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**Federal Biological Research Centre for Agriculture and Forestry
Federal Republic of Germany**



**Guidelines
for the application of
Plant Protection Products
with the use of aircraft.**

2nd edition

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At the time of up-dating the version accepted by the Legislative Authority and editorially revised from the guidelines of December 1972, and from the leaflet „Setting up the applications groups“ to these Guidelines from January 1973. A „special issue“ leaflet no longer existing.

1. Introduction

The guidelines for the application of plant protection products with the use of aircraft should help in reducing and avoiding the various harmful effects threatening the environment and should be used as basis for the official measures.

The air-traffic rules and the other relevant regulations remain untouched.

The competent Agricultural Government Authorities of the federal districts can derive diverging regulations from these guidelines.

2. Compulsory Announcement

Each intended output of plant protection products with use of aircraft must be notified by the contractor a minimum of 14 days before the beginning of the operation to the relevant Agricultural Government Authority of the federal districts. The form presented as enclosure 1. should be used for this purpose. When a danger suddenly occurs a shorter period of time can also apply.

Additionally, it is necessary to inform at least per telephone in due time, the relevant Agricultural Authority of the federal districts and this no later than 48 hours before the beginning of the operation.

3. Conditions of Contract

A written contract has to be made between the contractor and the flying enterprise.

The guidelines for the output of plant protection products have to be made as part of the contract.

The contractor and the flying enterprise have the obligation to conclude the necessary adequate liability on third-party insurance. Further particulars are to be agreed-upon in the contract.

4. Aeronautical Map for Operation

It is necessary that the competent Agricultural Government Authorities, that every pilot and that the operation manager have a map established at the minimum scale of 1:25000 or at a bigger scale (for example 1:10000) on which the following items have to be marked :

- a) the fields to be treated
- b) the operating airfields (take-off and landing runways as well as the refilling place for the plant protection products).
- c) all the properties running a risk, for example : blocks of flats and gardens, water surfaces, protected water areas from the zones I and II, and other protected areas.
- d) certain neighbouring cultivated grounds.

e) all flight obstacles on the fields to be treated.

A specimen of the aeronautical map has to be presented together with the Notification Form number 2 to the competent agricultural federal district authorities. Any change occurring in the registration of the beginning of the operation has to be notified to the relevant Agricultural Authority in due time and no later than 48 hours before.

5. Requirements for the Personnel and the Equipment of the Task Groups

5.1 Pilots only can be employed who can show evidence of their required reliability and the required specialised professional knowledge and dexterity according to Paragraph 10 from the Code of Protection for Cultivated Plants brought into effect on 15th September 1986 (PflSchG).

5.2 The instruments set up on the flying equipment for bringing out the plant protection products as well as the refuelling installation on the ground (vehicles, mixing installation, scald container, measuring instruments for liquid measurements, hose lines) have to meet the requirements specified in Article 4 under Section 1 from the Regulations for Plant Protection Products and Plant Protection Equipment brought out on 28th July 1987. In particular, results from it :

5.2.1 Minimum requirements for the aircraft

5.2.1.1 To control the pre-adjusted working pressure, a fluid dampened (Glycerine) gauge has to be fitted in the spray system. The range of this gauge should be within the limits of the working pressure.

5.2.1.2 Front end mounting of the spray system is to be preferred, if the kind of application and the liquid distribution allows it.

5.2.1.3 It must be made sure that the nozzles do not drip after being switched-off.

5.2.1.4 The spray tank is to be equipped with an agitator.

5.2.1.5 In case of an hydraulic agitator in the spray tank, the main pump has to have sufficient output to ensure adequate spray mixing effect with fully opened spray nozzles. (ground level testing with water).

5.2.1.6 The pump's suction line has to be properly installed to secure the in-flight emptying of the tank.

5.2.1.7 To completely drain the spray tank a drainage valve has to be installed in such a manner, that the spray fluid can be safely recovered without endangering operating personnel or any other part of the machinery getting in contact with it, for example struts.

5.2.1.8 The filling hole of the spray container must be provided with a leak proof closing lid. The container must have a pressure compensator through which the spray liquid cannot overflow.

5.2.1.9 The spray tank as well as suction or pressure piping have to be equipped with non reverse safety valves (couplers) which allow removal of same without loss of fluid.

5.2.1.10 Within the range of the pilots visibility the following read-out devices are to be installed:

- a) Pressure Gauge for the working pressure if possible for the pump end and the spray boom ends.
- b) Control lights indicating the position of the valve, either open or closed.
- c) Fluid volume indicator.

5.2.2 Minimum requirements for ground level refilling installations.

5.2.2.1 To ensure the proper composition of the spray fluid the tank vehicle has to be equipped with the proper balance, calibrated measuring devices, etc...

5.2.2.2 The mixing unit's chemical tank, used to refill the aircraft's spray tank, has to have an accurate and clearly visible calibrating device. To be accurate, the mixing unit has to be levelled out properly.

5.2.2.3 The design of this mixing tank has to be so that no leakage or swapping over can occur while mixing.

5.2.2.4 The mixing tank's volume should not exceed approx. 1500 litres and be equipped with a mixer capable of reconditioning a suspension which has been settled over a period of time¹.

5.2.2.5 The spray tank also has to have a draining device, which allows a total draining of the fluid without spilling over personnel or equipment.

5.2.2.6 Further more the tank has to have a pressure compensator and a tight, leak proof, filling cap which avoid spilling while moving.

5.2.2.7 All individual valves of the mixing unit, like the tank, hoses, etc. have to be provided with a leak proof shut-off device.

5.3 All airfields, used as filling stations, are to be equipped with a wind sock and operational measuring devices for wind speed, temperature and humidity.

5.4 To operate and maintain the spraying - and the mixing/filling equipment, a qualified operator, especially trained on crop spraying equipment, has to stand by at the location being used.

6. Location of airfields and their restricted use.

Airfields, in use for crop spraying operations, are not to be located within restricted areas where drinking water is withdrawn from. Airfields can only be set up with the permission of the

¹ The efficiency of the agitator must not exceed $\pm 15\%$ deviation of concentration of a one percentage OB 21 suspension (copperoxychloride) within the tank. Explanation : Follow BBA guidelines VII, 1-1.2.1.

landowner. Plant grown for animal feed in areas set up as refilling sites are to be harvested prior to the site being used. These areas have to be left idle for a minimum of 6 weeks.

Soil, which has been contaminated by a major chemical spill are to be left unused until regenerated. The owner or user of the area concerned is to be informed accordingly.

7. Public Information

The contractor has to make a public notice at the latest 48 hours before the crop spraying starts. He is to stipulate the beginning and the end of the operations.

8. Restriction of Access and Marking

The contractor has to restrict the access to the area to be treated and, if necessary, mark the areas to be treated. Human being, domestic animals and endangered objects should not come into contact with the plant protection product.

9. Plant Protection Products

Only approved plant protection products in legalised amounts are to be used. The use of reduced amounts is also possible.

Additional regulations according to Paragraph 8 from the Plant Protection Act made by the regional authorities remain unchanged.

10. Operating Flight Conditions

10.1 Plant protection products shall not be sprayed from aircraft if:

- a) horizontal wind speed exceeds 5m/sec. and if strong gusts of wind do not allow proper spraying operation.
- b) thermal winds exist or if the air temperature is above +25°C in shaded areas.
- c) within a safe range of 50 m from endangered objects. In order to operate within the 50 m area a written approval from the persons concerned is required. In case of wind drifts the safety range has to be increased.
- d) derived from c) plant protection products dangerous to bees are not allowed to be used inside a circle of 60 m from the beehives without permission from the bee-keeper and then outside their daily time of flying-swarmling. (Paragraph 2 Division 3 from the Bees' Protection Regulations against Plant Protection Products from 19.12.1972).

10.2. A flight log book is to be kept according to attachment No. 2.

11. Wind Drift

Should, in spite of all precautionary measures, the plant protection products drift onto endangered objects, the persons concerned must immediately be informed and begin counter measures. The same applies if other unmarked objects were directly hit by the plant protection products.

12. Handling and Storage of Plant Protection Products as well as empty packing Material.

The contractor is liable for the safe storage of plant protection products, of the rests of these products and for the legal disposal of packing material.

Legal Basic laws are :

- Regulations on waste reduction and waste disposal from 27.08.1986 („Abfallgesetz - AfG) which are the basis for the
- Decree on waste regulations according to Paragraph 2 Division 2 („Abfallbestimmungs Verordnung - AbfBestV“) from 03.04.1990 (Plant Protection Products see under Waste classification 53103, Page 623) ; according to Paragraph 4 Division 5 Waste Regulations is the
- 2nd general administrative regulations for Waste Decree („TA-Abfall“) from 10.04.1990. Here are the regulations for waste disposal (Plant Protection Products - see Attachment C, Page 32).

13. Precautions when dealing with Plant Protection Products

Please consult the leaflet AID No. 1042 „Vorsicht beim Umgang mit Pflanzenschutz- und Schädlingsbekämpfungsmitteln“ = Precautions when dealing with plant protection products and fighting it's harmful effects, 1991 (or new version).

Attachment No. 1

Announcement of intended Application of Plant Protection Products with Use of Aircraft²

1. Company respectively Name and address of orderer:
2. Company respectively Name and address of flying service:
3. Operational area (District respectively County):
4. Type of plants, type of pest (infection) and number of treatments:
5. Type of plant protection product and amount of in kg/ha or l/ha:
6. Proposed additives in kg/ha or l/ha:
7. Proposed mixtures with other additives (i.e. fertilisers) in kg/ha or l/ha:
8. Amount of water or other soluble (i.e. oil) in l/ha:
9. Type of aircraft, models and identifications:
10. Name of provided pilots:
11. Description of installation and type of equipment used on aircraft (crop spraying equipment):
12. Description of the filling equipment:
13. Proposed dates of treatment (beginning and end):
14. Remarks :

.....the ..(date)... 19..

..... the .. (date)... 19..

Flying Services

Contractor/Company

Note to the contractor :

With this announcement please enclose the aeronautical map made according to Point 4 of the Guidelines for the Plant Protection equipment with the use of aircraft.

² according to regulations.....(Indication of the applied laws).

Appendix B