

**THE GOVERNMENT**

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**THE SOCIALIST REPUBLIC OF VIETNAM**

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No: 66/2016/ND-CP

*Hanoi, July 01, 2016*

**DECREE**

**REGULATIONS ON REQUIREMENTS FOR INVESTMENT IN PROTECTION AND  
QUARANTINE OF FLORA, PLANT VARIETIES; COMMON WILD ANIMALS; AQUATIC  
ANIMALS; FOODS AND HUSBANDRY**

*Pursuant to the Law on Government organization dated June 19, 2015;*

*Pursuant to the Law on Investment dated November 26, 2014;*

*Pursuant to the Law on Enterprises dated November 26, 2014;*

*Pursuant to the Law on Fishery dated November 26, 2003;*

*Pursuant to the Law on Forest Protection and Cultivation dated December 03, 2004;*

*Pursuant to the Law on Food Safety June 17, 2010;*

*Pursuant to the Law on Plant Protection and Quarantine dated November 25, 2013;*

*Pursuant to the Ordinance on Livestock breeds dated March 24, 2004;*

*Pursuant to the Ordinance on Plant Varieties dated March 24, 2004;*

*At request of the Minister of Agriculture and Rural development;*

*The Government hereby issues this regulation on conditions for investment in protection and quarantine of flora, plant varieties; common wild animals; aquatic animals; foods and husbandry.*

**Chapter I**

**GENERAL PROVISIONS**

**Article 1. Scope**

This Decree stipulates requirements for:

1. Production of plant protection products (hereinafter referred to as “pesticide”) except for biocides containing useful organisms as active ingredients; pesticide trading; quarantine service providers; testing of pesticides supposed to be added to the list of permissible plant protection products in Vietnam;
2. Provision of plant variety testing services;
3. Common wild animal farming;
4. Trading of breeding stock, sperms, embryos and eggs, intensive farming of buffaloes, cattle, goats, horses, rabbits, pigs, chickens, ducks, goose, ostriches, quails and swallows (hereinafter referred to as “livestock”); production or processing of livestock feed and aquafeed (including bioproducts, microorganisms, minerals, chemicals excluding disinfectants in aquafarming; trading of livestock feed and aquafeed (hereinafter referred to as “feed”); provision of feed testing services;

5. Production of aquatic breeds (giant tiger prawns, whiteleg shrimps, pangasius fish, tilapias, Ben Tre clams), aquaculture (giant tiger prawns, whiteleg shrimps, pangasius fish) and exploitation; provision of aquabreed testing;

6. Food trading ( meat and meat products, aquatic animals and aquatic products, vegetables, tubes and bulbs, fruits, eggs and egg products; raw milk; honey and honey products; salt; condiments, cacao, pepper, cashew nuts and other agricultural products); cattle and poultry slaughter houses and processing facilities; wholesale markets trading agricultural products (hereinafter referred to as “wholesale market”); and food business facilities.

## **Article 2. Regulated entities**

This Decree applies to enterprises, public service providers, cooperatives (hereinafter referred to as “organization”), individuals registering for business households; regulatory authorities, and entities investing in sectors mentioned in Article 1 hereof.

## **Chapter II**

### **REQUIREMENTS FOR INVESTMENT IN PLANT PROTECTION AND QUARANTINE**

#### **Article 3. Requirements for production of pesticides**

Entities wishing to produce pesticides shall meet all requirements prescribed in Article 61 of the Law on Plant Protection and Quarantine and the following detailed requirements:

##### **1. With respect to personnel**

a) The person directly in charge of managing and operating the plant/factory (such as directors or deputy directors or foreman) shall obtain at least one bachelor degree in chemistry, plant protection or forestry or higher;

b) Workers directly participating in producing pesticides shall be provided training courses in chemical safety or pesticides, and shall obtain certificates of completion of such training courses granted by State professional regulatory authorities specialized in chemistry, plant protection and quarantine (hereinafter referred to as “professional regulatory authorities”).

##### **2. With respect to pesticide factories and warehouses**

a) Factories and warehouses constructed within the industrial zones shall conform to regulations of such industrial zones. Factories or warehouses outside industrial zones shall be located at least 500 m away from schools, hospitals and markets;

b) All pesticide factories and warehouses shall be designed to meet the Vietnam National Standard (TCVN) 5507:2002: Hazardous chemicals – Code of Practice for Safety in Production, Commerce, Use, Handling and Transportation.

##### **3. With respect to equipment**

###### **a) For manufacturing equipment**

- All equipment and production lines for producing active ingredients, raw materials, pesticides and packaging shall be equipped;

- All equipment shall be conformable to safety requirements prescribed in TCVN 5507:2002 : Hazardous chemicals – Code of Practice for Safety in Production, Commerce, Use, Handling and Transportation.

###### **b) With respect to means of transport and cargo-handling equipment**

Means of transport and cargo-handling equipment shall be conformable to current technical standards on handling of hazardous cargoes. Respective pictograms or warning signs shall be put up on means of transport.

c) With respect to sewerage treatment systems

- Every sewerage treatment system shall be conformable to the following National Technical Regulations (QCVN) : QCVN No.19:2009/BTNMT on industrial emission of inorganic substances and dust, and QCVN 20:2009/BTNMT on industrial emission of organic substances;
- QCVN 07:2009/BTNMT on hazardous waste threshold and QCVN 40:2011/BTNMT on industrial wastewater;
- Requirements prescribed in the Governments Decree No.38/2015/ND-CP on wastes and scrap management dated April 24, 2015.

4. With respect to quality control systems

- a) Every pesticide factory shall have their own quality control system which is conformable to ISO 9001:2008 or the equivalent;
- b) Laboratories for pesticide testing which are conformable to ISO 17025:2005 or the equivalent shall be constructed.

**Article 4. Requirements for pesticide trading**

Entities wishing to produce pesticides shall meet all requirements prescribed in Article 63 of the Law on Plant protection and Quarantine and the following detailed requirements:

1. With respect to personnel

Every shopkeeper and salesperson shall obtain at least a two-year associate degree in plant protection/horticulture/chemistry/forestry or higher; or Certificate of completion of training courses in pesticides granted by professional regulatory authorities or certificate of completion of training courses in plant protection and quarantine granted by the Department of Agriculture and Rural Development.

2. With respect to pesticide store location

Pesticide stores shall be located far away from food and beverage businesses, schools, hospitals and at least 20 m away from water sources (rivers, streams, reaches, canals or wells).

3. With respect to pesticide warehouses

a) For warehouses of retail shops

- Such ware houses shall be located at least 20 m away from water sources (rivers, lakes, streams, wells, etc.);
- Distance from pesticide shelf bottom to floor and walls shall be at least 10 cm and 20 cm, respectively.

b) All pesticide warehouses shall conform to the TCVN 5507:2002: Hazardous chemicals – Code of Practice for Safety in Production, Commerce, Use, Handling and Transportation.

**Article 5. Requirements for quarantine service providers**

Quarantine service providers shall meet all requirements prescribed in Article 37 of the Law on Plant protection and Quarantine and the following detailed requirements:

1. With respect to personnel

- a) Every supervisory manager or executive of the quarantine service provider shall obtain at least a bachelor degree or higher as prescribed in QCVN 01 - 19:2010/BNNPTNT on fumigation procedures or Vietnam Standard and basic standards on quarantine;

b) Persons directly in charge of quarantine subjects (hereinafter referred to as “quarantine specialist”) shall obtain a practicing certificate granted by the professional regulatory authority affiliated to the Ministry of Agriculture and Rural Development.

## 2. Requirements for individuals obtaining practicing certificates

Individuals granted the practicing certificates are those who completed training courses and passed examination in quarantine according to the training program launched by professional regulatory authorities – Ministry of Agriculture and Rural Development.

## 3. With respect to technical infrastructures

a) Facilities, workshops, warehouses and equipment which are appropriate for the quarantine scale, methods and models under the national technical regulations on quarantine shall be constructed and equipped;

b) Equipment by quarantine method shall be equipped according to Annex I herewith.

## **Article 6. Requirements for pesticide testing organizations**

Testing organizations shall meet all requirements prescribed in Article 59 of the Law on Plant protection and Quarantine and the following detailed requirements:

1. Every manager, executive or technician of testing organizations shall obtain at least a bachelor degree in plant protection/horticulture/forestry/chemistry or higher and acquire a certificate of completion of training courses in pesticide testing granted by the professional regulatory authority –the Ministry of Agriculture and Rural Development.

2. There are at least 05 full-time workers obtaining bachelor degree in majors prescribed in clause 1 of this Article or higher and completing training courses in pesticide testing.

## 3. With respect to technical infrastructures - facilities

a) Equipment and facilities presented in Annex II herewith shall be equipped;

b) Testing organizations in charge of determination of preharvest intervals shall make laboratories available for pesticide residue analysis by respective method of assay.

## **Chapter III**

### **REQUIREMENTS FOR INVESTMENT IN PLANT VARIETY TESTING SERVICES**

## **Article 7. Requirements for provision of plant variety testing services**

Plant variety testing service providers shall meet the following requirements:

1. Every testing service provider shall employ at least 02 workers obtaining bachelor degrees in plant variety/plant protection/forestry or higher;

2. Testing service offices shall be situated in favorable locations to facilitate testing of plant growth.

## **Chapter IV**

### **REQUIREMENTS FOR INVESTMENT IN COMMON WILD ANIMAL FARMING**

## **Article 8. Requirement for common wild animal farming**

Entities rearing animals on the List of common wild animals published by the Ministry of Agriculture and Rural Development shall meet the following requirements:

1. Possession of wild animal shall be lawful by trap, importation, purchase, transfer, donation or confiscation under regulations of laws.

2. Common wild animal farms with exceeding 20 individual mammals, 50 individual reptiles or 100 individual amphibians shall be located at least 200m away from schools, hospitals and markets.

## **Chapter V**

### **REQUIREMENTS FOR INVESTMENT IN HUSBANDRY, LIVESTOCK FEED AND AQUAFEED**

#### **Section 1. REQUIREMENTS FOR INVESTMENT IN BREEDING STOCK, SPERMS, EMBRYOS AND EGGS**

##### **Article 9. Requirements for production and trading breeding stock**

1. Facilities producing and trading in purebreds shall employ technicians obtaining bachelor degrees in husbandry/veterinary medicine or higher. Facilities producing and trading in commercial breeds shall employ technicians acquiring at least two-year associate degrees in husbandry/veterinary medicine or higher.
2. Producing and trading facilities shall be located far away from polluted areas published by State competent authorities under regulations of laws; and at least 500 m away from centralized/ domestic/industrial wastewater treatment plants, hospitals, schools and markets.
3. Liquid and solid waste treatment measures shall be applied to protect the environment under the Law on Environment. Wastewater shall be treated to meet standards in QCVN 62 - MT: 2016/BTNMT on farming effluents.

##### **Article 10. Requirements for production and trading of breeding stock, sperms, embryos and eggs**

1. Producing and trading facilities shall employ technician obtaining two-year associate degrees in husbandry or veterinary medicine or higher.
2. Equipment, facilities for storage and means of transport shall be equipped under current technical regulations and standards.

#### **Section 2. REQUIREMENTS FOR INVESTMENT IN INTENSIVE FARMING**

##### **Article 11. Requirements for intensive farming**

1. Intensive farms rearing exceeding 100 cattle/buffaloes/horses for breeding/ exceeding 200 individuals for meat; or intensive sheep/goat farms with exceeding 400 individuals for breeding or exceeding 600 for meat; intensive rabbit farms with exceeding 3,000 individuals for breeding or exceeding 6,000 individuals for meat; intensive pig farms with exceeding 300 sows or exceeding 500 individuals including sows and pigs for meat; intensive chicken farm with exceeding 3,000 hens or exceeding 5,000 commercial chicken; intensive farm with exceeding 2,500 duck/goose; or exceeding 100 ostriches for breeding or 200 individuals for meat; or exceeding 10,000 quails for breeding or 20,000 for meat shall meet the following requirements:
  - a) Technicians in such farm shall obtain two-year associate degrees in husbandry /veterinary medicine or higher.
  - b) Liquid and solid waste treatment measures for environmental protection under the Law on Environment shall be applied. Wastewater shall be treated to meet standards in QCVN 62 - MT: 2016/BTNMT on farming effluents.
  - c) Such farms shall satisfy all requirements for food safety prescribed in Article 19 hereof.
2. Ultrasonic sound devices to attracting swallows shall not produce noise exceeding 70 dBA

#### **Section 3. REQUIREMENTS FOR TRADING LIVESTOCK FEED AND AQUAFEED**

##### **Article 12. Requirements for producing and processing livestock feed and aquafeed**

1. The producing and processing facilities shall employ technicians holding at least bachelor degrees in husbandry/veterinary medicine (for production and processing of livestock feed technology); or in aquaculture/aquafeed technology (for production and processing of aquafeed).
2. Producing and processing facilities shall be fenced off.
3. The production zone of the producing and processing facility shall be designed by operational flow-through pattern and separated from other zones.

#### **Article 13. Requirements for trading livestock feed and aquafeed**

1. Every trading facility shall be equipped with equipment, warehouses and fixtures and fittings for feed storage.
2. Zones for livestock feed and aquafeed display shall be separated from pesticide, fertilizers and hazardous chemicals. Harmful insect and pest control measures shall be applied.

#### **Article 14. REQUIREMENTS FOR PROVISION OF LIVESTOCK FEED AND AQUAFEED TESTING SERVICES**

1. Testing centers shall employ technicians holding at least bachelor degrees in husbandry/veterinary medicine (for production and processing of livestock feed technology); or in aquaculture/aquafeed technology (for production and processing of aquafeed).
2. With respect to technical infrastructures
  - a) Aquaculture ponds for aquafeed testing shall be conformable to requirements in clause 1, Article 16 hereof;
  - b) Livestock farms for livestock feed testing shall have livestock houses constructed in conformity with requirements in clause 2, Article 9 hereof.

### **Chapter VI**

#### **REQUIREMENTS FOR AQUATIC ANIMAL TRADING**

##### **Section 1. REQUIREMENTS FOR AQUACULTURE**

#### **Article 15. Requirements for aquatic breed production**

1. Producing facilities shall employ technicians holding bachelor degrees in aquaculture or higher
2. Water supply and separate drainage systems, and sewerage treatment plants shall be constructed.

#### **Article 16. Requirements for aquaculture**

1. Aquaculture facilities farming aquatic animals in ponds or tanks shall have separate water drainage system and water supply system, and sewerage treatment plants constructed. Aquaculture facilities farming aquatic animals in cages shall be equipped with waste collection and treatment systems.
2. Aquaculture facilities shall satisfy all requirements for food safety prescribed in Article 19 hereof.

#### **Article 17. Requirements for provision of plant variety testing services**

1. Producing facilities shall employ technicians holding the bachelor degree in aquaculture or higher
2. Water supply and separate drainage systems, and sewerage treatment plants shall be constructed.

## **Section 2.REQUIREMENTS FOR INVESTMENT IN AQUACULTURE HARVESTING**

### **Article 18.Requirements for investment in aquaculture harvesting**

1. Captains or chief engineers of class-IV fishing vessels with the capacity of at least 400 CV; or class-V fishing vessels with the capacity ranging from 90CV to under 400CV; or those with the capacity ranging from 20 CV to under 90 CV shall obtain master mariners.
2. Fishing vessels of which the designed waterline length is at least 15 m without engine or with engine but the total capacity of the main engine is at least 20 CV shall be certified eligible for technical safety by the fishing vessel register.

## **Chapter VII**

### **REQUIREMENTS FOR INVESTMENT IN FOOD BUSINESS**

#### **Article 19. Requirements for investment in food production facilities**

Every food production facility shall be:

1. Located far away from polluted areas published by State competent authorities under regulations of laws; landfills, centralized/domestic/industrial wastewater treatment plants, hospitals, schools.
2. Supplied enough clean water for food washing and processing under QCVN 02:2009/BYT on domestic water.
3. Equipped with equipment, packages and containers in conformity with QCVN 12-1:2011/BYT on hygiene and safety of synthetic resin implements, containers and packing in direct contact with foods; QCVN 12-2:2011/BYT on hygiene and safety of rubber implements, containers and packing in direct contact with foods and QCVN 12-3:2011/BYT on hygiene and safety of metallic implements, containers and packing in direct contact with foods.

#### **Article 20. Requirements for investment in livestock and poultry slaughter houses**

1. With respect to personnel

- a) Slaughterhouse owners or workers directly slaughtering or processing food shall obtain the certificate of food safety stipulated by the Ministry of Agriculture and Rural Development;
- b) Slaughterhouse owners and workers' health status shall satisfy health prescribed by regulations of the Ministry of Health.

2. With respect to slaughterhouse location

Every slaughterhouse shall:

- a) Be located far away from polluted areas published by State competent authorities under regulations of laws; landfills, centralized/domestic/industrial wastewater treatment plants, hospitals, schools.
- b) Have stockyard/holding pens, slaughter facilities and post-slaughter processing facilities; restroom and Changing rooms which are separated from each other;
- c) Be supplied with enough water for slaughtering and processing under QCVN 01:2009/BYT on drinking water quality; and water for flushing slaughterhouses, equipment and tools under QCVN 02:2009/BYT on domestic water quality;
- d) Have drainage systems designed to facilitate the wastewater movement from the hi-hygiene zones through low-hygiene zones. Solid wastes collection devices/vehicles shall be covered and stored in separated areas.

3. Be equipped with slaughtering equipment, packages and containers satisfying requirements in QCVN 12-1:2011/BYT on hygiene and safety of synthetic resin implements, containers and packing in direct contact with foods; QCVN 12-2:2011/BYT on hygiene and safety of rubber implements, containers and packing in direct contact with foods and QCVN 12-3:2011/BYT on hygiene and safety of metallic implements, containers and packing in direct contact with foods.

#### **Article 21. Requirements for investment in food processing facilities**

##### **1. With respect to personnel**

a) Processing facilities' owners or workers directly participating in producing food shall obtain the certificate of food safety stipulated by the Ministry of Agriculture and Rural Development;

b) Owners and workers' health status shall satisfy health prescribed by regulations of the Ministry of Health.

2. Food processing facilities shall be located far away from polluted areas published by State competent authorities under regulations of laws; landfills, centralized/domestic/industrial wastewater treatment plants, hospitals, schools.

##### **3. With respect to food processing premises**

a) Processing premises, production lines and auxiliary facilities shall be designed by operational flow-through pattern. Condiments, finished products, package or leftovers shall be conveyed by separate conveyor belt.

b) Material warehouses, finished product warehouses; processing and packaging areas, restrooms, Changing room and relevant auxiliary facilities shall be separated from each other;

c) Walls, ceiling, floor and doors shall be made of waterproof and anti-corrosive materials. Doors and windows shall be kept closed to protect facilities from pests.

d) Air ventilation systems shall be installed to facilitate flow movements from hi-hygiene zone to the area with low-hygiene zone, and shall not be designed to flow air from restrooms to processing premises;

dd) Lighting systems shall conform to regulations of laws to facilitate the control of food safety and quality indicators by technology process. Light bulbs in processing premises shall be wrapped in box-shaped lampshades to prevent shatters from falling into foods.

e) The water for processing shall be adequately provided under QCVN 01:2009/BYT on drinking water quality; and water for flushing premises, equipment and tools under QCVN 02:2009/BYT on domestic water quality; Water pipelines for steam, cooling and fire safety shall be separated from pipelines distributing water for food processing and marked with different colors;

g) Air compressors for food processing shall be cleaned, sterilized and deodorized.

h) Restrooms are separated from food processing premises. Restroom doors shall not be installed opposite the food processing facility. Changing rooms for changing protective clothing shall be constructed.

i) Wastewater drainage systems shall be installed to facilitate wastewater movement from high-hygiene zones through low-hygiene zones before discharge.

##### **4. Equipment**

Every food processing premise shall be equipped with:

a) Hand wash sinks, disinfectants, footwear, clean water, hand wash liquor, soap, disposable towels or paper or hand dryers;



b) Equipment, packages and containers which are conformable to QCVN 12-1:2011/BYT on hygiene and safety of synthetic resin implements, containers and packing in direct contact with foods; QCVN 12-2:2011/BYT on hygiene and safety of rubber implements, containers and packing in direct contact with foods and QCVN 12-3:2011/BYT on hygiene and safety of metallic implements, containers and packing in direct contact with foods.

c) Insect and pest control devices/ repellers;

d) Quality control devices designed by technology;

dd) Solid waste collection devices/vehicles with covers parked in separated zones; hazardous waste containers marked with symbols and color indicators to distinguish from other types of wastes.

## **Article 22. Requirements for investment in wholesale markets**

1. Wholesale market shall be located far away from polluted areas published by State competent authorities under regulations of laws; landfills, centralized/domestic/industrial wastewater treatment plants, hospitals, schools.

2. Wholesale market zoning

a) Restrooms shall be separated from food primary processing premises and food stalls;

b) Drainage systems shall be designed to facilitate wastewater movement from hi-hygiene zone through low-hygiene zone. Solid wastes collection vehicles/devices shall be covered and stored in separated areas.

c) Water shall be adequately supplied for food washing and primary processing under QCVN 01:2009/BYT on drinking water quality; and water for flushing the market, equipment and tools under QCVN 02:2009/BYT on domestic water quality;

3. Equipment, packages and containers which are conformable to QCVN 12-1:2011/BYT on hygiene and safety of synthetic resin implements, containers and packing in direct contact with foods; QCVN 12-2:2011/BYT on hygiene and safety of rubber implements, containers and packing in direct contact with foods and QCVN 12-3:2011/BYT on hygiene and safety of metallic implements, containers and packing in direct contact with foods shall be equipped.

## **Article 23. Requirements for investment in food business facilities**

1. With respect to personnel

a) Business owners or salespersons shall obtain the certificate of food safety stipulated by the Ministry of Agriculture and Rural Development;

b) Owners and salespersons' health status shall satisfy health requirements prescribed by regulations of the Ministry of Health.

2. With respect to business location

Every business facility shall be:

a) located far away from polluted areas published by State competent authorities under regulations of laws; landfills, centralized/domestic/industrial wastewater treatment plants, hospitals, schools.

b) Have their restrooms separated from zones for food storage, and food trading. Restroom doors shall not be installed opposite the food storage zone.

3. Equipment and fixtures

Every business facility shall be equipped with:

- a) means of transport and equipment used for storing food at the temperature and humidity indicated by the manufacturers;
- b) equipment, packages and containers which are conformable to QCVN 12-1:2011/BYT on hygiene and safety of synthetic resin implements, containers and packing in direct contact with foods; QCVN 12-2:2011/BYT on hygiene and safety of rubber implements, containers and packing in direct contact with foods and QCVN 12-3:2011/BYT on hygiene and safety of metallic implements, containers and packing in direct contact with foods.
- c) Waste collection vehicles with covers parked in separate zone.

## **Chapter VIII**

### **IMPLEMENTATION**

#### **Article 24. Entry into force**

- 1. This Decree enters into force from July 01, 2016.
- 2. This Decree replaces:
  - a) Points a, b, c, dd of clause 1; point b, clause 2 of the Article 11; clauses 1 and 2 of Article 12; Articles 13, 14 and 15 of the Government's Decree No.59/2005/ND-CP on requirements for production and trading aquatic animals dated May 04, 2005;
  - b) Point h of clauses 10,11, 12 and 13, Article 1 of the Government's Decree No.14/2009/ND-CP dated December 13, 2009 on amendments to a number of articles of the Government's Decree No.59/2005/ND-CP on requirements for production and trading aquatic animals dated May 04, 2005;
  - c) Clauses 1, 2, 4 and 5 of Article 6; clause 3, Article 12 of the Government's Decree No. [08/2010/ND-CP](#) dated February 05, 2010 on the management of animal feeds.

#### **Article 25. Implementation**

Ministers, Heads of Ministerial-level authorities, Heads of Governmental agencies, Presidents of People Committee's of provinces, within their administration, shall be responsible for the implementation of this Decree./.

**PP. GOVERNMENT  
PRIME MINISTER**

**Nguyen Xuan Phuc**

### **ANNEX 1**

#### **LIST OF EQUIPMENT**

*(Issued together with the Government's Decree No.66/2016/ND-CP dated July 01, 2016)*

#### **Part 1. List of fumigation equipment**

##### **Table 1. List of fumigation equipment by Methyl bromine**

<b>No.</b>	<b>Equipment</b>
1.	Concentration meters
2.	Fumigant leak detectors
3.	Fumigant residue meters (for measuring the threshold limit value TLV)
4.	Ventilation systems, air reverse system
5.	Volatilizers
6.	Heaters
7.	Personal protective equipment ( mask , oxygen breathing apparatus, air-purifying respirators, etc.)
8.	Fumigation ducts
9.	Canvas tarpaulins
10.	Other adhesive supports (sand snake, adhesive sealers, Kraft, etc.)
11.	Humidity and temperature recorder
12.	Scale or measuring devices
13.	Sampling devices and analyzers
14.	Fumigators
15.	Warning signs
16.	Fire safety equipment
17.	First-aid tool kits

**Table 2. List of fumigation equipment by Phosphine**

<b>No.</b>	<b>Equipment</b>
1.	Concentration meters
2.	Fumigant leak detectors
3.	Fumigant residue meters (for measuring the threshold limit value TLV)
4.	Ventilation systems

5.	Personal protective equipment ( masks , oxygen breathing apparatus
6.	Canvas tarpaulins
7.	Other adhesive supports (sand snake, advertisement adhesive sealers, Kraft, etc.)
8.	Humidity and temperature recorders
9.	Scale or measuring devices
10.	Sampling devices and analyzers
11.	Fumigators
12.	Warning signs
13.	Fire safety equipment
14.	First-aid tool kits

**Part 2. List of equipment used for steam fumigation**

No.	Equipment
1.	Fumigation chambers
2.	Vapor heat treatment facilities
3.	Cooling devices
4.	Steam humidifiers
5.	Circulation fans
6.	Moisture meters
7.	Temperature sensors
8.	Calibrating devices
9.	Temperature recorders
10.	Fire safety equipment
11.	First-aid tool kits
12.	Sampling devices and analyzers

**Part 3. List of equipment used for irradiation**

No.	Equipment
1.	Radiators
2.	Conveyor systems
3.	Control rooms
4.	Containers
5.	Radiation dosimeters
6.	Radiation rooms
7.	Radiation control devices
8.	Interlocks
9.	Personal protective equipment and dosimetry
10.	First-aid tool kits
11.	Fire safety equipment
12.	Sampling devices and analyzers

**Part 4. List of equipment used for vapor heat and forced hot air treatment**

No.	Equipment
1.	Fumigation chambers
2.	Heaters
3.	Temperature sensors
4.	Temperature display devices
5.	Reverse air systems
6.	Fire safety equipment
7.	Sampling devices and analyzers

**ANNEX II**

**PESTICIDE TESTING EQUIPMENT**

*(Issued together with the Government's Decree No.66/2016/ND-CP dated June 01, 2016)*

1. Sprayers applying pesticides in good conditions:

- Backpack sprayers (with pump handle): at least 02 sprayers;
  - Hand-held electronic sprayers (with pressure regulators, without pump handle): at least 02 sprayers;
  - Engine power sprayers for applying pesticides on perennial crops and perennial fruit trees: at least 02 sprayers
2. Analytical balances (with the precision of  $10^{-2}$  or higher): at least 02
  3. Graduated cylinders (50, 100, 200, 500 ml): at least 02 cylinders by type
  4. Pipette (1, 5, 10, 20 ml): at least 2 pipettes by type
  5. Equipment requested for experiment: Rulers, board, piles, handheld magnifiers (for testing pesticides applying on pests which are hardly seen with naked eyes) according to the experiment.
  6. Laboratory equipment for determination of density of pests which are invisible to naked eyes such as panicle rice mite, nematodes).
  7. Data processing devices for experiment result summary such as computers and data processing software.
  8. Personal protective equipment such as protective clothing, gloves, masks, goggles, etc.