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

CEUREG FORUM XIV
Brno, Czech Republic, 7-8.10.2010

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
<table>
<thead>
<tr>
<th>Type of monitoring samples taken by PIORiN</th>
<th>Number of samples</th>
</tr>
</thead>
<tbody>
<tr>
<td>SCHEDULED OFFICIAL MONITORING</td>
<td>14</td>
</tr>
<tr>
<td>RANDOM OFFICIAL MONITORING</td>
<td>247</td>
</tr>
<tr>
<td>INTERVENTIONAL OFFICIAL MONITORING</td>
<td>45</td>
</tr>
<tr>
<td>TOTAL</td>
<td>306</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Type of determination</th>
<th>Number of determinations</th>
<th>Number of negative determinations</th>
</tr>
</thead>
<tbody>
<tr>
<td>phys.-chem properties</td>
<td>33</td>
<td>1</td>
</tr>
<tr>
<td>a.s. content</td>
<td>24</td>
<td>1</td>
</tr>
<tr>
<td>biological efficacy</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>phytotoxicity</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>phys.-chem properties</td>
<td>668</td>
<td>56</td>
</tr>
<tr>
<td>a.s. content</td>
<td>394</td>
<td>28</td>
</tr>
<tr>
<td>biological efficacy</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>phytotoxicity</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>phys.-chem properties, label evaluations</td>
<td>105</td>
<td>30</td>
</tr>
<tr>
<td>a.s. content, identification of impurities</td>
<td>153</td>
<td>62</td>
</tr>
<tr>
<td>biological efficacy</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>phytotoxicity</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>TOTAL</td>
<td>1383</td>
<td>178</td>
</tr>
</tbody>
</table>
### NUMBER OF COUNTERFEIT PPP SAMPLES TESTED IN IPP-NRI SOSNICOWICE BRANCH

<table>
<thead>
<tr>
<th>Year</th>
<th>2003</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>10</td>
<td>11</td>
<td>12</td>
<td>13</td>
<td>13</td>
</tr>
</tbody>
</table>

Total 2003-2007: 59

<table>
<thead>
<tr>
<th>Year</th>
<th>2008</th>
<th>2009</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>89</td>
<td>41</td>
</tr>
</tbody>
</table>

Total 2008-2009: 130

Official control Orders by others

48 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

<table>
<thead>
<tr>
<th>Type</th>
<th>Official Samples</th>
<th>Other Samples</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2009</td>
<td>2010</td>
<td>2009</td>
</tr>
<tr>
<td>Disqualified because of label, e.g. label in a foreign language</td>
<td>10</td>
<td>39</td>
<td>3</td>
</tr>
<tr>
<td>No label Active substance present</td>
<td>2</td>
<td>8</td>
<td>0</td>
</tr>
<tr>
<td>Nonconforming to the reference product</td>
<td>17</td>
<td>4</td>
<td>10</td>
</tr>
<tr>
<td>Nonconforming to the declared amount of active substance</td>
<td>7</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>Active substance different from the one declared on the label</td>
<td>1</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Product not registered in Poland</td>
<td>5</td>
<td>27</td>
<td>0</td>
</tr>
<tr>
<td>Total number of samples</td>
<td>29</td>
<td>48</td>
<td>12</td>
</tr>
</tbody>
</table>

**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 phytotoxicty 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?