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Guideline for approval of plant protection machines

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Guideline for aerial application of plant protection products

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1. Introduction

This guideline is directed towards companies which want to apply plant protection products by fixed wing or rotary aircraft. Therefore, it serves to protect the health of human, animals and natural environment while using plant protection products by aircraft. It's also a decision guidance to authorities of the Federal and State Governments, who, subject to § 18 of the Plant Protection Act (PflSchG), award a derogation of general prohibition for the use of plant protection products by aircrafts.

This guideline or parts of it may be used as a component of the derogation.

The regulations of air traffic or relevant regulations remain unaffected.

The use of plant protection products by aircrafts is in accordance with § 18 of the Plant Protection Act generally prohibited. It is only allowed by a approval of the competent authority of the federal state.

Approval is placed heed to the regulations of § 18 of the Plant Protection Act as well as the decree of the use of plant protection products by aircrafts.

The competent authorities in accordance with Land law are allowed to apply regulations, which go beyond the current content of this guideline.

2. Form of contract

For approval in accordance with § 18 of the Plant Protection Act, the competent agency could demand that a written agreement between principal and airline company is concluded.

This guideline -for the use of plant protection products by aircrafts- can be used as a part of the contract. In this case, the guideline becomes legally binding.

The approval agency may prescribe that the airline company has to provide the required insurances.

3. Flight chart

There has to be even one flight chart from the principal for the pilot and one for the on-scene commander. The map scale has to be at least 1 : 25000 or larger, covering at least the following:

3.1 the agricultural areas, which should be treated in accordance with the permission of the approval agency based on section 18, paragraph 2 PflSchG.

3.2 the airfield (launch and landing point as well as the filling supply for plant protection products).

3.3 endangered objects in the region of the treated areas or in the immediate surroundings of these areas such as tenements and gardens, parks, sports facilities, tent or camping sites, surface waters, water reserves classified as water conservation zone I and II and other protected areas.

3.4 adjacent crops, which shall be harvested or used for cultivation.

3.5 every flight obstacles on the area to be treated.

3.6 public roads and pavements as well as railroads with passenger services or vehicle

traffic.

3.7 animal husbandry in closed-ended buildings, if relevant.

4. Requirements for personnel

The use of plant protection products by aircrafts must be performed by a professional user only who has the necessary expertise in accordance with section 9 PflSchG (certificate of competence). The pilot as an operator must have a certificate of competence. It is advisable that at least one person of the ground staff at the filling supply holds a certification of competence. The approval agency is able to arrange that fact in its approval.

A flight assistant on the airfield has to be available, who has specific knowledge of product care and maintenance of the spraying unit as well as of the filling supply.

5. Requirements for technology and appurtenance

For the use of plant protection products with aircrafts, in accordance with section 2 paragraph 1 of the decree for the use of plant protection products with aircrafts, the aircraft must be fitted with best available techniques to reduce drift.

The JKI documents and publishes a list of aircrafts, which, in context of the approval by the responsible federal state authorities were examined and are fitted with best available techniques to reduce drift (www.jki.bund.de/geraete.html).

The equipment of the aircraft for the use of plant protection products as well as the ground filling supply (vehicles, mixing unit, spray liquid tank, measuring instruments for liquid measurements, hose lines) must satisfy the requirements that are named in section 16 PflSchG and in the decree of testing plant protection equipment from the 5th of July 2013. Therefore, in particular minimum requirements is yield which named in 5.1 and 5.2.

5.1 Minimum requirements for aircraft

The minimum configuration of aircrafts which shall be used for aerial application of plant protection products appertain:

- 5.1.1 each atomizer is equipped with fast closing anti-drip device.
- 5.1.2 tank of filling supply equipped with agitation system. (Visual check of agitation with water).
- 5.1.3 a device for total draining of the tank without contaminating applicators or parts of the equipment like components of the boom.
- 5.1.4 an opening lid of the tank. The tank shall be equipped with a pressure equalization through which no spray liquid can drop out.
- 5.1.5 the controls in the field of view from the pilot:
 - 5.1.5.1 pressure indicator with clearly readable and stable pressure indication as well as a scale which is suitable for the working pressure.
 - 5.1.5.2 controls for opening and closing of the boom valves.
- 5.1.6 a display for the liquid level in the tank.
- 5.1.7 a device for separate switching of at least two boom sections, if the aircraft for the application of plant protection products shall be used in mountain viticulture.

- 5.1.8 flat fan nozzles which are listed as drift reducing for the used working pressure in agriculture.
- 5.1.9 aircraft should be equipped with GPS system capable for logging aircraft position.

The suction line of the pump has to be installed in such a way that a complete draining of the tank during the flight is possible.

5.2 Minimum requirements for ground filling supply

Minimum requirements for ground filling supplies are:

- 5.2.1 measuring devices like scales, graduated cylinder inter alia for preparing the spray liquid.
- 5.2.2 a display for the liquid level in the tank which is clearly readable from the place of the operator. With the precondition that the mixing unit can be positioned horizontally.
- 5.2.3 the form and the filling opening of the tank shall be constructed in such a way, that no spill over or slop out is possible, while preparing the spray liquid.
- 5.2.4 an agitator in the tank with a performance that also heavily depositing suspensions reaches a uniform initial concentration again.*)
- 5.2.5 turn off tap at the filling supply, reservoir and refuelling hoses which close up safely without dropping.
- 5.2.6 a device at the filling supply to collect possibly occurring leakage of liquids.

*) The maximum allowed deviation from an even concentration in the tank is $\pm 15\%$.

6. Arrangement of landing side and subsequent limitations for its use

For the establishment of a landing place, the regulations for water protection areas have to be observed, where required. A landing place can only be established with permission of the holder of rights of the area which shall be used for this.

A landing place has to be equipped with at least an air sleeve and a complete wind- and temperature measuring device which works with a maximum error of 1 m/s resp. 2° C.

7. Cordon off and marking

The principal has to take care for cordon off. Humans, domestic animals and endangered objects may not be struck by plant protection products. Trajectories shall be marked for the areas to be treated. The use of GPS for specification of trajectories for treatments in the forest is sufficient.

8. Work flight

8.1 Duty of documentation

The applications of plant protection products, in accordance to section 11 PflSchG and p. r. n. additional requirements of the competent authority, must be recorded. Therefore, it is appropriate to use annex 2 of this guideline.

The acting managers of the viticultural or silvicultural undertakings have to combine the records of treatments on their areas by mention the operator (§11, Abs. 1, Satz 2 PflSchG).

It is appropriate to record hourly the detected temperature and the wind speed in the flight log.

8.2 Conditions under which no application of plant protection products is permitted

The application of plant protection products with aircrafts is not allowed if:

8.2.1 horizontal wind over 5 m/s as well as wind gusts which are detrimental to good application practice.

8.2.2 with beginning of thermal lift (vertical airflow caused by the rise of ground temperature) as well as air temperature over + 25° C in the shade.

9. Distance to endangered objects

The minimum distance to endangered objects amounts to principally 50 m if in the notification of permission no other distances are specified. This also applies if an exposition of uninvolved persons can be ruled out. Other distances may be deemed necessary if in addition to the phytosanitary legislation additional legislations are taken into account.

10. Behaviour after drift occurred

If in spite of all precautions drift of plant protection products occurred on endangered objects, the persons concerned have to be immediately informed by the principal or operator of measures to be taken. The same applies if other objects than those which were treated are directly struck by plant protection products.

11. Storage of plant protection products and treatment of their packaging and remnants

The principal or, as far as in the service agreement explicitly prescribe, the agent, have to take care of safekeeping of plant protection products and orderly disposal of residues of plant protection products and empty packages.

12. Caution when handling with plant protection products

Attention is invited to the AID brochure 1042 "Vorsicht beim Umgang mit Pflanzenschutzmitteln" in the respective current version.

Annex 1

Information provided in the application for approval of the application of plant protection products by aircrafts pursuant section 18 paragraph 2 of the Plant Protection Act

Company resp. name, address and telecommunications data of the customer:

Name, address and telecommunications data of the aircraft company:

Name of the operator:

Specifications of the crop to be treated:

Specifications of the harmful target organisms:

The name(s) of the plant protection product(s) to be applied as well as the additives which are used as far as these are necessary for the use of plant protection product with aircrafts:

Specifications of the necessity of control measures including information of the temporal-spatial extent of the infestation situation:

Specifications of the aircraft description and the technique which serves the use of plant protection product:

Explanatory statement why, in accordance with the current state of knowledge, there is no other comparable application possibility for adequately effective usage for the supported use of plant protection products with aircraft or there are clear advantages in terms of reduced impacts on human health and the environment as compared with land-based application:

Description of the ground filling supply:

Size and geographical location of application surfaces including information of endangered objects (e.g. nearby residential areas) and intended cordoning off resp. marking measures:

Attachment should be:

- Copy of the pilot licence
- Copy of the certification of competence in accordance with section 9 paragraph 2 of the Plant Protection Act of the operator (pilot and ground staff) as far as such information is not already available to the competent authority
- Application plan with application rate of plant protection products including additives which are used as well the estimated date of application or the application periods
- Flight chart, analog or digital

Annex 2
Flight log

Folio	Date		Pilot		Helicopter	Company		
Crop			Pest/ purpose of the measure					
No. of landing field	Location	PPP Additives (Name and spread rate in l/ha or kg/ha)	Flight No.	Time		vehicle load capacity (kg/l)	Treated area (description and size in ha)	Remarks spec. incidents
				Onset	Offset			

.....
Location, Date

.....
Pilot

.....
Principal