

In our article we have analysed the garbage sorting problems. We came to the conclusion that there are some problems with people's attitude toward the garbage recycling. Our country has a lot of waste processing plants and they are quite active. But, since Ukrainians practically refuse to sort garbage, these plants do not have enough recyclable materials for processing and they are forced to buy garbage abroad. As a result they buy plastic in Poland, paper in the Baltics and Russia - which is very irrational considering how much of our waste is literally rotting in landfills.

Taking into consideration all of the above, we can conclude that Ukrainian garbage problem is very harmful for its citizens and in order to solve this problem, first of all, it is necessary to convince our citizens that garbage sorting has numerous advantages. Every Ukrainian should clearly understand its principles. At the same time, it is necessary not only to monitor compliance with the rules for citizen-sorting, but also to encourage them to do it on their own.

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**Language adviser:** *Kravets O.O., Senior Teacher of Foreign Languages Department, Dmytro Motornyi Tavria State Agrotechnological University*

## MELON JAM. RULES OF TRANSPORTATION, ACCEPTANCE, STORAGE OF RAW MATERIALS AND AUXILIARY MATERIALS. WAYS OF WASTE UTILIZATION

**Rudakova A.,** *rudakovaanna13@gmail.com*  
*Dmytro Motornyi Tavria State Agrotechnological University*

Jam - is a dessert made by boiling various fruits (berries, fruits and even some vegetables) with sugar. The benefits of jam are due to the plant vitamin component, and sugar acts as a preservative.

The composition of melon is a unique combination of fiber, vitamins, minerals and biologically active substances, many of which are natural antioxidants.

Jam is a high-calorie product, so do not eat it in large quantities. Because most of the useful elements in the preparation of jam - are destroyed.

Fruit blanching leads to denaturation of protoplasm proteins, which increases its permeability to sugar syrup. The fruits are treated with hot steam or hot water, 0.1% solution of citric or tartaric acid: Melon is blanched (5 - 10) min at (90 - 100)°C.

Syrup preparation. Purpose: to improve the taste and consumer properties of the product. Dissolve a given amount of sugar in boiling water, filter through a cloth.

Filling the fruit with syrup. Purpose: to accelerate the diffusion of sugar into the tissues, to facilitate cooking. The concentration of syrup when pouring 70-75%. The temperature of the syrup when pouring (70 - 80)°C.

The main purpose of fruit cooking is uniform saturation of fruit syrup without violating their integrity and shape. Prepared fruits are loaded into a cooking pot, filled with sugar syrup. When cooking fruits and berries, they are two mutually opposite processes: moisture due to osmotic pressure goes into the syrup, and the syrup diffuses into the fruit due to differences in sugar concentration. Cooking fruit in syrup should be alternated - heating, then cooling, and so many times. The number of cooking melon jam is – 3.

The boiling point of the finished jam 106...107°C. Duration of endurance at cooking in double-walled coppers (5 - 6) hours, in vacuum devices - 10 min.

The main purpose of clogging the jam is to prevent the ingress of outside air and microorganisms. It is carried out by the varnished metal covers. The time from sealing to sterilization / pasteurization should not exceed 30 minutes

The purpose of sterilization and pasteurization is the destruction of microorganisms that cause spoilage. Ensuring long-term storage of the product. Carried out at 100°C at an autoclave pressure of 118 kPa for 10 - 20 minutes depending on the capacity of the container.

For the fact that the jam is divided into three varieties - extra, higher and first. Sorting of jam is set by organoleptic parameters. Extra jams are made only from fresh raw materials.

**Table 1- Organoleptic properties of jam**

Name	Characteristic
Appearance	The fruits should be the same size, not wrinkled, evenly distributed in the liquid syrup, without signs of saccharification.
Taste	sweet with melon flavor
Smell	the smell of melons
Consistence	thick

Packaging of fresh vegetables and fruits prevents them from mechanical damage, provides better storage during transportation. Packaging containers are box pallets, wooden, cardboard and polymer boxes, tray boxes, cloth, mesh and polymer bags, baskets, etc.

Melons are placed in box pallets with a net weight of up to 350 kg and in wooden boxes with a net weight of up to 35 kg. Containers must be clean, dry, durable, free of odors. Each type of packaging is marked, which indicates the trademark or name of the supplier, the name of the vegetable (fruit), its brand, gross weight, net, regulatory document, etc.

For transportation of fruits and vegetables use traditional and new types of automobile refrigerated transport - cars with an isothermal body, cars-ice and cars-refrigerators at which temperature in a body makes 4-18°C (at an outside air temperature of 30-40°C).

Products transported in standard packaging must meet the requirements of relevant standards or specifications. In the car body products are stacked in dense rows, without gaps, evenly in length and width. The distance between the ceiling and the top row should be not less than 30-85 cm. Melons are stacked in rows, but not more than 5 rows. Each row is laid with a layer of straw or other packaging material.

When transporting fruit in open boxes between the rows of boxes lay a wooden board, the size of which corresponds to the size of the body, or several large boards. Boxes are stacked in 3-4 rows so that the top row protrudes above the sides of the car body no more than half of its height, tied with rope and covered with tarpaulin.

Storage technology is to keep the fruit in viable condition for the longest time. To do this, there are optimal storage conditions, which depend primarily on temperature, relative humidity and air circulation.

For this purpose, vegetables and fruits are stored in the simplest (seasonal) or stationary storage. Seasonal storages are kagats, trenches with natural and active ventilation. Kagats do not require large costs for equipment, they can be placed in places of cultivation and in compliance with all requirements to obtain an economic effect. Stationary storages have advantages over seasonal storages, because they can provide better safety and high quality products, reduce losses, but their maintenance is much more expensive than seasonal storages.

The most perfect method of ventilation is active ventilation, in which the outside air supplied by the fans passes through the thickness of vegetables and fruits.

Pumpkin vegetables are stored in containers. Watermelons, pumpkins and melons can be stored on shelves in a row on a soft bed of straw, leaves, pine needles, peat. Melons are not allowed to be stored next to vegetables or apples.

Melons are stored for 2-7 months. at a temperature of 0-1°C, relative humidity, respectively, 85-90% and 70-75%.

Sugar is transported by all means of transport, but sugar packaged in plastic bags and packed in corrugated cardboard boxes can only be transported by road. Covered wagons, sugar trucks and containers must be dry, without cracks, with a top that does not leak. It is forbidden to send sugar in contaminated wagons, containers with traces of cargo that can contaminate sugar, have an odor, as well as poisonous. At the time of storage of granulated sugar, the relative humidity should not be higher than 70% at the level of the surface of the bottom row of packaged sugar, and refined sugar - 75%.

Refined sugar and packaged granulated sugar must be stored at a temperature not higher than 40°C. Sugar (over a year) can be stored in warehouses that are heated and not heated. The temperature of sugar should not exceed 25°C, and the minimum air temperature in heated warehouses should be 12°C.

Shelf life of packaged granulated sugar in heating warehouses - up to 8 years, in non-heating - from 1.5 to 4 years, taking into account storage conditions and type of packaging; refined sugar in heating warehouses - up to 8, in non-heating - up to 5 years. During storage, sugar can adsorb foreign odors, causing it to lose fluidity and form lumps.

According to the degree of intensity of the negative impact of food industry enterprises on the environment, the first place is occupied by water resources. In terms of water consumption per unit of output, the food industry is one of the first places among the sectors of the economy. The high level of consumption causes a large amount of wastewater in enterprises, and they have a high degree of pollution and pose a danger to the environment.

The bulk of waste and by-products of the food industry - about 70% - is used directly for feed purposes in animal husbandry, about 20% is sent to the production of food and technical products, the rest is used as fertilizer and fuel. Food waste is very bulky, contains a lot of moisture, is not very transportable and cannot be stored for a long time.

Many products are made from waste. These are feed and baker's yeast, alcohol, laundry soap, whey. In addition, thousands of tons of pectin and fruit powder, vegetable oil, citric and glutamic acid are obtained from waste. The main wastes of the fruit and vegetable industry in the production of canned food are fruit cleaning wastes.

Possibilities of using melon waste are reduced to obtaining feed for birds and cattle, separating seeds, drying, and obtaining oil. Products are stored in well-ventilated warehouses on racks at a relative humidity of 75%.

Storage temperature of sterilized jam packed in glass and metal jars - from 0 °C to 25 °C and not sterilized jam packed in barrels or plywood drums - from 0 °C to 12 °C.

Therefore, the shelf life of the jam from the date of manufacture is sterilized 24 months; not sterilized - 12 months. Transportation must be carried out by all modes of transport in accordance with the rules of transport organizations for the carriage of goods operating on the specified mode of transport. The integrity of the jam must not be damaged during transportation.

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**Language adviser:** *Kryvonos I.A., Senior Teacher of the Department of Foreign Languages, Dmytro Motornyi Tavria State Agrotechnological University*

## THE IMPORTANCE AND PRINCIPLES OF OPERATING OF SUSTAINABLE GEOSPATIAL SYSTEMS IN UKRAINE TODAY

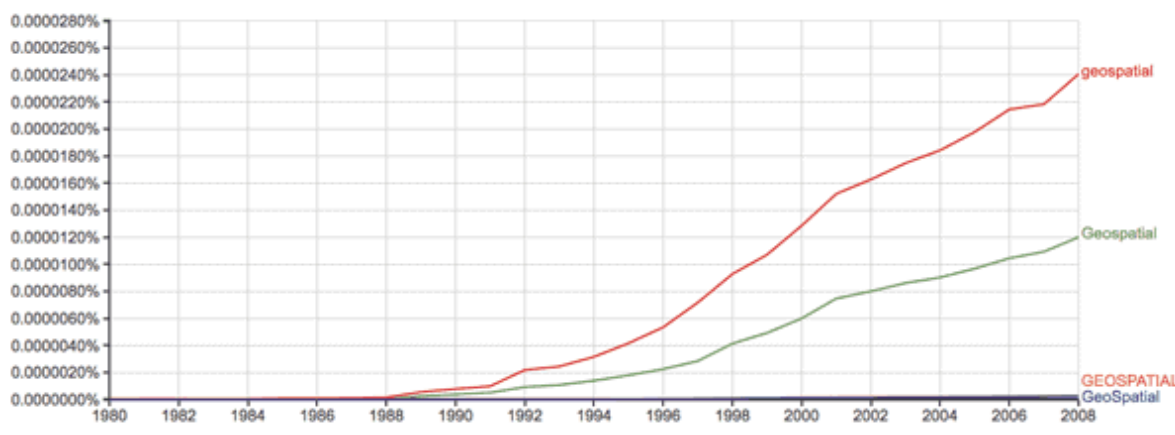
**Semeniuk Y.O.,** *lizzavetta.44@gmail.com*

*Dmytro Motornyi Tavria State Agrotechnological University*

Land reform in Ukraine is not limited to lifting the moratorium on the sale of agricultural land and the introduction of a land market. It also adopted a number of less popular but no less important pieces of legislation. One of them is the Law of Ukraine “On National Geospatial Data Infrastructure”, adopted by the Verkhovna Rada of Ukraine on April 13, 2020.

### What is Geospatial?

The term geospatial is a term that has only recently been gaining in popularity and is used to define the collective data and associated technology that has a geographic or locational component. A search using Google’s Ngram Viewer (Fig.1.) shows that the term only entered literature during the late 1980s and has rapidly been rising in frequency ever since then.



**Fig.1. The term “Geospatial” in literature**

Geospatial technology refers to all of the technology used to acquire, manipulate, and store geographic information. GIS is one form of geospatial technology. GPS, remote sensing, and geofencing are other examples of geospatial technologies.

Restrictions on COVID-19 from 2020 have affected the mode of operation and consumer demand. Global construction, changes in land cadastres, remote management of territories and objects have influenced the emergence of a large number of new modern GIS programs in different countries. Compared to 2019, the demand for geospatial information and GIS technology has more than tripled.

So it makes sense to talk about the basic principles of a sustainable geospatial system:

- **Focus on user needs**