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Ministry of Agriculture and Rural
Development

The Use of Pesticides on Fruits & Vegetables – Follow-up Audit



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Background

Pesticides (pesticides or active ingredients) protect agricultural produce from pests such as insects, bacteria, fungi, and viruses. Most active pesticides are chemical ingredients or mixtures of chemical ingredients used in pest control preparations¹. Using these ingredients in agriculture might harm human health, ecological systems, plants, animals, and water and soil quality.

The Ministry of Agriculture and Rural Development (Ministry of Agriculture), through the Plant Protection and Inspection Services, is responsible for regulating pesticides for plant use under the Plant Protection Law. According to the Plant Protection Regulations (import and sale of chemical preparations), 1994 (Preparations Regulations), the Ministry of Agriculture is responsible for issuing registration certificates for plant Preparation as a precondition for their marketing and selling in Israel and for reexamining the pesticides allowed for use in Israel. According to the Plant Protection Regulations (Regulations for Compliance with the label instructions), 1977, the Ministry of Agriculture is responsible for setting the pest control preparations' use instructions and ensuring their implementation.

In 2014–2021, the Ministry of Agriculture and the Preparation Registration Committee reviewed four times (revision) the approval granted in Israel for using pesticides based on updated risk evaluations of the active chemical ingredients the pest control preparations contain and following the regulation and prohibition of the pesticides above in EU countries, where, according to the Ministry of Agriculture, pesticides' regulation is stricter.

1 Pest control preparations are made of a mixture of active ingredients diluted in a base which increases the volume of the preparation.



Key Figures

up to ten times

the ratio between a ton of active pesticide per 1,000 tons of plant production in Israel (1.57), compared to the ratio in examined European countries². The highest ratio amongst the examined countries

113

the number of active pesticides approved for use in Israel but not approved in the EU countries

**11.7%,
11.6%,
7.5%**

the rate of irregular samples found by the Ministry of Agriculture during inspections to identify residues of pesticides in produce in 2019, 2020, and 2021, respectively

18.8%

the rate of irregular samples found by the Ministry of Health in an inspection to identify residues of pesticides in food in Israel in 2019–2020

**25%–
60%**

the rate of irregular samples of pesticide residues samples of spring onion, celery, lettuce, cherries, dill, cucumbers, and grapes according to the Ministry of Agriculture and Ministry of Health inspections in 2019–2020

1,451

the number of produce samples inspected by the Ministry of Agriculture in 2021 over twice the number of samples examined in 2017

11 years

in which no regulations were legislated to implement the Supervision of Plant Production and Marketing Law 2011


9%

the rate of testing of the active ingredient in pest control preparations in which irregularities were found out of the total tests conducted by the Ministry of Agriculture in 2017–2021

² According to the Central Bureau of Statistics (**Pesticides in Israel 2017–2019**, publication no. 1838).




Audit Actions


 In 2017, the State Comptroller's Office published a report on "The use of Pesticides on Fruits and Vegetables"³ (previous audit), on which the extent to which the current legal status accommodates the need for the use of pesticides in agriculture was examined. Aspects related to the safety of workers exposed to pesticides and supervision, enforcement, guidance, and training about the use of pesticides were also examined.

From January 2022 to September 2022, the State Comptroller Office conducted a follow-up audit examining the extent to which the deficiencies noted in the previous audit were rectified and whether the recommendations were implemented in addition to other relevant aspects raised during the follow-up audit. The audit was conducted at the Ministry of Agriculture. Supplementary examinations were conducted at the National Food Services of the Ministry of Health, the Occupational Safety and Health Administration of the Ministry of Economy (Safety Administration), the Prime Minister's Office, and the Population and Immigration Authority.

Key Findings







 **The Scope of Using Pesticides in Israel** – according to the Central Bureau of Statistics, active pesticides quantity (the toxic substances within pest control preparations) sold in Israel in 2018 is the highest amongst all the examined European countries relative to the total area of agricultural cultivation in Israel (1.52 tons of active ingredient per 1,000 dunams) and relative to the plant production (1.57 tons of active ingredient per 1,000 tons of production). Nevertheless, the Ministry of Agriculture's management has not discussed the scope of using pesticides in Israel, and the Ministry has not examined the causes of the broad usage of pesticides in Israel compared to other countries. The partial information the Ministry has regarding the types of pesticides used in Israel is not based on a ministerial database of pesticides used in the fields, the types of crops on which the pesticides are used, or the identity of the farmers.

 **Using Pesticides Banned in Europe and the US Years Ago** – according to the previous audit, until the Revision Implementation in 2014, the Israeli public had been exposed to pesticides banned in Europe and limited and banned in the US as well. The follow-up audit raised that the deficiency was rectified to a small extent and the situation was similar during the Revision in 2017 in which 50 types of active pesticides were

3 The State Comptroller, **Annual Report 67b** (2017), "Using Pesticides on Fruits and Vegetables", pages 654–704.





evaluated⁴, especially with substances not approved for use in the EU and the US. It should be noted that as part of the next Revision that started in 2021, the Ministry and the Committee significantly minimized the time gap between the date on which the EU banned the use of a particular pesticide and the date on which a new revision process in Israel began. Out of the 30 pesticides banned in the EU, which will be evaluated in a revision, 3 were banned over a decade ago, 8 were banned over three years ago, and 19 were banned up to three years before the revision.

-  **Restrictions to Sell and Use Pesticides** – in Israel, there is no regulatory arrangement limiting the use of pesticides only to those authorized, supervising pesticide sale and training of the users, although the Ministry of Agriculture, the Ministry of Health and the Safety Administration of the Ministry of Economy attach great importance to such an arrangement.
-  **Legislation of Regulations Under the Supervision on Plant Production and Marketing Law (Standards Law)** – according to the previous audit, no regulations were legislated to regulate the production and supply of fruits and vegetables for human consumption in a manner that complies with quality and safety standards. Thus, the Standards Law provisions cannot be applied, and the purpose of the law is not fulfilled. The follow-up audit raised that the deficiency was not rectified. No regulations have been legislated during the 11 years since the law was enacted, and no instructions regarding the marking of produce (traceability) have been issued to trace growers, including growers whose crops contained excessive pesticide residues.
-  **Ministry of Agriculture's Supervision on Farmers' Work on Site** – according to the previous audit, the Ministry of Agriculture did not dispatch inspectors to the farms to verify they use pest control preparations according to the instructions. The follow-up audit raised that the deficiency was not rectified and that the Ministry's measures did not improve the situation.
-  **Excessive Pesticides' Residues in Fruits and Vegetables** – according to the previous audit, according to the Ministry of Agriculture and the Ministry of Health inspections in 2015, irregularities were found in a third or even half of the samples of several types of fruits and vegetables. The follow-up audit raised that the deficiency was not rectified. According to the Ministry of Agriculture and the Ministry of Health inspections in 2019–2021, irregularities were found in 25%–50% of the samples of particular crops, some of which are consumed regularly by the Israeli public. In the Ministry of Health's inspection, irregularities were found in samples of mint (63%), parsley (57%), Swiss chard (57%), celery (50%), basil (48%), chives (36%), dill (35%), coriander (35%), spring onion (33%), cherry tomatoes (33%), cucumbers (30%), mango (30%), strawberry (29%), squash (29%) and lettuce (28%). In the Ministry of Agriculture's inspection, irregularities were found in samples of spring onion (60%),

⁴ Those that are not used by EU countries and 12 of which are also not used in the US.

celery (39%), lettuce (28%), cherries (28%), dill (27%), cucumbers (27%) and grapes (25)%.

-  **Marking the Expiration Date on Pest Control Preparations** – according to the previous audit, the Law does not require marking expiration dates on pest control preparations with long expiration dates (over a year). The follow-up audit raised that the deficiency was not rectified. The Ministry of Agriculture has not updated the regulations to impose the marking of expiration dates on pest control preparations whose shelf life is two years or more, nor has it made any other alternative decision related to the difficulties that arise from the lack of expiration dates on pest control preparations. Hence, expired pest control preparations might still be marketed to growers who use them without knowing the risks.
-  **Medical Monitoring of Workers Engaged in Pest Control from the Soil** – according to the previous audit, the Work Safety Regulations from 1992 (occupational hygiene and health of workers exposed to phosphoric, organic, and carbamate pesticides) do not apply to pesticides workers engaged in pest control from the soil. The follow-up audit found that the deficiency was not rectified, and as of the audit's end date, no instructions for mandatory medical examinations had been issued.
-  **Coordination Between the Ministry of Agriculture and the Ministry of Health on Publicizing Inspections' Results** – according to the previous audit, once the Ministries' findings are publicized, the public would not know on which ministry to rely to learn about the excessive rate of residues found in fruits and vegetables. The follow-up audit raised that the deficiency was not rectified. Despite the Ministries' measures, the Israeli public does not receive coordinated information about the rate of excessive residues found in fruits and vegetables.
-  **Supporting Initiatives Decreasing the Usage of Pesticides** – according to the previous audit, in 2012–2016, the Ministry of Agriculture decreased the budget supporting combined pest control initiatives by 65%, from NIS 2 million in 2012 to NIS 700,000 in 2015 and 2016. The follow-up audit raised that the deficiency was rectified to a small extent. In 2018 and 2019, the Ministry of Agriculture continued to minimize its support in combined pest control initiatives by over 50% compared to its support in 2015–2016. However, in 2020, the Ministry allocated NIS 1 million as support, three times the support in 2018 and 2019.
-  **Imposing Financial Sanctions on Employers Found to Have Safety Deficiencies** – according to the previous audit, there were difficulties in conducting effective enforcement against employers with safety issues due to the inspectors' limited tools. Furthermore, administrative fines were rarely given, and indictments were rarely issued since they involved long and cumbersome legal proceedings. The follow-up audit raised that although the Safety Administration was authorized in January 2018, it has not imposed financial sanctions on employers who violated the safety and improvement orders (between 2019 and 2021, the Administration issued 276 safety and improvement



orders) since, according to the Administration, no significant violations were found. In addition, the Safety Administration had not completed the information transfer process with the Population and Immigration Authority to examine whether employment permits of employers who employ foreign workers should be limited or canceled when significant safety issues were found.



Excessive Residues in Produce Found in the Ministry of Agriculture's Inspections – in 2021, the Ministry of Agriculture's inspections raised a significant decline in the rate of excessive residues; in 2021, excessive residues were found only in 7.5% of the samples, as opposed to 11.6% in 2020 and 11.7% in 2019.









Sampling Plan for the Ministry of Agriculture's Inspections to Detect Pesticides' Residues – according to the previous audit, the annual sampling plan of the Ministry did not include guidelines regarding the types of vegetables and fruits that should be sampled and the number of samples that should be collected. Moreover, the performance rate was only 57%–69% of the planned. The follow-up audit raised that the deficiency was fully rectified. Alongside setting the annual sampling plan of the Ministry of Agriculture, the Ministry increased the number of planned samples included in annual inspections it had been conducting since the previous audit's publication, from about 1,000 samples in 2015 to about 1,500 samples in 2021. Furthermore, the actual number of collected samples significantly exceeded the planned number (in 2018, 2019, and 2020, the Ministry collected 41%, 28%, and 43% more samples than the planned number of samples according to the sampling plans for these years, respectively).

Administrative Fines Imposed on Farmers Whose Produce Contained Excessive Pesticides' Residues – according to the previous audit, the Ministry of Agriculture imposed administrative fines on a low rate of farmers whose produce contained excessive pesticide residues: only 1% in 2014 and 11% in 2015. The follow-up audit raised that the deficiency was rectified to a large extent. The Ministry has significantly increased the rate of administrative fines it imposed on farmers due to substantial pesticide residues from 6% in 2014–2015 to 29% in 2018–2019. However, in 2018–2021, the Ministry did not investigate why 13% of the cases in which substantial excessive residues were found in the inspections were not treated.

Supervisory Visits to Examine Working Conditions of the Pesticides' Workers – according to the previous audit, in 2013–2015, Safety Administration inspectors conducted 1,050 supervisory visits during which they examined the working conditions of about 1,500 workers out of the total number of agricultural workers (2% only). The follow-up audit raised that the deficiency was rectified to a large extent. It was found that in 2019–2021, 850 supervisory visits were conducted on agricultural farms, which constitutes a 19% decline compared to the previous period that was examined. However, in 2021, the Administration conducted 403 visits, more than in the previous two years.

108% higher than in 2019, in which 194 visits were conducted. In 2022, 450 supervisory visits were conducted on agricultural farms.

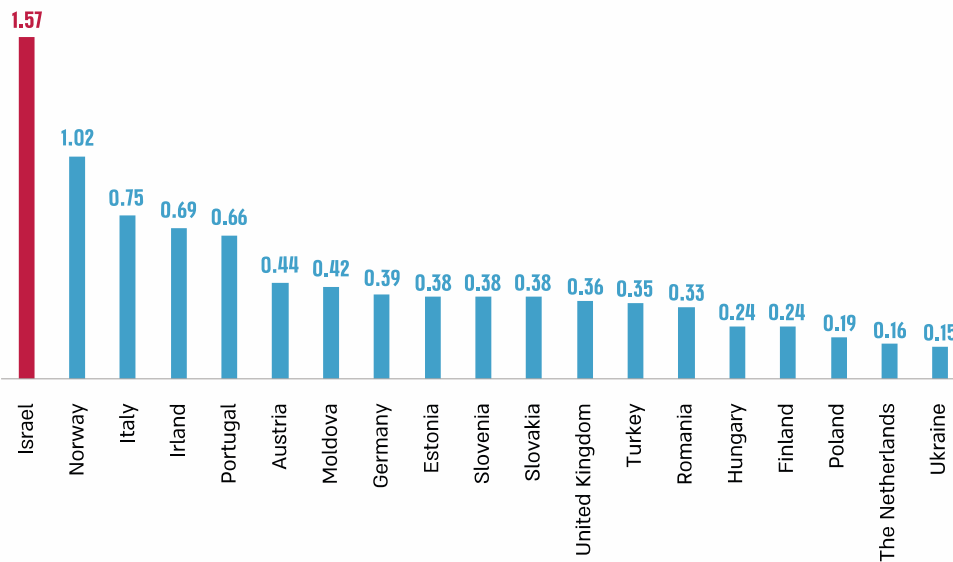
Key Recommendations

-  It is recommended that the Ministry of Agriculture establish a database that includes statistics on the consumption of pesticides in Israel and their usage to conduct a thorough analysis. The Ministry should examine whether the needs of the Israeli agriculture industry justify such broad use of pesticides that might harm public health or the environment.
-  The Ministry of Agriculture and the Ministry of Health, with the support of the Prime Minister's Office, should follow the ordinances specified in the Economic Plan Law 2021 and adopt a mechanism for rapid and effective updating of the rate of pesticides residues allowed in Israel according to European requirements and the necessary adaptations to Israeli agriculture.
-  It is appropriate that the Ministry of Agriculture regulate limitation of the sale of agriculture pest control preparations and the scope of usage.
-  It is recommended that the Ministry of Agriculture and the Ministry of Health, in collaboration with the Ministry of Justice, form an agreed-upon position regarding the suitable legal framework for the necessary instructions specifying production, quality, and safety criteria for agricultural produce and regarding traceability between the final product and the producer or marketer. If the Ministries fail to reach the understanding above, their management should consult with the Prime Minister's Office and ask for assistance.
-  It is recommended that the Ministry of Agriculture and the Ministry of Health present the public joint recommendations and clear insights regarding the rate of pesticide residues in specific fruits and vegetables. For that purpose, alongside the publication of the inspections conducted separately by each of the Ministries, the Ministries should coordinate and publish a joint document clarifying each of the crop's situation.
-  It is recommended that the Ministry of Agriculture form a sampling and supervision plan based on a comprehensive and updated pool of growers' data, including the necessary information about the growers, their fields, and the fresh produce they grow. The Ministry should also implement the plan using statistical and scientific tools.
-  It is recommended that the Ministry of Agriculture decide upon the necessary amendments to the pest control preparations regulations to cope with the difficulties arising from the lack of expiration date on pest control preparations whose shelf life is two years or more.
-  It is recommended that the total administrative fines under the enforcement clauses of the labor law be adjusted to agricultural violations if the Ministry of Economy and Industry sees it as necessary. It is further appropriate that the Safety Administration regulates



collaboration with the Population and Immigration Authority to improve the handling of safety instruction violations by employers in the agriculture industry to improve the workers' safety. It is also recommended that the Safety Administration, the Ministry of Agriculture, the Ministry of Health, and other relevant bodies reach an agreement to advance safety pesticides regulations intended, among other things, to obligate pesticides workers to be under medical surveillance and take an appropriate proficiency test.

The Ratio Between a Ton of Active Ingredients and 1,000 Tons of Plant Production in Selected Countries, 2018



According to data from the Central Bureau of Statistics, processed by the State Comptroller Office.



The Extent the Key Deficiencies Noted in the Previous Audit Were Rectified

Audit Chapter	The audited Body	The Deficiency in the Previous Audit	The Extent of Deficiencies Rectification Noted in the Follow-up Audit			
			Not Rectified	Slightly Rectified	Significantly Rectified	Fully Rectified
Excessive pesticide residues in fruits and vegetables	The Ministry of Agriculture	From 2010 to the audit end date in August 2016, the Ministry of Agriculture did not publish the findings of the annual inspection of pesticide residues in fruits and vegetables. In November 2016, the Ministry of Agriculture published the findings of the examination conducted in 2015.				
Excessive pesticide residues in fruits and vegetables	The Ministry of Agriculture	The Ministry of Agriculture's annual sampling plan did not include guidelines related to the fruits and vegetables that should be sampled and the number of samples that should be taken from each fruit and vegetable. Moreover, the performance rate was only 57%–69% of the planned volume.				






Audit Chapter	The audited Body	The Deficiency in the Previous Audit	The Extent of Deficiencies Rectification Noted in the Follow-up Audit			
			Not Rectified	Slightly Rectified	Significantly Rectified	Fully Rectified
Administrative fines imposed on farmers with excessive pesticide residues in their produce	The Ministry of Agriculture	In a random inspection of a third (200) of the forms filled in by the Ministry of Agriculture's samplers in 2013, the State Comptroller Office found that 50% of them (100) were only partially filled in and that some of the forms did not include necessary details to identify the farmers from whom the samples were taken. Inspection of forms filled in in 2014 and 2015 (400 forms) raised that 40 (10%) were only partially filled-in.				
Resources allocated by the Ministry of Agriculture to guide farmers and support projects reducing the use of pesticides	The Ministry of Agriculture	The number of instructors the Ministry of Agriculture allocated to the Extension Service regarding plant protection and the usage of pesticides decreased from 17 instructors in 2006 to 8 instructors in 2015.				



Audit Chapter	The audited Body	The Deficiency in the Previous Audit	The Extent of Deficiencies Rectification Noted in the Follow-up Audit			
			Not Rectified	Slightly Rectified	Significantly Rectified	Fully Rectified
Administrative fines were imposed on farmers whose produce contained excessive pesticide residues	The Ministry of Agriculture	The Ministry of Agriculture imposed administrative fines at a low rate (1% in 2014 and 11% in 2015) on the farmers whose produce contained excessive pesticide residues.				
Administrative fines were imposed on farmers whose produce contained excessive pesticide residues	The Ministry of Agriculture	88% of the samples inspected in 2010–2015 were not taken from the fields but from storage areas where produce is stored after picking, which makes it challenging to establish evidence.				
Maintaining the safety of the workers and the environment	Occupational Safety and Health Administration	74,200 workers on average were employed in the Israeli agriculture industry in 2013–2015. During this period, the Safety Administration's inspectors conducted about 1,050 surprise visits to examine the working conditions of 1,500 workers, who constitute 2% of the total number of workers in the agriculture industry.				





Audit Chapter	The audited Body	The Deficiency in the Previous Audit	The Extent of Deficiencies Rectification Noted in the Follow-up Audit			
			Not Rectified	Slightly Rectified	Significantly Rectified	Fully Rectified
Usage of pesticides that were banned or limited in EU countries and the US	Ministry of Agriculture & Ministry of Health	For years, the Israeli public has been exposed to pesticides that were banned in European countries and whose usage was limited and then banned in the US as well.				
Excessive pesticide residues in fruits and vegetables	Ministry of Agriculture & Ministry of Health	The Ministries should form an action plan including quantitative objectives to decrease the rate of excessive pesticide residues in fruits and vegetables.				
Resources allocated by the Ministry of Agriculture to guide farmers and support projects reducing the use of pesticides.	The Ministry of Agriculture	In 2012–2016, the Ministry of Agriculture decreased the budget to support combined pest control projects by 65%, from NIS 2 million in 2012 to NIS 700,000 in 2015 and 2016.				



Audit Chapter	The audited Body	The Deficiency in the Previous Audit	The Extent of Deficiencies Rectification Noted in the Follow-up Audit			
			Not Rectified	Slightly Rectified	Significantly Rectified	Fully Rectified
Maintaining the safety of the workers and the environment	The Ministry of Agriculture, the Occupational Health and Safety Administration and the Population and Immigration Authority	It was difficult to conduct effective enforcement in the agriculture industry, given the inspectors' limited tools and very few administrative fines and indictments were issued since it involves long and cumbersome legal proceedings.				
Enacting regulations in accordance with the Plant Production and Marketing Law	Ministry of Agriculture & Ministry of Health	Five years following the legislation of the Plant Production and Marketing Law (the Standards Law), no regulations have been enacted to implement the law.				
Ministry of Agriculture's supervision of farmers' work	The Ministry of Agriculture	The Ministry of Agriculture does not dispatch inspectors to the farms to check whether pest control is conducted according to the instructions.				





Audit Chapter	The audited Body	The Deficiency in the Previous Audit	The Extent of Deficiencies Rectification Noted in the Follow-up Audit			
			Not Rectified	Slightly Rectified	Significantly Rectified	Fully Rectified
Excessive amounts of pesticides residues in fruits and vegetables	Ministry of Agriculture & Ministry of Health	The inspections conducted by the Ministry of Agriculture and the Ministry of Health in 2015 raised that pesticide residues were found in a third and up to half of the samples of several types of fruits and vegetables. If the inspections' findings reflect the situation in the market, it means that the Israeli consumer is substantially exposed to fruits and vegetables that contain excessive pesticide residues.				
Excessive amounts of pesticides residues in fruits and vegetables	Ministry of Agriculture & Ministry of Health	Comparing between the Ministry of Agriculture and the Ministry of Health findings 2014–2015 raise difference between the lists of fruits and vegetables in which relatively large proportions of irregular samples were found. Hence, the public would not know which Ministry should be relied on regarding the rate of excessive residues found in fruits and vegetables.				



Audit Chapter	The audited Body	The Deficiency in the Previous Audit	The Extent of Deficiencies Rectification Noted in the Follow-up Audit			
			Not Rectified	Slightly Rectified	Significantly Rectified	Fully Rectified
Supervision of Pest Control Preparations	The Ministry of Agriculture	Expired pest control preparations might be found in the market since there is no indication of their expiration date; thus, the consumer is unaware that they expired. Using such pest control preparations might cause damage rather than be beneficial.				
Supervision of Pest Control Preparations	The Ministry of Agriculture	In 2010–2013, the inspections' performance rate was about 50% lower than the planned volume. In 2014, the performance rate increased, and 60% of the planned samples were inspected. In 2015, the performance rate matched the planned volume, and even exceeded it a little.				



Audit Chapter	The audited Body	The Deficiency in the Previous Audit	The Extent of Deficiencies Rectification Noted in the Follow-up Audit			
			Not Rectified	Slightly Rectified	Significantly Rectified	Fully Rectified
Maintaining the safety of the workers and the environment	Safety Administration	Pest control regulations do not apply to workers engaged in pest control from the soil. Therefore, tens of thousands of workers might be exposed to health hazards due to contact with these toxic substances. In 2011, the State Comptroller Office notified the Ministry of Industry, Commerce, and Employment about requiring workers engaged in pest control from the soil to undergo medical examinations.				
Maintaining the safety of the workers and the environment	Safety Administration	Pesticide regulations do not include a worker's obligation to take proficiency tests to verify they understand the instructions, know how to use pest control equipment properly, and are aware of the risks involved in using pesticides. Thus, some workers may not understand the instructions they received in their training, especially if they are foreign workers who are not proficient in Hebrew.				



Summary

In 2017, the State Comptroller's Office published an audit examining pesticide usage in fruits and vegetables. As specified above, the follow-up audit found that some deficiencies were fully or partially rectified. Nevertheless, some deficiencies were only rectified to a small extent, including the reexamination of using particular Pest control preparations in Israel years after they were banned in EU countries; according to inspections conducted by the Ministry of Agriculture and the Ministry of Health in 2019–2021 in a quarter to a half of the samples of specific crops had excessive pesticides residues, and the Israeli public regularly consumes some of these crops; there was no adequate supervision on the usage of pesticides on farms according to label instructions; there was no legislation of regulations to obligate workers to undergo periodic medical examinations and to take a proficiency test.

Moreover, the follow-up audit raised that the pesticides (the active ingredients) sold in Israel in 2018 were the highest amongst the developed countries that were examined in Europe, considering the size of the farms and the products, and the Ministry of Agriculture has not looked into the causes and implications. The audit further raised that there is no regulatory arrangement in Israel limiting the usage of toxic pesticides for those authorized to use them, supervising sales, and regulating the necessary training.

Significant disagreements exist between the Ministry of Agriculture and the Ministry of Health regarding the regularization of pesticides, and each Ministry has maintained its position for years. These disagreements prevent optimal supervision and control over farmers' usage of pest control preparations pesticides. It also prevents a thorough regularization of pesticides, although the ministries agree it is needed. This issue has been discussed for many years, and in the meantime, the public is not protected. The State Comptroller Office recommends that the Ministry of Agriculture and Health bridge their gaps.

The pesticide use policy in EU countries is expected to keep changing. The changes are caused by discoveries related to the harmful impact of different substances on human health and the environment. It is highly important that the Ministry of Agriculture and the Ministry of Health, with the assistance of the Prime Minister's Office, complete the regularization of pesticide residues according to the EU's requirements, adjusted to the Israeli reality, to protect the consumers of local produce and minimize exposure to toxic pesticides.

