ANNEX I

Training subjects referred to in Article 5

1. All relevant legislation regarding pesticides and their use.

2. The existence and risks of illegal (counterfeit) plant protection products, and the methods to identify such products.

3. The hazards and risks associated with pesticides, and how to identify and control them, in particular:

(a) risks to humans (operators, residents, bystanders, people entering treated areas and those handling or eating treated items) and how factors such as smoking exacerbate these risks;

(b) symptoms of pesticide poisoning and first aid measures;

(c) risks to non-target plants, beneficial insects, wildlife, biodiversity and the environment in general.

4. Notions on integrated pest management strategies and techniques, integrated crop management strategies and techniques, organic farming principles, biological pest control methods, information on the general principles and crop or sector-specific guidelines for integrated pest management.

5. Initiation to comparative assessment at user level to help professional users make the most appropriate choices on pesticides with the least side effects on human health, non-target organisms and the environment among all authorised products for a given pest problem, in a given situation.

6. Measures to minimise risks to humans, non-target organisms and the environment: safe working practices for storing, handling and mixing pesticides, and disposing of empty packaging, other contaminated materials and surplus pesticides (including tank mixes), whether in concentrate or dilute form; recommended way to control operator exposure (personal protection equipment).

7. Risk-based approaches which take into account the local water extraction variables such as climate, soil and crop types, and relieves.

8. Procedures for preparing pesticide application equipment for work, including its calibration, and for its operation with minimum risks to the user, other humans, non-target animal and plant species, biodiversity and the environment, including water resources.

9. Use of pesticide application equipment and its maintenance, and specific spraying techniques (e.g. low-volume spraying and low-drift nozzles), as well as the objectives of the technical check of sprayers in use and ways to improve spray quality. Specific risks linked to use of handheld pesticide application equipment or knapsack sprayers and the relevant risk management measures.

10. Emergency action to protect human health, the environment including water resources in case of accidental spillage and contamination and extreme weather events that would result in pesticide leaching risks.

11. Special care in protection areas established under Articles 6 and 7 of Directive 2000/60/EC.

12. Health monitoring and access facilities to report on any incidents or suspected incidents.

13. Record keeping of any use of pesticides, in accordance with the relevant legislation.

ANNEX II

Health and safety and environmental requirements relating to the inspection of pesticide application equipment

The inspection of pesticide application equipment shall cover all aspects important to achieve a high level of safety and protection of human health and the environment. Full effectiveness of the application operation should be ensured by proper performance of devices and functions of the equipment to guarantee the following objectives are met.

The pesticide application equipment must function reliably and be used properly for its intended purpose ensuring that pesticides can be accurately dosed and distributed. The equipment must be in such a condition as to be filled and emptied safely, easily and completely and prevent leakage of pesticides. It must permit easy and thorough cleaning. It must also ensure safe operations, and be controlled and capable of being immediately stopped from the operator's seat. Where necessary, adjustments must be simple, accurate and capable of being reproduced.

Particular attention should be paid to:

1. Power transmission parts

The power take-off driveshaft guard and the guard of the power input connection shall be fitted and in good condition and the protective devices and any moving or rotating power transmission parts shall not be affected in their function so as to ensure protection of the operator.

2. Pump

The pump capacity shall be suited to the needs of the equipment and the pump must function properly in order to ensure a stable and reliable application rate. There shall be no leakages from the pump.

3. Agitation

Agitation devices must ensure a proper recirculation in order to achieve an even concentration of the whole volume of the liquid spray mixture in the tank.

4. Spray liquid tank

Spray tanks including indicator of tank content, filling devices, strainers and filters, emptying and rinsing systems, and mixing devices shall operate in such a way as to minimise accidental spillage, uneven concentration distribution, operator exposure and residual content.

5. Measuring systems, control and regulation systems

All devices for measuring, switching on and off and adjusting pressure and/or flow rate shall be properly calibrated and work correctly and there shall be no leakages. Control of pressure and operation of pressure adjustment devices shall be easily possible during application. Pressure adjustment devices shall maintain a constant working pressure at constant revolutions of the pump, in order to ensure that a stable volume application rate is applied.

6. Pipes and hoses

Pipes and hoses shall be in proper condition to avoid disturbance of liquid flow or accidental spillage in case of failure. There shall be no leakages from pipes or hoses when run with the maximum obtainable pressure for the system.

7. Filtering

In order to avoid turbulence and heterogeneity in spray patterns, filters shall be in good condition and the mesh size of the filters shall correspond to the size of nozzles fitted on the sprayer. Where applicable the filter blockage indication system shall operate correctly.

8. Spray boom (for equipment spraying pesticides by means of a horizontally positioned boom, located close to the crop or the material to be treated).

The spray boom must be in good condition and stable in all directions. The fixation and adjustment systems and the devices for damping unintended movements and slope compensation must work correctly.

9. Nozzles

Nozzles must work properly to control dripping when spraying stops. To ensure homogeneity of the spray pattern, the flow rate of each individual nozzle shall not deviate significantly from the data of the flow rate tables provided by the manufacturer.

10. Distribution

The transverse and vertical (in case of applications in vertical crops) distribution of the spray mixture in the target area must be even, where relevant.

11. Blower (for equipment distributing pesticides by air assistance)

The blower must be in good condition and must ensure a stable and reliable air stream.

ANNEX III

General principles of integrated pest management

1. The prevention and/or suppression of harmful organisms should be achieved or supported among other options especially by:

— crop rotation,

— use of adequate cultivation techniques (e.g. stale seedbed technique, sowing dates and densities, under-sowing, conservation tillage, pruning and direct sowing),

— use, where appropriate, of resistant/tolerant cultivars and standard/certified seed and planting material,

— use of balanced fertilisation, liming and irrigation/drainage practices,

— preventing the spreading of harmful organisms by hygiene measures (e.g. by regular cleansing of machinery and equipment),

— protection and enhancement of important beneficial organisms, e.g. by adequate plant protection measures or the utilisation of ecological infrastructures inside and outside production sites.

2. Harmful organisms must be monitored by adequate methods and tools, where available. Such adequate tools should include observations in the field as well as scientifically sound warning, forecasting and early diagnosis systems, where feasible, as well as the use of advice from professionally qualified advisors.

3. Based on the results of the monitoring the professional user has to decide whether and when to apply plant protection measures. Robust and scientifically sound threshold values are essential components for decision making. For harmful organisms threshold levels defined for the region, specific areas, crops and particular climatic conditions must be taken into account before treatments, where feasible.

4. Sustainable biological, physical and other non-chemical methods must be preferred to chemical methods if they provide satisfactory pest control.

5. The pesticides applied shall be as specific as possible for the target and shall have the least side effects on human health, non-target organisms and the environment.

6. The professional user should keep the use of pesticides and other forms of intervention to levels that are necessary, e.g. by reduced doses, reduced application frequency or partial applications, considering that the level of risk in vegetation is acceptable and they do not increase the risk for development of resistance in populations of harmful organisms.

7. Where the risk of resistance against a plant protection measure is known and where the level of harmful organisms requires repeated application of pesticides to the crops, available anti-resistance strategies should be applied to maintain the effectiveness of the products. This may include the use of multiple pesticides with different modes of action.

8. Based on the records on the use of pesticides and on the monitoring of harmful organisms the professional user should check the success of the applied plant protection measures.

[F1ANNEX IV

Textual Amendments

F1 Substituted by Commission Directive (EU) 2019/782 of 15 May 2019 amending Directive 2009/128/EC of the European Parliament and of the Council as regards the establishment of harmonised risk indicators (Text with EEA relevance).

SECTION 1

Harmonised Risk Indicators

The harmonised risk indicators are listed in Sections 2 and 3 of this Annex.

SECTION 2

Harmonised Risk Indicator 1: Hazard-based Harmonised Risk Indicator based on the quantities of active substances placed on the market in plant protection products under Regulation (EC) No 1107/2009

1. This indicator shall be based on statistics on the quantities of active substances placed on the market in plant protection products under Regulation (EC) No 1107/2009, provided to the Commission (Eurostat) under Annex I (Statistics on the placing on the market of pesticides) of Regulation (EC) No 1185/2009. Those data are categorised into 4 Groups, which are divided into 7 Categories.

2. The following general rules shall apply for the calculation of Harmonised Risk Indicator 1:

(a) the Harmonised Risk Indicator 1 shall be calculated on the basis of the categorisation of active substances into the 4 Groups and 7 Categories set out in Table 1;

(b) the active substances in Group 1 (categories A and B) shall be those listed in Part D of the Annex to Commission Implementing Regulation (EU) No 540/2011[(1)];

(c) the active substances in Group 2 (categories C and D) shall be those listed in Parts A and B of the Annex to Implementing Regulation (EU) No 540/2011;

(d) the active substances in Group 3 (categories E and F) shall be those listed in Part E of the Annex to Implementing Regulation (EU) No 540/2011;

(e) the active substances in Group 4 (category G) shall be those not approved under Regulation (EC) No 1107/2009, and therefore not listed in the Annex to Implementing Regulation (EU) No 540/2011;

(f) the weightings in row (vi) in Table 1 shall apply.

3. Harmonised Risk Indicator 1 shall be calculated by multiplying the annual quantities of active substances placed on the market for each Group in Table 1 by the relevant hazard weighting set out in Row (vi), followed by the aggregation of the results of these calculations.

4. The quantities of active substances placed on the market for each Group and Category in Table 1 may be calculated.

TABLE 1

Categorisation of active substances and hazard weightings for the purpose of calculating Harmonised Risk Indicator 1

Row	Groups			
	1	**2**	**3**	**4**
(i)	Low-risk active substances which are approved or deemed to be approved under Article 22 of Regulation (EC) No 1107/2009, and which are listed in	Active substances approved or deemed to be approved under Regulation (EC) No 1107/2009, and not falling in other categories, and which are listed in Parts A	Active substances approved or deemed to be approved under Article 24 of Regulation (EC) No 1107/2009, which are candidates for substitution, and	Active substances which are not approved under Regulation (EC) No

	Part D of the Annex to Implementing Regulation (EU) No 540/2011		and B of the Annex to Implementing Regulation (EU) No 540/2011		which are listed in Part E of the Annex to Implementing Regulation (EU) No 540/2011		1107/2009, and therefore which are not listed in the Annex to Implementing Regulation (EU) No 540/2011
(ii)	Categories						
(iii)	A	B	C	D	E	F	G
(iv)	Micro-organisms	Chemical active substances	Micro-organisms	Chemical active substances	Which are not classified as: Carcinogenic Category 1A or 1B and/or Toxic for Reproduction Category 1A or 1B and/or Endocrine disruptors	Which are classified as: Carcinogenic Category 1A or 1B and/or Toxic for Reproduction Category 1A or 1B and/or Endocrine disruptors, where exposure of humans is negligible	
(v)	Hazard Weightings applicable to quantities of active substances placed on the market in products authorised under Regulation (EC) No 1107/2009						
(vi)	1		8		16		64

5. The baseline for Harmonised Risk Indicator 1 shall be set at 100, and is equal to the average result of the above calculation for the period 2011-2013.

6. The result of Harmonised Risk Indicator 1 shall be expressed by reference to the baseline.

7. The Member States and the Commission shall calculate and publish the Harmonised Risk Indicator 1 in accordance with Article 15(2) and 15(4) of Directive 2009/128/EC for each calendar year and at the latest 20 months after the end of the year for which the Harmonised Risk Indicator 1 is being calculated.

SECTION 3

Harmonised Risk Indicator 2: Harmonised Risk Indicator based on the number of authorisations granted under Article 53 of Regulation (EC) No 1107/2009

1. This indicator shall be based on the number of authorisations granted for plant protection products under Article 53 of Regulation (EC) No 1107/2009 as communicated to the Commission in accordance with Article 53(1) of that Regulation. Those data are categorised into 4 Groups, which are divided into 7 Categories.

2. The following general rules shall apply for the calculation of the Harmonised Risk Indicator 2:

(a) the Harmonised Risk Indicator 2 shall be based on the number of authorisations granted under Article 53 of Regulation (EC) No 1107/2009. It shall be calculated on the basis of the categorisation of active substances into the 4 Groups and 7 Categories set out in Table 2 of this Section;

(b) the active substances in Group 1 (categories A and B) are listed in Part D of the Annex to Implementing Regulation (EU) No 540/2011;

(c) the active substances in Group 2 (categories C and D) are those listed in Parts A and B of the Annex to Implementing Regulation (EU) No 540/2011;

(d) the active substances in Group 3 (categories E and F) shall be those listed in Part E of the Annex to Implementing Regulation (EU) No 540/2011;

(e) the active substances in Group 4 (category G) shall be those not approved under Regulation (EC) No 1107/2009, and therefore not listed in the Annex to Implementing Regulation (EU) No 540/2011;

(f) The weightings in row (vi) in Table 2 of this Section shall apply.

3. The Harmonised Risk Indicator 2 shall be calculated by multiplying the number of authorisations granted for plant protection products under Article 53 of Regulation (EC) No 1107/2009 for each Group in Table 2 by the relevant hazard weighting set out in Row (vi), followed by the aggregation of the results of these calculations.

TABLE 2

Categorisation of active substances and hazard weightings for the purpose of calculating Harmonised Risk Indicator 2

Row	Groups			
	1	**2**	**3**	**4**
(i)	Low-risk active substances which are approved or deemed to be approved under Article 22 of Regulation (EC) No 1107/2009, and which are listed in Part D of the Annex to Implementing	Active substances approved or deemed to be approved under Regulation (EC) No 1107/2009, and not falling in other categories, and which are listed in Parts A and B of the Annex to Implementing	Active substances approved or deemed to be approved under Article 24 of Regulation (EC) No 1107/2009, which are candidates for substitution, and which are listed in Part E of the Annex to Implementing	Active substances which are not approved under Regulation (EC) No 1107/2009, and therefore

	Regulation (EU) No 540/2011		Regulation (EU) No 540/2011		Regulation (EU) No 540/2011		which are not listed in the Annex to Implementing Regulation (EU) No 540/2011
(ii)	Categories						
(iii)	A	B	C	D	E	F	G
(iv)	Micro-organisms	Chemical active substances	Micro-organisms	Chemical active substances	Which are not classified as: Carcinogenic Category 1A or 1B and/or Toxic for Reproduction Category 1A or 1B and/or Endocrine disruptors	Which are classified as: Carcinogenic Category 1A or 1B and/or Toxic for Reproduction Category 1A or 1B and/or Endocrine disruptors where exposure of humans is negligible	
(v)	Hazard Weightings applicable to the number of authorisations granted under Article 53 of Regulation (EC) No 1107/2009						
(vi)	1		8		16		64

4. The baseline for Harmonised Risk Indicator 2 shall be set at 100, and is equal to the average result of the above calculation for the period 2011-2013.

5. The result of the Harmonised Risk Indicator 2 shall be expressed by reference to the baseline.

6. The Member States and the Commission shall calculate and publish the Harmonised Risk Indicator 2 in accordance with Article 15(2) and 15(4) of Directive 2009/128/EC for each calendar year and at the latest 20 months after the end of the year for which Harmonised Risk Indicator 2 is being calculated.**]**

(1) **[**[F1]Commission Implementing Regulation (EU) No 540/2011 of 25 May 2011 implementing Regulation (EC) No 1107/2009 of the European Parliament and of the Council as regards the list of approved active substances (OJ L 153, 11.6.2011, p. 1).**]**

Textual Amendments

F1 Substituted by Commission Directive (EU) 2019/782 of 15 May 2019 amending Directive 2009/128/EC of the European Parliament and of the Council as regards the establishment of harmonised risk indicators (Text with EEA relevance).