

# **Regulatory approach for risk assessment of pesticides in air**

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- Presentation of the regulatory framework and the role of ANSES
- What is risk assessment?
- FOCUS Air Group and air risk assessment scheme

# Regulatory framework



- **Authorisation obligatory before placing on the market and use in agriculture**
- **Regulation (EC) No 1107/2009**
  - rules for authorisation and assessment of formulations and substances

# Role of ANSES?

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- **In charge of evaluation of applications of plant protection products in France**
  - Industry submits application with all the scientific elements needed to conduct the evaluation to the Regulated Products Department
    - Risk assessment
    - Opinions to the Ministry of Agriculture (responsible for issuing marketing authorisations)

# What is risk assessment?

## ESTIMATING EXPOSURE

Estimation of predicted environmental concentration of the substance  
in soil, water and air



## CHARACTERISING THE HAZARD

Is the substance toxic? At what levels?

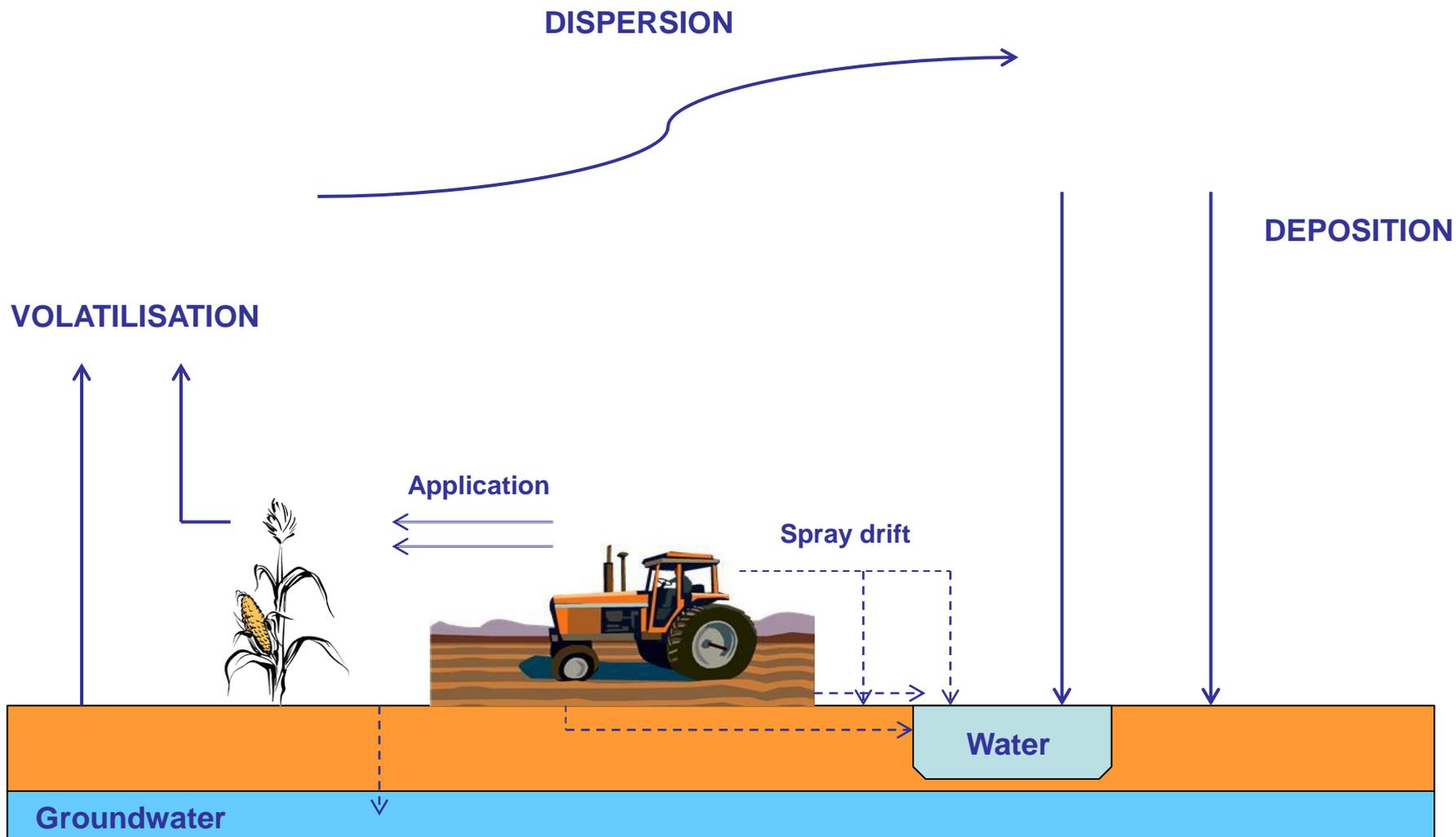
Studies to establish concentration that is hazardous for non-target organisms  
(acute and chronic toxicity endpoints)



## ASSESSING RISK

Assessment of the probability that adverse effects occur  
Exposure / toxicity ratio

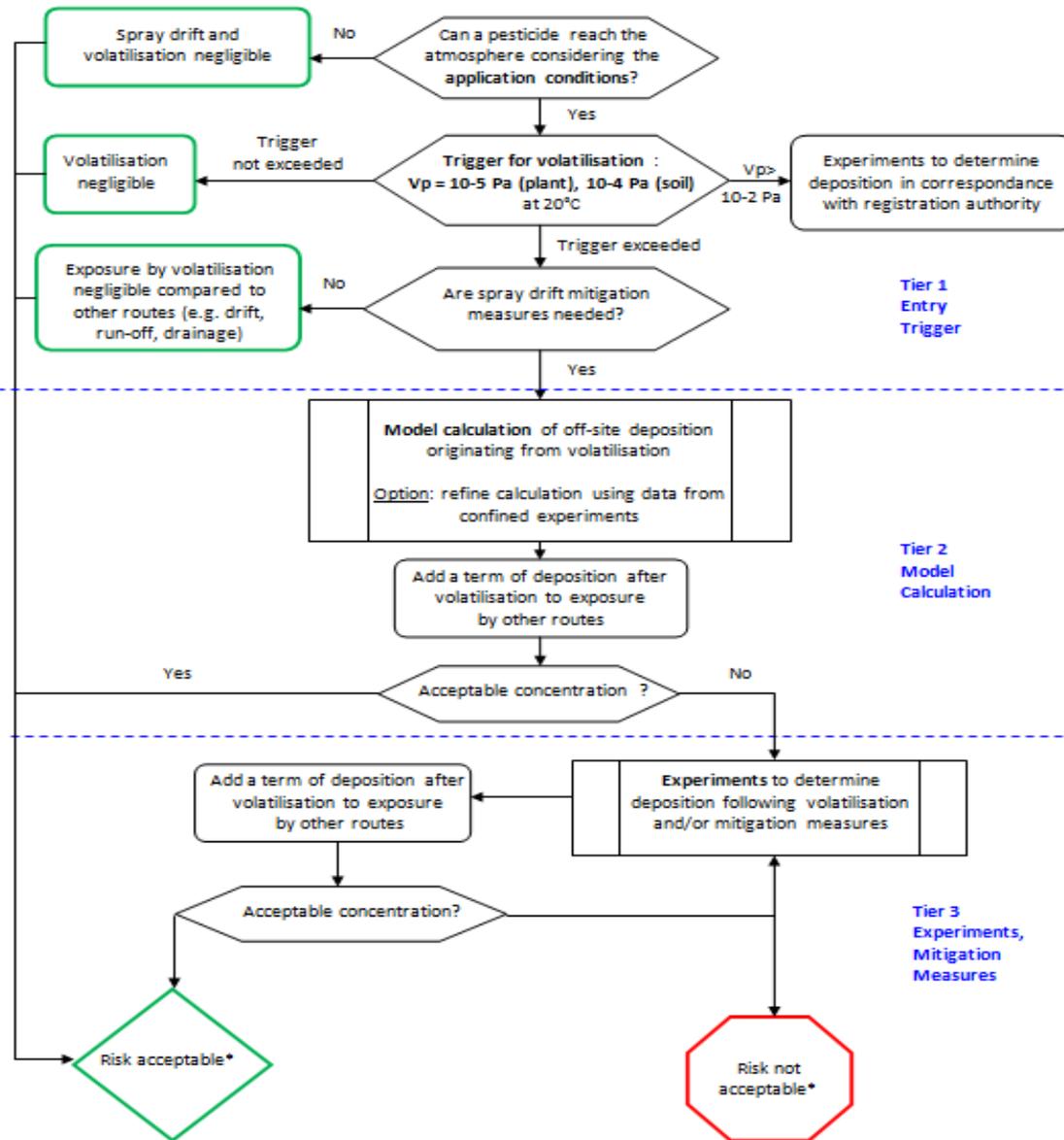
# Exposure of non-target areas via air



# FOCUS Air

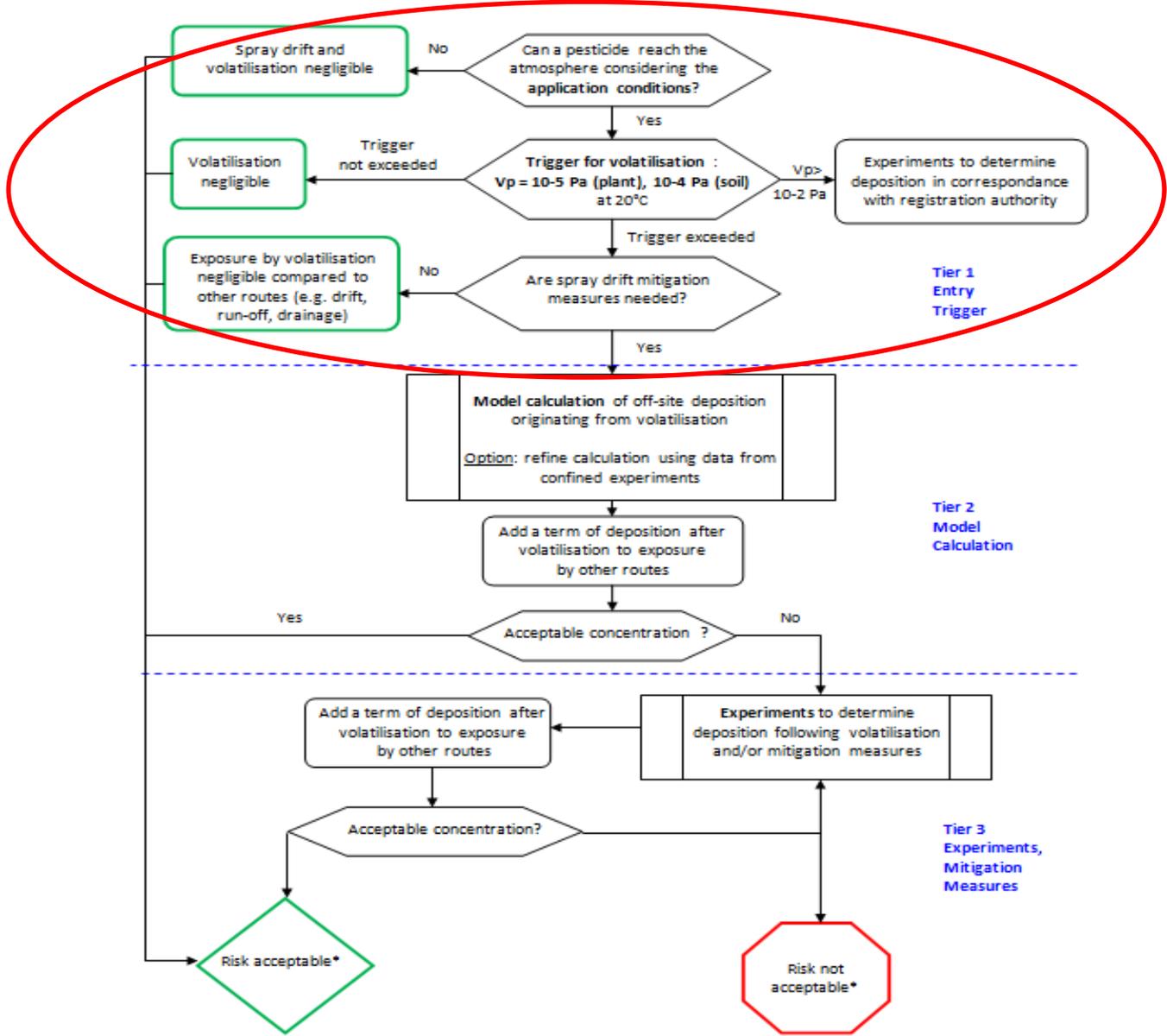
- **FOCUS = Forum for the Co-ordination of pesticide fate models and their Use**
  - Initiative of the European Commission to harmonise the calculation of predicted environmental concentrations in soil, water and air
- **FOCUS Air report in June 2008: “Pesticides in Air. Considerations for Exposure Assessment.”**
  - Introducing a tiered exposure assessment scheme for short-range aerial transport

# Assessment scheme



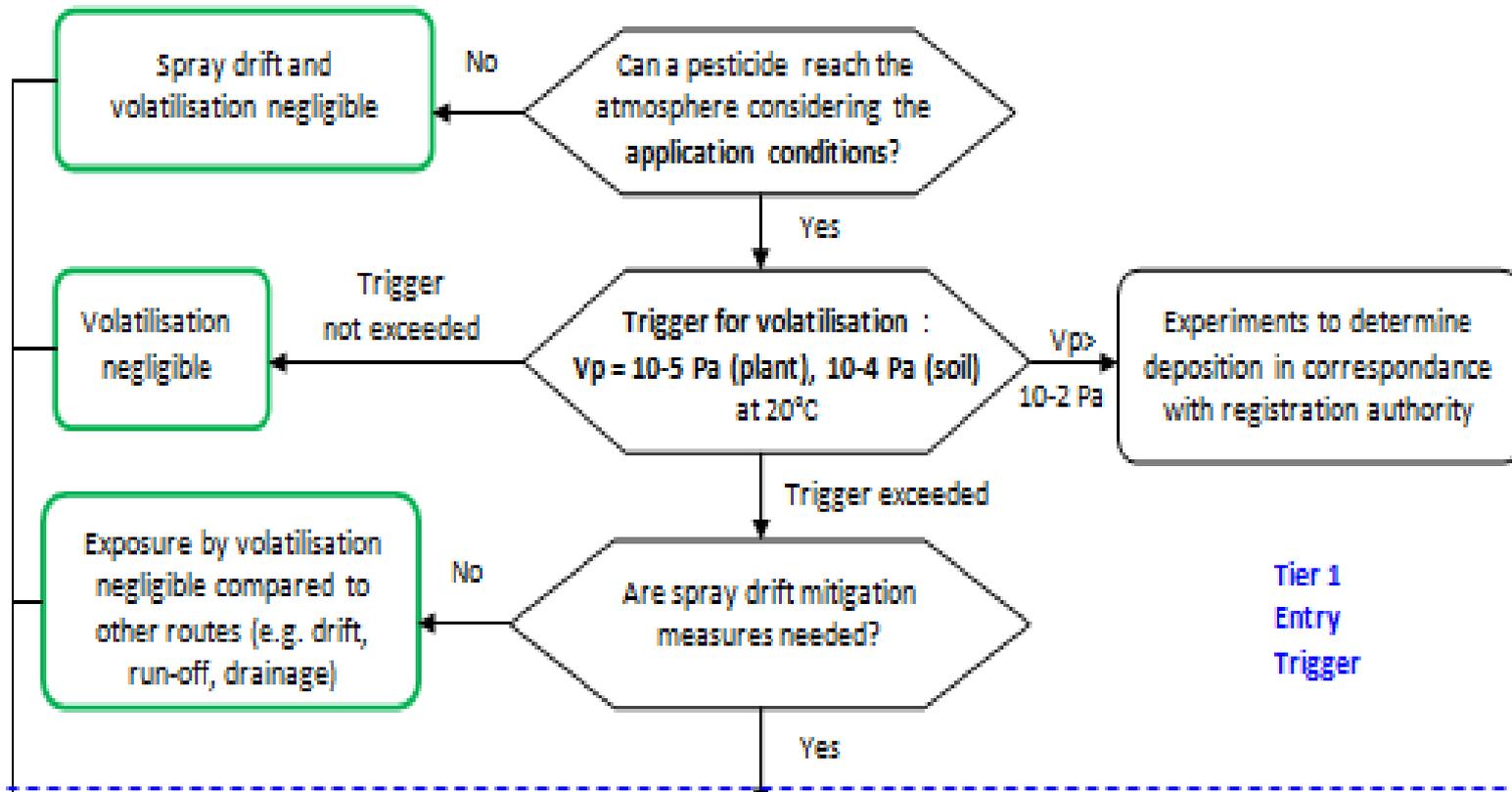
\* According to regulation (EC) No 1107/2009

# Tier 1 of assessment scheme



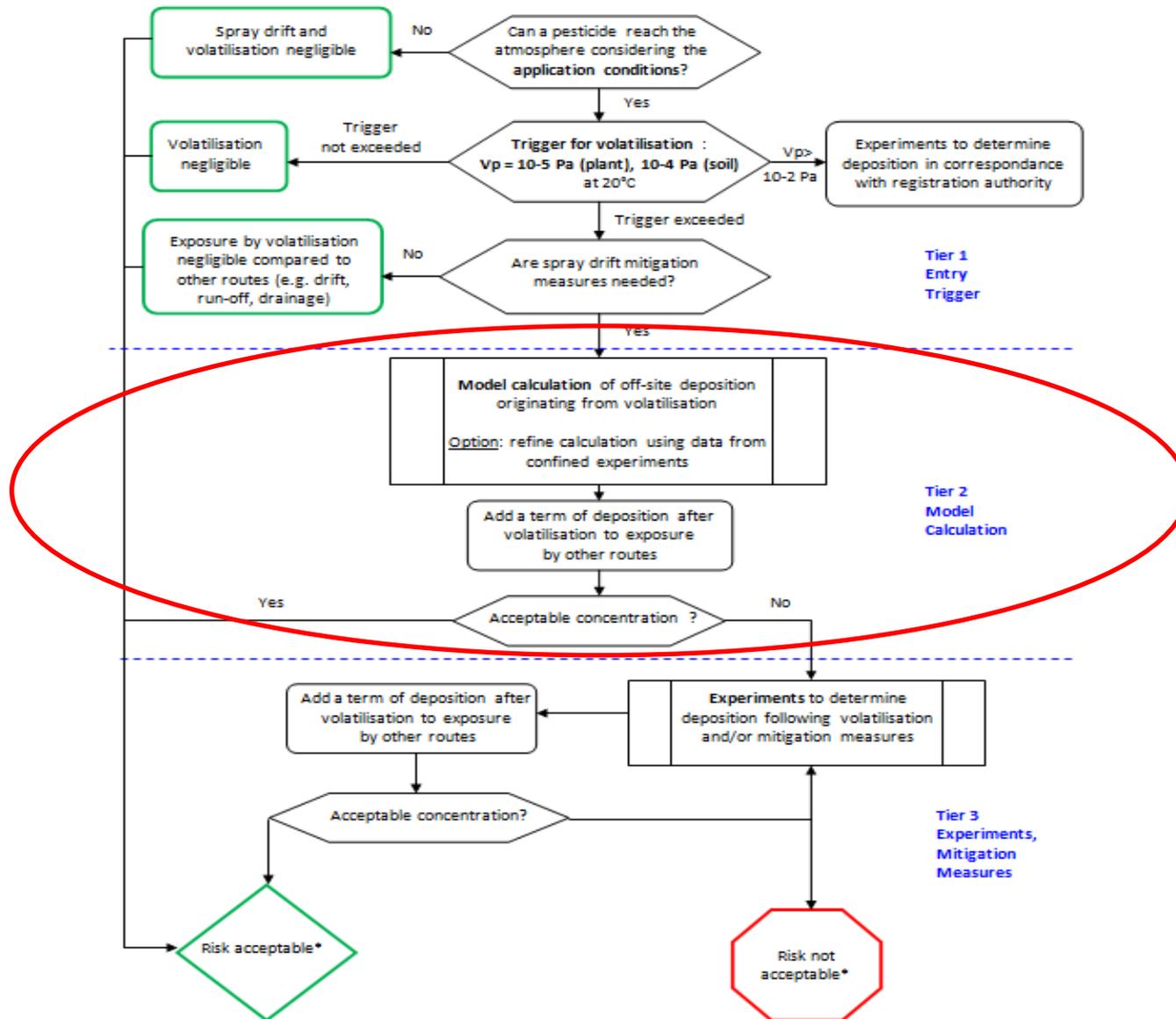
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# Tier 1 of assessment scheme



Tier 1  
Entry  
Trigger

# Tier 2 of assessment scheme



\* According to regulation (EC) No 1107/2009

# Tier 2 of assessment scheme

- **Model calculation of the off-site deposition and the resulting concentration**
  - EVA2.0
  - German model based on field experiments by Fent (2004)
  - Volatilisation 24 h after application
  - Deposition up to 20 m from the field
  - Interception by the crop taken into account (volatilisation from plant surface 3 times more important than from soil)
  - No degradation over the time period

# Tier 2 of assessment scheme

- Relationship between vapour pressure and deposition to non-target surface

Vapour pressure, Pa at 20° C	Deposition (% of application rate)	Class
<10 <sup>-5</sup> (plant) <10 <sup>-4</sup> (soil)	0.00	non-volatile
10 <sup>-4</sup> > vp ≥10 <sup>-5</sup>	0.09	semivolatile, volatilisation only from plant surfaces
5 x 10 <sup>-3</sup> > vp ≥10 <sup>-4</sup>	0.22	semivolatile, volatilisation from soil and plant surfaces
vp ≥ 5 x 10 <sup>-3</sup>	1.56	volatile

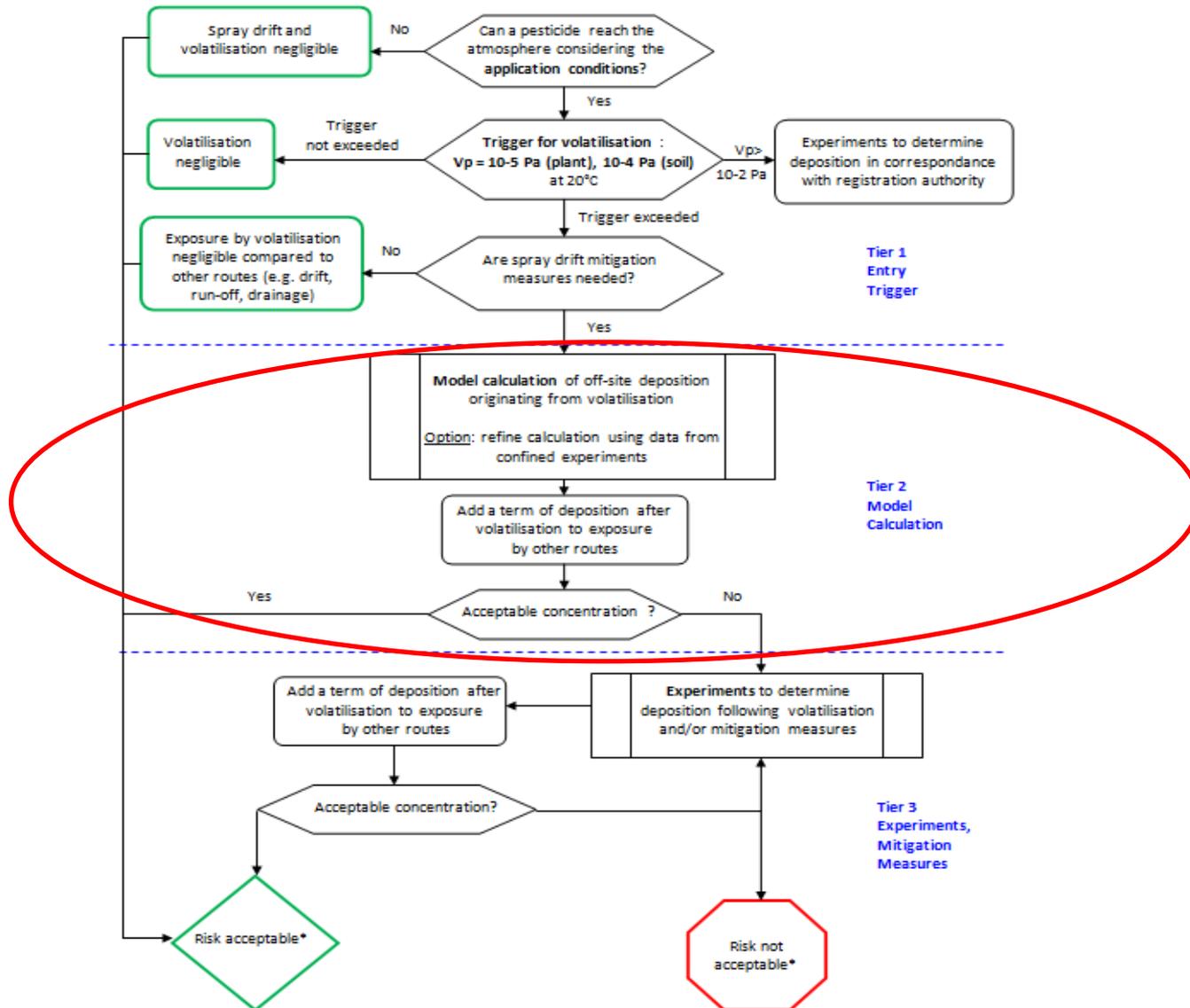
# Tier 2 of assessment scheme

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## ➤ Potential refinement using experimental data for basic processes

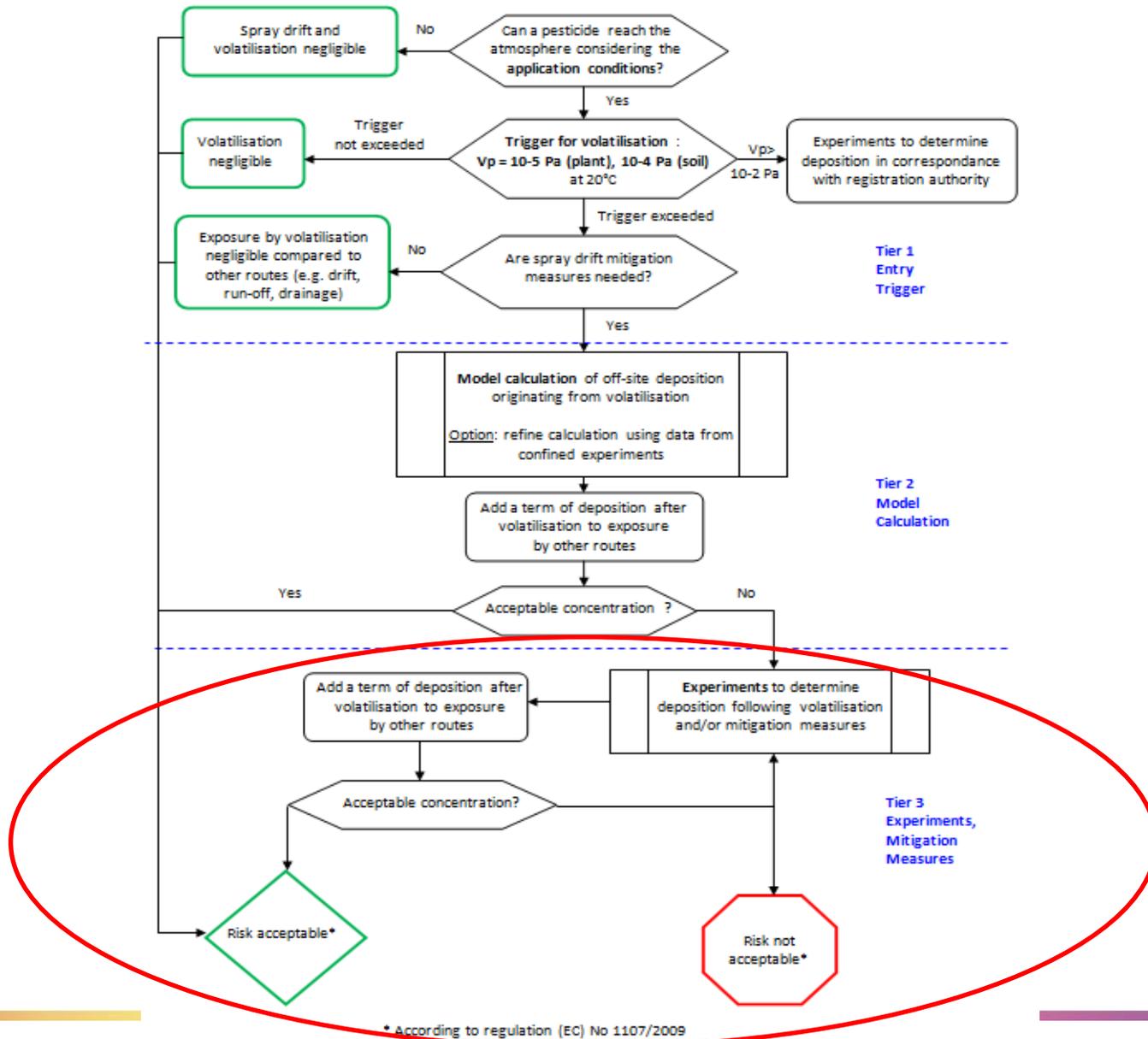
- Degradation on the plant surface
- Penetration into the plant
- No recommendations at the time being

# Tier 2 of assessment scheme



\* According to regulation (EC) No 1107/2009

# Tier 3 of assessment scheme



\* According to regulation (EC) No 1107/2009

# Tier 3 of assessment scheme

- **Volatilisation / deposition experiments**
  - Decision case by case basis
- **Mitigation measures to reduce deposition to the off-site area**
  - Non-spray buffer zones
  - Modification of application rate

# Very volatile pesticides

- **$V_p > 10^{-2}$  Pa at 20° C (e.g. fumigants)**
- **Tiered risk assessment scheme not applicable to very volatile pesticides**
  - Volatilisation and subsequent deposition can be substantially higher, even when incorporated into the soil
    - A study would be required to determine the deposition

# Long-range transport

- **Long-range transport possible if half-life in air >2 days (FOCUS Air)**
  - Monitoring data has to be provided to ANSES
  - In France, associations AASQA have made campaigns to measure air quality since 2001
  - Risk assessment for residents

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Thank for your attention