Committee: World Health Organization (WHO)

Issue: The impact of chemical substances used for agricultural purposes on public health

Student Officer: Frideriki Pagoni

Position: Deputy President

PERSONAL INTRODUCTION

Dear Delegates,

My name is Frideriki Pagoni, and I have the highest honour to serve as a Deputy President in this year's ACGMUN. I am an 11th grader at the German School of Thessaloniki. I have participated in 8 conferences in the past years as a delegate, and this upcoming one will be my second time serving as a Student Officer.

First and foremost, I would like to welcome you all to the World Health Organization committee. Over the years, WHO has been called upon to face numerous health crises and provide firm and sustainable solutions for the improvement and preservation of public health.

One of the topics of this year's committee concerns the impact of chemical substances used for agricultural purposes on public health. The last century, the agricultural department has developed and adopted various methods in order to extend the resources and needs for the food market. Such developments are based on chemicals and methods, which are mostly over- or misused just for fulfilling the public's demands without taking into consideration the harmful and dangerous consequences on their health. In this study guide, you will find all the basic and necessary information regarding this issue.

If you need any clarifications about this study guide, please do not hesitate to contact me via my email address fridapagoni@gmail.com at any time prior to the conference.

Looking forward to a great conference,

Frideriki Pagoni.

TOPIC INTRODUCTION

From the beginning of time, agriculture has been a fundamental factor of contributing resources so that the human species can survive and evolve throughout the centuries. As the years passed, many countries have been developing their economies in relation to agricultural services and production. The constant demand for even more resources needed for the nation to be financially stable and remain in a high economic status leads to the pursuit of techniques which will ensure the reliability of those products. In addition, in the last decades there has been a significant and rather uncontrollable population increase, which resulted in turbulence in the worldwide system. Overpopulation has crucial consequences in agriculture, where the constant requirement of products is increasing non-stop while the farming industries are not able to keep up with the demanded pace. In need of an urgent solution on the matter, special substances were invented in order to speed up the production as well as to protect the field crops from diseases, pests, bacteria, and weeds, whilst increasing the number of resources. Such substances are pesticides and fertilisers.

Goal 8 from United Nations Sustainable Development Goals "Decent Work and Economic Growth" in combination with the human health and agriculture mainly focuses on overcoming the problem of poisonings due to pesticides and chemical fertilisers in the agricultural sector as well as establishing variations which the nations can afford in order to sustain their economy and its growth.

Pesticides were first synthesised in 1874 by an Austrian chemist named Othmar Zeidler and the first one ever was Dichlorodiphenyltrichloroethane, known as DDT. Since then, a plethora of different pesticides, or other substances that meet the desired outcome, have been developed and released in the market. Chemical Fertilisers, which are another type of chemicals used in agriculture and introduced in Germany in the 1940s, have similar outcomes as pesticides regarding public health.

One crucial factor for the efficiency and publication of each agricultural substance refers to the impact that the chemical would have directly and/or indirectly on public health. Taking under consideration that those substances were invented in order to facilitate human evolution, the whole purpose of pesticides is cancelled out if they are harmful, or deadly to humans.

Therefore, it should be obligatory for the chemical substances used in agriculture to be researched upon, carefully analysed and deemed safe for humans and the environment. This way, the scope for employment in the scientific fields will increase, especially in research and testing of said substances, aiming for a healthy life without worries about food or water being contaminated. Additionally, investigations about alternative methods for sustainable agricultural productivity and for the chemicals in substances accountable for future chronic illnesses or diseases demand the increase of working positions for more sufficient results.

DEFINITION OF KEY TERMS

Dichlorodiphenyltrichloroethane (DDT)

Dichlorodiphenyltrichloroethane (DDT) is an insecticide used in agriculture. The United States banned the use of DDT in 1972. Some countries outside the United States still use DDT to control mosquitoes that spread malaria. DDT and its related chemicals persist for a long time in the environment and in animal tissues.[1] Its chemical nomenclature is 1,1,1-trichloro-2,2-bis[4-chlorophenyl]ethane, but is mostly referred to as DDT.

Fertilisers

A fertiliser defines a natural or artificial substance containing chemical substances that improve growth and productiveness of plants without harm for the environment, animals, or humans. Fertilisers enhance the natural fertility of the soil or replace the chemical elements taken from the soil by previous crops.

Food Safety

Food Safety refers to the individuals having access to sufficient amounts of safe and nutritious food in order to sustain healthy and good life and to the elimination of unsafe foods containing harmful bacteria, viruses, parasites, or chemical substances that cause more than 200 diseases. A safe food supply also supports national economies, trade, and tourism, stimulating sustainable development.

Food Security

Food security exists when all people, at all times, have physical, social, and economic access to sufficient, safe, and nutritious food which meets their dietary needs and food preferences for an active and healthy life.[2]

Glyphosate

Glyphosate is a herbicide. It is applied to the leaves of plants to kill both broadleaf plants and grasses. The sodium salt form of glyphosate is used to regulate plant growth and ripen specific crops. Glyphosate was first registered for use in the U.S. in 1974 and is one of the most widely used herbicides.

[1]"Dichlorodiphenyltrichloroethane (DDT)", National Biomonitoring Program, Dichlorodiphenyltrichloroethane (DDT) Factsheet | National Biomonitoring Program | CDC

[2]Food Security FAO's Agriculture and Development Economics Division (ESA), June 2006 pb_issue2_final.indd (fao.org)

Pesticides

According to pesticide law, a pesticide is any substance or mixture of substances intended to prevent, destroy, repel, or mitigate any pest, for use as a plant regulator, defoliant, or desiccant, or any nitrogen stabiliser. [3]

Public Health

Public Health is defined as "the art and science of preventing disease, prolonging life and promoting health through the organised efforts of society". Activities to strengthen public health capacities and services aim to provide conditions under which people can maintain to be healthy, improve their health and wellbeing, or prevent the deterioration of their health. Public health focuses on the entire spectrum of health and wellbeing, not only the eradication of particular diseases. Public health services also include the provision of personal services to individual persons, such as vaccinations, behavioural counselling, or health advice.[4]

BACKGROUND INFORMATION

Through the years, the increasing demand for faster production of crops has been on the rise and companies, in order to keep up with the needs of the public, make use of certain chemical substances in agriculture. These substances help the cultivation grow faster, carry more product and be protected against any parasite. They are separated into two big categories; pesticides and fertilisers; both of which can have negative effects on humans, such as initiating toxic reactions in the body, poisoning, if consumed, and even death.

The problem only rises when it comes to low or middle income countries which base their economy on crop production and agriculture and fall apart in case the cultivation gets ruined. Since the 1960s, the topic has been the centre of attention and debate between countries, with different countries being in favour or against the abolition of chemicals toxic for humans being used in agriculture. Thus, establishing a framework on the safe use of the chemicals and their proper disposal is of the utmost importance.

An incident, relevant to the poisoning of numerous due to pesticides and known to the whole world about its fatal outcome, took place in 1984 at Bhopal, India; 2,800 people were found dead while 20,000 were injured by a large emission of poisonous gases. The gases were absorbed through the ground and caused nausea, throat and eye burns, and even death to the victims. Even in the later generation, the children of those exposed to the poisonous emissions suffer from disabilities varying from mental to physical. Unfortunately, such disasters are inevitable, whilst increasing the worldwide statistics of casualties due to

[3] "What is a Pesticide?", USA EPA What is a Pesticide? | US EPA

[4] World Health Organization, Regional Officefor Europe, "Public health services", WHO/Europe | Public health services

chemicals substances meant for use in agriculture. It is, thus, crucial to ensure public health and safety for everybody.

The Invention and Usage of the First Pesticide (DDT)

The first ever-synthetic organic chemical also known as a pesticide was created in 1874 by the Austrian chemist Othmar Zeidler. The invention of this chemical formula was of great use in the agricultural sector for the protection of cotton, deciduous fruits, cereals, potatoes and crops in general, because it eliminated the pests, bacteria, viruses, and any unwanted parasite off the plants. DDT's main advantages include positive results in cultivation, such as eliminating pests, diseases and infestations in crops and improving productivity, leading to a relatively lower price, and its long-term activity, meaning no excess or continuous implementation is necessary. The chemical's use was also introduced in public health, in particular against common and deadly diseases which, in that time period, were not curable.

As the years passed, scientists discovered that DDT has, in fact, adverse effects on ecosystems and humans. It can remain in the soil or in water for years and continuously contaminate them, consequently being present on the agricultural products cultivated in those areas and therefore consumed by individuals. DDT affects the nervous system by interfering with normal nerve impulses and, in high amounts of consumption, it can cause vomiting, tremors or shakiness, and seizures. It has negative effects on the liver and the reproduction system, and it is a possible human carcinogenic substance. Thus, in 2001 numerous countries signed the Stockholm Convention resulting in the abolishment of the use of such chemicals for agricultural purposes.

Types of Contamination

The use of chemical substances in agriculture may only be applied on the farming crops but these substances might also evaporate and be absorbed in the air or water through the soil and pollute the environment, hence negatively affect the civilizations nearby. It is crucial to establish a standard framework and guidelines for the correct use and disposal of the chemicals so that the danger of pollution and negative impact is minimised.

Air Contamination

Air contamination can easily be characterised as the one of the biggest dangers for the ecosystems because it is hard to spot. It is usually initiated by the burning of agricultural waste in order for the companies to get rid of it instead of composting it or using it as a fertiliser for the soil. Common practice for farmers involves setting fire in the land for crops' sowing to have a faster pace. Those tactics may seem harmless, but in reality, they release an extreme amount of greenhouse gases which worsen the climate change and pollute the air in areas nearby. Both of those effects have a dangerous outcome regarding the well-being and health of humans and ecosystems.

Water Contamination

Water bodies near cultivation areas can be polluted due to poor agricultural and disposal practices, due to the inappropriate disposal of excess chemicals or the washing of the used equipment, the runoffs of irrigation, etc. These lead to contamination of the surrounding water systems, which, without proper filtering, cause health problems and even death.

Public health crisis due to pesticides

Keeping in mind the misuse of chemical substances, they can cause all types of contamination to the environment and the human species. Each year, approximately a million individuals suffer from pesticide poisoning, either by consumption of polluted products or water and there are about 20,000 fatalities due to contact with the pesticides. The percentages rise even higher in More Economically Developed Countries (LEDC), which make up 80% of global pesticide use and half of the poisoning cases worldwide. At fault for the tragic statistics are the relatively unrestrictive regulations and standard procedures about the problem and especially the non- compliance to and enforcement of strict laws.

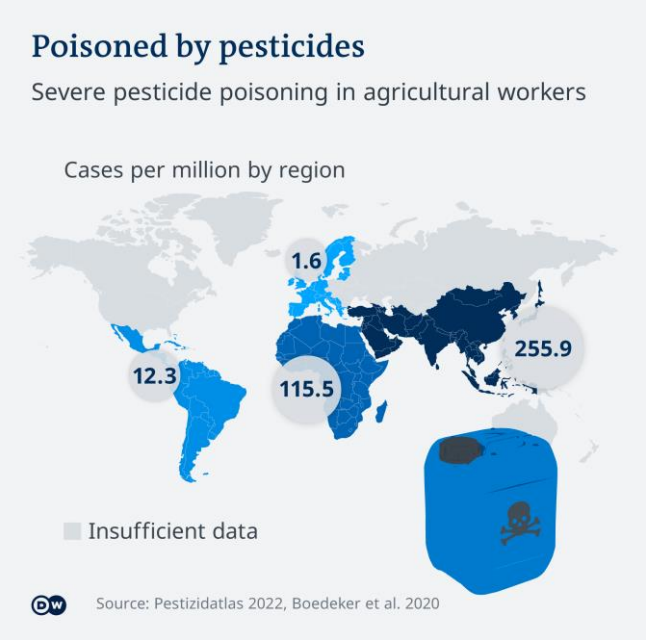

Figure 1: Worldwide Cases of pesticide poisoning per million by each region[5]

The Philippines, as an economically developing country, has its main economical foundation in the agricultural sector, where the production of vegetables, banana and rice is in need of pesticides in order for the farming to be effective. A study from 2001 estimated that 849.000 citizens died because of pesticide poisoning and the accidental self-poisoning rates as a form

[5] "Green groups target poisonings from rising pesticides sales", Deutsche Welle (DW), Green groups target poisonings from rising pesticides sales | Environment | All topics from climate change to conservation | DW | 12.01.2022

of suicide are one of the most common in Asia, as well. Since then, the Pilippine government has made an outstanding effort to reduce the use of pesticides in agriculture and established a national crop protection policy. It is clear though that those policies are not always enforced due to the strained and limited human and financial resources and the weak institutional infrastructures.

Impact of Pesticides on Public Health

Pesticides are a combination of harmful chemicals which enter the human body either by consumption of a food product or water, or direct contact, in cases where the person's job is close to their use. Therefore, there is a range of effects which pesticides can have on human health. Human hormones are the most affected by pesticide poisoning. The toxins of the chemicals excrete endocrine disruptors which mimic and block the function of hormones. These malfunctions lead to chemical imbalances and cause body dysfunctions to the body.

Similarly, the toxins cause equal damage on other body parts, including the brain and nervous system, causing heart problems, development problems, strokes, paralysis and even death. Various types of cancer have also been linked to pesticide poisoning, some of which are leukaemia, lymphoma and cancers of the brain, breasts, prostate, testes and ovaries. What's more, malfunctions of the liver, the kidneys and the lungs are also likely to develop and be identified later on in life, causing irreversible damage.

Regarding the reproductive system, people exposed to chemical substances are more likely to develop reproductive system malfunctions, such as infertility or miscarriages. In most cases, the chances of delivering a healthy and living baby decrease, while birth defects are also expected.

Lastly, specialists categorise children as the age group most vulnerable to pesticides, since their organs, nervous and immune systems are still developing, and a deadly strike can even result in death.

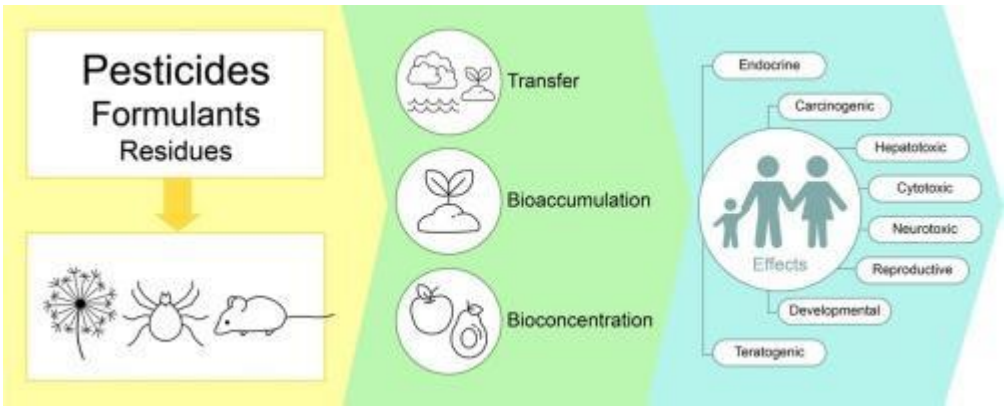

Figure 2: The chemical substances are stored inside smaller organisms, contaminate the agricultural production and environment and they have negative effects on public health and the human body.[6]

Types of Pesticides and their harmful effects

Organophosphates & Carbamates

Organophosphates and Carbamates are both deadly pesticides and act like nerve gases. They paralyse the brain and nervous system by interfering with nerve signal transmission and endangering the individual's health. Symptoms include headaches, nausea, dizziness, vomiting, chest pain, diarrhoea, muscle pain and confusion. In severe cases, the person affected can have convulsions, difficulty breathing, involuntary urination, coma and even death.

Soil Fumigants

Soil Fumigants mostly directly affect the soil and emit gases which are toxic to nematodes, fungi, bacteria, insects, and plants in the soil. These gases also contaminate the air and expose people living or working nearby to the chemicals. Soil Fumigants are based on a mix of Dichloropropene, metal sodium, and metal potassium, chemicals toxic for humans, and cause irritation of the skin, eyes, and the lungs. With this kind of pesticide, there is a danger of cancer and turbulence in reproduction like premature birth.

Pyrethroids

Pyrethroids are a type of synthetic chemicals and are characterised as toxic for the nervous system. Its main symptoms concern tremors, salivation, headache, fatigue, vomiting, stinging, and itching skin, and involuntary twitching. The long-term health problems like pregnancy and delivery are also affected with the foetus unable to complete certain tasks to prove its well-being. Other diseases caused by this pesticide include cancer, reproductive harm, and heart diseases.

Chemical Fertilisers

Aside from pesticides as a category of chemical substances used for agricultural purposes, chemical fertilisers are a case on their own. They are a combination of harmful chemicals (nitrogen, phosphorus, potassium, sulphur, and sometimes micronutrients) which have harmful effects on humans. This can happen through the absorption of the chemicals by the plants, thus disturbing the food chain which leads them to be consumed and poison the individual. Another reason why they can be characterised as destructive to the environment is because they infiltrate soil entering the groundwater or surface water and pollute it.

[6] "Pesticides: formulants, distribution pathways and effects on human health", ScienceDirect, Pesticides: formulants, distribution pathways and effects on human health – a review - ScienceDirect

Side effects of chemical fertilisers concern the nutrients of the products and their decreasing density not fulfilling the needs of a human being as well as typical illnesses such as Alzheimer's disease, diabetes mellitus, and non-alcoholic steatohepatitis. The DNA is sometimes damaged as well as the kidneys, liver, and lungs due to the heavy metals they contain.

MAJOR COUNTRIES AND ORGANISATIONS INVOLVED

United States of America

The USA is currently one of the 4 countries with the highest rates of using chemical substances in agriculture, with sky-high percentages and a legislation which does not address or prohibit the use of such chemicals. In contrast, the regulations addressing pesticides are allowing their use as long as they do not pose unintended or unreasonable risks to humans and their well-being. Companies and licensed individuals must ensure that the chemicals are used effectively and they meet the standards set by scientists and the regulation. In order for the nation's economy to keep up to the demands, pesticides are not banned but generally put under supervisors' control in a way to minimise the negative impact on human health.

China

In the last few decades, China has had rising pesticide-related problems, becoming one of the largest pesticide consumers in the world, thus having an availability of pesticides far higher than expected. The market development led to an increase in the use of pesticides in crop pest management, resulting in the excessive use of farm pesticides, since no practical alternative pest management technologies, regulations, and policies have yet to be developed. Likewise, the existing legislations on chemical management are generally limited, resulting in difficulties to follow the pace of international chemical management.

Brazil

Brazil's current pesticide legislative framework regulates all the aspects and stages that are followed for chemical substances like pesticides. The process of a chemical, from the synthesis to the examination until it gets authorised for use, is a greatly detailed and careful procedure with multiple stages where research authority will evaluate the efficacy, toxicological and consequential review and conclude whether to accept its publication. Brazil is a country with high usage of pesticides, even with the extended verification process that occurs.

Mexico

Mexico was the first country to adopt innovative and modern agricultural practices and has since majorly developed in the sector of agriculture. Like any other nation, problems with pests are expected and actions have to be taken against. Therefore, according to research from 2018 in the International Archives of Public Health and Community Medicine for Mexico, programs for monitoring are necessary to implement, as the risk for contamination of people

increases. Specifically, the drinking water can still be polluted if the filtration was not sufficient and needs deeper investment on safer regulations and measures.

Food and Agricultural Organisation (FAO)

FAO or Food and Agricultural Organisation is an organisation responsible for the regulation of the accessibility of pesticides and their reduction of use and following risks. The FAO established frameworks about the use of toxic pesticides, their risks, ways of contamination, type of illnesses it causes, repercussions, and alternatives, basically controlling and inspecting every aspect. The constant supervision can lead to countries developing their pesticide management and improving it, as well as providing food security to the citizens and promoting healthy living conditions. Lastly, it is also important to note that FAO raises awareness regarding the risks of chemical pesticides and their effects on human health.

European Chemical Agency (ECHA)

The European Chemical Agency is an organisation which influences the European Union and the regulations in regards with the use of chemicals for agricultural practices proven to be toxic to humans. ECHA controls the use of chemical substances in agriculture in order to decrease the risk of pesticide poisonings and protect human health. It is still allowed for some particular categories of chemical products such as fertilisers to be used by Member States, under the condition to follow the rules of the marketing of said substance.

US Food and Drug Administration (FDA)

Lastly, the Food and Drug Administration holds an important duty inside the territory of the 50 USA states; to monitor the level of chemicals in foods before being put up in the shelves to ensure that the tolerance limits are not surpassed. Any time a product is contaminated due to a chemical substance, there is an increase in the chances of a person to suffer from a poisoning they could not have prevented themselves.

BLOCS EXPECTED

The delegations should be divided into two main blocs according to their policy being either in favour or against the use of chemical substances and taking the Stockholm Agreement into consideration.

Bloc I

The first bloc should consist of the countries who have banned the use of hazardous chemical substances in agriculture and have signed and ratified the Stockholm Convention. Countries in this block are also expected to have or be able to find new

alternatives to the growth and speed of production to keep on the increase while the rates of illnesses decrease.

Bloc II

In the second bloc the delegations have not banned the use of toxic chemicals and are rejecting or not ratifying the Stockholm Convention. These countries do not have the means to find any other sustainable solution instead apart from the harmful ones and most probably will need the financial support of other nations or NGOs in order to develop their agricultural methods.

TIMELINE OF EVENTS

Date	Description of event
1874	Creation of DDT, the first pesticide by the Austrian chemist Othmar Zeidler and its goals were to protect the production of crops
1940	Begin of the Green Revolution. The Green Revolution was a revolution starting from Mexico and expanding worldwide in order for the least economically developing countries to be able to produce and farm without the excess use of pesticides but with biological fertilizers
1940s	Development of chemical fertilizers in Germany as another sufficient option for the protection of farming
1945	DDT starts being used worldwide in order for the agricultural sector of each nation to have a high production and an secure economical income
1972	DDT is prohibited in the USA, because of the many incidents, poisonings and deaths in high rates and of the toxic substances it is produced from
2001	A WHO study which estimated that 849.000 people died from pesticide poisonings
17th May, 2004	Stockholm Convention is entered into force and implies the protection of crops from toxic substances
September, 2006	WHO declares its support on the indoor use of pesticides in African countries in order to overcome malaria

RELEVANT UN RESOLUTIONS, TREATIES AND EVENTS

Stockholm Convention, 2004[7]

The Stockholm Convention is a global treaty entered into force on May 17, 2004, to protect human health and the environment from persistent organic pollutants (POPs). POPs are chemicals which are absorbed and remain in the environment and are toxic to humans and wildlife. The Stockholm Convention focuses on eliminating or reducing POPs which are identified as unacceptably hazardous.

Public Health impact of pesticides used in Agriculture, WHO[8]

In 1990, in Geneva, the World Health Organisation published the agenda on "Public Health impact of pesticides used in Agriculture". The document contains articles regarding the production and use of pesticides, their toxic short and long-term effects on human health, as well as proposals for future research on the topic.

ECOSOC Resolution 2001/33:

Protection against products harmful to health and the environment; An ECOSOC Resolution regarding the abolishment of harmful substances in agriculture and ways to protect the citizens of each Member State.

PREVIOUS ATTEMPTS TO SOLVE THE ISSUE

EU's plan on organic farming

In recent years there has been a debate among the European Union's countries revolving around the issue of the extreme and unsupervised use of chemical substances in agriculture and its impact on human health. Numerous attempts have been made and the EU established a regulation in order to limit their usage and decrease the amount of poisoning to humans due to their toxicity.

The main goal is to restrict the use of pesticides and chemical fertilizers in farming so there will be no contamination in the air, water, soil, or crops. Furthermore, the plan focuses on the limitation of antibiotics and food additives in the cultivation of products. Farmers are encouraged and motivated to choose plant species that are resistant to diseases and

[7] "STOCKHOLM CONVENTION ON PERSISTENT ORGANIC POLLUTANTS", http://chm.pops.int/Portals/0/Repository/convention_text/UNEP-POPS-COP-CONVTEXT-FULL.English.PDF

[8] "Public Health impact of pesticides used in Agriculture", WHO 1990 in Geneva, http://apps.who.int/iris/bitstream/handle/10665/39772/9241561394.pdf;jsessionid=039086C2C93CEDD618624A5AA3773A2B?sequence=1

adaptable to local conditions. Lastly, genetically modified organisms (GMOs) should be prohibited resulting in a more biological and natural growth of crops.

Green Revolution

The Green Revolution refers to the renovation of agricultural practices which began in Mexico in the 1940s and quickly spread worldwide. A new period of improved farming was introduced and started to develop. The overpopulated countries like India were finally able to fight the famine and economic crisis they were in, adopting and adapting these practices in their agricultural fields. However, the nations did not actually overuse enormous amounts of chemical substances or pesticides for this evolution but relied on biological fertilizers and improved agricultural tactics.

The countries invested in measures whose main purpose was to help them gain a sustainable and high productivity of crops, as well as the expansion of the farming areas and quality of them. Specifically, methods like double-cropping, using HYV (high-yield variety) seeds and the installation of improved irrigation facilities led to the sufficient production of crops demanded by each nation. In addition, food supplies were secured, and non-financially stable citizens were less vulnerable to food shortage and crops became more affordable for a wider range of consumers. Another positive outcome of those practices was the improvement of the genetic component of traditional crops meaning the quality of the food was distinctly better and more friendly to the human body. Lastly, the investment in crop research, infrastructure, market development, and appropriate policy support was reinforced, and the job market demanded more employees.

POSSIBLE SOLUTIONS

Alongside the previously mentioned attempts to overcome the issue of misuse of chemical substances in agriculture, Member States are also urged to come up with more solutions and ways to make farming more sustainable without risking public health. Enforcing restrictions on the usage of said chemicals and establishing organizations or administrative bodies responsible for researching and testing pesticides, authorising their use and the selling of products in the market should be considered and analysed in depth.

Usage of organic fertilizers

Fertilizers can be divided into two categories, synthetic/chemical or organic/biological. Organic fertilizers, as it is easy to comprehend, have much more friendly effects to humans and human health because they do not burden the agricultural products with excess chemicals. They fill the crops with more nutrient efficient and organic substances, like vitamins and fiber which boosts human's health and systems, like the immune, cardiac, nervous.

In addition, compost heap can be used as an organic fertilizer being a combination of leftover products not suitable for the market, either rotted, not presentable, unripe, or too ripped. Instead of them being burned or left to rot in open areas resulting in contamination of the air and cultivation, they can be all put together in big tanks, left to decompose and later be used to enrich the soil with pure nutritious elements. Thus, no harmful substances in the products and no fear of poisoning due to pesticides. Decomposing is a relatively simple procedure where every farming department can afford, and nothing goes wasted. This method also has a positive outcome for the environment people live in, because without toxic air pollution there is a limited risk for the public health.

Animals and insects instead of pesticides

A further way to minimise the use of pesticides in farming is by introducing predatory insects and animals that destroy pests to the crops. Such organisms, like bees, birds, frogs, ladybirds etc., mainly feed from the pests that destroy the production or kill them in order to reproduce. With their application to the farming areas, they will help reduce the number of parasites without harming or feeding off of the cultivation, resulting in healthy and toxic-free agricultural productions.

Last but not least, the alternatives the nations can adopt in order to avoid the unwanted use of chemical substances in agriculture have to be affordable for each Member State. It is, thus, of utmost importance that the LEDCs grant access to the same opportunities and methods as the rest so that their economy can raise and not set the health of their population in danger.

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