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COUNTERFEIT PESTICIDES – A BIG PROBLEM IN QUALITY CONTROL OF PLANT PROTECTION PRODUCTS IN POLAND

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**Organizer: State Phytosanitary Administration
Plant Protection Products Section, Czech Republic**



MAIN AREAS OF QUALITY CONTROL

1. **Official – financed by Ministry of Agriculture and Rural Development**
 - ❑ quality testing of technical concentrates for plant protection products
 - ❑ post-registration quality control of ppp
 - ❑ testing of products suspected of counterfeit (samples from National Plant Protection and Seed Inspection Service)
 - ❑ resolution of claims regarding quality
 - ❑ analyses of samples from pesticides parallel import

2. **Ordered by other institutions**
 - ❑ quality testing of concentrates (5 batch analysis)
 - ❑ analysis of expired products
 - ❑ quality testing ordered by prosecutor's office and police (claims, counterfeit pesticides, parallel import)
 - ❑ resolutions of claims from farmers and distributors



SCOPE OF ACTIVITIES FOR OFFICIAL CONTROL

- ❑ **number of samples tested: 300-350 annually**
- ❑ **type of samples: random, scheduled, interventional**
- ❑ **development and advancement of analytical methods**
- ❑ **on-going issuing of certificates of analysis for Provincial Inspectorates of Plant Protection and Seed Inspection**
- ❑ **forwarding information on the results of analyses to all inspectors via an internet server**
- ❑ **on-going development of quality certificates**



SUMMARY OF MONITORING ANALYSES IN 2009

Type of monitoring samples taken by PIORiN	Number of samples
SCHEDULED OFFICIAL MONITORING	14
RANDOM OFFICIAL MONITORING	247
INTERVENTIONAL OFFICIAL MONITORING	45
TOTAL	306

Type of determination	Number of determinations	Number of negative determinations
phys.-chem properties	33	1
a.s. content	24	1
biological efficacy	0	
phytotoxicity	0	
phys.-chem properties	668	56
a.s. content	394	28
biological efficacy	0	
phytotoxicity	0	
phys.-chem properties, label evaluations	105	30
a.s. content, identification of impurities	153	62
biological efficacy	0	
phytotoxicity	6	
TOTAL	1383	178



NUMBER OF COUNTERFEIT PPP SAMPLES TESTED IN IPP-NRI SOSNICOWICE BRANCH

2003	2004	2005	2006	2007
10	11	12	13	13

Total 2003-2007: 59

2008	2009
89	41

Total 2008-2009: 130

2010
59

Official control

48

Orders by others

11



RISKS ASSOCIATED WITH THE USE OF FAKE CROP PROTECTION PRODUCTS

- ❑ For human health (exposing consumers to uncontrolled amounts of residues)
- ❑ For animal health
- ❑ For crops condition
- ❑ For the natural environment (leaking into water sources)



LABORATORY TESTING

- ❑ **Assessment of authenticity of label and container**
- ❑ **Confirming identity or identifying the active ingredient**
- ❑ **Determination of the formulation type**
- ❑ **Physical and chemical properties:**
 - **suspension/ emulsion stability**
 - **sieve analysis**
 - **water content**
 - **wetting time**
 - **pH**
 - **density**
- ❑ **Impurities profile**
- ❑ **Identification of impurities and their qualitative analysis**



TYPES OF COUNTERFEIT CROP PROTECTION PRODUCTS

- 1. Formulation and main compounds identical with the original (sophisticated fake)**
- 2. Products repackaged into fake containers; active substance content different from the one declared on the label**
- 3. Products repackaged into fake containers; product composition different from the one declared on the label**
- 4. Products in random containers, with no labels, coming from illegal parallel import or smuggled into the country**



NEW OPPORTUNITIES FOR PERFORMING CHEMICAL ANALYSES

EU Project :

„Modernization of laboratories for comprehensive pesticide testing at IPP-NRI, Sosnicowice Branch”

Beneficiary:

Institute of Plant Protection– National Research Institute, Sosnicowice Branch

Completion::

2007/2008 (completed by September 2008)

Scope:

- Comprehensive remodeling of two laboratories**
- Purchasing of new analytical equipment**
 - **GC –NPD, EC detectors**
 - **HPLC –UV, DAD detectors**
 - **GC-MS (2 chromatographs) – FID, ECD, MS-EI, MS-CHEM I detectors**
 - **LC/MS/MS (triple quadrupole)**

Designation:

Qualitative analysis and identification of pesticide formulation composition, impurities testing, testing of residues in plant material, soil, water, and plant products



ANALYSES OF FAKE PRODUCTS 2009-2010

TYPE	OFFICIAL SAMPLES		OTHER SAMPLES		TOTAL	
	2009	2010	2009	2010	2010	2010
Disqualified because of label, e.g. label in a foreign language	10	39	3	5	13	44
No label Active substance present	2	8	0	0	2	8
Nonconforming to the refernce product	17	4	10	3	27	7
Nonconforming to the declared amount of active substance	7	5	1	3	8	8
Active substance different from the one declared on the label	1	0	2	0	3	0
Product not registered in Poland	5	27	0	0	5	27
Total number of samples	29	48	12	11	41	59

NOTE: Product can be considered a fake for more than one reason



FAKE PPP – HAZARD FOR CROPS

- ❑ Lowered, insufficient efficacy or no efficiency
- ❑ Damage to or destruction of plantation due to impurities causing phytotoxicity or otherwise inadequate composition of formulation
- ❑ Improper distribution on protected cultivars due to defective formulations – plant damage
- ❑ Improper development of plants due to defective formulation



FAKE PPP – HAZARD FOR PEOPLE AND ANIMALS

- ❑ **Increasing the amount of residues due to overdosing**
- ❑ **In case of impurities, occurrence of unknown, uncontrollable residues in plants, possibly having adverse effects on humans consuming them**
- ❑ **For a.s. different than declared – adverse effects in humans and animals**
- ❑ **In the case of using different inert ingredients – adverse effects in humans and animals**
- ❑ **Possibility of a direct adverse effect on sprayer operators**



FAKE PPP – HAZARD FOR THE ENVIRONMENT

- ❑ **Leaking of toxic substances into soil and ground water**
- ❑ **Possibility of permanent pollution**
- ❑ **Possibility of contaminating adjacent crops and plants**
- ❑ **Possibility of adverse effects on beneficial organisms**



CONCLUSIONS FROM CONFERENCE IN WARSAW 13.11.2008

- 1. To raise awareness about fake crop protection products and the increasing scale of problem. To that end, we need to coordinate efforts of all stakeholders to achieve the common goal.**
- 2. To form a Working Group at the EU level, consisting of representatives of government, control agencies, police, customs service, etc. from the Member Countries.**
- 3. To develop strategies aimed against the counterfeiters through a system of monitoring and exchange of information between the Member Countries, European Commission and proper authorities.**



CONCLUSIONS FROM CONFERENCE IN WARSAW 13.11.2008 (cont.)

- 4. To include the topic of counterfeit and illegal pesticides into the strategy of the European Commission to fight counterfeiting and piracy, emphasizing the issues of health, environment, intellectual property and consumer protection.**
- 5. To enhance and actively support common educational activities linked to training for farmers and distributors.**
- 6. To pursue different ways, including legislative to ensure effective means of protecting the producers, suppliers and distributors.**



NEED FOR MORE EFFECTIVE ACTIONS

- ❑ **Conduct intense information campaign for law enforcement with regard to the specificity of counterfeit pesticides and proper classification of the violation**
- ❑ **Quick access of the institutions in charge of control to the original pesticides in order to use them as reference products in identity testing**
- ❑ **Create a database with labels and types of containers for the most commonly counterfeited products**
- ❑ **Exchange of information between the offices in charge of control in countries collaborating against counterfeiting**
- ❑ **Improvement in communication between the interested parties – creation of an internet forum?**

