

PEST CONTROL IN CROATIA

- General Remarques and Legislation -

Disinfection, fumigation and pest control (DDD) involve complex, carefully planned full extent of control of microorganisms, harmful arthropods (Arthropoda) and harmful rodents, or a combination of preventive and curative measures with the ultimate goal of achieving reduction, stopping growth and reproduction or complete removal of the presence of microorganisms, harmful arthropods (Arthropoda) and harmful rodents.

Obligatory DDD measures can successfully implement only the provider who has professional experience and knowledge and the required knowledge of the ways how to control harmful organisms, knowledge on the type of pest that should control and be familiar with its biology and ethology, or the environment in which they live, pests' behavior, etc.; devices and equipment's for the implementation and application techniques, and should be able to choose a suitable and safe method of application. The provider also needs to know that pesticides, which are still largely used in DDD activities, are grouped into chemicals or toxic substances, and working with them to be very responsible. It is essential that all those who professionally work with pesticides have at least a basic knowledge of pesticides, the organisms against which to apply, and in particular the adverse effects that the use of pesticides can cause in humans and in the environment.

With all of the above, providers of DDD obligatory measures, whose knowledge, work and procedures has a great effect on the reputation of this interdisciplinary profession in society, must be able to explain the problems caused by pests to other untrained individuals. This gradually creates a certain public opinion and respect for this profession. Professional and responsible implementation of DDD measures is based on the constant renewal and enrichment of knowledge, or continuing education.

DDD measures in Croatia are of public health importance and are implemented in the field of public health and communal hygiene and veterinary field using mechanical, physical, biological and chemical measures (use of biocidal products). DDD measures with the use of pesticides for the control and eradication of harmful organisms in agriculture and forestry are also performed in Croatia.

Conditions for the implementation of DDD measures, depending on the implementation in different fields of use (Public Health and Public Hygiene and /or veterinary field and /or agriculture and forestry), are regulated by the following legal provisions in force in the Republic of Croatia:

PUBLIC HEALTH AND COMMUNAL HYGIENE	VETERINARY PUBLIC HEALTH	AGRICULTURE AND FORESTRY
TYPE OF APPROVAL (LICENSE) TO IMPLEMENT DDD MEASURES in accordance with the valid legal regulations ...		
called ... "The decision on eligibility for carrying out obligatory disinfection, disinsection and deratization, as well, as measures for prevention and control of infectious diseases of the population with regard to employees, premises and technical equipment" issued by ...	called ... "The decision on the fulfillment of the requirements for conducting disinfection, disinsection and deratization to control the infectious animal diseases and zoonosis, protect the safety of animal products and animal feed and veterinary care of the environment from contamination by pathogenic microorganisms with regard to professional staff, premises and equipment" issued by ...	called ... "The decision on registration in the Register of legal entities and individuals engaged in the control and eradication of harmful organisms applying pesticides in agriculture and forestry" issued by ...
... <u>MINISTRY OF HEALTH</u> according to <u>MINISTRY OF AGRICULTURE</u> - <u>VETERINARY DIRECTORATE</u> according to <u>MINISTRY OF AGRICULTURE</u> according to ...

... Regulations on the conditions to be met by legal and natural persons engaged in obligatory disinfection, disinsection and deratization, as well, as measures for prevention and control of infectious diseases of the population (Official Gazette No. 35/07) adopted on the basis of the Law of protection of the population from infectious diseases (Official Gazette No. 79/07, 113/08, 43/09):

- the use of chemicals with the sign T+ (fumigation - method of applying a very toxic and dangerous chemicals that act in the form of gas) - **the work permit is VALID FOR 3 YEARS**
- the use of chemicals with the sign T, Xn, Xi, C, N, O, E, F, F+ - **the work permit is VALID FOR 5 YEARS**

... Ordinance on the terms and conditions of disinfection, disinsection and deratization in veterinary activities (Official Gazette No. 139/10) issued on the basis of the Veterinary Act (Official Gazette No. 41/07):

- the use of chemicals with the sign T+ (fumigation - method of application very toxic and hazardous chemicals that are active in gas form) - **there are NO LIMITS of the authorization**
- the use of chemicals with the sign T, Xn, Xi, C, N, O, E, F, F+ - **there are NO LIMITS of the authorization**

... Ordinance on establishing an action framework to achieve the sustainable use of pesticides (Official Gazette No. 142/12) issued pursuant to the Law on Plant Protection Products Act (Official Gazette No. 70/05)::

- fumigation (application very toxic and hazardous chemicals that act in the form of gas, or chemicals with symbol T+) - **there are NO LIMITS of the authorization**
- the application of pesticides in liquid form (spray, mist, used in aerosol form, wetting); dusting, application of granular pesticides, control of harmful rodents in agricultural areas, in forests, in warehouses and other enclosed spaces in which are stored (treatment using chemicals with symbols T, Xn, Xi, C, n, O, E, F, F+) - **there are NO LIMITS of the authorization**

Written confirmation on the registration in the Register of the Ministry of Agriculture proving that the service provider meets the requirements for the performance of the control and eradication of harmful organisms in agriculture and forestry with using pesticides (proof of registration in the Register of service providers). The proof was issued on the basis of the Ordinance on the instructions which are obligatory for users of plant protection products and the conditions that must be met (Official Gazette No. 153/08, 73/10 and 55/12) and are in force even after the entry into force of the Ordinance on Establishing an Action Framework to Achieve the Sustainable Use of Pesticides (Official Gazette No. 142/12).

NOTE: The legal entity must have a decision of the competent authority for the use of chemicals under the previous Law on Chemicals (Official Gazette No. 150/05, 53/08, 49/11) or the new Law on Chemicals (Official Gazette No. 18/13) and Regulations of the specific conditions that must be met by legal persons engaged in the production, circulation, and use of hazardous chemicals and the conditions that must be met by legal or natural persons engaged in retail sale or use dangerous chemicals (Official Gazette No. 68/07) in order to submit request for authorization to implement DDD measures in public health and communal hygiene and/or protection of plants and/or veterinary field.

Procedures related to the approval for the production, marketing and use of chemicals prior to the entry into force of the new Law on Chemicals (Official Gazette No. 18/13) shall be completed in accordance with the provisions of the old Law on Chemicals (Official Gazette No. 150 / 05, 63/07, 53/08 and 49/11).

The decision was issued on the basis of the old Law on Chemicals (Official Gazette No. 150/05, 53/08, 49/11) or the new Law on Chemicals (Official Gazette no. 18/13); **NO PERIOD OF LIMITATION PERIOD.**

... ISSUED TO ...

- *obligatory GENERAL and SPECIAL DDD measures* - legal persons (companies in private ownership)
- *obligatory GENERAL, SPECIAL and EPIDEMIC CONTROL DDD measures* - County Institute of Public Health

- **veterinary organizations and other legal persons (companies in private ownership)**

- **legal and natural persons**

... IN THE PURPOSE OF IMPLEMENTING DDD MEASURES ON THE SURFACES, SPACES AND FACILITIES ...

... pursuant to Article 10 Paragraph 1 Law on Protection of Population from Infectious Diseases, i.e. "in the facilities that are subject to sanitary surveillance, or in buildings, facilities, rooms, devices and equipment's of the persons engaged in economic activities and activities in the areas of health, education, social welfare, hospitality, tourism, trade and services, sports and recreation, facilities for public water supply and sewerage and landfill for waste disposal, the activities of public transport in and around residential buildings, public spaces and public buildings in cities and towns, and other objects of public health importance and communal importance"

... accordance with Article 34 Paragraph 1 Veterinary Act "at all facilities, venues, transportation, equipment and items that are subject to the supervision of the veterinary inspection and facilities, pasture and other areas where animals are temporarily or permanently residing or moving"

... pursuant to Article 2 Paragraph 1 Plant Health Act (Official Gazette No. 75/05) "plants, plant products and other inspected objects in the agriculture and forestry"

... pursuant to Article 3 Paragraph 1 Section 7 of Plant Health Act "other inspected objects are land, warehouses, buildings and facilities for the processing, packaging, conveyance, containers, soil and any other organism, object or material which may contain harmful organism, or it can spread and therefore phytosanitary measures should be implemented"

... PERFORMED TO ENSURE ...

... pursuant to Article 10 Paragraph 3 Law on Protection of Population from Infectious Diseases "Disinfection, insect and pest control as a GENERAL MEASURES are implemented in order to maintain hygiene and reducing, stopping growth and reproduction or complete removal of the presence of microorganisms, harmful arthropods (Arthropoda) and harmful rodents."

... pursuant to Article 23 Paragraph 2 Law on Protection of Population from Infectious Diseases "Preventive and obligatory preventive disinfection, disinsection and deratization as SPECIAL MEASURES are carried out to prevent the occurrence of infectious diseases in accordance with the agreed program of measures under Article 5 Paragraph 2 this Act in facilities under Article 10 Paragraph 1 this Act."

... pursuant to Article 47-53 Paragraph 2 Law on Protection of Population from Infectious Diseases as fast and effective stopping of the spreading of an epidemic or pandemic infectious diseases as security and obligatory EPIDEMIC CONTROL MEASURES

NOTE: possession of authorization to implement EPIDEMIC CONTROL measures, DDD cannot be the subject of the tender documents as under Article 47 Paragraph 2 Law on Protection of Population from Infectious Diseases, epidemic DDD measures are implemented on the basis of orders of the health minister.

... accordance with Article 34 Paragraph 2 Veterinary Act "prevention and control of infectious animal diseases and zoonosis, protection of the safety of animal products and animal feed and veterinary care of the environment from contamination by pathogenic microorganisms and parasites"

... pursuant to Article 2 Plant Health Act in order "to prevent the introduction and spread, and measures to control organisms harmful to plants, plant products and other controlled objects"

MINIMUM NUMBER OF PROFESSIONAL EXPERTS TO GET THE APPROVAL (LICENSE) TO WORK ...

In accordance with the Regulation on special conditions to be fulfilled by legal persons engaged in the production, distribution, and use of hazardous chemicals and the conditions that must be met by legal or natural persons engaged in retail sale or use dangerous chemicals (Official Gazette No. 68/07) issued on under the law applicable to the Chemicals Act, the entity must appoint a person responsible for supervising the use of chemicals.

... in accordance with the Regulations - conditions (OG 35/07):

1. **chemicals with symbol T+** (article 4): 1 medical doctor (the person responsible for DDD) + 1 sanitary engineer (performer) + 4 sanitary technicians (performers)
2. **chemicals with symbol T, Xn, Xi, C, N, O, E, F, F+** (article 5): 1 sanitary engineer. or ing. of biology or prof. biology or medical doctors (the person responsible for DDD) + 1 sanitary engineer (performer) + 2 sanitary technicians (performers)

Pursuant to Article 22 Paragraph 2 Regulations on the implementation of obligatory disinfection, disinsection and deratization (Official Gazette No. 35/07 and 76/12), the leader of the fumigation team (application of very toxic and hazardous chemicals that act in the form of gas, or chemicals with symbol T+) must have at least 3 years of work experience in fumigation.

... pursuant to Article 3 Regulations - the conditions and manner (OG 139/10):

- paragraph 1. **chemicals with symbol T+**: 1 doctor of veterinary medicine (the person responsible for DDD) + 3 sanitary or veterinary technicians (performers)
- paragraph 2. **chemicals with a sign T, Xn, Xi, C, N, O, E, F, F+**: 1 doctor of veterinary medicine (the person responsible for DDD) + 1 veterinary technician (performer)

In accordance with Article 10 paragraph 1. Item 6, doctor of veterinary medicine must possess a license issued by the Croatian Veterinary Chamber.

In accordance with Article 31 Paragraph 1 of the Regulations, the leader of the fumigation team (application of very toxic and hazardous chemicals that act in the form of gas, or chemicals with symbol T+) must have at least 3 years of experience in fumigation.

... in accordance with Article 58 Regulations (OG 142/12):

1. **chemicals with symbol T+**: undergraduate and graduate studies in agronomy or forestry or undergraduate university degree in agronomy or forestry with most minimally completed 150 hours module plant protection (lecture exercises, seminars) (person responsible for DDD) + 3 agricultural or sanitary technicians (performers)
2. **chemicals with a sign T, Xn, Xi, C, N, O, E, F, F+**: undergraduate and graduate study of the agronomy or forestry university or undergraduate university degree in agronomy or forestry (the person responsible for DDD) + 1 agricultural or forestry technician (performer)

According to Article 58 Paragraph 4 of Regulations, a professional user does not need to have any employees employed under paragraph 1 item 2 of this Article, if the treatment is performed by a person from paragraph 1 item 1 of this article.

In accordance with article 62. paragraph 4. of Regulations the leader of the fumigation team (application of very toxic and hazardous chemicals that act in the form of gas, or chemicals with symbol T+) must have at least 3 years of experience in fumigation.

During the implementation of DDD measures all performers must have identification cards for the use of chemicals with symbol T+ and /or T, Xn, Xi, C, N, O, E, F, F+.

TO OBTAIN APPROVAL (LICENSE) TO WORK, STORAGE AREA MUST CONTAIN...

... in accordance with the Regulation on special conditions to be fulfilled by legal persons engaged in the production, circulation, and use of hazardous chemicals and the conditions that must be met by legal or natural persons engaged in retail sale or in the use of dangerous chemicals (Official Gazette no. 68/07) issued on under the applicable law Chemical Act:

- appropriate facilities for accommodation, storage and distribute the hazardous chemicals in terms of location, construction method, the quality of the walls and flooring, lighting, ventilation, temperature and humidity fulfill appropriate technical and sanitary-hygienic conditions
- provided adequate protection for workers who work with hazardous chemicals
- appropriate equipment for handling hazardous chemicals that is resistant to chemicals with which it comes into contact, and
- instructions on how to provide first aid in case of an accident as well as the means to provide first aid and materials for decontamination and removal of hazardous chemicals.

... in agreement with Article 8 and 10 Regulations - conditions (OG 35/07) ...

1. chemicals with symbol T+:

- a room for accommodation, storage and delivery of chemicals with symbol T+ of at least 10 m²
- room for storing technical equipment and appliances for use, of at least 15 m²
- dressing room with two lockers with a padlock or key for each worker in the warehouse (one for work clothes and personal protective equipment, and the other for personal wardrobe)
- sanitary space with shower and a fountain or a tap with bayonets flexible hose for rinsing eyes

2. chemicals with symbol T, Xn, Xi, C, N, O, E, F, F+:

- room for accommodation, storage and issuing of chemicals with a sign T, Xn, Xi, C, and other hazardous chemicals except T+, of at least 15 m²
- room for storing technical equipment, apparatus for applying, least 15 m²
- dressing room with two lockers with a padlock or key for each worker in the warehouse (one for work clothes and personal protective equipment, and the other for personal wardrobe)
- sanitary space with shower and a fountain or a tap with bayonets flexible hose for rinsing eyes

If the storage space for chemicals with a sign T, Xn, Xi, C, and other hazardous chemicals except T+ is separated from business premises, storage space must have a separate room for the workers.

... pursuant to Article 6. Paragraph 1. Item 2 and 3, Article 7. Paragraph 1. Item 2. and 3. and Article 8. Paragraph 1. Item 1. Regulations - the conditions and manner (OG 139/10)

...

1. chemicals with symbol T+:

- room for accommodation, storage and delivery of chemicals with symbol T +
- room for storing technical equipment and apparatus for the application
- room with two lockers which can be locked for each worker in the warehouse (one for work clothes, shoes and personal protective equipment, and the other for personal clothing and footwear)
- sanitary space with shower and a fountain or a tap with bayonets flexible hose for rinsing eyes

If the storage area is separated from the office space, storage area must have a room for workers.

2. chemicals with symbol T, Xn, Xi, C, N, O, E, F, F+:

- room for accommodation, storage and delivery of chemicals with a sign T, Xn, Xi, C and other dangerous chemicals, except T+
- room for storing technical equipment and apparatus for the application
- dressing room with two lockers which can be locked for each worker in the warehouse (one for work clothes, shoes and personal protective equipment, and the other for personal clothing and footwear)
- sanitary space with shower and a fountain or a tap with bayonets flexible hose for rinsing eyes

If the storage area is separated from the office space, storage area must have a room for workers.

If the storage space for chemicals with a sign T, Xn, Xi, C, and other hazardous chemicals except T+ is in the same building with storage space for chemicals with symbol T+, the storage for accommodation, storage and delivery of chemicals with symbol T+ must be physically separated from other and a well-equipped and maintained in accordance with special regulations on the storage of hazardous chemicals that act in the form of gas.

... pursuant to Section 59. and 60. of Regulations (OG 142/12) ...

1. chemicals with symbol T+:

Professional users who use products labeled as very toxic (T+) must satisfy the requirements prescribed for professional staff, storage and equipment required by Article 11. of Law on Plant Protection Products Act, these Regulations, the Chemicals Act and the Regulations on special conditions to be fulfilled by legal persons engaged in the production, marketing and use of dangerous chemicals and conditions that must be met by legal or natural persons engaged in retail sale or use of dangerous chemicals.

2. chemicals with symbol T, Xn, Xi, C, N, O, E, F, F+:

- professional users having materials (pesticides) that are not marked with T+, and are intended for use, must kept it in a separate room or in a separate cabinet
- room in paragraph 1. of this Article shall be made of solid and resistant materials which are easy to clean. Direct drain into the sewer should not be on the floor of the room.
- cabinet of paragraph 1. of this Article shall be made of resistant and inert materials that do not absorb the materials (pesticides) and the cleaning is simple
- room or cabinet in paragraph 1. of this article should not be in office and residential spaces
- room or cabinet in paragraph 1. of this article must be clearly labeled and marked with danger signs and warning labels and secured from unauthorized access

MINIMUM QUANTITY OF OWN EQUIPMENT FOR WORK AND SPECIAL AND PROTECTIVE WORKERS EQUIPMENT TO OBTAIN APPROVAL (LICENSE) TO WORK ...

... pursuant to Article 7 and 9 Regulations - conditions (OG 35/07) ...

1. chemicals with symbol T+:

1.1. equipment for work:

- 2 hot foggers capacity of 5 liters
- 1 unit for cold mist - aerosol generator
- 4 back motor sprayers with accessories for spraying and granulating
- 1 pressure sprayer with a safety valve for each performer of obligatory DDD measures
- 1 unit for detecting gases with a sufficient number of appropriate indicators or sensor tubes to detect the used fumigant
- appropriate accessories for fumigant application (opener for specific fumigant, dispenser and evaporizator depending on the type of gas used).

1.2. personal protective equipment for each performer of obligatory DDD measures consisting of: rubber boots, rubber or leather gloves resistant to chemicals, a sufficient amount of disposable gloves, protective coveralls, overalls or coat, face shield or goggles, caps and helmets, protection means for protecting the organs of hearing

1.3. Special protective equipment according to the type of work performed:

- 1 full face mask (EN 136) for every performer who must work with chemicals with signs of a very toxic (T+)
- sufficient amount of gas filter (EN 141), prescribed and adapted for physical-chemical properties of the individual gas
- at least three self-contained breathing open-circuit apparatus with a compressed air (EN 137) or closed loop (EN 145)

1.4. first aid kit equipped in accordance with special regulations with basic symptomatic medication in case of poisoning, which must always be with the person responsible for working with chemicals

1.5. during the application each team of performers of DDD obligatory measures must possess the guidance on the application of first aid in the case of poisoning

... pursuant to Article 6. Paragraph 1. Item 2. and 3., Article 7. Paragraph 1. Item 2. and 3. and Article 8. Paragraph 1. Item 1. Regulations - the conditions and manner (OG 139/10)

...

1. chemicals with symbol T+:

1.1. equipment for work:

- 1 hot fogger, capacity of 5 liters
- 1 aerosol generator
- 4 back motor sprayers with accessories for spraying and granules application
- 1 gas detection device with a sufficient number of appropriate indicator tubes
- equipment for setup, collection and removal of baits and equipment for the collection and safe disposal of dead rodents

1.2. right additional accessories for the use of fumigant;

1.3. vehicle must be labeled for that determined use of chemicals and application; the space where are the driver and passenger must be physically separated from the area where they are transported chemicals with signs of a very toxic (T+)

1.4. sufficient protective clothing, footwear and other personal protective and specific equipment depending on the type of work they do, all in accordance with special regulations on occupational safety and instructions on the label of biocidal component that is used to perform DDD

1.5. first aid kit equipped with basic symptomatic medication in case of poisoning, according to special regulations;

1.6. during the application each team of performers of DDD obligatory measures must possess the guidance on the application of first aid in the case of poisoning.

... equipment and materials for work depending on the type of work performed in accordance with the provisions of Regulation (OG 142/12).

Devices for applying pesticides used by professional users of plant protection products are regularly inspected.

Hand-held devices, back sprayers on your handheld, battery and motor drive sprayers and back motor atomizers are exempted from regular inspections.

2. chemicals with symbol T, Xn, Xi, C, N, O, E, F, F+:**2.1. equipments to work:**

- 1 pressure sprayer with a safety valve for each contractor of DDD obligatory measures
- 2 back motor sprayers with accessories for spraying, dusting and granulating
- 1 aerosol generator
- 1 hot fogger capacity of 5 liters

2.2. personal protective equipment for each performer of obligatory DDD measures consisting of: rubber boots, rubber or leather gloves resistant to chemicals, a sufficient amount of disposable gloves, protective coveralls, overalls or coat, face shield or goggles, caps and helmets, protective equipment to protect the organs of hearing

2.3. Special protective equipment according to the type of work performed, for each performer of DDD obligatory measures:

- half masks (single or multiple with filters) to stop dry aerosols (dusts) in an amount depending on the number of employees,
- 1 half mask (EN 149) or half mask (EN 1827) with filters (EN 143) to protect against particles
- 1 full face mask (EN 136) with combined filters to protect against gases and particles (EN 141)

2.4. first aid kit equipped in accordance with special regulations, with basic symptomatic medication in case of poisoning, which must always be with the person responsible for working with chemicals

2.5. during the application each team of performers of DDD obligatory measures must possess the guidance on the application of first aid in the case of poisoning

2. chemicals with symbol T, Xn, Xi, C, N, O, E, F, F+:**2.1. equipment for work:**

- 1 hot fogger capacity of 5 liters
- 1 aerosol generator
- 2 back motor sprayers with accessories for spraying, dusting and granulating
- for each performer 1 pressure sprayer with a safety valve
- equipments for setup, collection and removal of baits and equipment for the collection and safe disposal of carcasses of rodents and other animals

2.2. vehicle must be labeled for the specified activity.

2.3. sufficient protective clothing, footwear and other specific personal protective equipment depending on the type of work they do, all in accordance with special regulations on occupational safety and instructions on the label of biocide that is used to perform DDD

2.4. first aid kit equipped with basic symptomatic medication in case of poisoning, according to special regulations;

2.5. during the application each team of performers of DDD obligatory measures must possess the guidance on the application of first aid in the case of poisoning.

PERMANENT OBLIGATORY EDUCATION IN THE COURSE OF WORKING IN DDD ...

... **the expert ability of workers to work with chemicals** and the education of the employees to work with chemicals and successfully finished training courses in accordance with the Law on Chemicals (Official Gazette no. 18/13) and the Regulations on the conditions and method of acquisition and assessment of protection from poison (Official Gazette No. 62/99).

According to the Law on Chemicals (Official Gazette No. 18/13) organization, implementation and verification of knowledge on protection against hazardous chemicals, the acquisition of knowledge about protection from dangerous chemicals and certification of acquired knowledge implement health care institutions, i.e. legal persons before obtaining approval to conduct these activities must meet the requirements prescribed in respect of skilled workers, adequate facilities and equipment for the implementation of teaching and in terms of relevant experience in the organization and implementation of teaching and assessment of the knowledge regarding to the protection from dangerous chemicals.

Certificates of acquired knowledge test on the protection of hazardous chemicals listed in the Law on Chemicals (Official Gazette No. 150/05, 63/07, 53/08 and 49/11) are valid until the expiration date. Pending the entry into force of the Law on Chemicals (Official Gazette No. 18/13), the courses in toxicology are conducted by the Croatian Institute for Toxicology and Antidoping.

According to Regulations on the conditions and method of acquisition and assessment of protection from poison (Official Gazette No. 62/99), courses for working with hazardous chemicals should be repeated every 5 years. Then the person responsible for the supervision of chemicals attends the expanded program, while workers complement and renew the background material.

... responsible experts for the implementation of obligatory DDD measures and all other performers, i.e. "Permanent education for performers of obligatory DDD measures" under Article 6. Paragraph 3. and Article 16. Paragraph 1. Regulations - conditions (OG 35/07) and Decision of the Minister of Health on the adoption of the program of training for performers of the obligatory measures of disinfection, disinsection and deratization, Class: 543-04/06-03/8, reg. 534-08-01/10-07-2 of 8th May, 2007.

Additional explanation: According to the Decision required DDD permanent education consists of ten themes that make up a complete training program. DDD continuing education programs are held twice a year, in spring and fall, during one day. The cycle of 10 topics* of DDD continuing education is repeated every five years according to the proposed general programs depending on the novelties in DDD, with minor modifications to renew each time to improve the topics. After each topic, participants have to finish successfully the knowledge test and receive:

- a 5 years valid summary confirmation to participate in the DDD ongoing education with the total number of participants, certified by the Croatian Institute for Public Health and the Croatian Pest Control Association, and
- confirmation of the 5-year cycle of attendance in training programs for each person referred to in Article 6. Paragraph 3. and Article 16. Paragraph 1. of this Regulations, issued by the organizer of the education.

* 10 topics are:

1. Integrated control of mosquitoes
2. Integrated control of cockroaches, ants and termites
3. Integrated control of rodents and measures of protection against birds
4. Integrated control of flies, wasps, other Diptera and Lepidoptera pests of importance in the touristic regions
5. Disinfection
6. Poisonous and annoying animals, occasional invaders, bats
7. Integrated control of pests of food, stored products, museum, church and artifact pests
8. Disinfection, disinfestations and deratization (DDD) as a part of HACCP
9. The basic principles of the implementation of DDD measures in the practice
10. Hazard in the implementation of DDD measures.

... the team leader of the performers of DDD measures and all the performers in accordance with Article 5. Regulations - the conditions and manner (OG 139/10).

Additional explanation: The leaders (responsible persons) of DDD and all performers must attend the program under Article 5. Paragraph 1. Regulations at least once every five years. Program under paragraph 1 this Article is set up by the Veterinary Faculty and Croatian Veterinary Institute, Zagreb.

... service provider for the application of pesticides in accordance with Chapter II. Regulations (OG 142/12).

Additional explanation: According to the provisions of this Regulations, professional users, distributors and advisors must complete basic training and pass an exam in the appropriate modules before 26th November 2015th to get the proper identification card (ID). After this date, without these identification cards, the performers and others will not be able to continue to work in DDD field (purchase, sale and use of plant protection products intended for professional users). ID cards will be valid for 5 years from the date of issuance of the certificate after which the professional users, consultants, and distributors need to renew the knowledge taking the additional training to be able to extend the card for the next 5 years.

The education is implemented by institutions determined by the Ministry of Agriculture.

DURING THE IMPLEMENTATION OF OBLIGATORY DDD MEASURES FOR EACH TYPE AND EACH OPERATION OBLIGATORY IS ...

... pursuant to Article 3. Regulations on the implementation of obligatory disinfection, disinsection and deratization (OG 35/07, 76/12) ...

1. make a survey of area and space:

- to determine the conditions of surface and space in relation to contamination by micro-organisms and the presence of harmful arthropods (Arthropoda) and harmful rodents
- to determine the degree of infestation and damage
- to determine the cause of a damage and determine the measures that will reduce, inhibit growth and reproduction or

... pursuant to Article 14. Paragraph 2. Regulations - the conditions and manner (OG 139/10) ...

Not prescribed additional requirements as in public health and communal hygiene and veterinary

completely remove the presence of microorganisms, harmful arthropods (Arthropoda) and harmful rodents

- identify the "critical point", or ecological niches, feeding and damages

2. prepare documentation:

- write recommendations for educating people in the user actions (write and share advice and instruction leaflets)
- write recommendations for remedial action in the environment and at the "critical points"
- write the recommendations and suggestions for the implementation of obligatory types of DDD measures

3. write the implementation plan of obligatory DDD measures which must include:

- list of acceptable pesticides with which to treat the surface area or facility
- elaborated in detail the spatial distribution of work and terms of performance measures
- manner of the treatment of surfaces, space or object by one or more measures
- precautions, protection of personnel, premises, property and the environment
- proposed additional measures to carry out needed retreatment, improvement during the implementation of obligatory DDD measures (additional processing or changes in measures)

4. to assess the success of the treatment:

- survey and systematic monitoring, and a customer judgment of the success of applied DDD measures
- draw up a proposal for safe and permanent removal of damage in buildings of the users of obligatory DDD measures

ISSUANCE OF CONFIRMATION AND CERTIFICATE

1. Confirmation about applied DDD measure
2. Certificate of fumigation
3. Safety certificate (*issued after the completion of fumigation*)

1. Confirmation about applied DDD measure
2. Certificate of fumigation
3. Safety certificate (*after the fumigation*)
4. Confirmation regarding to the implementation of disinfection of transport

1. Confirmation of treatment
2. Certificate of fumigation
3. Safety certificate (*after the fumigation*)

RECORDS, REPORTS ON IMPLEMENTED DDD MEASURES

Pursuant to the Regulations on keeping the records of dangerous chemicals and the manner and time limits for delivery of data from the records (Official Gazette no. 113/06) the users of chemicals have to submit summary report on the use of chemicals with symbol T+, T, Xn, C and Xi for the previous year not later than January 31st. The reports have to be submitted to Croatian Institute for Toxicology and Antidoping.

In addition to biocidal products, the obligation of keeping records for dangerous chemicals refers also to the production and internal transport of pesticides.

Pursuant to Article 7. Paragraph 2. of this Regulation, health institutions and other entities engaged in DDD are not required to keep daily records of the use of hazardous chemicals, if the records on the use of hazardous chemicals are prepared in accordance with special regulations in the field of public health and communal hygiene, veterinary and plant protection.

In accordance with Article 36. Regulations - manner (OG 35/07, 76/12):

- paragraph 1. - Provider of obligatory DDD measures (*legal persons, i.e. companies in private ownership*) shall annually submits summary report on the obligatory DDD measures (*GENERAL and SPECIAL measures*), types and total amounts of materials spent to implement obligatory DDD measures and the type of microorganisms, harmful arthropods (Arthropoda) and harmful rodent to the competent Institute of Public Health of the County or the

In accordance with Article 38. Regulations - the conditions and manner (OG 139/10) the licensee shall maintain records and documentation of the performance of DDD on:

1. conducted DDD procedures with the following information: (a) number and date, (b) the owner or operator of the facility or conveyance /container in which the measure is implemented, (c) the type of surface, space, property or means of transport (registration number) /container, (d) the type of DDD procedure performed, (e) size - the unit measure - total

In accordance with Article 64. Regulations (OG 142/12) the service provider must keep records of the use of the pesticides based on the issuance of certificates of treatment and fumigation and to deliver a report in written and electronic form to the Ministry not later than 31st March of the current year for the previous year. At the request of the Ministry, the summary report shall be accompanied by copies of conformations issued.

Form of the summary report is available on

City of Zagreb on the form No. 2 which is printed along with this Regulations and forms an integral part. Reports shall be submitted by registered mail, no later than 31st January of the current year for the previous year.

- paragraph 2. - County Institute of Public Health and City of Zagreb shall submit a written summary reports to Croatian Institute for Public Health regarding the reports under paragraph 1. this Article by 28th February of the current year for the previous year.
- paragraph 3. - Croatian Institute for Public Health shall submit annual written summary report for all counties or the City of Zagreb to the Sanitary Inspection of the Ministry of Health of the Republic of Croatia by 31st March of the current year for the previous year.

Form for the summary report is available on <http://www.huddd.hr/vazeci-propisi.html>

Pursuant to Article 41 Regulations - manner (OG 35/07, 76/12), counties Departments of Public Health or the City of Zagreb prepare the professional reports with data on the degree of infestation, pesticide consumption and the level of adherence to the prescribed Programme of measures and Implementation Plan with the proposition for the measures and sanitation improvement and submitted the reports to the responsible bodies of a county, municipality and town or city of Zagreb, responsible for health. The reports must be sent to the responsible bodies no later than four weeks after the implementation of the SPECIAL MEASURES (preventive and obligatory preventive disinfection, disinsection and deratization). Expert report must include proposals to improve the conditions of surfaces, premises or facilities in the future.

Certificates, records and reports are kept for at least 5 years.

(f) the number and date of issued confirmation about conducted DDD measure (g) notices.

2. spent materials for DDD, where it is stated: (a) the name of the manufacturer, (b) department (section) (c) in (kg), (d) input (kg), (e) output (kg), (f) notice; (g) the signature of the leader.

In accordance with Article 39. Regulations - the conditions and manner (OG 139/10):

1. legal and natural persons engaged in disinfecting means of transport /water tanks keep the records containing: 1. day, month and year when the disinfection was performed and place of disinfection; 2. type and registration number or name of the conveyance /container, 3. the type of carried out disinfection (simple or enhanced), 4. active ingredient, concentration /dose and the amount of used resources which have undergone disinfection; 5. signature manager/contractor.
2. after disinfecting means of transport/tank issued a certificate stating the data from point 1.

In accordance with Article 40 Regulations - the conditions and manner (OG 139/10), the user must keep records of completed disinfection of transport vehicles/containers, containing: 1. day, month and year when the disinfection performed and place of disinfection; 2. type and registration number or name of the transport vehicle/container, 3. kind carried out disinfection (simple or enhanced) 4. name of the legal entity or natural person who has carried out disinfection; 5. disinfectant used (trade name of the active ingredient, concentration /dose and quantity); 6. signature, facsimile, and the seal of the contractor.

These records must be kept in the vehicle all the time to be available to the official veterinarian for the inspection.

Certificates, records and reports are kept for at least 3 years.

<http://www.huddd.hr/vazeci-propisi.html>

Certificates, records and reports are kept for at least 5 years.

OTHER REGULATIONS DEALING WITH THE APPLICATION OF DDD MEASURES

1. Regulation on the implementation of obligatory disinfection, disinsection and deratization (Official Gazette No. 35/07, 76/12) which sets out ways of implementing obligatory DDD and fumigation as a particular way of implementing obligatory DDD measures (*GENERAL, SPECIAL and EPIDEMIC CONTROL DDD measures*), to be implemented in order to prevent and control the occurrence and spreading of infectious diseases, prevention of damaged in the production and distribution of food caused by microorganisms, harmful arthropods (Arthropoda) and harmful rodents, and the measures are implemented as a GENERAL, SPECIAL and EPIDEMIC CONTROL measures. This Regulation determine the

Order on measures to protect animals from infectious and parasitic diseases and their financing, which is adopted for the current year

inspection and supervision of the implementation of obligatory DDD measures, ways of keeping records and reports on obligatory DDD measures and ways to reduce risk in the application of pesticides during the implementation of obligatory DDD measures.

2. The program of measures to control pathogens, harmful arthropods (Arthropoda) and harmful rodents whose planned, organized and systematic control using disinfection, disinsection and deratization is of public health importance for the Republic of Croatia (Official Gazette No. 128/11). The Program defines in detail the purpose, dynamics, deadlines, implementation plan and purpose and methodology of the DDD measures, such as:

Excerpt from the State Programme of Measures

„A.2. Deadlines, dynamics and methods of implementing obligatory DDD as a GENERAL measures

(1) **Terms, dynamics and methods** of implementing obligatory DDD measures as general measures, choice of form and formulation of biocidal products and precautions **solely determined by a person with a permission to implement DDD measures** based on:

- the previous survey area, premises or property under Article 10. Paragraph 1. Law of Protection of the Population from Infectious Diseases
- determining the type of pathogenic micro-organisms, harmful arthropods (Arthropoda) and harmful rodents,
- degree, distribution and spots of infestation with pathogens, harmful arthropods (Arthropoda) and harmful rodents,
- insight into the building - technical - hygienic conditions, properties and uses of the surfaces, premises or property and technological process.

(2) Dynamic of the implementation to control the carrier of infectious diseases whose control is of public health importance in the Republic of Croatia and it is prescribed in Section VII. sub clause 1.4.8. Implementation Plan (for SPECIAL measures) and can be applied to the implementation of obligatory GENERAL DDD measures.

(3) The professional person with the permission to implement DDD measures make the evaluation whether it is necessary to spend more operations using the biocidal pesticide in comparison with the operations least proposed.

(4) All actions taken and procedures to be followed and evaluated by a professional person with the permission for the implementation of DDD measures and performance of measures and procedures should be evaluated:

- with the survey and systematic monitoring, interviews or surveys of responsible performer and on the judgment of success using objective method (e.g. sticky traps or swabs for disinfection) or subjective (visual) criteria

- to develop proposals for safe and permanent removal of damage in buildings of the users of obligatory DDD measures as general measures.

(5) Based on the results and analysis of all applied procedures, if needed, new or additional treatments or just a corrective action is implemented until the desired result are achieved.

(6) In order to ensure food safety, entity in the food business, must keep „Evidence of the presence of the pests“ monthly. In the case if only one individual pest is observed, the responsible person shall immediately notify the holder of the authorization to implement DDD measures to implement remedial measures to control pests.

(7) Subject in the food business must enable the responsible performer of DDD measures to perform every 3 months a detailed inspection of all the critical points in the facility, or ecological niches to determine the possible presence of pests.

A.3. Plan for the implementation of GENERAL DDD measures

(1) During the contract period all certificates about conducted DDD measures have to be attached to the Implementation Plan for general DDD measures which are thus updated, which proves that all measures described in the Plan were implemented.

(2) The contents of the Implementation Plan for general DDD measures, as well as the dynamics and scope of the planned measures is dependent on the size of the object and purpose described in Article 10. Paragraph 1. Law of Protection of the Population from Infectious Diseases and the status quo in relation to contamination by pathogenic micro-organisms and the presence of harmful arthropods (Arthropoda) and harmful rodents.“ ... etc.

DYNAMICS OF PEST CONTROL in accordance with Section VII. sub clause 1.4.8. Implementation Plan (for SPECIAL measures):

„1.4.8. detailed schedule, dynamics and terms of implementation of measures to control pests, such as:

- destruction of **pathogenic microorganisms** in emergency situations: **once**
- **mosquitoes** control - determined by the competent National Institute of Public Health in accordance with the program of measures and Implementation Plan prepared for the municipality or city (more in Section 1.4.8.)
- control of **phlebotoms, sandflies**: **once**
- **fly** control: coating every **6-8 weeks** depending on the success of the measures; **fly resting indoors every 6-8 weeks** depending on residual activity of biocidal preparation;
- **landfill waste** - manure **every 14 days**
- **fleas** control: **once, sometimes several times** to repeat procedures to eradicate fleas
- **ticks** control: **once**
- **cockroaches** control:
 - **Brown cockroach** - **objects that work throughout the year** depending on the type and purpose, and the result of the survey (status quo) at **least every 2 to 3 months; seasonal objects 2**

times a year

- **black cockroach** - **2 times a year**
- **darkly striped cockroach** - **3 times a year**
- **ant** control: **2 times a year**
- **bed bugs** control: **disinsection should be repeated many times**
until bugs eradication
- harmful **rodents** control:
 - **systematic rodents control** on public areas: obligatory **2 times a year** (spring control is carried out during March, April and May, and the fall control is carried out during September, October and November). If all instructions are followed, it is considered one action will give the results during 6-8 months and after this period of time, the next action needs to be implemented.
 - **all other facilities** under Article 10. Paragraph 1. Law on Protection of Population from Infectious Diseases: **until the end of consumption of poisoned baits, and at least 2 times a year.**

... etc.

ADDITIONAL TERMS in the accordance with Section VII. sub clause 1.4.2. of the Implementation Plan (for SPECIAL measures):

„1.4.2. defined requirements for performers of the company with the authorization to work:

...

- **the members of the team of the performers:**
 - 2 to 5 members regardless of the type of the implemented measure
 - the leader of each field team must be sanitary engineer, or at least sanitary technician with relevant experience
- **coverage area, space and facilities that can be process daily by the team of field performers, depending on the type of pest to control:**
 - for **disinfection** the numbers of the field teams of at least 2 members shall be determined on the basis of the volume of surface, type of procedure, the degree of infestation of surfaces with pathogens and on the available period of time to implement the measure
 - to control **mosquito** the number of field teams of performers is determined based on the number of devices required for adults' treatment and the size of the area covered with the treatment. One field team with at least 2 members is needed for every device (applicator) that is used transported on the vehicle in the motion.
 - to control the **other species of arthropods** (Arthropoda) which planned, organized and systematic control is of the public health importance, the numbers of the field teams consisting of at least 2 members, shall be determined depending on the volume of surface, type of measure, degree of infestation and time needed to implement the measure
 - to control harmful **rodents** one team of performers with at least 2 members can make per day 40-100 objects depending on the type of facility (farm or residential building or house), facility location (rural or urban area), the degree of infestation and the number of

working days determined with the Program of Measures and Implementation plan, i.e., within which the measures must be made.

- Defined conditions for the equipments for work:

- for **disinfection** the amount and type of work equipments necessary for the implementation of the measure is determined by the surface, types of treatment, the degree of surface infestation with pathogens and period of time to implement the measure

- to control **mosquitoes**: - to cover 300 hectares (ha) with the treatment to control adults in a day, it is necessary to possess:

- 1 unit for ULV cold fogging process with a moving vehicle with the tank at least 50 liters and

- 1 unit for warm fog with a moving vehicle with the tank at least 50 liters and

- 1 portable hot fogging capacity tank at least 5 liters

however, in areas with specific environment, the competent Institute of Public Health decides on the type of devices that are needed for the treatment of e.g. 300 ha to control adults

- the number of vehicles registered for the activity to transport members of field teams and equipment is determined based on the number of devices required for adults' treatment on a given area, with the proviso that each device needs a vehicle.

- to control the **other species of arthropods** (Arthropoda) which planned, organized and systematic control is of the public health importance, the amount and type of work equipments shall be determined depending on the area, type of procedure, the degree of infestation and the period of time needed to implement the measure

- to control harmful **rodents**:

- the number of vehicles registered for the transport of field teams of performers is determined based on the seats and the required number of direct performers, or members of the field teams "

... etc.

1. Food Act ("Official Gazette" No. 46/07, 84/08, 55/11); Regulations on food hygiene ("Official Gazette" No. 99/07, 27/08, 118/09); Regulation on the hygiene of food of animal origin ("Official Gazette" No. 99/07, 28/10, 45/11) and other implementing regulations adopted pursuant to the Food Act (*The implementation of these regulations in a practice facilities dealing with food business is required to implement and enforce a self-control system based on the principles of HACCP - The Hazard Analysis and Critical Control Points System.*)
2. Biocides Act ("Official Gazette" no. 63/07, 35/08, 56/10); List of biocidal products on the market - *update each year*; The Ordinance on the list of existing active substances permitted in biocidal products - *update each year*; The Ordinance on the list of existing active substances not permitted in biocidal products - *update each year*
3. Law on the implementation of Regulation (EU) no. 528/2012 of the European Parliament and of the Council concerning the placing biocidal products on the market and to use (OG 39/13)
4. Regulation on biocidal products (OJ L 167, 27.06.2012., P. 181)