WEB OF SCIENTIST: INTERNATIONAL SCIENTIFIC RESEARCH JOURNAL
ISSN: 2776-0979 (Volume 2, Issue 11, Nov., 2021

CONTROL OF HARMFUL SUBSTANCES IN FOOD PRODUCTS IN ACCORDANCE WITH THE REQUIREMENTS OF INTERNATIONAL STANDARDS

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Abstract
One common product that has been consumed from the early age of humankind is of course food. And undoubtedly one of the main factor in food production is its safety. This article discusses harmful substances in food and agricultural products, their types, distribution in nature, their impact on consumer health and their control in accordance with the requirements of international standards. The article uses GLOBAL G.A.P., Alimentarius codex and HACCP standards as illustrations.

Keywords. Pesticide, safety, pest, export, concentration, product, ecosystem, environment, etc.

Introduction

These days, traditional agriculture has to be replaced by a new generation of agricultural practices. Because other ways of producing agricultural products are being explored every day and are striving to produce more with less energy for a fast-paced world. When it comes to improving export performance, it should be noted that business can move to the next new level only when quality and safety issues take precedence over other issues. That is, when the quality and safety of products meet the requirements of international standards, a contract can be signed for their export. This, in turn, ensures the protection of consumer rights in the control of various harmful substances in food products in accordance with the requirements of international standards.

In order to ensure a high level of protection of consumer rights, the production (cultivation) of plant and animal products intended for human consumption, which

may contain pesticide residues, is allowed to be exported (imported) subject to the guarantees established by law [3].

If you plan to export plant products to the international market, the active ingredients used to protect the plants must be included in the database of pesticides specified in international requirements.

Pesticides (pests-parasites, cids-killing) - a very broad term, which includes viruses, pests and diseases, substances that control the growth of foreign plants, devrolyants [5].

Pesticides are used to prevent, destroy, attract, scare or control any pests, including the elimination of unwanted species of plants or animals in the production, storage, transportation, distribution and processing of food, agricultural raw materials or animal feed is any substance intended to do or anything that can be given to an animal to fight ectoparasites. The term includes plant growth regulator, defoliant, desalination, ovary thinning agent or bud growth inhibitor, as well as substances that are processed before or after harvest to protect against damage during storage and transportation of raw materials. Typically, the term does not include fertilizers, plant and animal nutrients, food supplements, and veterinary drugs [1].

It is known that many pesticides accumulate in the natural environment, in food, leading to the accumulation of contaminants in environmentally harmful substances in dangerous concentrations.

The only food items with high permissible concentrations (RECs) of pesticides are the most dangerous objects. They cover very large areas, even far from the lands used. Most of these pesticides are stored in the soil for a long time.

Table 1. Food mixtures. Foreign substances (pollutants). Packaging contamination.

Foreign impurities

Title	Source	Effect on the body	Prevention
Nitrates, nitrites	Crop products and water	Oxygen deficiency in tissues, malignant tumors	Vitamin C
Pesticides	Agricultural products	Cancer cell formation, congenital deformities	Use according to instructions
Heavy metals			

In nature, under anthropogenic influence, pesticides can be widespread - in the air, water, soil, plants, food, agricultural products, living organisms.

Plants, including food raw materials for crops against agricultural pests, are often treated with pesticides.

Studies have shown that 1 in 10,000 of any biological species from nature is resistant to any other active agent. This set of natural tolerances prevents complete extinction in primary and secondary ecosystems and creates highly resistant generations. The result is a generation of cross-resistant or cross-resistant to pesticides belonging to one or more different chemical groups of pests. The population of such insects cannot be lost even when the dose of pesticides is increased several 10 times.

In addition, some pesticides DDT and mercury-organic compounds have the ability to accumulate in living organisms. In some cases, pesticide residues have been found to accumulate in the last rings of the food chain at concentrations several times higher than the concentration in the environment.

Increasing the concentration of pesticides in the food chain is causing widespread acute and chronic poisoning. Under their influence, the number of cancers in various organs, the development of physical and mental diseases in infants, as well as diseases of the human immune and endocrine systems are extremely widespread.

There are more than 20 types of pesticides (depending on the direction of production), which act as fumigants in the form of vapors or gases, depending on the route of entry into the affected object, systemically - through plants, ie through the entire permeable tubes of the plant and divided into others [4].

The main feature of pesticides is their ability to pollute the environment, which makes them harmful to the environment as biologically active substances. Therefore, biologists, medical professionals (toxicologists and hygienists) are constantly researching the creation of pesticides that selectively affect living organisms and are less toxic to nature and man.

If food products contain maximum levels of pesticides that have not been completely destroyed - EU member states may restrict their placement on the market if the amount of such pesticide residues in certain products exceeds the maximum permissible level, posing an unfavorable risk to humans. These limitations depend on the toxicity of the substance in question [3].

EU legislation sets maximum levels of pesticide residues in agricultural products or in the freshly cut, processed form and / or in the foodstuffs that may contain pesticide residues [6].

If we focus on the quality and safety of agricultural products on the basis of international standards and best practices of foreign countries. To date, a number of standards provide guidelines for the use of pesticides and their quantities. This can be one of the main tools in entering the international market with our products.

GLOBALG.A.P from international standards. standard and the Alimentarius Code provide information on pesticide residues that may be present in food.

GLOBALG.A.P. production risks are analyzed on the basis of the standard, relevant rules of product tracking and return, document circulation and technological activity registration systems are introduced, elements necessary to determine the level of pesticide residues in products, etc. are introduced. It is also analyzed in detail according to the NASSR methodology and harmonized with the requirements of the standard [2].

GLOBALG.A.P. guidelines, standards, and regulations have great benefits. These include improving product quality and ensuring food safety, facilitating access to markets, reducing the risks of using banned pesticides, and controlling the maximum amount of chemical and toxic residues.

GLOBALG.A.P. The paragraph "Food protection" of the standard sets the task to apply the rules of risk assessment and mitigation of identified risks in the event of a deliberate (intentional) threat to the safety of products manufactured at the enterprise. In particular, the manufacturer must ensure the safety of the chemicals, auxiliaries and other necessary materials it purchases from all sources, so it is also required to have information about all personnel and subcontractors. It is also necessary to develop measures to combat cases where the documents contain a deliberate threat to product safety.

In addition, the section of the standard "Rational management of soil use" provides a justification for the use of fumigants for soil in the enterprise, as well as the date and place of its application, active substance and norm, method of application and full name the need for writing is shown in [2]. In that case GLOBALG.A.P. the use of methylbromide as a soil fumigant by the standard is not permitted. The pre-planting interval should also be documented.

The maximum concentration of pesticide residues (MRL) recommended by the Alimentarius Code Commission is the maximum concentration of pesticide residues that can be legally allowed in food and fodder. The MRL is reasonably based on agricultural data and the composition of food products derived from raw materials that meet the relevant MRL indicators from a toxicological point of view.

Code values for MRLs intended primarily for use in international trade are determined on the basis of the following JMPR values [1]:

a) toxicological assessment of the pesticide and its residues;

(b) To study data on pesticide residues obtained as a result of testing under controlled conditions and under controlled methods of use, including methods adopted to reflect reasonable agriculture adopted in the country.

The study includes test data under controlled conditions using the country's most acceptable, recommended, or registered pesticides. To reflect differences in national

requirements for pest control, the Alimentarius Code includes the highest values obtained from such controlled trials; these levels are considered to be in line with good pest control practices.

Conclusion

any product launched on the market must be of good quality and safe. If we want to sell our agricultural products on the world market, we must prepare them on the basis of international standards and norms. At the same time, we should focus on defining the general principles and guidelines of the legislation on agricultural products, establishing a product safety body and strengthening procedures for food safety, the requirements of international standards and the widespread introduction of best practices.

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