ANNEX 3

OECD SEMINAR ON PESTICIDE RISK REDUCTION THROUGH BETTER NATIONAL RISK MANAGEMENT STRATEGIES FOR AERIAL APPLICATION

24 February 2009, San Francisco, US

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Presentation Outline

- NAAA & Aerial Application Industry Overview

- Drift Mitigation Efforts
  - PAASS Program
  - Operation S.A.F.E.
• NAAA operator and pilot members are licensed as commercial applicators that use aircraft to enhance food, fiber and biofuel production, protect forestry, and control health-threatening pests.

• NAAA has 1,500 members in 46 states throughout the United States.

• According to USDA's Ag Research Service, aerial application account for almost 25% of crop protection applications and nearly 100% of forest protection applications.

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**Aerial Application Industry Statistics & NAAA Goals**

| No. of Aircraft per business: | 2.2 |
| Percent of industry airplanes: | 88% |
| Percent of industry helicopter: | 12% |
| Percent of aircraft closed-cockpit | 97% |
| Percent of industry that use GPS | 92%** |

* From 2004 NAAA Survey

** An NAAA 1998 survey indicated that 60% of agricultural airplanes were equipped with GPS as compared to 25% in 1994.
Aerial Application Industry Overview

Why treat crops by air?
- Wet soil conditions
- Quickly treat large acreages (3 to 4 times as fast as other forms of application)
- Prevent soil compaction
- Prevents damage to crops by not disrupting foliage.

Aerial Application Industry Statistics & NAAA Focus

NAAA Environmental Focus
- Increase the application efficacy of crop protection products (use less; cover more);
- Deliver spray materials onto their intended target (mitigate drift);
- Address these points through education and the development of new technologies
**Education**

**NAAREF & PAASS**

NAAA’s sister organization - the National Agricultural Aviation Research and Education Foundation (NAAREF) - developed the Professional Aerial Applicators Support System (PAASS) - in 1998. PAASS is a comprehensive educational program for aerial applicators focusing on safety, security and drift mitigation.

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**Professional Aerial Applicators Support System (PAASS)**

- Offered at approximately 22 of the state and regional ag aviation association conventions each year.
- Many SLA’s offer CEU’s for PAASS attendance.
- PAASS has received funding from EPA and FAA.
- Many Insurance companies offer discounts and or additional coverage to pilots for attending PAASS.
- PAASS attended by approximately 1,800 ag pilots and aerial application operators each year.
- PAASS goals: reduce the number of aviation accidents and drift incidents associated with aerial application and enhance security through education.
Program Development & Presentation

- Educational content designed by distinguished program content committee (University PhD’s, crop protection product manufacturers, insurance company reps, aircraft & spray equipment engineers).
- Presented by experienced pilots, operators and other allied industry personnel professionally trained that speak the audience’s language.
- At each session the participants of PAASS are requested to evaluate the program and presenters.
- This immediate feedback allows program to be constantly strengthened and remain pertinent to current industry environment.

Drift Mitigation Examples in PAASS Program

- PAASS Program teaches applicators how to:
  - Use droplet spectrum software models for drift mitigation
  - Conduct spray system maintenance to avoid misapplications
Drift Mitigation Examples in PAASS Program

- Spray drift reduction software models
  - USDA D25 Nozzle Atomization Model
  - Spray Drift Task Force (SDTF) AgDrift® spray model

  Models allow user to input and select specific operational parameters such as aircraft, nozzle type and nozzle size, wind velocity, airspeed, and pressure.

  Output: model results will then be related quantitatively to spray drift and various drift mitigation options (i.e. droplet size, and amount of product moving off-target.)

USDA Aerial Nozzle Atomization Models

CP-03 NOZZLE
FOR USE ON FIXED-WING AIRCRAFT
AERIAL APPLICATORS SPRAY NOZZLE HANDBOOK
USDA ARE AGRICULTURAL HANDBOOK NO. XXX
T. L. Kell, Agricultural Engineer, Aircraft & Aerial Spray Management Research Unit,
Southern Plains Agricultural Research Center, Agricultural Research Service, U.S. Department of Agriculture, 27977 86 Road, College Station, TX 77845-4600, USA.
Directions: Enter CP-03 nozzle settings, pressure, and airspeed in the cells highlighted below.
(Atomization parameters are valid only with nozzle and operational settings specified in the Acceptable Range.)
Drift Mitigation Examples in PAASS Program

The PAASS Program educates applicators about conducting proper maintenance of their spray systems.
Drift Mitigation Examples in PAASS Program

The PAASS Program educates applicators about conducting proper maintenance of their spray systems.

Education: NAAREF & Operation S.A.F.E

Operation S.A.F.E. Fly-Ins provide spray pattern testing clinics allowing the ag pilot the opportunity to work with a trained analyst to test and calibrate his ag aircraft application equipment.
NAAREF & Operation S.A.F.E

2007 Statistics

Number of Total S.A.F.E. Clinics: 35
Number of Total Participating Aircraft: 253
Number of Total Passes Analyzed: 1,704

NAAA Efforts to Enhance Aerial Technology

• ARS Efforts
  – Sought and Obtained increased funding for ARS Aerial Application Research Technology Program by $4 million over 7 years.
  – Facility designs and tests many of the new technologies coming to market
    • Variable Rate
      – Using GIS and flow control to use crop protection products only where needed at the exact rate needed
      – Using meteorological technology to provide real time nozzle adjustments and flow of chemical to mitigate drift
  • Use PAASS Programs, Operation S.A.F.E. clinics, magazine and annual convention to keep industry abreast of new technologies
NAAA Efforts to Enhance Aerial Technology

Aircraft - Integrated Meteorological Measurement System (AIMMS) measures site specific atmospheric turbulence data to support aerial application, including wind speed, direction, altitude, humidity and temperature.

NAAA Efforts to Enhance Aerial Technology

Electrostatic Nozzles—developed by ARS—induces the chemical droplets with either a positive or negative charge before their release over the target. Charged aerial sprays are attracted to targeted objects such as crops, trees and other plants. Electrostatic nozzles can be very beneficial in the aerial application industry because you can use less carrier per acre with the active ingredient; hence you can apply more acres per load. This means less fuel used.
Ag Aircraft Accident Rates
Before & After PAASS Began

- Agricultural Aircraft accidents are down.
- Avg. accident rate pre-PAASS (1993-1998) - 9.5 accidents per 100,000 ag hours flown
- Avg. accident rate after PAASS began (1999-2007) - 7.35 accidents per 100,000 ag hours flown

AAPCO Confirmed Aerial Drift Complaints

- This is out of an estimated 200 - 250 million acres treated by air per year
- Drop in drift complaints by 26% when comparing 3 year periods
Drift Mitigation Advancements

The PAASS program has influenced Aerial Applicators to increase their adoption of drift reduction techniques and technologies.

Pilots View of Global Positioning Satellite (GPS) System
Drift Mitigation Equipment

- Drift indicators (Smokers) are extremely useful tools for predicting the direction of product movement before release.
  - A Smoker releases a small cloud of smoke from aircraft; direction smoke moves indicates direction released product will move.
  - This is a great help in reducing adverse affects of crop protection products.
  - Use of Smokers increased from 59% in 1998 to 85% in 2004.

Aircraft Activating Smoker to Determine Wind Direction
Smoke Movement (right-center of picture) helps to determine product movement

Conclusion

- Through the PAASS & Operation S.A.F.E. educational programs, the professionalism of the aerial application industry is augmented and the stewardship of the environment is promoted.

- Technological developments through USDA and private research enable equipment and educational content material for aerial application to be more environmentally friendly, precise and efficacious.
Thank You to the OECD!

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Presentation 2
European Commission
Wolfgang Zornbach on behalf of the EC

FRAMEWORK DIRECTIVE ON THE SUSTAINABLE USE OF PESTICIDES
- The final content

European Commission
DG Environment
Unit B.3 (Biotechnology, Pesticides & Health)

Legislative proposals of the Pesticide Package

- Regulation revising Directive 91/414/EEC
  COM(2006) 388 final

- Regulation on the collection on statistics on PPP
  COM(2006) 778 final

- Framework Directive on the sustainable use of Pesticides
  COM(2006) 373 final

- Directive on the placing on the market of pesticide application equipment
  COM(2008) 535 final
Overall objective

- Achieve a more sustainable use of pesticides by reducing the risks and impacts of pesticide use on human health and the environment and promoting the use of IPM and of alternative approaches such as non chemical alternatives

- Fill the EU legislative gap regarding the use-phase of pesticides

Aerial spraying

1/2

- Prohibition of aerial spraying with derogation possibility where:
  - clear advantages or no viable alternatives
  - pesticides approved for aerial spraying
  - operator holds a certificate
  - enterprise doing aerial spraying certified
  - sprayed area not in close proximity to residential areas
  - aircraft equipped with best available technology as from 2013

- Competent authorities examine requests and specify how to warn residents and bystanders and protect the environment
Aerial spraying
2/2

- Two-tier approach for standard requests:
  - Submission of an application plan (with general information) to be approved
  - Specific requests (more detailed) in accordance with approved plan; implicit consent possible
- Single requests with accelerated procedure possible for emergency situations
- Record keeping of requests and approvals
- Relevant information (day and time of spraying, type of pesticide used) available to the public
- Appropriate compliance monitoring to be carried out

Additional measures

- National Action Plans with risk and use reduction targets
- Access to training for professional users, advisers, distributors (See Annex I) -> certificate of sufficient knowledge
- Regular inspection of application equipment in professional use to check compliance with requirements (see Annex II) -> certification
- Protection of the aquatic environment and drinking water
- Prohibition or minimisation of pesticide use in specific areas
- Handling, storage and waste of pesticides, remnants, packaging
- Use of risk indicators to monitor progress made
Implementation phase

- Second-reading agreement found – EP vote at second reading on 13 January 2009
- Publication in OJCE and entry into force in the Spring?
- Two years for transposition (some delays for establishing certain provisions)
- Regulation on marketing will enter into force at the same date as the directive
- Discussions still ongoing on the last two proposals

All the documents are available at:

http://ec.europa.eu/environment/ppps/home.htm

Thank you for your attention!