills to youth.

CHAPTER II:
Healthy Diets and Diversity

Diets are defined by the combination of foods consumed by individuals at a given time, which are influenced by culture, season, regions, and personal preferences. Healthy diets are diets that are safe, promote health, and prevent disease by providing enough essential nutrients without excess energy (calories) or health-harming substances (Neufeld, Hendriks, and Hugas 2020).

Healthy foods come from consuming foods from a wide diversity of food groups, which should be maintained throughout the year. Following are the three main categories of nutrients: energy (calories), macronutrients, and micronutrients (Neufeld, Hendriks, and Hugas 2020).

THREE CATEGORIES OF NUTRIENTS

ENERGY (calories, Kcal)

Most foods and drinks contain calories, which provide us with the necessary energy to live. Energy from food is used to fuel our daily activities and exercise. While calories are essential, consuming too few calories will result in weight loss, and overconsuming calories will result in weight gain stored as body fat.

MACRONUTRIENTS

Three primary macronutrients are essential to human life: carbohydrates, protein, and fat. Eating a balance of these three by consuming a diverse diet will ensure the body has the energy it needs to run optimally.

- Proteins are important nutrients for building healthy bodies, muscles, and hair. Protein can be found in both animal sources such as meat, dairy, eggs, fish, and cheese, and plant sources such as whole grains, legumes, nuts, and seeds.
- The body breaks down carbohydrates and uses them for energy. Your diet should include whole food forms of carbohydrates, such as root vegetables, rice, whole grains, and flours. Use simple carbohydrates sparingly. These are found in table sugar, syrups, fruit juices, and sugary beverages.
- Fats are found in both plant and animal sources, including oils, butter, and cream. Fats contain more than twice as many calories per serving as carbohydrates and protein.

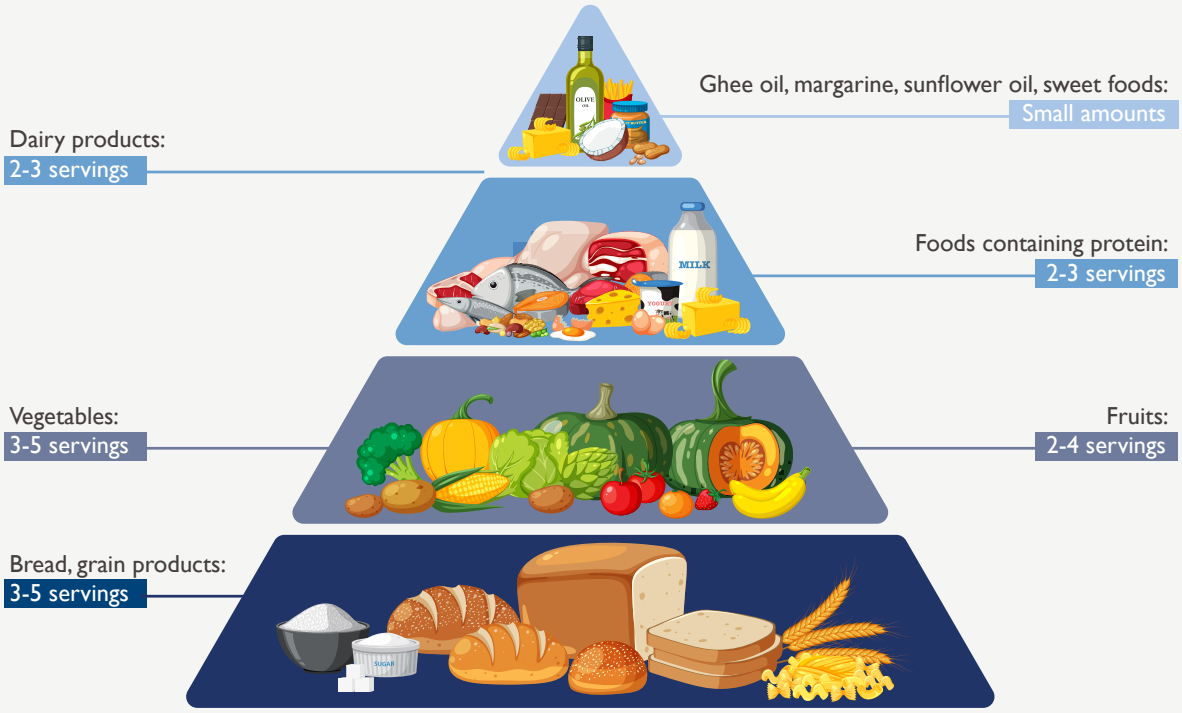
MICRONUTRIENTS

- Micronutrients, essential for healthy bodies, are divided into two categories: vitamins and minerals. Both are found in varying amounts within most foods, including whole grains, legumes, vegetables, leafy greens, fruits, nuts, seeds, meats, fish, and dairy products.

2.1 FOOD PYRAMID

The Food Pyramid is a schematic representation of the principles of healthy eating, developed by the Harvard School of Public Health. The foods at the bottom of the pyramid should make up the base of your diet, and those at the top should be minimally consumed or excluded from your diet. The portions suggested in each group for daily intake depend on your age, weight, physical activity, and gender. Below are the recommended serving guidelines for each food group for the average adult.

- **Whole grains:** Aim to consume **6–11 servings** of whole grain foods each day, such as whole meal bread, rice, whole meal pasta, and porridge.
- **Vegetables:** Aim to consume **3–5 servings** of vegetables each day, such as dark green leafy vegetables, carrots, bell peppers, cucumbers, tomatoes, and pumpkin.
- **Fruits:** Aim to consume **2–4 servings** of fruits each day, such as apricots, apples, grapes, figs, melon, and peaches.
- **Protein foods:** Aim to consume **2–3 servings** of protein-rich foods each day, such as nuts, seeds, beans, tofu, fish, seafood, poultry (chicken, turkey), and eggs.
- **Milk and dairy:** Aim to consume **2–3 servings** of milk and dairy products each day, such as dairy, yogurt, and cheese, etc.
- **Fats and oils:** Aim to use vegetable oils in place of animal fats, such as olive, sunflower, rapeseed, and other oils.
- **Foods to use sparingly:** Rarely consume certain foods, including red meats (mutton, pork, beef), butter, margarine, sour cream, refined breads (scones, sweetened bakery products, white breads), carbonated sweetened drinks, and sugary tea and coffee.



THE FOOD PYRAMID

Table 1 shows servings of products offered in each group for daily intake.

TABLE 1. A DIVERSE DIET ACCORDING TO THE FOOD PYRAMID

FOOD PRODUCTS	SAMPLES FOR ONE SERVING	PORTION SIZE
Bread, cereal products, pasta, rice, and potatoes	Small piece of bread	25 grams
	1 little bowl of rice	95 grams
	Cooked macaroni–1/2 bowl	120 grams
	Potato of medium size	1 piece
Vegetables	Cooked vegetables–1 little bowl	80 grams
	Raw vegetables–2 big bowls	70 grams
Berries, fruit	1 apple, 1 pear of medium size	2 pieces
	Canned or boiled fruit–1/2 little bowl	100 grams
Milk products	Milk or airan–1 big bowl	225 grams
	Cottage cheese–1 little bowl	100 grams
	Hard cheese	45 grams
Protein products	Cooked meat, fish, or poultry	85 grams
	Eggs of medium size	2 pieces
	Beans	80 grams

2.2 IMPORTANCE OF DIVERSE DIETS FOR ADULTS AND CHILDREN

Big meals made from a small amount of food groups, such as rice (carbohydrates), can make you feel satiated and satisfied. However, if few types of food are consumed on a daily basis, the body will not get enough nutrients necessary to keep our bodies strong and healthy. Inadequate nutrient intakes are one of the major determinants of poor nutrition for adults and children. By eating a wider diversity of foods all year from each food group, you can achieve the recommended intake of essential nutrients, which can help improve the health and well-being of you and your family.

Note that malnutrition in all its forms, including malnutrition, micronutrient deficiencies, overweight and obesity, not only affects the health and well-being of people, but also negatively affects the physical and mental development of the individual and weakens the immune system. It also reduces resistance to non-communicable and infectious diseases, reducing individual possibilities and productivity, as well as placing a heavy burden in the form of socio-economic costs on individuals, families, communities, and states.

While our bodies require many essential vitamins and minerals to be healthy, four important nutrients are needed for adults and children living in the Kyrgyz Republic. These nutrients are vitamin C, vitamin A, iron, and zinc. These nutrients help improve the immune system, build strong muscles, and support healthy growth. Listed below are foods high in each of these nutrients.

2.3 TOP FOUR IMPORTANT NUTRIENTS IN FOODS

Vitamin C

An important antioxidant that helps protect your body against free radicals, which can cause disease. Vitamin C–rich foods include lemons, oranges, red and green bell peppers, broccoli, tangerines, tomatoes, and other citrus fruits.

Vitamin A

An essential nutrient that helps vision, immune system, lungs, kidneys, and other organs work properly. Vitamin A–rich foods include pumpkins, carrots, dark green leafy vegetables, apricots, and meat.

Iron

A mineral your body needs for proper growth and development, including the production of healthy blood cells. Iron-rich foods include meat (including liver), fish, and eggs, dried apricots, dried plums, seeds, and certain dark green leafy vegetables.

Zinc

An important nutrient that helps build your immune system and fights harmful bacteria and viruses. Zinc-rich foods include meat, fish, eggs, dairy, legumes (beans), nuts, seeds, and some whole grains.

2.4 NUTRIENTS TO LIMIT

Dietary patterns are changing to include an increase in consumption of highly processed (ultra-processed) foods. Highly processed foods are typically found in packages and include chips, soda, hot dogs, sausages, cookies, cakes, and instant noodles. While these foods may be more convenient and affordable, they are also energy-dense and typically contain high amounts of salt, sugar, saturated fats, or trans-fats. As eating patterns shift to include more of these foods, we are also consuming fewer nutritious vegetables and fruits.

SALT

Salt is the primary source of sodium, and an increased intake of sodium is associated with high blood pressure and an increased risk of heart disease and stroke. Salt comes from processed and packaged foods (chips, instant noodles), processed meats (bacon, ham, salami, cheese), or is added to food during home cooking.

- WHO recommends that adults consume fewer than 5 grams (just under one teaspoon) of salt per day. These recommendations apply to all individuals, with or without high blood pressure (including pregnant and lactating women).
- All salt that is consumed should be iodized or "fortified" with iodine, which is essential for healthy brain development in the fetus and young child and optimizing people's mental function, in general. Most salt purchased from stores in the Kyrgyz Republic should be fortified with iodine.

SUGAR

Consuming too much sugar can harm your health and promote disease. Sugar is added to many foods, such as cookies, cakes, sugary beverages, sweetened coffees, and sweetened teas.

- WHO recommends limiting sugar intake for adults and children to less than 10 percent of their daily recommended calories. This equals a maximum of 50 grams of sugar per day (10 teaspoons) for the average adult (at a calorie intake of 2,000 kcal). As an example, one can of soda (350 milliliters) contains an average of 38 grams of sugar.
- In addition, WHO believes a further reduction in free sugar intake to less than 5 percent of energy (i.e., no more than 5 teaspoons sugar for adults per day) would be sensible.

CHAPTER III:
Methods of Storage and Processing of Raw Food Materials

Fruits and vegetables are important foods to support healthy lives and growth for adults and children. Food processing and storage is an affordable way to ensure access to healthy fruits and vegetables year-round. Fresh foods are often highest in nutrients; however, other forms of food processing—freezing and drying—can improve the shelf life of foods and retain many important nutrients found in food.

3.1 STORE FRESH

A common method of food storage at the household level in rural Kyrgyzstan is storage in basements and cellars. Another method that is becoming more common is storage in refrigerators, although in many areas the supply of electricity is still unstable and cannot ensure uninterrupted operation.

Many vegetables and fruits grown in Kyrgyzstan can be stored directly in cellars without drying or freezing: apples, pears, potatoes, carrots, onions, garlic, cabbage, pumpkins, radishes, and beets. To achieve the best possible quality with minimum spoilage, follow the guidelines below provided by the Cooperative Extension Cornell (Cooperative Extension Cornell).

- Harvest fruits and vegetables at the peak of their maturity, or as close to maturity as possible.
- Select only foods that are free of any visible signs of disease. Do not choose fruits or vegetables that have serious insect damage.
- After harvesting, shift the crop carefully to prevent cuts or dents.
- On most varieties of vegetables, leave a stub of an inch or longer to reduce water loss and prevent infection.
- Use late varieties that are better suited for storage.
- Store fruits and vegetables in dark rooms with adequate ventilation and well protected from pests, such as mice.
- Ensure that standing water is not in the storage cellar, and do not allow the product to freeze.
- Fruit produces a ripening gas (ethylene), which accelerates the ripening of vegetables, so store fruits and vegetables separately.

Proper storage requires optimal temperature and humidity. Refer to the tables below, provided by Cornell Cooperative Extension, for detailed information about each fruit and vegetable.

TABLE 2. FRUITS AND VEGETABLES REQUIRING COLD/MOIST STORAGE CONDITIONS

FRUIT/VEGETABLES	TEMPERATURE (°C)	REL. HUMIDITY (%)	STORAGE PERIOD
Apples, summer varieties	0	90	2–3 weeks
Table beetroot	0	95	2–6 months
Broccoli	0	95	3–5 months
Late cabbage	0	95	3–4 months
Chinese cabbage	0	95	1–2 months
Carrots	0	95	4–5 months
Cauliflower	0	95	2–4 weeks
Celery	0	95	2–3 months
Parsley	0	95	1–2 months
Pears	0	95	2–7 months
Green peas	0	95	1–3 weeks
Radish	0	95	2–4 months
Spinach	0	95	10–14 days

TABLE 3. VEGETABLES REQUIRING COOL AND MOIST STORAGE CONDITIONS

VEGETABLES	TEMPERATURE (°C)	REL. HUMIDITY (%)	STORAGE PERIOD
Asparagus beans	+4–+10	95	7–10 days
Cucumbers	+7–+10	95	10–14 days
Eggplant	+7–+10	90	1 week
Watermelon	+4–+10	80–85	2–3 weeks
Sweet bell pepper	+7–+10	95	2–3 weeks
Early potatoes	+10	90	1–3 weeks
Late potatoes	+3–+4	90	4–9 months
Tomato green	+ 10–+21	90	1–3 weeks
Tomato ripe	+7–+10	90	4–7 days

TABLE 4. VEGETABLES REQUIRING COOL, DRY STORAGE CONDITIONS

VEGETABLES	TEMPERATURE (°C)	REL. HUMIDITY (%)	STORAGE PERIOD
Garlic	0	65–70	6–7 months
Onion	0	65–70	6–7 months

TABLE 5. VEGETABLES REQUIRING WARM DRY STORAGE CONDITIONS

VEGETABLES	TEMPERATURE (°C)	REL. HUMIDITY (%)	STORAGE PERIOD
Pumpkin	+ 10	70–75	2–3 months
Zucchini	+10 to +13	50–60	2–6 months

TIP!

To ensure proper storage, it is best to choose the right time. Put the fruits and vegetables in the cellar after cold weather and sufficiently cool temperatures have been established in the cellar. The optimum condition for storage is when the produce is ripe at the time of harvest and the cellar temperature has been established.

3.2 STORE RAW FOOD MATERIALS IN PROCESSED FORM

For long-term storage of raw food materials stored at home in processed form, you can use freezing, drying, and fermenting.

FREEZING

Freezing foods helps retain many important nutrients in foods, such as the vitamins. Freezing also reduces germ's ability to multiply. It is one of the most effective ways to keep fruits and vegetables fresh, allowing you to preserve more natural nutrients. Frozen vegetables (except bell peppers) can be stored up to a year, fruits and berries up to 9 months, bell peppers up to 6 months, and herbs up to 4 months.

To freeze vegetables, clean, wash, slice, and freeze fresh vegetables in batches, often after blanching (submerging them in boiling water for a few minutes). This process inhibits the natural enzymes, preserving the taste, color, and quality of vegetables when frozen.

Drizzle apples, pears, and peaches with lemon juice when frozen. Freeze apricots and plums in pitted halves and avoid stacking to encourage faster freezing. Freeze bananas with the peel off. Do not freeze melon or citrus fruits.

Freeze berries in a bag or in containers. Berries can also be frozen as a puree.

Place freshly washed herbs in the freezer whole or chopped and poured into a container. You can also put them in ice molds and fill them with water. You can use frozen parsley and dill cubes in soups and stews.

Label frozen food with the name of the food and the date they were frozen. The most convenient for freezing at home are Ziploc bags; however, you can also use disposable freezer containers. Open the bag, take out the desired amount of food, close them, and put them back in storage.

GENERAL RULES FOR DEFROSTING

Defrost slowly in the refrigerator, or faster on the kitchen table. Keep the product in the package. After thawing, do not refreeze.

DRYING

Drying is one of the oldest methods of food preservation. Under Kyrgyz conditions, fruits and vegetables are dried in the sun or in small dryers, and in rare cases on the stove and in the oven. Grids are the most convenient for drying—wooden or metal frames, made thickly woven from twigs, wire, or plastic, so that air can flow to them both from the bottom side. If the wicker is made of ordinary wire, cover the grids with a sparse cloth (gauze) to prevent the dried fruit from touching the iron. Be sure to dry foods on hot, breezy days, preferably at 28°C or above.

Specific instructions are available for each food, but below are some general guidelines for drying foods.

- Choose only produce that is ripe and still hard. Ripeness increases the sugar content, which can cause blackness on produce, such as with tomatoes.
- Rinse produces in clean water, and keep work areas free of dirt, insects, or animals.
- Rinds contain nutrients; consider this before peeling. Some fruits dry better when peeled, while others dry better with the peel on, such as tomatoes, carrots, apples, and potatoes.
- Cut produce into pieces before drying. However, some produce dries well as a whole, such as small tubers, berries, and dark green leaves.
- Cut others to about the same size so they dry at the same time. Larger pieces dry more slowly. To speed up the drying of hard, tough foods such as pumpkin, roots, or tubers, dry them in a grated form.
- The more water the produce contains, the more it will shrivel after drying. Cut tomatoes into slices because, compared to other fruits and vegetables, they contain a lot of water, and after drying they are about half of their original size or even less.
- Some foods, such as apples, turn brown when cut. Dip them in a solution of citric acid or lemon juice (vitamin C) to preserve their color.

- Leaves and herbs can be dried, once dried they can be ground or ground into a powder.
- Cut potatoes, pumpkin, carrots, and other vegetables for soup into small pieces before drying and then mix them to make instant soup mixes or briquettes/packets of ready- made mixes and condiments.
- Store dried fruits and vegetables in bags made of cotton cloth, or in glass or tin cans with a tightly closed lid, to protect against insects and moisture.

Plums, cherries, jida, mulberries, grapes, and other fruits are dried with pips and seeds, and apricots and peaches— with or without pips.

Apples and pears are dried by cutting them into slices or circles. After four to five days, turn the dried apples over, and after another three to four days remove them.

Wash apricots before drying; if necessary, remove the pips, and then sulfitize either "wet" or "dry" to improve the marketable appearance (sulfitation treatment with sulfur dioxide [SO2] or solutions of salts of sulfurous acid.)

Packaging. At home, pack dried fruits and vegetables in a tightly sealed container. Glass jars are best.

Vacuum packed. Use vacuum containers or film bags, with the air evacuated. Of course, vacuum storage is a higher priority and it is preferable, if possible.

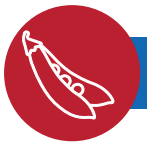
Use electric dryers as an alternative to solar drying, which significantly speeds up the drying process and does not put food at risk for dust contamination. Store home-cooked dried food in corked glass jars or in paper bags, preferably in the refrigerator. The main thing is to monitor the temperature and humidity, otherwise the dried products can get damp and moldy.

3.3 PRESERVE VITAMINS DURING STORAGE AND PROCESSING OF FOOD RAW MATERIALS

Vitamins are unstable compounds that are easily destroyed by the environment, such as light, heat, air, and contact with metals. Minerals, however, are usually less effected by cooking foods. Below are some tips to help conserve more vitamins during the preparation, storage, and cooking processes.

FRUITS AND VEGETABLES

- It is best to peel and wash most vegetables just before cooking them, or cover the peeled vegetables with a damp cloth or towel. This helps retain essential nutrients.
- When boiling vegetables, add directly to boiling water to minimize exposure to liquids. Naturally, some of the vitamins and minerals pass into the broth. Use the broth in future cooking.
- Solar and electric drying of fruits and vegetables significantly reduces the vitamin content by up to 50 percent.

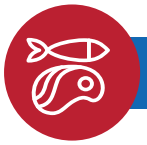


LEGUMES

- Soak legumes (beans, peas, and lentils) in cold water for several hours (up to 12 hours) before cooking. Soaking legumes allows them to soften, which reduces cooking times and preserves more nutrients. Soaking legumes also reduces anti-nutrients such as phytates, which improve the availability of important nutrients.

CEREALS AND GRAINS

- Similar to legumes, soaking grains such as cereals and rice prior to use may help improve nutrient absorption.



MEAT, FISH, EGGS, AND DAIRY

- To preserve the most nutrients in meat and fish when cooking use steaming, stewing, and baking. Boiling results in the greatest losses of nutrients.
- Cooking eggs reduces certain nutrients. However, if cooked with the shell on (boiled, poached), you will retain more nutrients.
- Milk and dairy products are highly perishable, and it is recommended that you store milk, kefir, cottage cheese, and cheese in the refrigerator.

CHAPTER IV:
Storage and Processing of Fruits, Berries, and Nuts

4.1 APPLES

Fresh storage. The autumn (1–2 months) and winter varieties of apples (up to 6 months) store better if they are fresh.

Harvesting. For storage, choose late leisured autumn and winter varieties. Start harvesting from the lower branches without tearing off the stalks and wiping off the top waxy coating. Remove the fruits with soft gloves. Do not toss the apples to avoid traumatizing the fruit.

Sorting

- Store harvested fruits for 2–3 weeks in a cool room to avoid damage and flaws.
- After that, select healthy and undamaged fruits with short stems.
- Sort by size (large fruits, medium, and small).

METHODS OF STORAGE:

The optimal air temperature is 1°C–+4°C. The relative humidity is 85–95 percent.

METHODS OF STORAGE

"SIMPLE" PAVING IN THE CELLAR

- Do not remove stems. Shorten the long stalks.
- Arrange the apples in 2–3 layers with the stalks up or to the side.
- Stack the apples on a shelf or in boxes.
- Observe twice a month during storage.

Shelf life: 4-7 months.

There are other ways of storing fresh: wrapping in paper, the method of transferring, storage in a trench, storage in plastic bags, etc., but these methods are not used in Kyrgyzstan or are rarely used.

STORE IN RECYCLED FORM

Apples are processed mainly by drying or canning (jams and compotes), freezing apples is rarely used, because of the fairly good storability (preservation) in fresh form.

Dry apples

- For drying choose ripe apples of autumn varieties.
- Sort apples by size (small, medium, small).
- Wash the apples.
- Cut the apples into fourths.
- Remove the seed nest (may not be removed).
- Cut into circles or slices.
- Put the apple circles/pieces in water with citric acid (1 teaspoon per 0.5 liters of water) to prevent them from darkening.
- Arrange the apple circles/pieces on sieves to drain off any remaining water or drain on paper towels.
- String apple circles/pieces on fishing line (wire) or put on a sieve in 1–2 rows and expose to the sun (3–4 days).
- Stretch the fishing line (wire) with sliced apple circles/pieces.
- Cover with gauze until completely dry.
- Store in glassware.

You can also dry apple slices by spreading them on wooden or metal grates; from time to time, stir them.

4.2 PEARS

STORE FRESH

Conditions of storage

Harvesting: Wearing cloth gloves, remove pears with the stalks.

STORAGE CONDITIONS

- Air temperature: 0°C–+8°C
- Relative humidity: 80%–90%
- Pears are usually stored in cellars or basements.

STORAGE METHODS

In crates/boxes. Wrap each fruit in thin paper.

- Place in the boxes diagonally, with the stalks in between the fruits of the next row.
- Store at +2°C—4°C (at temperatures close to zero, they do not ripen).
- Regular monitor and remove fruit that is losing its quality.

Shelf life of 2–4 months

PEAR PROCESSING

DRY PEARS

HARVEST

Wearing gloves, harvest the yellow fruits, by hand, preferably in the morning when the dew is gone.

SELECT AND SORT

Select pears like apples, but only the fall varieties.

- Select the pears.
- Wash the fruit.
- Peel the fruit (optional).
- Cut the fruit into 2–4 pieces.
- Remove the seed nest (optional).
- Stack on trays or sieves.
- Cover with gauze.
- Dry in the sun for 2–3 days.
- Store in glassware.

4.3 PLUMS

STORE FRESH

As a rule, for storing fresh, use only quality fruits of the most storable, late- or medium-ripening varieties.

Following these recommendations, you can extend the shelf life of the plum crop at home:

- Store not fully matured fruits at room temperature, sorted into paper bags.
- Store home-ripened plums in the refrigerator only after they reach the desired stage of ripeness.
- Do not store the harvest in places if there is a risk of direct sunlight on the fruit; do not store plums packed in tightly closed plastic bags.
- Ensure that the maximum humidity level in the storage room does not exceed 90 percent.
- The temperature in the storage room should be about 5°C–6°C, which will protect the crop from darkening of the pulp.

A large volume of the crop is best stored in cellars in crates or on shelves. Place plums in about three or four layers. At the same time, regularly review the fruit; remove fruits with signs of rot or dry spots. Depending on the variety, plum fruits can be stored for up to 4 months.

Warning! If you put the fruit in the refrigerator, keep it for 15 hours at 0°C degrees, then increase the temperature to 5°C (in the cellars). The fruit will not lose flavor and can be stored for longer.

STORAGE IN RECYCLED FORM: FREEZE PLUMS

The easiest way to store plums is to freeze them. You have two options for storing fruit—remove the pips beforehand or freeze the whole fruit.

Seedless fruits are used for desserts, baked goods, and fruit sauces. Be sure to wash the fruit, dry on a soft towel, cut or cut into halves by hand, and remove the pips. Place in a single layer on a wide baking tray, freeze (flip several times during freezing), and put into a container.

If you freeze fruit with pips, wash the fruit. After drying, place in containers (do not tamp them down), and leave in the freezer to freeze.

DRY PLUMS

Varieties:

Stanley, Hungarian Common, Hungarian Italian, Naroch, Kroman, Renklod Altana

Selection and sorting:

Sort the picked plums. Select only ripe and undamaged fruits of medium size. Thoroughly wash the plums and remove the stalks. Dip the washed fruits into a boiling solution of soda (5–8 grams per 1 liter of water) for 15–20 seconds. If the solution concentration and the time of immersion are correct, a slightly noticeable grid of cracks will appear on the surface of the plums.

Next

- Dip immediately into cold water.
- After the drain has cooled, rinse under running water to wash off the waxy buildup that will retard moisture evaporation.
- Arrange dried fruit on trays, grids, or sieves in a single layer.
- Set out the plum trays in the sun.
- Periodically turn over the plums on trays (grids) or sieves for 5 days.
- Transfer trays with plums to a shaded, well-ventilated place.
- Dry in the shade for another 3–4 days.
- Inspect the dried fruit and remove any undried fruit.
- Stack dried fruit in paper covered storage boxes.

DRY PRUNES

- Thoroughly wash fruits in running water.
- Pit the large plums.
- Prepare a solution of baking soda (mix it in the proportion of 15 grams per liter of water).
- Heat a solution of soda and dip freshly washed prunes in it for 1 minute.

DRYING IS DONE IN THREE STAGES:

- **Stage One**

Dry prunes at +40°C–45°C (3–4 hours).

Remove fruit from the dryer.

Chill the fruit in the air for 3–5 hours.

- **Stage Two**

Dry prunes in an oven heated to 55°C–6°C (4–5 hours).

Refrigerate the fruit for 3–5 hours.

- **Stage Three**

Place prunes in an oven for 12–15 hours at a temperature of 75°C–80°C.

Store in glass and paper containers.

Dry prunes in the sun, the usual way.

4.4 APRICOTS

KEEP APRICOTS FRESH

Fresh apricots do not store well, except for unripe fruits that ripen during storage. The unripe crop can be transported over long distances.

SELECT AND SORT

A ripe apricot is uniformly deep orange in color (the more orange, the better). It should taste and smell sweet and aromatic, should be neither too hard nor too soft, and should be malleable without being deformed. Most important, it should be succulent. The skin should be thin but firm. It is important that there are no cracks. Dark spots indicate the beginning of spoilage.

You can store apricots in the cellar or in the refrigerator. In perfect condition and under ideal storage conditions (temperature around 0°C), the fruit will keep for up to one month.

CONDITIONS FOR RIPENING

Place unripe apricots in boxes in 2–3 layers with the storage temperature close to 0°C. Moisture on the surface is unacceptable. Lay out the fruits to ripen dry. Check the condition, the fruit surface should not be damaged or have dark spots. The fruits will spoil in a short time; it is better to eat them immediately.

FREEZE APRICOTS

- Select dense apricots for freezing, preferably of small size. Wash the apricots under running water, dry on a towel, and remove the pips.
- Place halves of apricots, cut side down, on a clean kitchen towel until the moisture is gone.
- Put the halves of apricots in a single layer in a bag with a clasp, placing it first on a plank.
- Right on the board, put the bag in the freezer for complete freezing. Then remove the plank from the freezer, and place the frozen bag in a convenient place in the freezer.

TIP!

You can freeze berries and fruits whole or in slices. You can also add sugar, making a syrup or a puree.

DRY APRICOTS

Cleaning: Remove fruit in warm, sunny weather, in plastic or wooden crates.

- Select clean fruit, without damage or dirt; select ripe elastic apricots.
- Thoroughly wash and remove the stalks.
- Remove the pips.
- Dip apricot slices into the solution (per 1 liter of water, 1 teaspoon of citric acid) for 1–2 minutes or use sulfate (to improve color).
- Spread fruit on a paper towel to soak up any remaining liquid.
- Arrange dried fruit on trays, grids, or sieves in a single layer.
- Set out trays of apricots in the sun.
- Cover with gauze/mosquito netting.
- Periodically turn fruits on trays (grids) sieves for 8–10 days (depending on the weather and the size of the fruit).
- Transfer trays with apricots to a darkened, well- ventilated place.
- Dry in the shade for another 3–4 days.
- Inspect the dried fruit and remove the undried fruit.
- Stack the dried fruit in cloth bags (boxes)or glass jars.
- Store in a dry, darkened place.

NOTE

1. Local varieties of the Batken region are used for drying: Kantek, Shah, Isfarak uruk.
2. When storing the dried apricots, put a saucer of salt to avoid moisture.

4.5 CHERRIES

KEEP CHERRIES FRESH

The ideal temperature for storing cherries fresh is between 0°C–10°C. Keep the humidity no lower than 85%. If the quantity of cherries is too large, they can be stored in a cellar, if the conditions are suitable.

Fresh cherries can be stored in the refrigerator for up to 1 week, but the berries must be whole, without dents, and dry. You do not need to wash the cherries. They will last 6–7 days in a bag, but if the cherries are a little unripe, they can be stored for 10–12 days.

FREEZE CHERRIES

Freeze fresh cherries in two ways: with or without pips (pips are not recommended). In both cases, carefully wash the cherries. Cherries with a seed will retain more juice. Spread the berries in a single layer on a baking tray, and put in the freezer. Each cherry will retain its shape. After freezing, place the cherries into small bags.

DRY CHERRIES

To dry cherries for winter storage, wash them carefully.

- Remove the seeds (can be pitted).
- Arrange dried fruit on trays, grids, or sieves in a single layer.
- Set the trays of cherries out in the sun.
- Cover with gauze/mosquito netting.
- Periodically turn the fruits on trays (grids) sieves for 8–10 days (depending on the weather and the size of the fruit).

Pour the dried cherries into a dry container and leave them for a few days to equalize the overall moisture content of the berry. At home, store dried cherries in hermetic packaging or in a glass container with a tightly fitting lid. To keep dried cherries until winter, pour them into linen bags with ties. Store containers and bags in a dry, dark, and cool place.

4.6 GRAPES

STORE FRESH GRAPES

The refrigerator is the most reliable way to store fresh grapes for winter storage at home. Grapes are best stored at +2°C–4°C.

If your refrigerator does not have enough space, you can use a cold cellar or basement. The cellar should be dry; dampness will cause mold and rot. Hang the bunches of grapes on hooks or specially stretched wire. They will be well ventilated and can be stored for several months.

If you have many bunches, preserve the grapes by placing the bunches in boxes. Place large bunches in one layer in a low box (approximately 15 centimeters), cover the bottom of the box with paper, with openings for ventilation on the sides.

FREEZE GRAPES

Cover a tray or a deep plate with foil, lay the grapes in a single layer. Put in the freezer for 6–8 hours. Take the frozen grapes out of the freezer and transfer the berries to food containers or bags. If you spread them out in bags, be careful to let the excess air out gently. Put the containers and bags of frozen grapes back in the freezer for storage.

DRY GRAPES

The simplest and long-time proven method is to dry grapes in the sun. It is ideal if you have this useful berry growing on your plot. Prepare a thick lattice or a piece of plywood and lay out the berries in one layer.

Cover the top with a layer of gauze. It will protect the berries from sudden gusts of wind and dust.

Put the grapes in the sun and dry them until they are a dark amber color with a hint of wax. The finished raisins should be soft. After drying, you can easily separate the grapes from the stem.

STORE DRIED GRAPES PROPERLY

Store the grapes in a dark and dry place. Linen bags or parchment envelopes are ideal storage containers.

CANNING GRAPE LEAVES

Remove the grape leaves from around the bunch so they do not shade the fruit. Do this in early summer when the leaves are soft and juicy. Wash the grape leaves.

- Stack them in piles of 10 sheets each.
- Using scissors, remove the petioles.
- Wash and sterilize the jars.
- Fold each pile in half and stack tightly in a jar.
- After all the jars are filled with leaves, boil the lids.
- Use the recipe below to prepare the filling (marinade).
- Pour a steep marinade into each jar (carefully fill the jar completely with marinade, and press with a spoon to make sure!).
- Cover the jars with sterilized lids, turn them upside down, and cover with a blanket.

INGREDIENTS:

- The recipe is based on a 1-liter jar: Grape leaves: 1,000 grams
- Salt: 1 tablespoon
- Sugar: 1.5 teaspoon
- 70% acetic acid: 1 teaspoon
- Boiled water: 300–350 milliliters.

4.7 CURRANTS

STORE FRESH

It is not difficult to store blackcurrants that have been correctly harvested. If fresh and kept on the top shelf of the refrigerator, blackcurrants will stay fresh for up to 2 weeks.

The red and white varieties will retain their qualities for 2 months at +1°C and high humidity. For better preservation, place them on the top shelf of the refrigerator and cover with a damp cloth or towel.

FREEZE CURRANTS

By freezing, currants can be eaten for almost a whole year and still retain most of the vitamins and minerals.

Always freeze fully ripe fruits.

Before you freeze the currants, wash them (not required), and dry them well.

Next, spread the berries in a single layer on a dish with a flat surface covered with paper, and put them in the freezer.

The berries will freeze in 3–5 hours. Place them in containers, or paper or plastic bags, and put in the freezer for long-term storage.

Defrost the fruit gradually. Move them to the top shelf of the refrigerator, and leave them for 2–3 hours. Then move them to the freshness zone for several hours; take them out of the refrigerator. Using this method of defrosting, the berries will retain their shape.

DRY CURRANTS

You can store currants in dried form. While fresh, this berry contains 85 percent of water; during drying only 13–15 percent of water remains. In Kyrgyzstan, cover with gauze and lay out berries in a thin layer in the fresh air, taking care to avoid insects. You can use a drying cupboard or oven. Place dry, fully ripe berries in a thin layer on a baking tray and place in the dryer. When using a dryer, gradually raise the temperature from 40°C–70°C. After 5–7 hours, check the readiness of currants. If necessary, leave them in the dryer for another hour.

To determine the degree of dryness, just squeeze the berries. If they do not stick together, they are completely dry.

For long-term storage, place dried berries in a dark, dry place with air circulation and temperature that does not exceed +20°C. Dried berries can be stored in wooden or cardboard containers or plastic, and in cotton cloth bags.

4.8 RASPBERRIES

STORE FRESH

Raspberries can be preserved fresh at normal temperatures for as little as 8 hours. To keep raspberries longer (2–3 days), follow these recommendations:

- Pack the berries in small quantities in separate containers. Lay out no more than 2 layers, placing a napkin in the middle.
- Store in the middle of the refrigerator, away from the freezer, to prevent frost.
- Before you store the raspberries, carefully check all the berries; remove crumpled and spoiled fruit.
- Tightly cover all products near the raspberries, because they easily absorb foreign odors, which will adversely affect the taste.

FREEZE RASPBERRIES

In the freezer, raspberries retain their original form and do not lose their shape and color, flavor, or medicinal properties. Tips for freezing: to rinse the berries using a small pressure of water—a shower sprayer is excellent. After washing, dry with paper or paper towels; place the fruit in the freezer in a flat metal container for 24 hours. The next day, pack the fruit for storage, preferably in polyethylene bags with clasps. It is convenient and economical to keep raspberries for the winter or for an unlimited period. Do not put bags too close to the walls of the freezer, as a strong frost can spoil the berries.

FREEZE RASPBERRIES WITH SUGAR

- Fill berries with sugar.
- Grind with a blender until smooth.
- Pour into plastic bottles and close with lids.
- Put in the freezer until winter.

Before using, take the fruit out of the freezer and put it in a warm place for several hours.

4.9 STRAWBERRIES

STORE FRESH

Fruit for storage should be flat, neat, and not deformed. To keep fresh strawberries in the refrigerator for several days, cool them to a temperature of +2°C. The best containers are boxes made of wood or cardboard with holes to let air in. Lay out the fruit in thin layers; the fewer berries in the box, the longer they will be stored.

In the refrigerator, store berries for 2–5 days at a small distance from each other.

FREEZE STRAWBERRIES

Dip the strawberries in a bowl of cold water, wash, rinse under running water, and remove rotten berries. Spread out on a twice-folded towel, and let them dry. Select the most beautiful berries with stalks and put in a single layer on a board or a flat plate; freeze for about 1 hour. Frozen strawberries are best stored in plastic bags with clasps, or placed in a container with a lid and returned to the freezer. In this form, the strawberries can be stored until the next season.

FREEZE PUREED STRAWBERRIES

Peel the less beautiful berries from the stalks. Mash them with a fork, immersion blender, or chop in a chopper until desired texture. Pour the puree into large food containers and/or silicone candy molds, and place in the freezer. Once set, transfer the small briquettes to more convenient dishes or bags.

STRAWBERRY PUREE WITH SUGAR

- Pick the berries.
- Wash well.
- Remove the stalks.
- Add sugar.
- Beat with a blender until smooth.
- Pour into containers and close with a lid.
- Put in the freezer.

INGREDIENTS:

- strawberries 1 kilogram,
- sugar 200 grams

TIP!

For strawberries, remove the stalk and freeze in small portions. Store them in the freezer, pre-filled with sugar (150 grams of sugar per 1 kilogram of berries).

DRY STRAWBERRIES

First, carefully wash the picked strawberries in cool water. Then transfer them to paper towels and allow to dry thoroughly.

- Separate the sepals from the berries, which is done mostly by hand with special tongs.
- Cut peeled berries into even slices. Use a special cheese slicer to make the slices equal in thickness.
- Dry: Lay several layers of old newspapers on a flat surface, and place a sheet of thick white paper on top. Place strawberry slices on top of the paper, and leave some space between the petals.
- Strawberry juice released from the berries will soak into the thick paper and then soak into the newspapers. Therefore, replace the layers of newspaper every 4–6 hours with new ones, and stir the berries.
- After 4 days, the strawberries will be completely dry.

4.10 PEACHES

FRESH STORAGE

Peaches need a temperature of 0° and humidity up to 90%. You can store them in vegetable storage compartments in the refrigerator or cellar. Avoid stacking peaches on top of each other in rows. If necessary, fill the gaps between the fruits with clean dry river sand. Periodically select fruits that are beginning to spoil. Following these norms you can store the fruit from 2 weeks–1 month. At room temperature, peaches can only be stored for 5 days or less.

FREEZING PEACHES

Ripe peaches can be stored frozen. Place whole or cut slices of fruit in the freezer, in plastic containers, or bags.

Puréed peaches are the ideal way to freeze these fruits; otherwise, they darken over time and lose vitamin C. Peaches in syrup are very convenient to store in the freezer and is very simple to do. Boil 1 liter of water and 200 grams of sugar into a thick syrup, and pour peach halves into the container. If it is important to preserve the peaches in their natural state: remove the skin and after that put them in water with lemon acidity (1:1) for a few minutes.

Freeze peaches in sugar-ascorbic acid syrup. For 1 kilogram of peaches cut into slices, you need 1 liter of water. Pre-dissolve 6 tablets of ascorbic acid in it, and then soak the fruit. This will prevent the darkening of the fruit. After 5–10 minutes, place the slices in a container for storage and pour sugar-ascorbic syrup (4 cups of water dissolved with 3 crushed tablets of ascorbic acid, mixed with 3 cups of sugar). Peaches can be stored for up to 1 year in the freezer in this syrup.

DRY PEACHES

Pre-wash and dry peaches, then cut into slices. Dry peaches in the sun or in an oven or electric dryer. If the fruit is dried in the sun, spread the fruit on a tray with the slice facing up. Dry the fruit for 5–7 days. In an oven or electric dryer this process lasts only a few hours. The optimum temperature for drying is 50°–70° degrees. Dried fruits can be stored for over a year.

4.11 QUINCE

STORE FRESH

Carefully select the quinces for winter storage. Pay attention to how the quince looks because quince can only be stored if the fruits are free of defects and dents. Do not select very small quince fruits for storage, because they will not retain juiciness. Quince should be mature, with a rich yellowish color and a bright pleasant aroma.

Store quince in a refrigerator or, if there is little space, in a cellar, at a temperature of 0°C–2°C and about 80% relative humidity. Preferably store in wooden crates with dividers. Fruit should not touch each other; separate them with sand, sawdust, or wrap in paper. As an option, the fruit can be wrapped in cling film, but do not put them in plastic bags. A very interesting way to store is to treat quinces with warm wax, which prevents them from drying out prematurely.

Quince trees have an excellent storability, and if all conditions are met, they can last until spring. They can be stored with apples, but not with pears, as pears will speed up the ripening process.

FREEZE QUINCES

Cut quinces into small pieces, spread out on a board in an even thin layer and put in the freezer for 4–5 hours. Remove frozen slices of quince from a plank, place into a bag or container, and store in the freezer until the next harvest.

FREEZE QUINCE AS SHAVINGS

- Wipe the fruit, removing the fluffy "coat." Rinse under running water.
- Grate quinces on a grater with coarse holes.
- Portion the quince shavings into freezer bags, and squeeze the air out of the bags. Put in the freezer for storage.

DRY QUINCE

Quinces can be dried in the sun, in an electric dryer, or even in the microwave, because quinces ripen in the fall.

- Rinse quinces thoroughly under cold water, then cut them into quarters and remove the pips.
- Cut each piece into slices less than a centimeter thick, so they dry faster.
- To ensure that the color of dried quinces remains light and there was no oxidation, put the slices in boiling water with lemon juice. Tightly cover the pot with a lid until the water has cooled completely.
- Dry the fruit with an electric dryer. Place quince slices on the trays and turn on the standard mode. When quince is dried, transfer it to a bag and store in the refrigerator for later use.

4.12 PERSIMMONS

STORE FRESH

Persimmons in small quantities can be stored in the refrigerator. In the cellar stored at a temperature of 0°C–+1°C and humidity not less than 90 percent. For this method use a little unripe fruit in perfect condition.

Put the persimmon in a wooden box and cover them with paper or sawdust. Periodically, check them and pick out specimens that are starting to spoil. Keep the fruit in this way for no more than 3 months.

FREEZE PERSIMMONS

The ideal temperature for freezing persimmons is -18°C. This temperature preserves all valuable substances for up to 6 months.

- Persimmons for freezing should be intact, without dark spots and damage.
- Before putting persimmons in the freezer, carefully wash them.
- You do not need to remove the stalk with the leaves, but gently wipe the fruit with a towel or paper towels.
- Arrange persimmons in bags and freeze.
- You can also freeze persimmons in pieces or slices.

DRY PERSIMMONS

Keep dry ripe hard fruits without a seed in a cool, well-ventilated dark room. String persimmons on a rope by the stalk and suspend so the fruits do not touch each other. Fruit processed in this way will dry in about 4–5 weeks. A white coating indicates the end of drying. These dried fruits are very tasty, and they are a great substitute for candy. Also, add dried persimmons to fruit salads. They can be stored up to 2 years depending on their dehydration.

SEMI-DRIED PERSIMMONS

Semi-dried persimmons turn out well in the oven. The process takes place at a temperature of 40°C–45°C. When the dried fruit begins to darken, the drying process is finished.

4.13 FIGS

KEEP IT FRESH

Figs are an ancient fruit rich in vitamins and trace elements.

Select the product: The fruit should be smooth and round, with a clean skin. A sour smell is a sure sign of fermentation. Ripe figs are soft, but not too soft. Ideally, the skin has nectar droplets.

To keep it as long as possible, wipe each fruit with a paper towel to remove all the moisture. Ideally, store ripe fruits in the refrigerator, from +2°C–+4°C. In these conditions, figs can last up to 10 days.

FREEZING FIGS

Freezing is the best way to preserve figs. Select the figs for freezing with the utmost care. They must be fairly ripe, but not overripe. Press each fig lightly with a finger. The ideal fruit for freezing would be one whose peel bends slightly and then returns to its place.

Experts recommend slightly drying out the fruit before freezing. This will reduce fruit breakage when the internal juice converts into ice. Dry whole figs for 1 hour at 60°C in an oven or 30 minutes in an electric dryer.

Freeze figs using two methods: whole or in slices. To prepare the fruit whole, wash the fruit under cold water and lightly dry. Place the fruit on a large tray, not touching, and put in the freezer for 2–3 hours. Then remove the figs, pack them in individual bags or plastic containers, and return to the freezer.

To freeze sliced fruit, you do not need to dry the fruit. Rinse them with water and cut off the stems.

Use this cooking process:

- Cut each fig into four equal slices.
- Place slices on a flat baking tray or tray and put in the freezer for 2–4 hours.
- Take out the frozen slices, pack into bags, and return to the freezer.

The maximum shelf life is 1 year. When defrosting, do not place the product in warm water. To defrost, leave frozen figs at room temperature in a small colander—excess moisture will drain off as they gradually thaw.

DRY FIGS

For the drying process, choose ripe fruits. Rinse thoroughly. If desired, you can have sweet (with sugar) or naturally dried fruits.

- For sweet ones, pre-pour 3 cups of water into a saucepan and bring it to a boil.
- Add 1 cup of sugar, stir and boil in the resulting sugar syrup prepared figs for 7–10 minutes.
- While boiling, regularly stir the fruit with a wooden spatula.
- Rinse the boiled berries in a colander and dry thoroughly.
- Now the figs are ready for the drying procedure.

Place the sweet or natural fruit on a rack. During the drying process, figs will attract insects with their sweet aroma. Therefore, wrap a layer of gauze around the rack to protect the fruit from dust and insects. Place the rack in such a way that air can flow to the fruit from all sides.

To speed up the drying process, cut the figs in half with a sharp knife and place them on a rack with the cut side up.

The drying process in the sun takes 4–6 days. Then string the fruit on a strong string and take it to a shady place to finish drying.

TIP!

Do not freeze overripe fruits they will not be able to keep their shape and will turn into a puree when defrosted.

If you want to serve whole berries or pieces of fruit, it is not recommended to resort to emergency defrosting. Hot water or a microwave will kill the look and turn them into mush. It is recommended to defrost at room temperature.

4.14 STORING NUTS

Nuts and seeds are a nutrient-rich food choice rich in healthy fats (omega 3 fatty acids), vitamins, and minerals. You can enjoy nuts by adding them to recipes, salads, yogurts, cereals, or by themselves.

Storing nuts properly will ensure nutrients are preserved, and will significantly increase their shelf life. To preserve the quality of your nuts, keep them away from strong smelling foods such as onions, garlic, or spices. Store nuts at room temperature for up to 3 months, in the refrigerator for up to 6 months, or in the freezer for 1 year or more. Nuts in their shells can be stored for much longer than in their shelled form, so consider keeping the shell on until they are ready to be used. If nuts are rancid smelling or rotten, they are unusable. Overall, store nuts in cool, dark, and dry location.

STORE WALNUTS

Store walnuts in their shells or peeled. Preferably, place the nuts in a cardboard box, cloth bag, or wooden box. Leave the container with the product in a dark and dry room, without direct sunlight. The temperature in the room should be no higher than +10°C and no lower than -5°C. The humidity should also be low, up to 40%. You can store the raw nuts for 1 year.

If you plan to eat the nuts in the near future, or if you want them to take up less storage space, peel them from their shells. To prevent the kernels from becoming bitter, put them in a glass, enamel, or metal container with a lid and place in a dark and cool place.

STORE PISTACHIOS

You can store pistachios at home without removing their shell. Mature nuts have open shells, but this does not cause them to lose much of its function, and will significantly prolong the food value.

Photo source: https://ru.freepik.com/photos/food

STORE RAW ALMONDS

This product is less susceptible to environmental influences, allowing them to remain fresh longer. The storage conditions for raw almonds should be as follows:

- Temperature: +16°C–+18°C and humidity up to 75%.
- Increased temperature and humidity in storage will cause the product to acquire a rancid taste and traces of mold. Therefore, the optimal storage condition is a cool place with moderate humidity.
- Ensure constant air access to the nuts to avoid a musty odor and moldy fungus. Therefore, do not tightly close the box or other container in which they are stored.
- Keep the container with the nuts in a place away from bright light, even though they are in the shell. Do not expose almonds to sunlight.
- Because the shelf life of raw almonds is 12 months, do not try to keep them longer. The product will partially lose its original quality and unique taste.

STORE PEELED ALMOND NUTS

Nuts without shells are sold raw and roasted. For long-term storage, select almonds that have not been exposed to high temperatures.

The most suitable container for storage is a special vacuum container, which provides normal conditions of the product. But you can also use a tightly closed glass jar.

At room temperature, in a closed plastic bag, the shelf life of peeled almonds will be short. The product quickly loses its unique flavor (become rancid) and useful qualities.

Peeled almonds can be stored for up to 6 months at a lower temperature, but you can also freeze them for up to 1 year (Food Construed n.d.).

Photo source: https://ru.freepik.com/photos/food

STORE PROCESSED NUTS

Nut-fruit mix.

- Chop walnuts, hazelnuts, or almonds with dried fruit in a blender or with a meat grinder.
- Top the resulting mixture with honey.
- Store in the refrigerator for a month.

Also, the following are popular ways to store nuts:
Mill the products, put in a container or small bags, and freeze. They will retain their usefulness and taste and can be used for cooking and baking.

Roasted nuts, such as peanuts, store well. But, store them in a paper bag with the edges rolled up for a short time.

4.15 STORE ROSEHIP

The rosehip is a perennial wild bush with beautiful and useful fruits. The plant has a medicinal composition of minerals and vitamins. It contains magnesium, potassium, carotene, and phosphorus. The concentration of vitamin C is 10 times greater than in citrus fruits.

You can usually pick the fruit from late July until winter frosts, when the berries turn orange or red, usually between September and October. Cut the fruits with sepals: this will save all the useful substances when drying. Subsequent processing should take place no later than 3 days after picking the berries. Otherwise, the destruction of all the important components will begin.

STORE THESE USEFUL FRUITS

In the sun. Wash the berries and distribute evenly on a baking tray. Shield the place for drying from strong winds. Stir the fruits periodically, and by evening cover with polyethylene and transfer to a dark cool place. Repeat until the berries reach the desired condition.

In a special electric dryer. This device has a heater inside. See the manufacturer's instructions for use for exact information about the time and temperature of fruit processing. The only condition is the temperature regime—the mark should not fall below +50°C or above +70°C. In general, the procedure will take 6–8 hours. The electric drying does not allow you to dry a large number of berries at the same time. With too many, the treatment will not be uniform and some dried fruits will crumble in your hands.

Store dried rosehips. The shelf life of useful berries depends on the conditions and the type of container. Specialists recommend not using plastic bags, because of the lack of air the berries may be covered with mold or even rot. The optimal storage container is a paper box or bag.

Store dried rosehips for up to 2 years. Then it loses all its useful properties; when frozen, berries retain their medicinal composition for up to 12 months; keep therapeutic tinctures in the refrigerator for up to 26 hours.

CHAPTER V:
Storage and Processing of Vegetables and Melons

5.1 POTATOES

Harvesting: Dig up potatoes with a shovel, hoe, or special garden forks with blunt arrows. Garden forks are good for harvesting from light, sandy soils and from areas that have been well tilled. On heavy clay soils, use a shovel or hoe.

After digging the potatoes, leave them in the open air for 2–3 hours to dry; the potatoes will be better cleared from the clinging soil. Afterwards, stack the tubers in a pile under a canopy.

STORAGE PERIOD FOR POTATOES HAS FOUR IMPORTANT STEPS:

Therapeutic	Cooling period	Main period	Illumination

Therapeutic period. This lasts about 2 weeks during which potatoes dry, ripen, and heal the mechanical damage that the tubers received during digging and transportation, and while the potatoes "build up" the protective properties. During these two weeks the potatoes are sorted by removing diseased and damaged tubers, and separating small and large tubers for separate storage.

Cooling period. At the beginning of this period, put the potatoes into storage in a cellar in a layer of no more than 1.5 meters. Gradually reduce the temperature where the tubers are located from +13°C–+18°C to +2°C–+4°C. Ideally, the daily decrease in temperature is 0.5°C. This period usually takes 20–25 days. When the required +2°C–+4°C is reached, all biochemical and physiological processes inside tubers freeze—the potatoes are ready for long-term storage.

Main period. In winter, the tubers enter a state of deep dormancy, usually from February–March. During this time the potatoes must have the most correct preservation regime, based on light, temperature, and humidity.

Illumination. Store potatoes in a dark room. Light causes the tubers to begin to produce a bitter substance: solanine. A cellar or basement is ideal.

Temperature. For most potato varieties, the ideal temperature is +2°C–+4°C. At lower temperatures the potatoes spoil, and at higher temperatures they begin to sprout. How can you regulate the temperature? First, install a thermometer in the room where the potatoes are stored, to determine the temperature changes. Second, open or close the cellar or basement vent to regulate the temperature.

Humidity. Set the humidity in the room where the potatoes are stored 85%–90%. If the air is much drier, the tubers dry out. If the humidity is too high, moisture droplets appear on the tubers and disease will develop and the potatoes will rot.

How to regulate humidity? If the humidity is low, hang a damp cloth in the room and put a dish with water on the floor. Even more effective, spray water on the dry walls with a spray gun. If humidity is high, ventilate the room by placing containers with burnt lime, covered with hygroscopic material (for example, bags half filled with shavings, replacing them periodically). You can also put a layer of beets on the potatoes, which will absorb the excess moisture.

Spring period. This is the time when the potato roots come out of deep dormancy. For early potato varieties it begins at the end of February, for others around March. As soon as the potatoes begin to "wake up," to prevent them from sprouting, start lowering the temperature. Open the vents of the cellar at night (or in the morning) and pump cold air in until the temperature in the storage room reaches +1.5°C–+2.0°C. The potatoes can be stored this way for about 5–7 months.

Total shelf life: 5–7 months

If there is no cellar or basement, use a trench or pit.

In the trench. Prepare a trench: width of 1 meter, depth of 1.5 meters, and length is arbitrary. Prepared potatoes are poured to the level of the soil, cover the top with straw 30 centimeters high, then a layer of soil 30–50 centimeters.

Shelf life: 5–7 months

Pit. Pit: square, rectangular with a depth of 1.5 meters, the sides are arbitrary. Pour the potatoes into the hole, cover with planks on top of the potatoes, and pour a 1-meter layer of soil on top.

Shelf life: 5–7 months

NOTE

To ensure ventilation, lay plastic tubes on both sides of the pit (to the depth of the pit) with their outputs to the surface. Cover and open, if necessary, depending on the air temperature (close when it is cold and close when the temperature rises).

STORE INDOORS (HOUSE, APARTMENT)

Store the potatoes prepared at home in bags of non-woven cloth or burlap that is air permeable. Put beets, shavings, or straw in the bag on top of the potatoes. When stored, the beets will absorb the moisture excreted by the potatoes, allowing them to stay firm all winter. The potatoes will get rid of excess moisture, which will keep them from rotting. To prevent potatoes from sprouting, add dried mint leaves, in layers 1–2 centimeters thick at the bottom of the bag, in the middle, and on top of the tubers.

In the fall, store bags on an insulated balcony (if available), when the temperature drops below 2°C, move it to the hallway or to a room near the window.

NOTE

After reaching a spring temperature of +10°C on tubers intended for eating, break off the sprouts or with a sharp knife remove all eyelets to a depth of 5 millimeters, drop the potatoes in a solution of aspirin (1 tablet per 300 millimeters of water) for a few seconds, and dry well. The potatoes will keep for 3–4 weeks.

5.2 CARROTS

FRESH STORAGE

Long and quality preservation of carrots, as well as all other fruit and vegetable crops, is ensured only with the correct and timely harvesting. The maturity of all crops depends on the variety, a description of which can be obtained when you purchase the seeds. Carrots are ready for harvesting when the lower leaves turn yellow.

NOTE

Do not water carrots just before harvesting.

To prevent moisture loss during the drying of root crops, trim the stems in two stages. For the first stage cut the leaves above the head of the root crop (1–2 centimeters), for the second stage completely cut the "head" of the root crop (0.5–1.0 centimeters thick) along with the point of growth. Ensure the cut is even and smooth. This will ensure the best storage by preventing the carrots from germinating and shrinking in winter.

After trimming the tops, you must air them under a canopy or dry in the sun for 2–3 hours. The carrots will keep for a week at +10°C–+ 12°C. To identify sick and damaged fruits, tighten the wounds and cuts. Put only healthy and whole root vegetables into storage.

STORAGE METHODS

IN THE SAND

You can store root crops using wet sand (1 liter of water per bucket of sand); pour a 3–4 centimeters layer at the bottom of any container. Place the carrots on the sand without touching each other, then pour a new layer of sand, followed by a layer of carrots, and so on to the top. The top layer should be sand.

Shelf life: up to 4–6 months

IN SAWDUST, ONION, AND GARLIC HUSKS

Carrots store well, both in sawdust and in onion and garlic hulls. Phytoncides in the onion and garlic hulls, and pine sawdust, prevent pathogenic fungi and bacteria. In this method, place a 2–3 centimeter layer of sawdust/peelings on the bottom of the container, then a layer of carrots, cover with a new layer of hulls/sawdust until the container is filled with the top layer of hulls/sawdust.

Shelf life: 6–7 months

IN PLASTIC BAGS

When storing carrots in plastic bags, follow these recommendations:

- Store in a cool place.
- Leave the bags open to prevent excessive carbon dioxide.
- When tying bags, leave holes in the bag for ventilation.
- On occasion, pour lime (pusonka) next to the bags to absorb excess moisture.

Shelf life: 4–5 months

IN CLAY

- Prepare garlic gruel with water (1 cup of garlic, minced through a meat grinder, diluted in 2 liters of water).
- Prepare clay putty (half a bucket of clay, pour water, and leave for 1 day); mix thoroughly and pour water again with a layer of 2–3 centimeters for 3–4 days until the consistency of sour cream.
- Dip the unwashed carrots in the garlic and clay putty one at a time.
- Dry in a well-ventilated room.
- Stack dried fruits in storage containers.

Shelf life: 7–8 months

IN THE SNOW

In regions with a lot of snow, fill the pit with snow. This technique is recommended when the air temperature is 0°C–1°C.

- Locate the pit on the north side of the site, preferably behind the house.
- Make the depth of the pit about 2 meters, and build a canopy on top to keep water out of the pit.
- Separate the diseased, rotten, or injured carrots.
- Sort material for dry storage and put into bags.
- Tie up the bags.
- Drop prepared bags into a hole with a 20–25 centimeters layer of
- compacted snow.
- Pour snow on a layer of bags of carrots to cover the bags, leaving no empty space; continue to the top of the hole, alternating snow and bags of carrots.
- After that, backfill a layer of snow up to 1 meter, on which to put corn or reeds to 25–30 centimeters, and on the south side up to 50 centimeters.
- With proper amounts of snow, vegetables are preserved until April or May of the next year in good condition. Maintain the temperature of snow-covered vegetables at 1°C–2°C, at a humidity of 98%–100%.

Freeze carrots. For subsequent cooking, it is important to cut peeled, washed, and dried carrots into slices of equal thickness of 2–3 millimeters. To make cooking even easier, blanch the vegetable.

- Cut washed carrots into slices.
- Boil water in a large saucepan. Pour cold water into another container, adding ice if possible.
- Dip the carrots in boiling water and blanch for 2–3 minutes. Take them out and immediately lower them into cold water. Allow to cool completely.
- Remove carrots from cold water, spread on paper towel, and let dry completely. Place in bags or containers and place in the freezer for storage.

NOTE

A general tip for freezing any fruits and vegetables is to do it in batches.

Freeze pureed carrots. Grated carrots, which would make excellent cutlets or baked goods in the winter, may be an exception. Put it in a freezer bag with a thickness of the layer is 2–3 centimeters. A "briquette" will be easy to break off.

You can press grooves on the packaged billet with the edge of your hand, dividing it into several parts. Then it will be even easier to break it off, and this is important: the less time the bag with carrots is outside the freezer, the better. Do not continue to refreeze the carrots.

- Grate washed carrots on a medium grater.
- Put the briquettes in bags of any size.
- Put the bags in the freezer.

5.3 BEETS

STORE FRESH BEETS

Harvest: Dig up the beets with a shovel or pitchfork, lift them up with the soil, pull them carefully by the leaves, or pick them out with your hands. When digging up the beets, try not to damage their skin and tail. Harvest in the fall on a dry and warm day, before frost.

Dry root crop: Dry on a warm and dry day in a bed for 2–4 hours. If harvested in damp weather or rain, dry for at least 2–3 days in a well-ventilated room.

Sort: Follow this sequence:

- Remove the side roots, being careful not to damage the root.
- Cut a few centimeters from the main root, leave the tail at 5–7 centimeters.
- Select healthy, undamaged root vegetables 10–12 centimeters in diameter.
- When inspecting, get rid of clumps of earth that can damage neighboring fruits.

NOTE

Do not wash root vegetables prior to storage.

BEET STORAGE CONDITIONS

- Air temperature from 0°C–+2°C.
- Relative humidity 90%–92%.
- Keep in the dark.
- Maintain constant natural air circulation (roots should be at least 15 centimeters from the floor).
- Eliminate the possibility of frost.

METHODS OF STORAGE

- Indoors (away from heaters).

Shelf life: up to 3 months

- Embedded in piles or pits.

Shelf life: 3–5 months

- In crates and baskets without bulk material.

Shelf life: 3 months

- In boxes with sand, sawdust, in a clay mortar.

Shelf life: 5–6 months

- With potatoes—in crates or bags on top of the potatoes.

Shelf life: 3–5 months

Freeze beets. Beets do not cook very quickly. If you are going to freeze the root vegetable for the winter, plan what dishes you will make. Usually cook frozen vegetables without defrosting, so cutting them into smaller pieces is no longer possible.

PREPARATION

- Cut washed beets into cubes, slices, or shreds.
- Spread out on paper towels and let dry completely.
- Arrange on a tray, place in the freezer, let freeze completely.
- Take them out, put in bags or containers, and return to the freezer for storage.

5.4 RADISHES

STORE FRESH RADISHES

Harvest: Dig up root crops with a shovel or pitchfork, lift them a little with the soil, pull them gently by their leaves, or pick them out with your hands. Harvest on a dry and warm fall day before frost.

NOTE

Rub root vegetables but do not wash them.

SORT

- Sort during harvesting and cull damaged, small, large, rotten, and frozen roots.
- Prune long roots and leaves.
- Stack in piles and pour soil over it.
- Store in a pile for 2 weeks (to identify spoiled and diseased root crops).
- Re-sort and select the highest quality and healthiest root crops.
- Put the root crops in storage.

STORAGE CONDITIONS

Air temperature in the basement/cellar +3°C–+4°C. Relative humidity -85%.

STORAGE METHODS

IN THE CELLAR/BASEMENT

(stacking root crops in boxes with sand).

Shelf life: up to 5–6 months

NOTE

Root crops can be stored next to potatoes and carrots.

IN THE PIT

Put prepared radish in a hole with a depth of 60–70 centimeters and a width of 90–100 centimeters (the length is arbitrary).

- Place 20 centimeters of straw on the bottom of the hole.
- Place a radish on a layer of straw.
- Pour a layer of sand on top of the radish.
- Place a new layer of radishes.
- Continue alternating sand and radishes until the soil level is reached.
- On top of the last layer of sand, lay a layer of soil 15–20 centimeters.

Shelf life: 5–7 months

5.5 CABBAGE

STORE FRESH CABBAGE

White cabbage, harvest: Harvest cabbage on a dry, rain free day with daytime temperatures of +2°C–+8°C and nighttime temperatures not below -3°C.

- Cut with a knife, leaving the bottom leaves and the core 3–4 centimeters long on the bed (if hanging, leave the core [root]).
- To prevent mechanical damage and disease, do not remove upper leaves.
- Do not leave sprouts uprooted from the soil in the sun.

Sort. Selection—only hard, dense, and mature sprouts.

CULL:

- mechanically damaged
- underdeveloped sprouts
- cracked
- frozen
- bunches damaged by pests and diseases.

Cabbage storage conditions: Air temperature: -1°C–+1°C. Relative humidity: 85%–90%.

NOTE

Periodically ventilate the cabbage (once a month).

STORAGE METHODS

IN A BOX OR CRATE

Stack bunches in 1 layer in a box or crate without touching each other; separate with cardboard.

Shelf life: 3–4 months

ON THE SHELVES

Shelves are at least 20 centimeters wide.

The distance between the shelves: 30 centimeters (to freely fit a sprout).

Stack the sprout with the core up, wrapped in paper (but not newspaper).

Shelf life: 3–4 months

ON A "PILLOW" OF SAND

Leave a core of cabbage at least 8 centimeters long.

Pour 20 centimeters of sand in the box and place the cabbage with the core down.

Shelf life: 4–5 months

IN THE SAND

Cut the core to a sprout and put in a box at a distance of 3–5 centimeters. Cover the first layer of cabbage with dry sand, put a new layer of cabbage, then sand, a new layer of cabbage, sand, etc.

Shelf life: 4–5 months

IN A CLAY "COAT"

Prepare a clay suspension: 2 parts clay with 1 part water to obtain a sour cream-like consistency. Coat each cauliflower with clay suspension on a sunny day, dry in the sun, stack on shelves or racks in the basement or cellar.

Shelf life: 4–5 months

BY WEIGHT

- Stretch the wire in the basement/cellar.
- Wrap a long sprout with a strong rope.
- Hang on a rope so that the sprouts do not touch.

Shelf life: 3–4 months

NOTE

With this method, do not cut the core short.

IN THE TRENCHES

Dig a ditch (depth: 50 centimeters, width: 60 centimeters, length arbitrary) on a hill without a close groundwater table.

Next:

- Cover the bottom of the trench with straw. Stack the cabbage in two rows.
- Put a layer of straw on top. Cover with a wooden shield.
- Cover the shield with a 20-centimeter layer of soil.
- When frost sets in, add straw or leaves.

Shelf life: 4–6 months

IN THE SNOW (IN AREAS WITH HEAVY SNOWFALL)

- Stack pre-sorted cabbage heads in a row directly in the snow hole
- Cover with a layer of snow up to 10 centimeters.
- Lay a new layer of cabbage followed by a layer of snow of 10 centimeters, bringing the height of the cabbage heads stacked to 1 meter.
- When the height of the stack reaches 1 meter, cover the uppermost layer of vegetables with a layer of snow to 40–50 centimeters.
- Pour 10 centimeters of straw or sawdust and cover with dense material.
- Cover the entire bunker with a layer of snow up to 1 meter.
- Put more straw, sawdust, or cornhusk layer up to 25–30 centimeters, and on the south side: up to 50 centimeters.

Storage periods: 5-6 months

CABBAGE DISEASES:

Gray rot. Appears as downy mildew on cauliflowers with removed leaves, mechanical damage, and frost damage. Also, when temperature and humidity regimes are not maintained.

Storage period: Slimy bacteriosis (mild bacterial rot) Appears on damaged and cracked sprouts.

5.6 CAULIFLOWER

FRESH STORAGE

CELLAR

A clean, well-ventilated cellar or basement is the optimal place to store a large cauliflower crop. It is important to maintain a temperature of 0°C–+6° and a humidity of 90%–95%.

Check the condition of the vegetables from time to time. Immediately remove any rotten or moldy heads. Avoid sudden changes in temperature and freezing of the vegetable, otherwise they will turn black and become inedible.

Keep cauliflower fresh for the winter

- Peel the heads from the roots and leaves and place them in wooden or plastic boxes, then cover them with cling film. Ensure that the heads do not come into contact with each other, otherwise the rotting process can begin. From time to time, wipe the film with a dry, clean cloth or sponge to remove condensation. Cauliflower can be stored this way for up to 7 weeks.
- Peel the cabbage from the leaves and wrap each head in paper and food wrap, then stack in crates.
- Hang the heads by the spikes. They will stay fresh for about 1 month.

FREEZE CAULIFLOWER:

- When the vegetables are sorted, wash them well in running water. Then, soak them for 30 minutes in a salt solution (one tablespoon per liter of water). Any bugs will float to the top.
- Rinse the cabbage again from the salt solution and trim. Cut off and discard all the green leaves. Divide the heads into inflorescences, and cut off any damage with a sharp knife.
- Pour water into a large saucepan and wait for it to boil. Dip the cauliflower in the boiling water for 3 minutes.
- Drain the water and immediately put the cabbage into cold water so it doesn't continue to cook. Place the cabbage on a towel and wait for it to dry well.
- For the final step, portion the cabbage into bags or thin disposable plastic containers. Do not put all the cabbage in one bag, it is inconvenient when cooking.
- Put unpacked cauliflower in the freezer.

TIP!

When you want to make soup from frozen cauliflower or compote from fruits and berries, do not defrost the products. Take them out of the freezer and put them into boiling water.

5.7 TOMATOES

STORE FRESH

Select and sort: Fruits selected for storage must be absolutely healthy, without dents and cracks, and undamaged by diseases.

STORE IN THE CELLAR IN BOXES OR CRATES

- Pour dry sawdust or shavings into a box or cardboard box.
- Stack tomatoes in a single layer without touching each other.
- Fill a layer of sawdust/chips on the tomatoes.
- Lay the next layer of tomatoes.
- Backfill a layer of sawdust/chips.

Storage temperature: +4°C–+6°C, relative humidity: 90%.

Shelf life: green up to 50–80 days, red up to 15 days

ON WEIGHT

Before the first fall frosts, pull the whole tomato bushes with the fruits and shake off the soil from the roots.

- String the wire inside the unheated room at a height of 2 meters.
- Suspend bushes of pulled tomatoes.

NOTE

Fruit will ripen within 8–12 weeks. The temperature indoors should be at least 0°C.

IN BULK (ON SHELVES):

- Harvest green tomatoes before frost arrives.
- Wrap each one separately in paper (not newspaper).
- Arrange the tomatoes in a single layer on racks in a cold place with the temperature to 0°C.

Shelf life: green: up to 50–70 days, red: 10–15 days

NOTE

The temperature of the storage room should be +7°C–+10°C.

FREEZE TOMATOES

- Put the tomatoes in a colander.
- Wash under running water.
- Cut with a sharp knife into thin rings.
- Put plastic wrap on a plate and place the tomatoes in a single layer.
- Put in the freezer.
- Label the containers and packages.
- After the tomatoes are frozen, transfer to a bag or container.

Use plum-shaped, finger-shaped tomatoes or cherry tomatoes for freezing, but not large tomatoes. You can mash sugar with large pink tomatoes and freeze them. They will be very handy to use for soups and with pasta.

DRY TOMATOES

Select and sort for drying.

- To dry, use small red tomatoes that have a small amount of juice.
- Select healthy tomatoes.
- Peel the stalks.
- Rinse with water.
- Cut small tomatoes in half and cut large tomatoes 1 centimeter wide.
- Remove the seeds and juice.
- Place the tomatoes with the cut side up on a sieve.

SOLAR DRYING:

- Wash the ripe tomatoes, let them dry, and cut them in half or in quarters.
- Place on a rack or baking tray, cut upside down, salt and cover with gauze.
- Dry outdoor tomatoes for a week or 10 days, depending on the weather.
- Dry the prepared tomatoes in an oven or dryer.

5.8 CUCUMBERS

FRESH STORAGE

Sort and select: Select clean, dry, undamaged medium-sized cucumbers with thick and firm skin, and only from the garden or field.

Store fresh: A popular storage method if you want to store fruits in large quantities, for example, before pickling, is in a specially selected container: a wooden box, cardboard box, or plastic container. Stack the cucumbers carefully in the container and leave them in a room where the air temperature does not exceed +15° and the humidity is not less than 90%. Lower the temperature to +6°, and the vegetables will stay fresh for 8–10 days.

Store in the refrigerator. Store cucumbers in the refrigerator for much longer. The easiest method, which does not require prior preparation, is to put them in the vegetable compartment. They will remain unchanged for about 3–5 days. Put them in a plastic bag to keep them for 1–2 weeks. Wrap the cucumbers in cellophane, and cover them with gauze soaked in water. Place the vegetables in the refrigerator, without covering the top.

Store fresh cucumbers in the refrigerator, wrapped in paper. Wrap each piece in a paper towel, napkin, or baking paper, then put all the cucumbers in a cellophane bag. Vegetables wrapped this way can stay fresh for up to 3 weeks.

STORE IN THE SAND

- Select fresh cucumbers.
- Rinse under running water.
- Wipe the cucumbers with a paper towel.
- Stack cucumbers in a box or crate.
- Select ordinary sand.
- Wash and dry the sand.
- Backfill cucumbers with dry sand.
- Cover the vessel.
- Install the tank in the cellar or basement.

Shelf life: up to 6 weeks

STORE IN WATER (IN A BODY OF WATER THAT DOES NOT FREEZE IN WINTER):

- Select healthy cucumbers.
- Stack cucumbers in a mesh grid of synthetic material (as for onions)
- Suspend the weight by the net (mesh grid)
- Lower into a body of water (river, pond, deep creek).
- Fix the nets strongly, so they stay in same place.

Shelf life: 2–2.5 months

FREEZE CUCUMBERS

- Wash and dry the cucumbers.
- Slice or dice the cucumbers.
- In small batches (150–200 grams) put the sliced cucumbers in cellophane bags or special bags for freezing.
- Let the air out and tie the bags.
- Put bags of fresh cucumbers into the freezer. In winter, take out the bag with cucumbers, let them thaw a little, and add them to a salad or other dish. Preparing cucumbers for freezing does not take much time, but it will diversify the menu in winter.

TIP!

Only small, firm cucumbers are suitable for freezing. Freeze them whole or slice them into medium-thick circles.

DRY CUCUMBERS.

You can string and hang up cucumbers sliced into circles or plates. The vegetable does well in the sun; place them in the open air. Good airing promotes fast drying.

Place cucumber circles on the string loosely to prevent mold.

Shelf-life: 3–4 days

You can dry cucumbers on a horizontal surface. Cover racks with parchment or sheets of paper. Lay out vegetable circles in a single layer. Dry on each side for 2 days. Then carefully collect them and put into airtight containers or linen bags.

Salty and sweet vegetables are suitable for horizontal drying. Keep them in a cup beforehand, constantly draining the liquid. Then transfer to a sieve or colander. When the excess moisture is out, spread out and dry the cucumbers.

5.9 PEPPER

Sort and select: Remove ripe fruits (do not remove overripeones) carefully with the stalk. Select healthy undamaged fruit.

STORE PEPPERS

WRAP INDIVIDUALLY IN WOODEN CRATES

- Select healthy, undamaged fruit.
- Wrap each fruit with heavy paper.
- Fold in a box with a capacity of no more than 10 kilograms.
- Store in the basement at a temperature not exceeding 10°C.
- Keep humidity from 90%–95%.

Shelf life: 0°C for 2 months

STORE IN A TRANSPARENT PLASTIC BAG WITH HOLES

- Select healthy, undamaged fruit.
- Fold in a bag with holes in it.
- Store in a cool dark place or refrigerator.

Shelf life: 25–30 days

STORE IN THE SANDBOXES

- Select healthy ripe fruits.
- Wipe off visible dirt with a dry cloth.
- Prepare the sand and its calcination (burning) and cooling.
- Stack thick paper at the bottom of the box.
- Spread a layer of sand on the paper.
- Lay the second layer of peppers, alternating peppers and sand to fill the box.

Shelf life: 50–60 days

STORE ON THE WEIGHT IN THE BUSH

- Remove the pepper bushes in the vegetable garden.
- Pull it out with the root.
- Shake the soil off the roots.
- Hang "upside down" bushes on a wire in a cool place.

Shelf life: up to 50 days

NOTE

When storing whole peppers, do not wash peppers or tear off the stalk. Red peppers last longer than green peppers.

FREEZE PEPPERS

Varieties: (with thick walls) Swallow, Gifts of Moldova, Venti, Vinnipuch.

SELECT WHOLE AND INTACT FRUITS

- Select whole and intact fruits.
- Wash the fruit.
- Dry the fruit on a towel or wipe with a paper towel.
- Cut the fruit into halves and shake to remove the seeds.
- Cover the tray with a large piece of cloth.
- Lay out the fruit halves compactly on a tray with a cloth and cover the top with a cloth.
- Place peppers in freezer until completely frozen (peppers will become hard).
- Package labeling.
- Place peppers in bags without holes and slits.

NOTE

Hold frozen peppers under running cool water for 5 seconds before using, without defrosting all the way through.

Dry pickling of bell peppers. For pickling you will need ceramic barrels of 5–6 liters.

Ingredients: Use 2–3 kilograms of medium-sized vegetables; 2 pinches of salt per pepper.

PREPARE

- Rinse the vegetables. Remove the stalks.
- Very carefully cut out the septa and remove the seeds. Try not to damage the walls of the vegetable.
- Rinse the inside of the pepper under running water. This will wash away any remaining seeds.
- Spread out towels. Place the peppers on the towels to let the excess moisture drain out.
- After the vegetables are dry, pour 2 generous pinches of salt into each pepper. Put the salt on the bottom and the walls.
- Insert 1 pepper into the other until you have 4–5 peppers in one. Refer to the height of the keg.
- Fill the container, put a weight on top.
- Keep the peppers under pressure for about 12 hours (not less but you can do more), do not open them.
- After time, move the peppers to a cooler place for long-term storage (e.g., the cellar).

NOTE

Before serving, soak the vegetables in cold water for at least 5–7 minutes. This will remove excess salt.

5.10 ZUCCHINI

KEEP IT FRESH

SORT

- Select mature (but not over-ripe) zucchini, with a strong skin, without damage, and a juicy stalk of at least 5 centimeters.
- Temporarily store in the sun for 1 day to dry out the peels and tails.
- Inspect the vegetables and remove any damaged ones.
- Wipe the selected zucchini with a dry soft cloth.
- Store.

Storage conditions: Temperature: +5°C–10°C. Relative humidity: 70%–75%.

STORE ON SHELVES

- Stack on shelves with a pre-laid layer of straw, burlap, or cardboard.
- Stack zucchini stalks outward, not touching each other (put cardboard between the zucchini).

Shelf life: 2–3 months

STORE BY WEIGHT

- Place each zucchini fruit separately in a grid.
- Hang the net with the zucchini on a stretched wire or hook.

Shelf life: 2–3 months

DRY ZUCCHINI

- Select young zucchini with thin skin, without damage.
- Wash the zucchini.
- Cut into 1–2 centimeters circles.
- Remove the pulp (if large seeds).
- String zucchini on string/line and string in the sun in the yard.
- Cover with gauze.
- Dry to a degree of elasticity (the product does not break when twisted).
- Store in paper bags.

RECIPE!

Prepare a dish of dried zucchini. Put dried zucchini in warm water, cut into small pieces; boil for 10 minutes until half-ready. In a pan, fry 1 head of onion cut into rings in butter (until slightly golden), add the boiled zucchini, salt, and pepper, cover, and cook.

FREEZE ZUCCHINI

- Pick young zucchini.
- Cut fruit into cubes.
- Blanch for 1 minute.
- Toss it in a colander.
- Cool.
- Label the package.
- Package in bags.
- Close the packages.
- Freeze.

TIP!

To freeze zucchini, it is easier to grate them on a coarse grater and squeeze the juice, which will let out after a while.

5.11 PUMPKIN

STORAGE IN FRESH CONDITION:

Collect the ripe fruits together with the peduncle. In a dry room, place a soft bedding on racks or the floor. Place the harvested fruits with the stalk upwards. Leave a distance between the fruits.

If the temperature is between 10°C–12°C, the pumpkin has a shelf life of 6–8 months.

Pumpkin is a large vegetable; you can't eat it in one sitting. Store cut pumpkin in a foil wrapper. Change the wrapper periodically and the pumpkin will last a month. In the refrigerator, it will retain its qualities for 10–14 days.

SELECT AND SORT

Select pumpkins that are not damaged or dented, with an intact rind and stalk for storage (use pumpkins without stalks first).

STORAGE CONDITIONS

Room temperature +10°C–+12°C; relative humidity 70%–75% (in a dark and ventilated room).

STORAGE METHODS

Stack with the stalks upward without touching each other:

- on the shelves in the cellars
- on racks (always with bedding.
- in straw, hay
- under the bed.

Shelf life: up to 4–5 months

NOTE

Summer gourds (light and soft) are more suitable for making soups, dumplings (manty), and be added to meat dishes. The winter hard and sugary varieties are more often used for porridges or as a filling in baked goods.

Rinse the vegetable under running water. This can remove up to 99% of germs from the surface of the pumpkin.

Don't throw away the pumpkin seeds. They contain 8 of 10 essential amino acids. By consuming about 100 grams of seeds per day, you can meet your body's daily requirement for amino acids.

FREEZE PUMPKIN

Cut pumpkin into cubes to freeze the vegetable for the winter. Only raw pumpkin is frozen in this form. First, peel it from the skin. Cut the resulting flesh into slices, 1–3 centimeters thick, and then into cubes of small size.

Important: Do not refreeze thawed pumpkin—it will lose both taste and nutrients.

Collect serving sachets that can hold one serving at one time. Place the pumpkin cubes inside the bags and put them in the freezer. During freezing the cubes can increase in volume because of the liquid; leave some space in the bags to prevent them from bursting.

Small pumpkin cubes (with sides 1–1.5 centimeters) are ideal for making stuffing in mantas, as well as for some desserts. They can also be used without defrosting for pumpkin porridge, vegetable stew, or pie filling.

FREEZE BLANCHED PUMPKIN

The best way to freeze pumpkin is to pre-blanch the pumpkin cubes or slices in boiling water before freezing. This method takes a little more time, but the taste and consistency of the defrosted vegetable will be more appealing.

- After 2–3 minutes in boiling water, place the pumpkin slices in cold water for several minutes, then put on a paper towel to dry.
- Place the pumpkin slices on a tray without the slices touching each other. Otherwise, it will be difficult to separate them from each other later.
- Place the tray with cubes in the freezer for several hours.
- After the pieces harden, remove the tray and fill serving bags with pumpkin cubes. Store them until needed.

TIP!

Sign (name, date) the bags to easily identify the frozen foods.

Using the pumpkin, you can prepare many dishes. You can use tasty pumpkin cubes in warm salads, casseroles, etc.

FREEZE PUMPKIN PUREE

You do not need to peel the pumpkin before you bake it. Cut the vegetable in two parts and remove all the seeds. If the fruit is small, bake the two halves, and then cut each half into several wide slices.

Place the pumpkin slices or halves in an oven heated to 180°C–200°C and bake for about 1 hour. The pumpkin should be soft. After cooling, scrape the pulp out of the skin with a spoon and, using a blender, grind into a puree.

If you don't have an oven, pre-cook the pumpkin slices in their peel.

YOU CAN COOK:

- in boiling water
- in the microwave
- over steam.

In any case, it will about 1 hour plus 40–50 minutes. After cooling, you can easily separate the pulp from the skin and puree with a fork, pusher, or blender.

Place the pumpkin puree in small containers or molds for freezing. Put them in the freezer, wait for freezing, then remove from the molds or containers and transfer to thick plastic bags for storage. You will have a virtually ready-to-eat dish. Put the pumpkin puree in the dish at the very end of cooking.

NOTE

Frozen baked pumpkin puree is a great addition to the kids' diet. You can also add it to a variety of baked goods and to make caviar, cutlets, soufflés, and jams.

5.12 ONIONS

STORE ONIONS

Do not pull onions out of the ground when harvesting. This will damage the bulbs and shorten their shelf life. Gently dig up each bulb with a spatula without touching the base.

Avoid throwing the bulbs or hitting them against anything. Carefully scrape off the remaining soil with your hands.

NOTE

How long onions can be stored in the cellar or basement depends on the variety. Sweet varieties of onions do not store well.

Sharp, pungent onions can stay in the cellar until summer. Spring onions store better than winter onions.

Ensure the crop is well dried before putting them in the cellar.

Leave the whole crop to dry in the sun or in a dry, ventilated room. Dry the onions for 1–2 weeks. After that, trim the leaves with scissors (if you do not plan to braid), leaving the neck 5–6 centimeters high. Make sure that the onion's tail is dry.

NOTE

To disinfect and protect against moisture, pour onions over ground chalk. Use the rate of 200 grams per 10 kilograms of product.

SELECT ONIONS FOR STORAGE

Select only hard and dry bulbs in the husk, without soil, and fresh sprouts.

Dry in the sun (no more than 2–3 hours), under awning, or in the attic for 1–2 weeks.

STORAGE CONDITIONS

The air temperature is 0°C–+3°°

Relative humidity 65%–80%.

CELLAR

You can store onions in a dry cellar or basement (at about 0°C or slightly above), in lattice vegetable crates, wicker baskets, or cloth sacks. You can also place the onions on shelves or racks covered with paper, straw, or burlap.

BOXES

The vegetable needs air flow. Fill the boxes with a layer of onions not more than 50 centimeters, otherwise the lower specimens can get stale and rot. Put the containers with onions on shelves or on stands. Ensure that the bottom of the box does not touch the floor or the sides with the walls of storage.

CLOTH BAGS

Use small cloth bags to store onions. Scatter several kilograms of onions in the bags. The smaller the bag size the greater the number of these bags, which is preferable. Do not use cellophane bags because the vegetables will fog up and spoil.

EGG CONTAINERS

Put the bulbs in egg containers if you have enough. Place each bulb in a separate recess. Arrange filled containers on racks.

CAPRON STOCKINGS

Take old capron stockings or pantyhose and fill them with bulbs. Carefully hang filled stockings in the cellar. Capron is well permeable to air and wicks away excess moisture.

WEAVE BRAIDS

You can use braids to effectively store the turnips in a hanging state.

Ensure that the ventilation in the cellar is working well. This vegetable does not do well with high humidity; in a poorly ventilated damp room it will quickly begin to rot and spoil or (if warm) begin to sprout. The optimal humidity is around 80%. The ideal temperature for long-term storage of onions is 0°C–+3°C.

If possible, periodically review the crop in the cellar. Remove sprouted or soft bulbs. If the onions feel wet, dry them and air out the cellar.

NOTE

Optionally, you can sprinkle lime on the floor or place containers with lime in the corners of the cellar. Lime will absorb some of the moisture from the air. Do not remove onion husks from the cellar, which will accumulate over the winter. Dry husks will also help keep the crop from overwatering.
Storage containers must be well ventilated. Do not store with other vegetables and root vegetables that require a lot of moisture (potatoes, beets). Do not stack onions in a thick layer to avoid rotting. Periodically inspect (every 3–4 months) the onions to remove any that are rotten or sprouted.

5.13 GARLIC

Winter garlic (planted in the fall) matures in late July or early August, while spring garlic (planted in the spring) matures near the end of August. Digging up garlic is best done with a pitchfork on a dry and sunny day. Peel them from the ground, and lay out the heads, with their stems, on a bed to dry. Dry the garlic for 5 days in the sun or under a shed, in a pergola, a terrace, or a greenhouse. The main thing is to remember to ventilate the room well.

After drying the garlic with scissors or secateurs cut the roots so that there is about 3 millimeters, then cut the stem, leaving up to 10 centimeters.

PREPARE GARLIC FOR LONG-TERM STORAGE

Treated garlic will last longer than untreated garlic.

First, scorch the roots of each head on the stove or on the fire to prevent the bulbs from sprouting.

Spring garlic is best stored warm (+16°C–+20°C) and winter garlic is best stored cool (+1°C–+3°C).

If you grow a lot of garlic and harvest large crops, store it in wicker baskets, cardboard boxes, or wooden crates in a cool place at +3°C–-5°C and 50%–80% humidity.

If you don't have a lot of garlic, store it in your apartment.

STORE GARLIC IN BRAIDS AND BUNCHES

The oldest way to store garlic is to braid the heads of garlic dried together with the stem and hang them in a dark, dry, and cool place (for example, in a tambour, pantry, or closet).

STORE GARLIC IN A NET

Fill the garlic heads into the nets, then hang the net higher. Both in the net and in the scythes review garlic from time to time and discard spoiled garlic. These two methods will save garlic from drying and sprouting.

STORE GARLIC IN SALT

Store garlic in salt over the winter. Place the garlic in a wooden box with holes, alternate each layer with dry table salt or fill sterilized jars with garlic, filling the voids with salt. Ensure that both the bottom and top of the container has a sufficient layer of salt (about 2–3 centimeters high).

STORE GARLIC IN A CLOTH BAG

Garlic stores well in an ordinary cloth bag made of natural material, especially if you first hold the heads for a minute in a very concentrated salt solution and then dry them. This treatment minimizes the risk of mold and other diseases. You can also soak the heads in the bag in salt. Then dry the bag, fill it with garlic and, without tying, store in a cold room or cellar.

5.14 EGGPLANT

Harvesting. Harvest the eggplant when the weather is warm but not hot. This will prevent fungal infections. When picking the vegetables preserve a stem length of 3–3.5 centimeters to prevent the vegetable from drying out. Eggplants selected for storage should be dense, with a smooth bright purple skin. After selection, dry the vegetables for a day in a dark, sufficiently ventilated room if weather permits—in the fresh air, cover them with a lightproof cloth. Clean the vegetables with a dry cloth or tissue; do not wash under water.

STORE FRESH EGGPLANT

IN A CELLAR OR BASEMENT

These rooms usually have favorable storage conditions: temperature +3°C–+5°C and humidity 75%–85%. The produce can be preserved in the cellar (basement):

Cover the racks with straw. Wrap the eggplants (each fruit) in paper and place on the prepared racks.

Stack the fruits in a box, with each layer of dry sand. The storage temperature should not exceed +7°C. Wrap 2 or 3 eggplants in paper bags. Then stack them in boxes standing on the floor with holes for ventilation. Cover the top of the box with straw, old newspapers, or sawdust.

Stack the eggplants in a grid and hang them up. The room must be well ventilated and the air temperature no higher than +3°C.

TIP!

Store in a dark place, because in the sunlight they will form the poison solanine and the eggplant cannot be eaten.

IN ROOM CONDITIONS

To store eggplants in an apartment or house the storage temperature must be +3°C–+5°C, with humidity of 75%–85% and the complete absence of any light. A loggia or insulated balcony is suitable for storage. Wrap eggplant in food film and place in a wooden box. Cover with dense material to protect from the light.

IN THE REFRIGERATOR

For storage in the refrigerator, wrap each vegetable in cling wrap. Place the eggplants away from other fruits or vegetables, or the rotting process will accelerate (1–2 weeks).

IN THE FREEZER

The freezer is the easiest and most affordable method; it preserves all the valuable qualities of the product.

To preserve the structure of fruits after defrosting, first blanch them (scald with boiling water). Then slice the fruit (any shape) and pour coarse salt over the slices for 15–20 minutes. Then, to eliminate the bitterness, wash off the salt. To freeze, place the processed slices in plastic bags or wrap with cling wrap. Do not allow the air to accumulate.

TIP!

To quickly freeze the vegetables, cut them into small cubes and put them in one layer.

FREEZING RULES

Do not freeze raw eggplants, because they will be bitter and may lose their shape after they thaw.

It is best to freeze them after they are baked, blanched, or roasted.

TIP!

The porous flesh of the vegetables absorbs odors from other foods, so do not freeze eggplants longer than 6–7 months.

PREPARE RAW MATERIALS FOR FREEZING

- Wash to eliminate from contaminants.
- Cut off the top and bottom of the fruit (about 3 centimeters) and remove the low-value and poorly digested parts of the fruit.
- Slice—the shape of the slice depends on the recipe.

Important: Sliced eggplant will begin to darken after 30 minutes, so don't slice too much at one time..

Freeze eggplants. The main ways to treat eggplants before freezing: blanching; frying; baking.

Processing method depends on how the semi-finished products will be used: slices and mashed potatoes for the first and second courses, or slices (slices)for snacks.

Pan fried. A valuable addition to soups and roasts. Pan fry the vegetables at +145°C–+160°C.

Method: Sprinkle the slices with salt and leave for 5 minutes to remove any bitterness. Wash the slices and dry on a grid. Fry until golden brown on both sides. Place on a plate and cool. Remove excess oil with a paper towel. Wrap the billets in foil and put in the freezer for 1.5 hours to ensure the pieces will not stick to each other. Remove them from the freezer and put them in plastic containers or hermetic bags to prevent the raw material from coming into contact with the air.

Baked in the oven. Baking time is from 20–30 minutes. Preheat the oven to +200°C. Cover the container for baking with food foil. If baking whole fruits, pierce with a fork in several places to prevent an increase in pressure. Put the container in the oven for 30–60 minutes.

Eggplants are ready as soon as they begin to deform. Cool the vegetables and cut lengthwise with a knife. At this stage, you can turn whole fruits into a puree. Grind the vegetables and place them in airtight food containers with at least 1.5 centimeters of space between the lid and the puree.

Blanched. Treat the raw material with hot water for a few minutes and then immerses it in cold water to cool it. Blanch eggplants to remove air, reduce their volume, and make them softer.

Slicing shapes. Use whole vegetables or slices for cooking. Whole eggplants are convenient to bake or salt. Cut the baked fruit into pieces or mash them and add to soups and sauces.

The slices are ideal for making sandwiches, canapes, and as a snack.

The cubes are perfect for second dishes: stews, casseroles, vegetable platters. They can also be used in first courses.

Roasted tongues are the best base for rolls and various rolls. They can be fried or blanched.

NOTE

It is convenient to store vegetables in the refrigerator in round or square plastic containers. Bags are less advisable, because the porous structure of eggplant absorbs odors like a sponge.

DEFROST THE EGGPLANT

Move the portion from the freezer to the refrigerator for several hours. The product will gradually thaw as the temperature changes. This will preserve the shape and flavor of the product.

DRYING METHODS

In the air. Cut eggplants into thin slices and put on a strong string (spread in one layer on a baking tray), then leave them to dry in a place out of reach of direct sunlight. Dry 2–3 weeks.

In the oven. Wipe washed fruits dry and cut into small pieces. Place in a single layer on a baking tray and send to a preheated 200°C oven. Open the oven door every 10–15 minutes. The drying process takes about 6 hours.

Store dried eggplants in closed glass containers (bags) in the kitchen cabinet or hang in the pantry. For cooking, pour water over them for 1.5 hours and squeeze—and then cook.

5.15 BROCCOLI

FRESH STORAGE

PAPER TOWEL METHOD

Loosely wrap the broccoli with a damp paper towel and store it in the refrigerator. This provides a healthy and moist (but breathable) environment for the broccoli. Wash it thoroughly before using it. When stored this way, it will be fresh for 3–5 days. Don't wash the broccoli ahead of time, as too much moisture can cause mold growth.

BOUQUET METHOD

Place the broccoli (stem side down) in a glass or jar to submerge the ends in water. The bushy head should peek out from behind the top. Store in the refrigerator from 3–5 days. Change the water daily.

TIP!

Don't wrap broccoli too tightly with paper towels or store in closed containers. Broccoli needs air flow to stay fresh.

STORE BROCCOLI IN A VENTILATED BAG

If you can't follow the methods described above, use a regular plastic bag to keep your broccoli fresh. Seal the broccoli in the bag, and then make lots of holes in the bag near the broccoli head to allow good air flow. Put the broccoli in the refrigerator. Broccoli should stay fresh for several days.

REFRIGERATE THE BROCCOLI AS SOON AS POSSIBLE

Some sources recommend that even fresh store-bought broccoli be placed in the refrigerator within 30 minutes of purchase. The sooner the broccoli gets into the refrigerator, the better chance it will not lose its firm, crunchy texture, and the longer it will keep.

Store sliced broccoli briefly in a plastic container in the refrigerator. To be extra careful, squeeze a little lemon juice over the broccoli.

FREEZE BROCCOLI

- Select broccoli with green, dense inflorescences that have not begun to separate or turn yellow. Cull broccoli with brown spots and bruises.
- Wash broccoli to remove dirt, insects, and marks in a weak saline solution.
- Cut the broccoli into florets about 2.5 centimeters across and the stem into pieces about 0.6 centimeters long. Remove the tough end of the stem.
- Blanch for 3 minutes until discolored; it is important to evenly blanched that the broccoli pieces.
- Extract with a slotted swizzle.
- Transfer in a colander to drain the water.
- Cool in cold water for 3 minutes.
- Dry with a paper towel.
- Label the package.
- Spread broccoli in plastic bags portion by portion.
- Package in bags.
- Remove the air from the bags and close them.
- Freeze.

Storage in frozen form- up to 12 months

TIP!

Many recipes recommend not defrosting vegetables before cooking. For recipes with defrosted broccoli, soak broccoli in room temperature water for a few minutes beforehand to defrost.

NOTE

A strong odor indicates that you should discard the broccoli. Broccoli doesn't store well for long. Once it turns yellow, it is no longer suitable for serving, although it can be used in soups and stews.

5.16 GREENS

STORE FRESH

Rinse the greens well with cold running water. Carefully put all the greens in a plastic container; tie bundles of greens loosely.

Pour cold water over the herbs so they are below the water level. Put a lid on the container and place in the refrigerator. Leave the greens in cold water for several hours. During this time, the green twigs and leaves will restore the water balance, and will become elastic and beautiful. Even noticeably sluggish greens will unravel.

Drain the water from the container completely. Also take out the greens and carefully shake off the drops of water. The container should be moist, but without any residual liquid. Put the greens back in the container. Close the lid and place in the refrigerator.

This method of storing in the refrigerator ensures that the greens will be fresh and firm for at least a week.

FREEZE GREENS

Practically any greens can be frozen: dill, coriander, parsley, celery, spinach, sorrel, garlic shoots, etc.

Green onions in salads have a delicate texture and lose their appearance after thawing. You can include them in frozen chopped mixes, then the unsightly appearance of the product will not be too noticeable.

Do not freeze basil (of any color). It will lose flavor after thawing.

Before freezing other herbs, thoroughly rinse with cold water, then pick and dry.

METHODS OF FREEZING

Whole sprigs. Herbs are frozen to decorate prepared dishes. To preserve the attractive appearance of herbs pack them in cling wrap or foil, neatly stack in bundles, and freeze. You can freeze almost any greens this way.

Chopped herbs. Pre-shredded foliage saves cooking time. Pack similar compositions, or a mixture of different herbs, for first courses, salads, or stews. Pack in thick plastic bags, foil, and cling wrap, and put in the freezer.

Pack the product in separate portions, for one cooking. Slightly pat the package until it is flat and try to let all the air out of the bag to save space.

You can freeze portions of the greens in plastic cups or silicone muffin molds. After the product hardens, transfer the finished molds into bags.

Ice cubes. Put chopped herbs in ice molds, pour over with water, and freeze. If necessary, dip the mold in hot water for 10 seconds to remove the product. Use these ice cubes when preparing first and second hot dishes.

Greens in the freezer can be stored for about 1 year. During this time, they will retain all the vitamins and flavors.

TIP!

If you are using frozen herbs for the dish, do not defrost them beforehand. Add the herbs when the soup or dish is completely ready, turn off the stove, and cover with the lid.

FREEZE SPINACH. OPTION 1: WITHOUT HEAT TREATMENT

- Carefully wash each leaf to remove sand.
- Dry the leaves on an absorbent paper towel.
- Cut the greens into thin strips.
- Label the packages or containers.
- Unwrap the plastic bags or small containers (one serving).
- Place the blanks in the deep freeze mode.

OPTION 2: WITH HEAT TREATMENT (BLANCHING)

- Carefully wash each leaf to remove sand.
- Cut each sheet crosswise into strips about 3 centimeters wide.
- Place the leaves in boiling water and blanch for no more than 90 seconds.
- Dismantle the greens (with a slotted spoon).
- Label the packages or containers.
- Stack in containers for freezing.
- Put in the refrigerator (for 2 hours).
- Stack in the freezer.

DRY HERBS

Select, sort, and rinse; discard yellow and wilted leaves.

- Rinse the greens under cold running water to avoid spoiling the color and wilting the plant.
- Spread out on a dry cotton towel, in a draught or near an open window to dry.
- Finely chop the dried herbs.
- Dry finely chopped herbs in a ventilated place on prepared kitchen paper towels.
- Cover the top with gauze to protect the small leaves.
- Every 2 days check the readiness of the dried herbs (press the leaves [twigs] in your hands; they should crumble, making a crispy sound).

Dry the whole stems of the herbs; tie into bundles, hang on a thread in a ventilated dark place until ready.

NOTE

If you collect herbs in your garden and pick the top, clean leaves and sprigs, do not wash them. Store dried herbs in glass jars or paper bags.

DRY SPINACH

Ingredients: spinach 1 kilogram, salt not iodized 100 grams

- Remove the petioles.
- Wash the leaves.
- Dry the leaves.
- Lay out layers of dried leaves in prepared glass jars and generously sprinkle the leaves with salt until the container is full.
- Tightly close the jars.
- Store in the refrigerator.

NOTE

Do not rinse the spinach before use. Add it to dishes a few minutes before cooking.

5.17 MELONS

Different varieties of melon have different shelf lives. Some varieties cannot be stored longer than 15 days. Those that can be stored for only 1 month are considered to be (1) poorly cured, (2) medium-cured—up to two months cured, (3) up to three months cured— and (4) very cured for those that can be stored for an even longer period. Pick melons with the stalks. Also, harvest melons in the morning, before the heat sets in, or in the evening when it's a little cooler. Arrange the harvested melons in a single layer on beds and keep in the sun for 10 to 15 days. If you turn them over every 4 to 5 days, the fruits will store better.

If melons are to be consumed fresh, pick them completely ripe, leaving 3 centimeters of tail. If the crop will be transported and stored for a short time, harvest them 1–2 days before they are fully ripe.

Winter varieties for storage are harvested when the fruits are not yet ripe, but are already fully formed. Usually, melons reach this state 7 to 10 days before they are fully ripe.

Green (unripe), well ripened, or overripe fruits are not suitable for storage.

Warning! The ripe fruit exudes a fragrant sweet flavor, separates easily from the stalk, and its skin changes color from green to yellow.

Ring-shaped cracks appear around the stem. If you press on the melon from the end opposite the stem, it should feel slightly crushed under your finger. Fruits with a medium mesh that covers half the melon are better preserved. Fruits covered with a grid of cracks quickly mature and store no longer than 2 months. If the mesh is weakly expressed, it is in the initial stage of formation, and the fruits do not mature and remain unpalatable.

The ripeness of varieties whose rinds should not be netted is determined by the yellowing of the peel.

The optimal storage temperature for ripe melons is 2°C–8°C.

Humidity: melons should be stored at a relative humidity of about 80%.

Store in a cellar. Do not allow the fruits in one room to touch each other. Arrange them on a soft bed of cloth, sand, or sawdust on shelves. If they are stored in a box with dry sand, place the melons vertically, stalk down, and cover to half with sand or sawdust. If the stalk has fallen off, fill its place with paraffin to protect against infection.

The best way to store melons separately is in a net or canvas bag so they only touch the bag. Ventilate the room and, at least once a month, discard those that are beginning to spoil.

Store melons in a separate room of the cellar because they absorb all the extraneous odors. In general, apples contribute to the rapid ripening of melon flesh.

Shelf life of melons depends on the variety in the cellar:

- Store late varieties for 4–6 months.
- Early varieties stay fresh for 1 month (in rare cases they can stay fresh for months).
- Store medium-ripening varieties for 3–4 months.

Important: Melon at low temperatures (close to 0°) can become harmful—its ripe flesh produces ethylene, and a large amount can poison the body. For the same reason, do not keep the cut fruit in the refrigerator; in general, eat it at once. If placed in the refrigerator, low temperatures will stimulate the production of ethylene.

FREEZE MELON

Method 1: To freeze peel and cut the flesh into small strips up to 4 centimeters long, 2 centimeters wide, and 1 centimeter thick. Then place in a single layer on a baking tray or dish so the strips do not touch. Place in the freezer for 6–7 hours, and then transfer to a special plastic bag for storage. Frozen melon is best consumed while it is still slightly frozen. You can store melon slices in the freezer for up to 12 months.

Method 2: Cut the melon and peel it. Dice the melon, sprinkle with 1/4 cup sugar for every 2 cups of melon, if desired, and store in an airtight container. The pulp will be soft after thawing, but can be used in smoothies or fruit soups.

NOTE

The flavor and texture of the melon may deteriorate after freezing. Mark the date on the bag or container when you freeze it to remember when you need to throw the melon away.

Important: Throw away any cut melon slices left for more than 2 hours at room temperature. This can cause food poisoning.

DRY MELON

Select and sort: Not all varieties are suitable for drying, but some varieties with a hard flesh and aroma are used for this purpose: for example, Kolhoznitsa, Torpedo, Pineapple, and Gulabi. For drying choose only undamaged fruits of medium size. Dry them whole for 2 days. After that, discard damaged fruits. Cut the rest into slices. Remove the crust and green under the crust layer.

Dry the melon in the open air, naturally, with the melon slices cut lengthwise, but with a bridge left at the end so that two slices can be hung on wires or ropes stretched in a ventilated room. Use strips 2–4 centimeters thick. Dry outdoors for about 2 weeks. If drying on a sieve or on a pallet, turn the slices every 24 hours so that the moisture evaporates evenly.

You can then braid the elastic strips into braids, wrap in cling film to keep the product from pulling on moisture, and store. Another way to store dried melon is in glass jars—set the slices vertically and close until airtight. Because it takes a long time to dry melon at home in the air, and it can be hindered by inclement weather, more and more often special devices, ovens, drying cabinets are used for drying.

5.18 WATERMELON

Cut off watermelon stems and side shoots with a knife, leaving a tail about 5 centimeters long. Do not hand tear watermelon; it often damages the fruit and the tear quickly rots.

For long-term storage, select watermelons with thick skin, without dents and mechanical damage, and not battered.

STORE IN THE CELLAR OR BASEMENT

The optimal storage temperature for watermelons is from +1°C–+3°C at a relative humidity of 80%–85%.

Under normal storage conditions, you can store watermelons for up to 3 months.

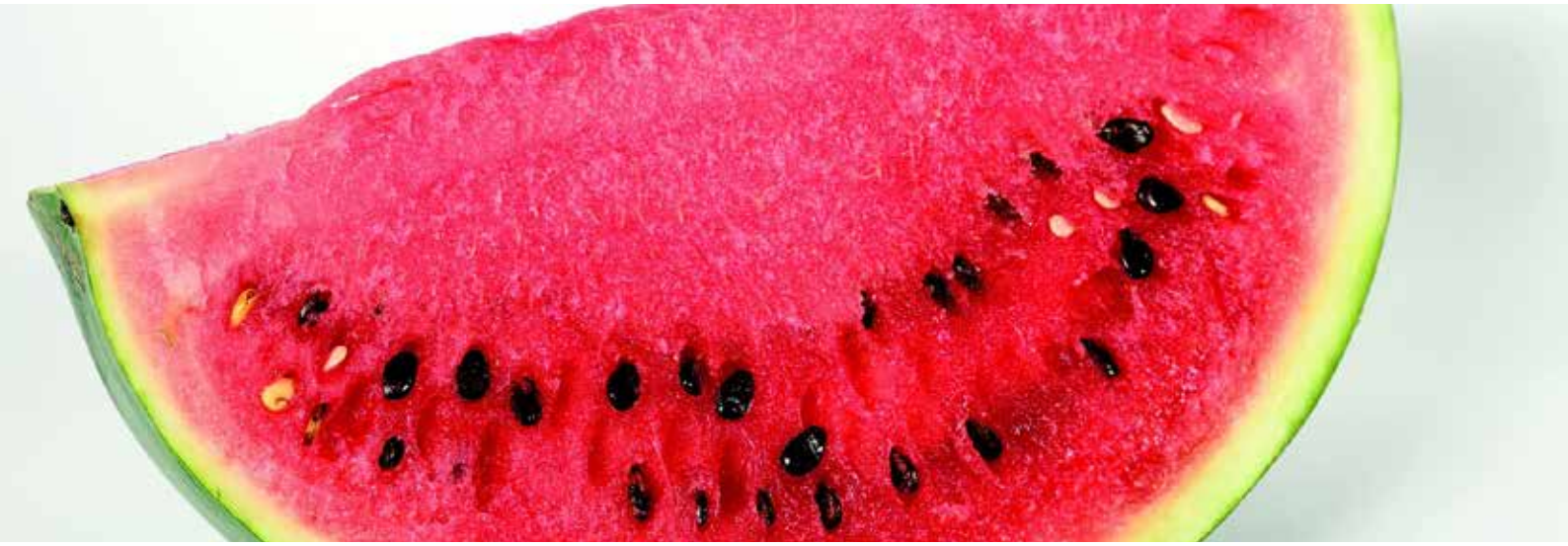
Store watermelons on racks 1–1.5 meters wide and with a distance between the shelves of 50–60 centimeters. Cover racks with straw, chaff, needles, or dry slightly decomposed peat. Ensure the bedding is 10–15 centimeters thick. Place the fruits in a single layer, ensuring that the watermelons do not touch each other.

Check the stored watermelons 2–3 times a month, discard the damaged and sick watermelons and turn over the remaining ones to prevent sores from forming in the pulp. You can also store watermelons in large crates. Cover the bottom of the containers with a layer of straw or wood shavings. Place the watermelons in rows on the bedding. Cover each row with straw or sawdust.

A proven method of storing watermelons is with hanging nets woven from cotton threads. Place each watermelon in a net and suspend it from poles. With this method the fruit does not form sores and the watermelons are less susceptible to disease.

Important: Do not store watermelon near potatoes (storage life may be reduced by several times).

Do not store cut watermelon at room temperature. In such conditions you can keep it for 2–3 hours (in warm seasons, the flesh can start to spoil after 1 hour). Stale watermelon can be poisonous. Store cut watermelon in the refrigerator for no more than 1 day.



CHAPTER VI:
Storage and Processing of Meat and Poultry

After slaughtering but before processing meat and poultry, cool down the meat for several hours. It is important to follow the food safety considerations at the beginning of this guidebook. Do not let any raw juices from the meat contaminate surfaces or other foods.

6.1 MEAT STORAGE TIME AND METHODS

Meat is one source of complete protein, minerals, and vitamins. To preserve all the useful nutrients, you must observe the terms and conditions of storage. Meat can be fresh meat, chilled, semi-frozen, and frozen.

1. **Fresh meat:** Considered 1.5 hours after the animal is slaughtered; the temperature inside the muscles of beef is +36°C–+38°C. Do not eat steamed meat immediately; for better digestion let it stand for 2 days.
2. **Chilled meat:** After cutting, the carcass is cooled and the temperature inside the muscle from 0°C–+4°C; the muscle tissue is elastic and there is a dried crust.
3. **Semi-frozen:** The carcass is not frozen completely, but only its top layer is frozen.
4. **Frozen:** The thickness of the muscle has a temperature of no more than -8°C.

STORAGE METHODS

The most reliable and common ways to store fresh meat are refrigeration and freezing.

Chilled meat storage: Chilled meat is meat that has not been quickly frozen. It has more nutritional value and better flavor than frozen meat. Chilled meat has a relatively short shelf life (a few hours). Store on the refrigerator shelf closest to the wall of the freezer because it has the lowest temperature.

Do not store meat in a plastic bag. Use enamel, plastic utensils, or containers made of glass. Also, do not use bowls made of wood, as they will absorb the meat juices. Cover the meat with a napkin or a towel, not a tightly closed lid. Boneless meat has a longer shelf life than boned meat, and whole pieces of meat store better than finely chopped pieces. Store it separately from other foods to extend its shelf life.

Keep meat in the refrigerator at +2°C–0°C for no more than 24 hours. Terms of storage of chilled meat in the refrigerator at temperatures from 0°C–-2°C is 10–15 days maximum.

Store semi-frozen meat: In domestic refrigerators, meat can be semi-frozen by setting the temperature in the freezer at -2°C–-3°C. In this case, the shelf life of meat increases to 20–30 days.

Freeze meat: If you need to increase the shelf life of meat, freeze it. However, freezing meat decreases the nutritional and flavor value. Despite this, freezing allows meat to be eaten and retains its flavor for a longer period.

Term and conditions for storage of frozen meat at -12°C for 6–8 months.

Term and conditions for storing frozen meat at -18°C for 10–12 months.

NOTE

Small cattle meat has a shorter shelf life and cattle meat has a longer shelf life.

TIPS FOR FREEZING MEAT

Do not wash the meat before freezing, it may spoil. Just wipe it carefully. It is especially important that moisture does not get on meat semi-finished products. Trimming excess fat and removing bones will save space in the freezer. Do not salt meat before freezing. Salting draws out moisture and oxidizes the meat fat, giving it a rancid taste and shortens the storage time in the freezer.

For convenience in cooking, divide the meat into portions to defrost as much as necessary, rather than the whole piece. You can wrap the cut pieces of meat in cling film, foil, bags, or paper. Store meat in the freezer open, without wrapping or it will become weathered, and it will darken, dry out, and partially lose flavor. In the same bag attach a note with the date of freezing, which will allow you to control the shelf life.

When freezing, it is better to immediately set the coldest temperature for the entire period of storage in the freezer, for a quick process. During gradual freezing, ice crystals spoil the meat fibers and later, during cooking, prevents the absorption of liquids, which deteriorates the taste of meat dishes.

When the meat has become hard during freezing, you can also take it out of the freezer and dip it completely in cool water, then put it back in the freezer. This will form an ice crust, which will retain more moisture and the meat will remain juicy and better preserved.

Store frozen meat so that the packages near it do not touch other products. Bacteria does not die even at sub-zero temperatures and it freely moves around adjacent packages. If there are vegetables and fruits near the meat, which in the future will not be processed at high temperatures, this is especially important. Store meat after defrosting for no more than 1 day.

TIP!

You can freeze portions of meat in the film, but keep fresh meat in the refrigerator without the film.

DEFROST MEAT

Defrost the product gradually at a temperature of 0°C–8°C, because the resulting meat juice will be more fully absorbed by the cells of the muscle tissue and the loss of nutrients will be minimal. Move the meat from the freezer compartment to the refrigerator for gradual thawing. Plan in advance for a slow and safe defrosting in the refrigerator. You can also defrost in cold water. Place a piece of the package in a deep container (bowl) filled with cold water, cooling the liquid regularly. Within a few hours it will thaw, preserving all the vitamins and useful elements. If the meat is not frozen in a vacuum pack, carefully wrap the piece of meat in cling film (several layers) and defrost in water. Do not use hot water to defrost meat, it makes it tough and spoils the taste. You can defrost meat in the air at room temperature.

Leave portioned pieces to thaw at room temperature, but the liquid released from the meat during defrosting can activate bacteria (if the meat was of poor quality).

Important: Do not repeatedly refreeze the meat, it negatively affects its shelf life and nutritional properties.

NOTE

Boiling frozen meat will destroy many vitamins and minerals.

IF THERE IS A POWER OUTAGE

With a power outage of up to 4–5 hours, the meat in the freezer will keep for that period. If the power is not turned on for more than 6 hours, empty the freezer. Take out the meat, rub the top of it with citric acid or vinegar, and put it in the coolest place in the house.

Dip a cloth in salicylic acid solution (sold at the drugstore) and wrap the meat products with it. You can use a strong saline solution instead of salicylic acid. A more unusual method is to put the meat in sour milk or cold milk. Any of these methods keeps the freshness of the product for no more than 10 hours.

STORE MEAT BY-PRODUCTS

By-products are the internal organs and less valuable parts of carcasses of slaughtered animals. The most valuable by-products include the liver, tongues, brains, kidneys, and heart.

Store chilled meat offal at 0°C to plus 4°C for 24 hours, up to 2 days at -1°C–0°C.

Store frozen by-products at temperatures no higher than minus 12°C for 4 months, at minus 18°C for 6 months, and at minus 20°C for 7 months.

STORE GROUND MEAT

Roll the mass of minced meat with a rolling pin inside a cellophane bag and divide into portioned squares (300–350 grams) by pressing with the edge of a cutting board or put it in a plastic container.

Keep meat in the freezer in the form of minced meat, no more than 3–4 months. Ready minced meat with additives (onions or spices) after defrosting can spoil the taste of the product.

Store unfrozen chopped pieces or minced meat refrigerated for 6–12 hours.

Attention! Store semi-finished products and sausages in the freezer for 2–3 months, and small pieces of semi-finished products (goulash) for 4 months.

6.2 STORE POULTRY

After slaughtering, keep the poultry at room temperature for 2–3 hours to cool down, then placed in the refrigerator. Keep the chilled chicken in the refrigerator at 0°C–4°C for 3 days.

Store chicken in the refrigerator at a temperature of -2°C–0°C for no more than 3–4 days.

Store semi-frozen chicken carcasses up to 14 days at a temperature of -2°C–-3°C.

STORE FROZEN POULTRY

Do not wash white meat before freezing. Dry the chicken with a napkin or paper towel. Cut the chicken into portions, if necessary. Put the pieces in bags or containers and mark the date of freezing.

Keep frozen chicken at -12°C for 4–5 months, and at 18°C for no more than 7–9 months.

Freeze chicken or turkey meat as a whole carcass for no more than 9–12 months, and store pieces of this valuable product for no more than 8–9 months. In this case, if it was not kept in a modern deep-freezing chamber at -20°C–-24°C, even poultry carcass after 6–8 months can acquire an unpleasant taste.

Eat duck, goose, and rabbit after no more than 6 months, because over time they acquire an unpleasant smell and taste.

PREPARE SALTED AND DRIED MEAT, GRATED (WINTER/SPRING)

Ingredients: beef/yak meat (lamb) in any quantities; salt of medium coarseness.

COOKING RECIPE:

- Separate the meat from the bones and fat, if possible.
- Cut into long not thick strips 30x10 centimeters.
- Rub the meat well with salt, especially in the folds.
- Hang on hooks in the sun.
- To protect against flies, mosquitoes, and dust cover with 2–3 layers of gauze or mesh.
- Dry under a shelter in a well-ventilated place.
- Store in a cool, ventilated place or in the refrigerator.

NOTE

You do not need to salt chicken when cooking.
Store for 6–10 months.

6.3 GULAZYK

In ancient times, gulazyk was considered the most popular dish. It is prepared from boiled meat, which is then dried and ground with millstones. Talkan is added to the mass (fried and ground cereals), spices and salt, and then fried. This dish used to be common among the Kyrgyz preparing for a long journey. To eat it, add boiled water. Gulazyk gives a feeling of satiety and it contains a lot of protein.

Gulazyk is the prototype of instant soups, only without preservatives.

RECIPE TO COOK GULAZYK

Prepare gulazyk from lamb, beef, or horse meat. Boil thin layers for a long time (several hours) and then dry them. Then, grind it through millstones or a meat grinder. Add shredded kurut (dried salted curd), talkan, dried spices (onion, garlic), and salt. Then fry it in melted butter or animal fat.

Pour one tablespoon of gulazyk into boiling water, hold for 3–5 minutes, and the soup is ready.

CHAPTER VII:
Egg Storage and Processing

STORE RAW EGGS

- Store eggs with the sharp end down and the blunt end up. The air sac on the blunt end helps prevent the loss of additional moisture and keeps the yolk in the center of the egg white.
- Because eggshells are porous and absorb odors, store them in a cardboard box or closed container on a shelf in the refrigerator. If you do not have cardboard boxes for eggs, cover the top with plastic wrap.
- Store eggs in the main body of the refrigerator not in the refrigerator door; this ensures a constant and cool temperature.
- Leftover raw egg whites and yolks should be placed in airtight containers and immediately placed in the refrigerator. So that the yolks do not dry out, fill them with a small amount of cold water. Drain water before use.

STORE EGGS

Store freshly harvested eggs in a dry, light-protected place at a temperature no higher than 10°C. Outside the refrigerator they will stay fresh for 2–3 weeks; in the refrigerator at a temperature of 1°C to –2°C they will last 3–4 months.

You can preserve them in a lime solution that you can make yourself. They will last about a year, but the taste will change slightly.

To extend the shelf life without changing the taste use ordinary vegetable oil and oats. Lay oats in the bottom of the box, put the eggs, greased with oil or fat, with the sharp end down and cover the top with oats. Put the box in a dry dark room.

Store fresh leftover egg yolks or whites in the refrigerator for 2–4 days.

NOTE

Do not wash eggs or you will wash away the natural protective film on the shell.

FREEZE EGGS

WHOLE EGGS

For home cooking, egg melange (frozen egg yolk/white mixture) can be prepared in advance and frozen.

PREPARATION:

- Separate the shell.
- Beat the eggs with a mixer.
- Place in a freezer bag.
- Label it with the number of eggs and the date and freeze it.
- Store in the freezer.

Store frozen whole eggs (mixed) for 4 months.

Warning! One large egg without the shell weighs 45–50 grams.

FREEZE EGG WHITES

Break and separate the eggs one by one, making sure that the yolk does not mix with the whites. Pour them into freezer containers, close tightly, label with the number of egg whites and date, and freeze. For faster thawing and easier measuring, freeze each egg white in an ice cube tray first and then transfer to a freezer container.

FREEZE YOLKS:

Egg yolks require special treatment. The yolk is gelled because of its thickness when frozen. If frozen as is, the egg yolks will eventually become unusable. To slow this process, add a teaspoon (0.5 ml) of salt (for main dishes) or half a teaspoon of sugar (for baked goods or desserts) per cup (50 ml) of egg yolks (4 yolks). Label the container with the number of yolks and the date.

CHAPTER VIII:
Milk Storage and Processing

Milk and dairy products are everyday products and people use them throughout life—from the first days of birth until old age. Milk contains a large complex of vitamins and protein. Milk proteins in the human body are digested faster than fish and meat.

8.1 MILK A COW

To milk a cow, take it to a clean stall or clean place. Wash your hands with soap and soap solution. Wash the udder with a warm soap solution, while massaging the udder—first the upper part and then move to the teats. This will reduce the milking time and increase the amount of milk produced by 15%.

At the inlet of the teat, because it is close to sources of contamination and the presence of milk residue, the number of microbes increases (bacterial plugs form). Therefore, pour the first trickles into a separate container.

Ensure that the milking bowl is clean. Milk the cow to the end (i.e., after the main amount of milk is milked, do a final udder massage). With both hands grasp the right side of the udder as high as possible so that the four fingers of the right hand are as deep as possible between the two halves of the udder and the thumbs rest on the outside of the udder. Simultaneously squeeze the udder with both hands and gradually move your hands from top to bottom 3–4 times to the teats and continue milking. This helps to increase the fat content of the milk. The last portions of milk contain more fat. Treat the left side of the udder in the same way. Then massage each quarter of the udder separately. When you finish milking, wipe the teats, and lubricate them with petroleum jelly.

Machine milking reduces microbiological contamination because milk flows through clean pipes or hoses and reduces the contact of milk with the open environment.

Warning! The milk in the udder of a healthy animal is sterile.

8.2 FRESH MILK

Clean and cool the milk. At home, use simple filters made of several layers of gauze, linen, or lavsan cloth to clean the milk after milking. Immediately after cleaning, cool the milk. Put a flask or other container with filtered milk in cold water, a stream, pool with running water, or a tub of water.

Cool, then put the milk in the refrigerator.

In Kyrgyzstan's hot climate, storing fresh milk is a big problem.

The bactericidal phase of milk is the time during which microorganisms in freshly milked milk do not develop and even partially die off. During the bactericidal phase, milk has bactericidal properties, which depend on the content of natural antibacterial substances in it, the amount of which depends on the individual characteristics and physiological state of the animal, as well as the lactation period (colostrum has high antibacterial activity).

The duration of the bactericidal phase of milk depends on the storage temperature and on the contamination (the initial amount of microflora), and this, in turn, depends on compliance with hygienic conditions during milking.

The following depends on the bactericidal phase of milk, and on temperature storage conditions, under proper hygienic conditions.

TABLE 5: DEPENDENCE OF THE BACTERICIDAL PHASE OF MILK ON TEMPERATURE STORAGE CONDITIONS

Storage temperature (°C)	35	30	25	20	15	10	5	0
Duration of the bactericidal phase (hours)	2	3	6	10	15	25	36	48

Boiling milk causes it to lose its bactericidal properties.

Cool milk to the following temperatures when it is delivered for processing: to 15°C if milk is sent for processing within 6 hours after milking; to 10°C if milk is sent for processing no later than 24 hours after milking; and to 4°C if milk is stored on the farm (at home) for over 24 hours.

Store boiled milk in the refrigerator; place cooled milk in the refrigerator in a jar/pot.

PROCESS MILK

Kymyz. The pride of the Kyrgyz is the famous dairy product kymyz, which is made from mare's milk. Kymyz is rich with many essential vitamins and minerals.

Kymyz is a source of unsaturated low-molecular-weight fatty acids, including linoleic and linolenic acids, which are considered essential. In addition, it contains salts of calcium, phosphorus, trace elements of rare metals, and vitamins. Mare's milk contains 10 times more vitamins than cow's milk: one liter of kymyz contains more than 200 micrograms (µg) of vitamin B1, 375 µg of vitamin B2, 256 µg of folic acid, and 2,010 µg of pantothenic acid, etc. Kymyz is rich in vitamins A, E, nicotinic acid, biotin, and especially vitamin C (70–120 µg per liter).

Kymyz also contains such micro-elements as iodine, copper, iron, and titanium. The nutrients in kymyz are almost completely absorbed (up to 95%). In addition, its consumption dramatically increases the digestibility of proteins and fats contained in other foods.

8.3 MILK PROCESSING

To prepare kymyz in the traditional way, you need the following items:

The waterskin (Kyrgyz chanach, a bag made of whole goat's skin) is a container in which fresh mare's milk and sourdough are whipped. A wineskin is made from goatskin and before use it is greased with lamb or goat fat and smoked with pine or other pine branches.

A wooden barrel (Kyrgyz chelek—a cylindrical tapered container with a diameter of 20–40 centimeters and a height of about one meter), made of juniper, which is also greased and smoked before use. Chelek has a lid with a hole in the center for the handle (bishkek).

Bishkek is a whipping pole—a pole with a cross on the end, made from the trunk of a juniper tree.

PREPARATION OF KYMYZ

Kymyz is made by fermenting mare's milk with kymyz sourdough. It is a mixture of Bulgarian and acidophilic lactic acid bacilli and yeast. The antibiotic substances produced by the yeast during fermentation are active against tubercle bacillus.

Periodically (after 7–10 days) the barrel (waterskin) for starter and kymyz is completely released, it is thoroughly washed, greased, and smoked from the inside. You can continue making kymyz in another similar container.

Pour fresh mare's milk and sourdough into the chanach (chelek) and begin a long beating with a bishkek. After beating the milk, let it ferment for 24 hours, periodically beating about 50–100 times every 1.5–2 hours. Before going to bed whip for a long time and leave it till morning; in the morning kymyz is ready for consumption.

THERAPEUTIC PROPERTIES OF KYMYZ

Kymyz is a nutrient-dense beverage that can boost overall health and wellbeing. The drink contains tartaric alcohol and lactic acid and is completely free of chemical preservatives.

Ayran is a dairy product that aids in digestion, has pre-probiotics qualities, and improves overall health and wellbeing.

Ayran is prepared from cow, goat, sheep, and yak milk. It contains pure proteins, lactic acid, vitamins, useful micro-organisms, etc.

Sourdough products—such as kefir, ayran, Suzmö, mashed kurut, kymyz, sour cream, etc.—can be used as a starter.

Prepare ayran: Whole cow's milk: 2–3 liters; sourdough: 2–3tablespoons.

Boil the milk, cool it, put in the starter, and put it in a warm place for 4–6 hours.

Suzmö is the most ingenious invention of the Turkic peoples. Suzmö is a fermented dairy product. It is made by removing the whey from ayran. Ayran is poured into a cotton bag and hung up. The whey flows out through the fabric. The mass left in the bag is white in appearance and resembles cottage cheese.

Externally, Suzmö is similar to cottage cheese, but is very different in taste, odor, structure, and consistency, and most important, has completely different properties. Suzmö can be prepared back to ayran by simply adding whey (liquid strained from ayran). To become ayran, add water to it and it retains the nutrients.

Kurut. The word kurut presumably comes from the Turkic "kuru," which means "dry" or dried. It is a hard cheese made of pressed and dried by the heat of sun, with salt added.

Kurut is a natural source of calcium. Kurut also has medical properties—it suppresses nausea.

Preparation: Kurut is made from different kinds of milk. Most often it is made of cow, sheep, or goats' milk.

Salt the Suzmö, then roll the mass into balls of different sizes, constantly wetting your hands in water; send it for a few days to dry. There are two variants of drying: the first is in the open sun (3–5 days). This technology produces a very dry product, almost stone kurut, which can be stored for years. The second option of drying—in the shade (5–7 days)—gives kurut its softness and tenderness.

There are many varieties of kurut. Traditional is made with the addition of crushed hot red pepper. Kurut with chöbögö (sludge from melted [ghee] butter) is also popular. It is easily distinguished by a specific smell and brownish color. You can store kurut for a very long time (in addition, it is quite filling). By crushing and dissolving balls in water you can make a cool drink called chalap.

NOTE

Kurut stores for a long time under normal conditions, dries out, and becomes very hard. However, it turns sour in plastic bags. Wrap it in paper.

HOMEMADE COTTAGE CHEESE (FATTY)

Ingredients: 5 liters of milk, kefir/sour cream 100–200 grams

RECIPE

- Heat the milk in a saucepan (not hot) about 40°C.
- Allow to infuse for 24 hours in a warm place.
- Put the fermented milk on the stove.
- Bring it to the state of curdling with the separation of the whey.
- Place in gauze.
- Tie it up.
- Hang up to drain off the rest of the whey.
- Put it under the press.
- Place in a food casserole/bag.
- Store in the refrigerator or freezer.

Homemade cottage cheese (skimmed), made in the same way from skimmed milk.

BUTTER

Ingredients: 15 liters of milk

RECIPE

- Heat the milk in a saucepan (not hot) to about 40°C.
- Separate through a separator/remove the top layer of settled milk (cream) with a spoon in a jar to obtain skim milk and cream.
- Refrigerate in a cool place: refrigerator/bowl of water.
- Make sour cream (cream) whipped with a mixer/whisk/hand.
- Separate the buttermilk (liquid) and yellow/white flakes (oil).
- Gather the separated oil flakes into a clump.
- Rinse well in water.
- Squeeze.
- Form.
- Place in a food bag/casserole dish.
- Store in the refrigerator or freezer.

NOTE

Shelf life is up to 3 months (in the refrigerator).

MELTED (GHEE) BUTTER

Ingredients: 1–3 liters of sour cream

RECIPE:

- Place the sour cream in the cauldron.
- Put it on the stove.
- Bring to a boil, with the oil droplets released.
- Stir constantly, this separates the butter from the chöbögö (sludge from the ghee butter).
- Pour the hot oil into a glass/enameled container (can be poured into a previously prepared cleaned, dried, and salted karyn—sheep or goat stomach).
- Cool down.
- Store at room temperature in a dark place or in the refrigerator (oil in the karyn stored in suspension).

NOTE

Shelf life is up to 6 months.

PANEER CHEESE

Ingredients: 5 liters of milk, 1 teaspoon of citric acid

RECIPE:

- Pour the milk into a saucepan and bring to a boil.
- Add citric acid at the beginning of boiling milk.
- Turn off the heat after boiling, stir the milk lightly and allow to cool for 2–3 minutes.
- Prepare a colander with two layers of gauze and pour the curd mass from the pan into it.
- Tie the cheesecloth tightly and pull it out of the colander.
- Leave for 30–40 minutes under the press (2–3 kilograms).
- Remove the press after 40 minutes.
- Remove the finished paneer cheese to the refrigerator.

CHAPTER IX:
Storage of flour and cereal products

Grains, flours, and cereals can quickly absorb moisture and foreign odors. Therefore, it is recommended to store them in a dry room with a constant temperature and without odors. Before storing pasta, flour, cereals, ensure they are well dried, and place in cloth bags or paper sacks.

Put a gauze bag with salt on the bottom of the container with the groats, a 120-millimeter nail in the flour, a piece of foil, or an iron spoon. Put a bay leaf, a clove of raw garlic, a piece of lemon zest, and a sprig of hot red pepper (for prevention against insects) on top of the groats.

Store in a dry, cool, and protected from direct sunlight in a well ventilated place; do not allow the humidity in the groats above 15%.

STORING FLOUR

When storing flour, follow the following conditions:

1. **Air temperature** affects the taste of the product and the ability to persist. Maintain a range of +5°C–+20°C. Higher values negatively affect the binding properties of flour. You can store the product in the cold, for example on the balcony, at temperatures below 0°. In this case, the shelf life of the flour will increase. It is important to avoid sudden changes in temperature, which negatively affects the quality of the product.
2. **Relative humidity:** Do not exceed 60% regardless of the air temperature. In a damp room wheat flour, buckwheat flour, corn flour, or any other flour will quickly go bad. Also, fungus can develop in a humid environment and condensation creates damping of the product and the appearance of mold.
3. **Lighting:** Do not leave flour in direct sunlight. Instead choose a shady place, such as a closed cabinet. As a last resort, wrap the container with the products in foil to prevent the UV rays from penetrating the walls.
4. **Protect against pests:** Organize flour storage conditions to prevent insects from damaging the product. Clean the room and ventilate regularly. Pests are much less likely to appear in a clean room. If pests are found in the product, throw it out because it may contain insect larvae.

STORING CEREALS

To prevent and get rid of pests, heat the purchased groats in a frying pan or oven at 60°C or put it in the freezer for 24 hours in the package from the manufacturer.

Do not store cereals in a plastic bag (may tear).

Pour into another container, preferably a glass or plastic jar/bottle with a lid or into a cloth bag, boiled in a strong salt solution.

SHELF LIFE

- Buckwheat, semolina: up to 6 months.
- Millet, oatmeal, hercules: no more than 4 months (because of the high fat content and possible rancidity, especially millet).

STORE RICE AT HOME

More than half of the world's population eats rice. There are many varieties of rice whose grains differ in taste, appearance, and nutritional and useful properties. The most common is white rice, which is ground from the bran shell. Due to the loss of most of the nutrients, it is considered the least healthful. A healthy diet includes brown rice, with white steamed rice as an alternative.

The shelf life of rice is 10–18 months. Specific shelf life for each type of cereal depends on the technology of grain processing in the factory and the type of rice.

Unrefined varieties of grain (handmade uzgen: brown and Batken rice) contain rice oil as part of the bran shell, which can quickly go rancid. The shelf life of such rice should not exceed 12 months.

Uzgen rice (varieties Devzire, Kara-kyltryk, Akuruk, (arpa shaly), Kazim)

Batken rice (Devzere, Chon-Kara, Ak-Turpak, Alyanga, etc.)

White rice has longer storage: from 16–18 months.

For long-term storage of cereals use glass, ceramic, or plastic containers with an airtight lid. As an alternative, store cereals in textile bags, but they are much inferior to hermetically (airtight) sealed dishes. Store the jar with cereal in a dark, dry, and cool place. A pantry or kitchen cupboard is ideal. Abrupt changes in storage conditions adversely affect the taste and useful qualities of the product. Place rice grits next to other cereals and avoid the space with spices and products with a pronounced odor. Do not allow moisture to penetrate inside, as high humidity reduces the shelf life of rice, creates favorable conditions for growth, and encourages pests and mold formation.

NOTE

A bag of salt will protect the grits from excess moisture and prevent unpleasant odors.

The optimum storage temperature for rice is 5°C–15°C, the humidity level should not exceed 65%–70%. The recommended maximum temperature should not exceed +18°C. These values should be constant, without sharp changes. The room should be ventilated and closed off from bright light.

NOTE

To minimize the likelihood of bugs in rice grits, put a few cloves of raw garlic, mint-flavored chewing gum, dried lemon or orange zest, bitter paprika, bay leaf, chestnut, and cloves in the grains. If bugs have gotten into a lot of rice, store it in the sun. Bugs don't like sunlight and crawl away to dark and damp places.

According to the established sanitary and epidemiological requirements, do not use expired products, including rice. However, as practice shows, it is allowed to use groats after the regulated period of validity, if the grains have maintained a proper appearance, and have no foreign smell, moldiness, or insects. It is possible to use such rice if the expiration date has recently expired. When several years have passed from the final date of use, do not use the groats.

NOTE

Signs of spoiled grits. Spoiled rice has a musty smell and you can see many yellow grains. These indicate the development of mold fungi, which makes the groats unsuitable for further use.

Beans. One of the best ways to store beans is to put them in a cool place. This is extremely important because a low temperature prevents pests from activating and damaging the beans. Take care to ensure that the temperature in the place where the beans are placed does not exceed +7°C. Even if the beans are stored at -5°C, they will retain their taste and health benefits.

PRESERVE BEANS FOR THE WINTER

Before you preserve beans for the winter, carry out these operations:

1. **Dry.** When the weather is dry and sunny, spread out the pods on a flat surface and leave in the sunlight until evening. After it gets dark, place the beans in boxes or baskets and continue drying the next day.

   You can also gather the bean crop into brooms and hang them in a well-ventilated place. The result will be the same as drying in sunlight.

2. **Prepare beans for long-term storage.** The beans are fully ripe when the pods are dry and the flaps have started to open. They should feel firm to the touch. Take the beans out of the pods and put them in the prepared container. Use cloth bags and glass jars that are tightly closed and metal or glass lids. Polyethylene bags are unreliable: they let air in. Also, use bags sewn from natural fabric, or hold them in a weak saline solution and dry.
3. **Place the beans in a cool place.** The best option is the refrigerator. With the onset of frost, place the beans in another cool place.

   If you follow these rules, the beans will keep for two years.

4. **Another method used to help save beans** until the next harvest is to heat the beans: spread them, freed from the pods, out on a tray and put into the oven for 10 minutes at a temperature of 90°C. Pour the beans into a container, which can be hermetically sealed, and put in the refrigerator.

STORE BEANS AT ROOM TEMPERATURE

Another interesting way to store beans, even at room temperature: pack kernels in small boxes or containers. Then, add some dill seeds and garlic cloves to each container. For one kilogram of beans, add 10 to 20 grams of dill seeds; for the same mass, four cloves cut into several parts of garlic are enough. This discourages beetle-grain beetles.

CLEAN THE BEANS

- When the beans are 80% mature, harvest, starting with the bottom pods.
- Dry in the field or pull the bush out with the root.
- Hang upside down in a well-ventilated room.
- Dry for 7–10 days depending on the weather.
- When the stalks are dry, beat the grains and gather them on a sack or other cloth.
- Separate: remove sick beans.
- Spread on a baking tray.
- Dry in the sun.
- Pour the beans into a glass jar or bags.
- Close/screw the lid.

Shelf life: up to 2 years

FREEZE BEANS IN THE MILKY STAGE OF RIPENESS

Beans in the milky stage of ripeness are a good dressing for a variety of dishes.

PROCESS TECHNOLOGY

- Select green beans in milky ripeness, not diseased.
- Wash the beans several times under running water.
- Trim off the ends on both sides, cut into 1-centimeter slices.
- Blanch for 5 minutes, then remove with a slotted spoon.
- Transfer to a colander.
- Cool down with cold running water.
- Place on a paper towel.
- Allow to dry slightly.
- Label the package.
- Lay out the beans in plastic bags, portion by portion.
- Pack and close the packages.
- Freeze.

NOTE

Beans in the milky stage can be harvested two weeks after flowering. To determine ripeness of the pods, press your nail on the skin (it should press through the skin).

CHAPTER X:
National Fermented Drinks "Bozo" and "Maxym"

National drinks: a natural, safe, environmentally friendly product with high biological value. They are recommended without restrictions for all age groups. Include them in the regular diet of the inhabitants of environmentally disadvantaged areas, sportsmen, and people working in hot climates and other extreme conditions.

BOZO

Bozo is a traditional, relaxing, healing drink made from selected varieties of millet (corn, barley) and malt. It has a unique set of health benefits: warming, healing, restorative, and invigorating. Millet contains valuable nutrients, including proteins, fats, carbohydrates, vitamins, and minerals.

TABLE 6. RECIPE FOR BOZO DRINK MADE OF MILLET

Component Name	Quantity (grams)
Millet	1,000
Fried wheat flour, 1st grade	100
Wheat malt (ugut)	150
Sourdough	250
Water	5,000
Mass of the thick part after filtration	1,200
Output of the finished drink	5,250–5,300

1. To prepare, wash ugut wheat, pour with water at 40°C–2°C and leave to swell at 20°C—22°C for a day. Wash off unabsorbed water, put swollen wheat into a bag of loose cotton material. Cover the bag with wheat with a canvas and leave on a table for 4 days for germination. Periodically turn the bag over. After germination, pass the wheat through a meat grinder and spread out on a dry table, turning it over periodically. Ground the dried wheat to a powdery state.
2. To prepare fried flour, heat melted fat, pour flour into it, and fry until it turns golden. Then cool it down.
3. Prepare the starter: use a leftover portion of the previous Bozo drink as a starter; use diluted baker's or brewer's yeast as a primary starter.

4. Prepare the drink Bozo. The main raw material is cleaned grain. Then wash the grains. Crush the raw material (except the millet). Add millet groats (crushed grain) to water. Boil and stir until the mixture thickens. To determine the desired consistency of porridge, continue stirring, then leave a spoon in the cauldron vertically and it will stay upright. Let cool until warm, which will take 5–6 hours.

5. Soak and ferment. Add ute to the porridge and stir; the porridge quickly liquefies. Add the starter and leave for fermentation until morning (about 10 hours).

6. In the morning, strain through a capron cloth; the drink is ready.

TABLE 7. CHARACTERISTICS OF THE DRINK BOZO

Appearance	Opaque liquid
Color	Light brown
Consistency	Thick cream with sludge
Smell	Fermented mass
Taste	Specific, sour, tart

MAXYM DRINK

The traditional drink Maksim-Shoro (Maxym) has medicinal properties, exquisite taste and aroma, and quenches thirst and hunger. It is a tonic drink made from selected varieties of barley, wheat, and corn. Maxym is rich in vitamins and minerals that are essential to life.

INGREDIENTS

400 grams of talcum powder, 10 liters of water, 100 grams of wheat flour, 500–600 grams of sourdough, salt to taste.

PREPARE THE DRINK MAKSYM

The ancient cold drink Maksym is made from wheat, barley, or corn talcane. Sometimes barley talcane is mixed with corn or wheat talcane.

The best quality Maksym comes from barley talcane. Maksym made from it because it ferments well, the talcum doesn't settle in it, and most important, it tastes good. Depending on what kind of talcum powder is used to make Maksym, it has different names: barley Maksym, wheat Maksym, etc.

Heat the water, stir, pour in the talcum powder, stir to avoid lumps, add salt, and cook until tender.

Remove from the heat, cool to 25°C, stir occasionally, then pour into the bowl with the leaven, add flour, and stir. Place in a warm place, cover. In 8–10 hours Maksym will be ready. As a starter for fermentation, you can use Maksym prepared the previous day, a spoon of beer, or baker's yeast. When serving, stir it thoroughly.

Prepare the Maksym drink every day to ensure the drink does not lose its fermentation power.

Ready-to-drink beverage has a grayish wheat color and a pleasant taste with the aromatic smell of roasted grain. This drink is good for everyone: adults and children. Maksym is called the liquid bread, which can be drunk from childhood to old age. The Ministry of Health of the Kyrgyz Republic and the Institute of Nutrition of the Academy of Sciences of the Kazakh Republic recommend it as a non-alcoholic, nutritious tonic, and health-improving drink.

CHAPTER XI:
Rules for Storing Food in the Refrigerator

Important: When you bring products from the store, do not put them in the refrigerator in cellophane packaging. Condensation, bacteria, and mold can quickly form in this environment.

What containers do you put supplies in so they do not spoil before time?

Cling wrap. Perfect to cover bowls with leftovers from prepared meals and snacks.

Parchment paper is suitable for baking. Thanks to good air circulation, you can use it pack cheese, sausages, and smoked meats.

Foil. Seals perfectly, preventing the product from getting weathered and losing moisture. Use for prepared snacks, fish, cutlets, and slices.

Antibacterial mat. You can keep fruits and vegetables fresher for longer. It is recommended to wash and dry them and put them in the lower drawers by laying the mat. Thanks to the membrane with holes, air circulates freely, saturating the fruit.

Containers made of plastic. You can store ready-made snacks and fresh food. If the container is cracked or scratched, discard it.

Glassware is the safest and most durable option. You can store everything from cooked food to meat, fish, and milk.

Vacuum pots. Can prolong the shelf life. Thanks to good sealing they do not let oxygen in and they prevent the growth of bacteria.

Wooden containers. Preserve fruits and vegetables well.

WHEN STORING FOOD IN THE REFRIGERATOR, FOLLOW THREE PRINCIPLES

1. **Temperature principle of food storage.**
   It is not recommended to store perishable products on the refrigerator door: eggs, milk, dairy products. Although, as a rule, refrigerator manufacturers provide egg storage cells on the door. Use special plastic egg storage containers. Dairy products and eggs need constant cold to stay fresh, and because the door is constantly opened and closed, the temperature fluctuates. Keep milk, sour cream, kefir, cottage cheese and other perishable dairy products closer to the evaporator (freezer).

2. **The principle of separate storage.**
   It is recommended to store vegetables and fruits in separate containers. For fresh fruits and vegetables, the lowest part of the chamber is intended, as a rule, separated from the general part by transparent glass and equipped with special trays. It is not recommended to remove this glass shelf, as it allows you to maintain a certain humidity in the containers and thus helps to preserve the freshness of fruits and vegetables. Before laying, clean fruits and vegetables from the ground, wash, wipe with a dry cloth and put in plastic bags. Store the berries in a sealed container or plastic bags on the middle shelf.

   Store vegetables only in special containers placed at the bottom of the refrigerator. Long-term storage of vegetables is possible, but at the same time they must be regularly inspected and wiped off the condensation that has appeared on them.

   Fruits and vegetables that do not need to be stored in the refrigerator: pineapple, orange, watermelon, basil, eggplant, banana, pomegranate, grapefruit, ginger, lime, lemon, mango, cucumber, papaya, pepper, tomato, persimmon, apple. Naturally, this applies only to intact and uncut fruits. It is undesirable to put these vegetables and fruits in direct sunlight or near the stove.

   In a dark cool place, you can store onions, garlic, potatoes, pumpkin, zucchini, squash, shallots. The main thing is to maintain good air circulation.

   More convenient are containers with a special lid that retains the necessary moisture, with which, on the contrary, drops should not be wiped off.

   Vegetables and fruits emit different gaseous substances (e.g., ethylene) that affect the vegetables and fruits in different ways. They must be divided. In addition, when these products are in close proximity to one another, their decay can accelerate.

   Also, raw and cooked foods should not be stored together.

3. **Cleanliness in the refrigerator**
   It is better to store only packaged foods in the refrigerator.

   Before storing food in the home refrigerator, they must be packaged and wrapped. For this purpose, parchment, aluminum foil, food packaging cellophane are recommended, plastic bags are suitable, but only those intended for food storage. Resealable glass or enamelware is also suitable.

   Try to always wrap any food in storage bags (foil). The fact is that some of them have a pungent odor, and some, on the contrary, actively absorb it. So if you don't like strawberries with the smell of Roquefort, it is better to spend money on storage bags. In addition, the wrap prevents moisture loss, which contributes to a longer storage of the product without losing its appearance and taste. The use of foil and bags for refrigerators with the No Frost system is especially important. In such refrigerators, the use of film, and even better, special sealed containers, is simply a must.

   You can store food in paper bags. They breathe well, prevent the formation of mold and fungus and keep food much longer.

   By storing food properly, you'll waste less food, keep food fresher longer and go to the store less often.

TABLE 8. FRUITS AND VEGETABLES FOR STORAGE IN THE REFRIGERATOR

Do Not Store in the Refrigerator		Possibility of Storage	
Fruit	• Bananas • Pomegranate • Mango • Citrus fruits • Melon • Pineapple • Orange • Watermelon	**Fruit**	• Apples • Apricots • Pears • Figs • Cherries • Plums • Peaches • Table grapes
Vegetables	• Tomatoes • Cucumbers • Eggplant • Potatoes • Pumpkin • Zucchini	**Vegetables**	• Artichoke • Green salad • Cauliflower • Broccoli • Carrots • Radishes • Red beets • Celery • Spinach

Rule of thumb: The very top of the refrigerator is for things that are only stored for short periods of time! Use the bottom of the refrigerator to store vegetables, fruit, and things that need refrigeration: milk, eggs, cheese, etc.

TABLE 9. PECULIARITIES OF PREPARATION AND STORAGE OF INDIVIDUAL FRUITS AND VEGETABLES FOR STORAGE IN THE REFRIGERATOR

Product	Storage Features
Green onion	Straighten the stems, wrap in paper towel, and place in a bag with small holes.
Broccoli	Put the broccoli in a bag without holes, remove the air from the bag, close the bag with rubber bands, and make two or three holes with a toothpick or match.
Greens	Set temperature for all greens (except basil), at +1°C—3°C. Store herbs in closed but unsealed bags. Add a paper towel. Fold over the ends of the bag without pulling over.
Salad lettuce	Remove diseased and damaged lettuce. Wrap in a paper towel and place in a tightly closed bag with lots of small holes.
Sweet pepper	Store in a bag with large holes and a paper towel that will absorb the fumes from the peppers.
Fruit	Place fruit in separate containers and bags.

TABLE 10. STORING DAIRY PRODUCTS IN THE REFRIGERATOR

Product Name	Shelf Life in the Refrigerator	Storage Features
Freshly steamed milk	12 hours boiled	In a glass jar or bottle with the lid on
Pasteurized store milk	15 days	In a pack or polyethylene factory packaging
Creamer	25 days	Packaged appropriately
Condensed milk	1–3 months	Packaged appropriately
Hard cheese	15 days	In polyethylene
Cottage cheese	72 hours	In a plastic well-ventilated container
Processed cheese	12 days	In a foil package
Sweet cheesecake	20 days	Pre-packaged
Butter	15 days	In parchment or in an oil can
Ghee	5 days	Packed
Sour cream	72 hours	In a glass container or polyethylene package
Sweet yogurt	48 hours after opening the package	Packaged appropriately
Natural yogurt	72 hours from date of manufacture	In glassware
Sourdough 72 hours	Since production	In glass jars
Sourdough	3 days	In a glass jar
Chicken eggs	21 days	In a special container

TABLE 11. STORE MEAT PRODUCTS IN THE REFRIGERATOR

Product name	Shelf Life in the Refrigerator	Storage Features
Fresh lamb	48	In a sealed container, glass, or enamel
Chilled poultry	48	Bundled
Homemade sausages	72	In a plastic food container
Sausages purchased	72	In the manufacturer's package
Boiled sausage	48	In the manufacturer's packaging; cover the cut with food film
Smoked sausage	72	Packaged appropriately
Smoked sausage	72	In a plastic bag
Cutlets, ready- to-cook meat products	48	In a plastic food container
Dumplings, semi-finished products	48	In a container
Stuffing meat	12	In a ventilated container
Salo	2–3 months	In parchment paper
Ham	72	In polyethylene

TABLE 12. SEAFOOD STORAGE IN THE REFRIGERATOR

Product Name	Shelf Life in the Refrigerator	Storage Features
Fresh fish	12	In an open bowl, covered with cling film
Chilled fish	10	In any dish
Seafood	7	In a plastic food container
Sea kale	72	In a plastic bag or in a container
Salted fish	24	In a plastic bag
Smoked fish	72	In a plastic bag
Dried fish	1–2 months	In parchment paper

TABLE 13. STORE PRODUCTS WITH A SHORT SHELF LIFE IN THE REFRIGERATOR

Product Name	Shelf Life in the Refrigerator	Storage Features
Cakes and pastries	12–24	Sealed
Pies	24–48	In a special container
Pies	48	In a sealed container
Prepared meat and meat dishes	48	In a tightly sealed container
Soups and borsch with meat broth	24	In a plastic or glass container
Potatoes and potato dishes	24	In a container
Vegetable salads with sour cream dressing	12	In glassware
Meat sandwiches	5	In cling film
Meat salads	6	In a container
Vegetable dishes	24	In plastic dishes
Vegetable salads with vegetable oil	18	In a glass sealed container
Sausage and cheese sandwiches	4	In cling film

TABLE 14. STORE VEGETABLES, FRUITS, AND BERRIES IN THE REFRIGERATOR

Product Name	Shelf Life in the Refrigerator	Storage Features
Tomatoes	10 days	A plastic bag or a vegetable container
Cucumbers	15 days	Vegetable container
Celery	5 days	Package
Dill	72 hours	In a jar of water
Parsley	72 hours	In a jar of water
Cabbage	20 days	Bundled
Onion	1–3 months	In bulk in a special container
Lettuce	48 hours	In an open container
Potatoes	1–3 months	In bulk or in a bag
Radish	12 days	Packed in plastic
Carrots	1–2 months	Bulk
Eggplant	15 days	Bundled
Beets	1–3 months	Bundled
Zucchini	7 days	In a special vegetable container
Sweet pepper	12 days	Bulk
Apricots	6 days	In a plastic open container
Apples	15 days	Bulk
Bananas	78 hours	Bundled

TABLE 14. STORE VEGETABLES, FRUITS, AND BERRIES IN THE REFRIGERATOR (CONT.)

Product Name	Shelf Life in the Refrigerator	Storage Features
Persimmon	12 hours	On the shelf by the piece
Cherry	72 hours	Packed in plastic
Cherry	48 hours	Bundled
Plum	7 days	Package
Raspberry	10 hours	Special well-ventilated container
Strawberries	12 hours	Plastic container
Bramble	72	Hours any package
Currant	72 hours	Any packaging
Watermelon, melon	12 hours	From the moment of the cut, cover the cut with food film

KEEPING REFRIGERATED FOOD IN THE REFRIGERATOR DURING POWER OUTAGES

As the U.S. Department of Agriculture notes in its article, "Keeping Food Safe During an Emergency," your refrigerator will keep food safe for up to 4 hours during a power outage. Keep the door closed as much as possible. Throw out refrigerated perishables—meat, poultry, fish, eggs, and leftovers—after 4 hours without power.

TABLE 15. STORE CHILLED FOOD IN THE REFRIGERATOR DURING POWER OUTAGES

Product	Contains Ice Crystals, Semi-Frozen	Cured at a Temperature above 4°C for More Than 2 Hours
Meat, Poultry, Seafood		
Meat, poultry, seafood: all kinds of cuts	Freeze	Do not use
Stews, soups	Freeze	Do not use
Dairy Products		
Milk	Defrosted (some loss of texture)	Do not use
Eggs (without shell) and egg products	Freeze	Do not use
Ice cream, frozen yogurt	Freeze	Do not use
Cheese (soft and semi-soft)	Thawed (some loss of texture)	Do not use
Hard cheeses	Freeze	Do not use
Fruit		
Juices	Freeze	Re-freeze
Vegetables		
Juices	Freeze	Throw out after sitting at a temperature above 4°C for 6 hours.
Packaged or blanched vegetables	Repeated freezing (some loss of quality)	Throw out after sitting at a temperature above 4°C for 6 hours.

TABLE 15. STORE CHILLED FOOD IN THE REFRIGERATOR DURING POWER OUTAGES (CONT.)

Product	Contains Ice Crystals, Semi-Frozen	Cured at a Temperature above 4°C for More Than 2 Hours
Bread and Pastries		
Bread, rolls, muffins, cakes (no custard filling)	To freeze	To freeze
Cakes, pies, pastries with custard or cheese filling	To freeze	Do not use
Cakes, homemade bread dough	Repeated freezing (some loss of quality)	Refreezing (may lose texture and taste)
Other Types of Products and Dishes		
Casseroles: rice-based pasta	To freeze	Do not use
Flour, cornmeal, nuts	To freeze	To freeze
Breakfast products: waffles, pancakes, bagels	To freeze	To freeze
Frozen dish, main course, signature dish (pizza, sausage and biscuit, meat pie, semi-finished products)	To freeze	To freeze

NOTE

After a power outage, never test food to determine if it is safe by consuming it.

References and Resources

Agronomist Expert. Articles about rice. Accessed 03/24/2023. https://agronom.expert/posadka/ogorod/zlaki/ris

American Meat Storage Association. "The meat we eat." https://meatscience.org/themeatweeat/meat-tips/storage

Basic Food Prepper. "How to Preserve Rice for Long-Term Storage." Accessed 03/24/2023. https://basicfoodprepper.com/how-to-preserve-rice-for-long-termstorage

Cornell Cooperative Extension of Chemung County. 2004. Storage Guidelines for Fruits and Vegetables. Rev. 3.04. Elmira, NY: Cornell Cooperative Extension. http://chemung.cce.cornell.edu/resources/storage-guidelines-for-fruits-vegetables

Country Councils. "How to Store Garlic." Accessed 03/24/2023. https://dachnye-sovety.ru/kak-xranit-chesnok-10-proverennyx-sposobov/

Food Construed. "Storing Walnuts." Accessed 03/24/2023. http://foodconstrued.com/2011/11/storing-walnuts/

Fresh Eggs Daily with Lisa Steele. "Proper Egg Handling and Storage." Accessed 03/24/2023. https://www.fresheggsdaily.blog/2012/06/handling-and-storing-eggs.html

Get Crackin. "Egg Storage, Freshness and Food Safety." Accessed 03/24/2023. https://www.eggs.ca/eggs101/view/39/eggstorage-freshness-and-food-safety

EDAPlus. "The Food Pyramid." Accessed 03/24/2023. https://edaplus.info/tips-on-nutrition/food-pyramid.html

Indian Express. 2019. "Kitchen hacks: Keep bugs away from rice with these simple tips." https://indianexpress.com/article/lifestyle/food-wine/kitchen-hacks-rice-storage-insects-bugs

Islamov, A., Moiboroda O. 2017. Food Storage Guidebook. Bishkek, Kyrgyz Republic: Strengthening Partnerships, Results, and Innovations in Nutrition Globally (SPRING). https://www.spring-nutrition.org/sites/default/files/publications/tools/spring_storage_booklet_russian.pdf

Nordin, Stacia. 2016. Sustainable Nutrition Manual: Food, Water, Agriculture & Environment. 2nd ed., Ed. Sarah Beare. Lilongwe: World Food Programme Malawi.

Open.kg. "Gulazyk - a dish of nomadic Kyrgyz." Accessed 03/24/2024. https://www.open.kg/about-kyrgyzstan/culture/kyrgyz-cuisine/soups-ofkyrgyzstan/35248-gulazyk-blyudo-kochevyh-kyrgyzov.html

Podvaldoma. "Storing Onions and Leeks in the Cellar." Accessed 03/24/2023. https://podvaldoma.ru/ispolzovanie/hranenie/kak-hranit-luk-v-pogrebe.html

Povar.ru. Recipes. Accessed 03/24/2023. https://povar.ru/recipes/melanj_yaichnyi-47055.html

Retail Kyrgyzstan. Accessed 03/24/2023. http://www.retailkyrgyzstan.com/retail-kyrgyzstan/distinctive-features-of-kyrgyz-trade.htm

UNDP (United Nations Development Programme) Kyrgyzstan. 2011. Voices of Batken. Batken: UNDP Kyrgyzstan. https://www.undp.org/sites/g/files/zskgke326/files/migration/kg/UNDP-kgz-Voices_of_Batken_Aid4Trade_RUS.pdf

UNDP (United Nations Development Programme) Kyrgyzstan. 2014. Gifts of Batken. Batken: UNDP Kyrgyzstan. https://www.undp.org/kyrgyzstan/publications/gifts-batken

USDA (U.S. Department of Agriculture). "Safe Food Handling and Preparation." Accessed 03/24/2023. https://www.fsis.usda.gov/food-safety/safe-food-handling-and-preparation

USDA U.S. Department of Agriculture. "Beef from Farm to Table." Accessed 03/24/2023. https://www.fsis.usda.gov/food-safety/safe-food-handling-and-preparation/meat/beef-farm-table

WHO (World Health Organization). 2007. Five Keys to Safer Food. Accessed 03/24/2023. https://apps.who.int/iris/bitstream/handle/10665/87740/9789244594636_rus.pdf?sequence=1&isAllowed=y

USAID ADVANCING NUTRITION
Implemented by:
JSI Research & Training Institute, Inc.
2733 Crystal Drive
4th Floor
Arlington, VA 22202

Phone: 703–528–7474
Email: info@advancingnutrition.org
Web: advancingnutrition.org

May 2023

USAID Advancing Nutrition is the Agency's flagship multi-sectoral nutrition project, addressing the root causes of malnutrition to save lives and enhance long-term health and development.

This document is made possible by the generous support of the American people through the United States Agency for International Development (USAID). The contents are the responsibility of JSI Research & Training Institute, Inc., and do not necessarily reflect the views of USAID or the United States Government.