PROGRAMME DE PREVENTION DU CUMUL DE STOCK DE PESTICIDES (PPP)
(Stock Accumulation Prevention Program)

Training themes

INTERGRATED PHYTOSANITARY PROGRAM
(IPM)

I- Introduction
* Definition of IPM
* IPM’s objectives
* IPM’s 6 « P »
  - Plants
  - Population of Managers
  - Predators and natural enemies
  - People (farmers, technicians, researchers, etc)
  - Government policy
  - Problems links to setting up and application of IPM

II- TEAMWORKS
* Evolution of phytosanitary protection
  - Blind chemical fight
  - Recommended Chemical fight
  - Biological fight
  - Integrated protection
  - IPM
  - Integrated Agricultural Production (PAI)

* Backgrounds of the use of chemical products
  - Pesticide residue problems
  - Spiral effect
  - Cost
  - Poisoning
  - Effect on the environment

III- Fieldwork
* Practising biodiversity analysis
  - Setting up a training system
  - Collection of informations
* Practising phytosanitary diagnosis and agro-ecosystem analysis.
  Example of practical activities in the fields. Each group observes 5 tufts of rice taken at random and check off all details: existence of ravager insects or not, weeds, physiological state of the plant, irrigation water...
  - Indoor activities: each group transfers to packing paper all the remarks and informations collected in the fields.

IV- Introduction to « Ady gasy » method
* Introduction to « Ady gasy » or traditional method employed by Malagasy people. It consists in protecting the cultivation without using synthetic chemical products:
  - Raw materials
  - Preparations
  - Targeted ravagers
  - Recipes
* IPM and rustic school
  - Various stages of a IPM program
- Characteristics and sequences of IPM Trainings: TOT (Training of Trainers) and FFS (Farming Farmers School) characteristics, typical sequence of FFS.
  * Rustic school
    - Members
    - Infrastructure

V-Meeting day – Action
  * IPM Approach
    - Introduction meeting conducted by the trainer (about 30 minutes)
    - Regular visit of the parcels (every week and during cultivation season)
    - Indoor meeting
  * Summary of the day’s work by the technician
    - Summary of the realized activities
    - Acquired Knowledge of each member (farmers)

VI-Importance of IPM’s practice
  * Farmers become fully qualified decision-makers
  * Acquired qualities: from experimentation, farmers become intelligent, managers, economists, observers, practical, and researchers...
    * Planting healthy cultivation
    * Preserving of natural enemies
    * Ecologic balance
Training themes

SECTION I : BASIC KNOWLEDGES ON AGRO-PHARMACEUTICAL PRODUCTS

I-Definitions
* Pesticide or « agro-pharmaceutical products »
* Composition
  - « active ingredient »
  - « charge » or « thinner »
  - « Additives »
  - « Content »
  - « Proportioning »
  - « Use concentration »

II-Pesticide actions
* Pesticide action on plants
* Pesticide action on animals

III-Basics of pesticide toxicology
* Acute Toxicity
* Subchronic Toxicity
* Chronic Toxicity

IV-Classification of the pesticides according to toxicity

V-The main groups of pesticides

VI-The main classes of pesticides

VII-Advantages and backgrounds of some compositions

VIII-Current Types of compositions
* Concentrated to be watered down
* Concentrated to be thinned down with organic solvents
* Products to be applied without thinning down
* Products for seed treatment
* Other types of compositions

IX-Use of agro pharmaceutical products
* The « Right Agricultural Pratices » (BPA)
  - Definition
  - Decision to intervene
  - Realization of the treatment

* Impacts of the use of pesticides
  - Definitions = pesticide residues, maximum limit of residues (LMR)
  - Definition of the problems = direct impact namely on the fauna, direct contamination of food or water, diffuse or latent contamination difficult to notice in the short term.
  - Where can you find residues of agro pharmaceutical products ?
  - Where are risks found ?
Training themes

SECTION II : PREVENTION OF PESTICIDE ACCUMULATION

A- Identifying the causes of pesticide accumulation
*Wrong stock control
*Poor stocking conditions
*Unsuitable products and / or packagings
*Withdrawal of a product because of its toxicity for men and environment
*Erroneous estimation of needs
*Lack of coordination
*Hidden and commercial interests

B- Dangers linked to unused pesticide stocks
*Impact on human health
*Risks of fire and production of toxic vapour
*Risks of using the pesticides in non-authorized areas or in other fields not recommended for the products
*Risks of elimination by improvised methods.

C- Unused Stock Accumulation Prevention Program
*Ensuring appropriate handling, storing, and stock control of pesticides according to the regulation standards. Ensuring appropriate training for the staff who is responsible for stock control.
*Reducing surplus stocks by estimating the needs as precisely as possible.
*Anticipating the repercussions caused by changes in subsidy and pricing policies.
*Applying the integrated fighting program as a priority (IPM)
*Ensuring a large campaign to increase public awareness.
*Setting up an appropriate training and communication system.
*Reinforcing the existing legislation and the follow-up of its enforcement.
*Ensuring an efficient quality control of launched products and their uses.

D- Rational management of a pesticide warehouse (According to facts noticed during site visits).
*Rules to be observed during establishment.
*Warehouse design
*Stocking conditions to be observed during exploitation,
*Basic rules of management (stock control)
*Safety measures and precautions to be taken for workers’ protection
*Control and follow-up measures,
*Example of results recap of teamworks. Training done in Tulear, Fianarantsoa and Antsirabe (March and April 2000). Training scheme : theoretical training, participation through teamworks, tests before and after the training.
Training themes

I-Different types of pesticides
   *Insecticides
      -Non-organic compounds
      -Natural organic compounds
      -Synthetic organic compounds
   *Herbicides
   *Fungicides
   *Rodenticides

II-Risky situations due to an acute pesticide poisoning
   *Types of poisoning
      -acute poisoning
      -chronic poisoning
   *Poisoning modes
      -poisoning of the eyes
      -through the skin
      -by respiratory tract
      -orally

III-Therapeutic conduct
   *On the scene of the accident
   *In hospital :
      -some members of the team make inquiry
      -some take care of the patient

IV-Prevention of pesticide poisoning

   ALL PESTICIDES ARE TOXIC : BE CAREFUL WHILE HANDLING THEM
   *Storage
   *Handling
      -avoid poisoning through skin
      -avoid ingestion
      -avoid inhalation
      -Protect the environment
      -Regular checkup of the workers

V-Clinical symptoms of an acute organophosphorus poisoning.
   *Type of clinical description : poisoning by organophosphorus products
      -simple poisoning
      -moderate poisoning
      -severe poisoning
### PROGRAMME DE PREVENTION DU CUMUL DE STOCK DE PESTICIDES (PPP)  
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#### CASE OF TAMATAVE

<table>
<thead>
<tr>
<th>Realised actions</th>
<th>Result Indicators</th>
<th>Encountered Problems</th>
<th>Suggestions / Recommendations</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. INCREASING PUBLIC AWARENESS / TRAININGS / INFORMATIONS</td>
<td></td>
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<tr>
<td>Increasing managers’ awareness</td>
<td>Unverifiable</td>
<td>Lack of supports (posters ..)</td>
<td>Carrying on to increase public awareness</td>
</tr>
<tr>
<td>Transfer of acquired knowledges to users (NAC, etc)</td>
<td>- 208 NAC volunteers in 52 sites (Brickaville)</td>
<td>Level heterogeneousness</td>
<td>Documentation support (copy of the legislation...), bills and posters available to users, technical literature.</td>
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<td></td>
<td>- 140 NAC volunteers in 35 sites (Vatomandry)</td>
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<td>- 17 teams of cane planters (before the training in Brickaville)</td>
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<td>- 12 AVB, 2SZ, 1 TS in Vatomandry</td>
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<td></td>
<td>- Staff Ciragri, 4 TS, 2 researchers, 2 SOP, 4 SZ in Toamasina</td>
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<td>- 1 radio programme in Sainte Marie</td>
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<td></td>
<td>- 1 radio programme in hand in Vatomandry (transmitter out of order)</td>
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<td></td>
<td>90% of retailers (PPP inquiry)</td>
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<td>Training of supervisors</td>
<td></td>
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<tr>
<td>Increasing public awareness (media)</td>
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<tr>
<td>Training of the sales personnel</td>
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<tr>
<td>Training of treatment teams</td>
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<tr>
<td>Direct informations of the customers by retailers and/or Cirpv</td>
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<tr>
<td>2- PRODUCT MANAGEMENT</td>
<td></td>
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<tr>
<td>• Enforcement of regulation</td>
<td>Labelled bottles with incomplete informations (90% of the cases)</td>
<td></td>
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<tr>
<td>Labelling</td>
<td>1 warehouse not complied with standards</td>
<td></td>
<td></td>
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</tbody>
</table>
**PROGRAMME DE PREVENTION DU CUMUL DE STOCK DE PESTICIDES (PPP)**  
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<table>
<thead>
<tr>
<th>Warehouse layout</th>
<th>Stocking conditions</th>
<th>Protection of the staff</th>
</tr>
</thead>
<tbody>
<tr>
<td>Use</td>
<td>Efficient and safe products</td>
<td>« Ady gasy » inventory</td>
</tr>
</tbody>
</table>

- Use
  - Efficient and safe products

- « Ady gasy » inventory

- Use of bio-pesticides (Beauveria, Metarrhizium)

- Cultivation protection policy appropriate to environment (Sirama)

<table>
<thead>
<tr>
<th>7 warehouses: insufficient protective clothing</th>
<th>Only few products should be kept in the warehouses</th>
<th>Slogan: use prohibited without PV’s advice</th>
</tr>
</thead>
</table>

Sirama: *Beauveria* at industrial production stage, *Metarrhizium* halfway through industrial production

- Minimum Tillage
- Packings adapted to needs (tenders)
- Limitation of composition choices

<table>
<thead>
<tr>
<th>Prohibited products used in truck farming</th>
<th>Insufficient means for test operations</th>
<th>Themes do not suit reality</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Observance of the arrangements for product use authorisation</th>
<th>Available technical informations</th>
<th></th>
</tr>
</thead>
</table>
### NECESSARY CONDITIONS FOR A GOOD PESTICIDE STORAGE

#### RESULTS OF A TEAMWORK EXERCISE DONE DURING SERIES OF TRAINING

<table>
<thead>
<tr>
<th>Measures to be observed during the establishment</th>
<th>Warehouse design</th>
<th>Stocking condition to be observed during the exploitation</th>
<th>Basic rules of management, to be observed</th>
<th>Safety measures and precautions to be taken for the workers’ protection</th>
<th>Necessary conditions for a normal running of a warehouse</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1 Far from build-up areas</td>
<td>2.1 Properly secured (emergency exit, accesses properly closed)</td>
<td>3.1 Gathering the products according to their categories and toxicity</td>
<td>4.1 Good knowledge of pesticides</td>
<td>5.1 Training of the staff on safety measures</td>
<td>6.1 Good stock control</td>
</tr>
<tr>
<td>1.2 Far from water supply points and other waters</td>
<td>2.2 Sanitary installations in the event of poisoning.</td>
<td>3.2 Separating the products according to packing types</td>
<td>4.2 Legible labelling</td>
<td>5.2 First aid necessities and sheet for each available product</td>
<td>6.2 Good relationships between co workers</td>
</tr>
<tr>
<td>1.3 Downstream of the high wind</td>
<td>2.3 Cemented watertight floor, camouflage</td>
<td>3.3 Stocking on pallets, no contact with the wall</td>
<td>4.3 Periodic checking of the packings</td>
<td>5.3 Nutritional compensation</td>
<td>6.3 Skilled storekeeper (O2)</td>
</tr>
<tr>
<td>1.4 Accessible all the year round</td>
<td>2.4 Appropriate ventilation system</td>
<td>3.4 Hermetically sealed packing</td>
<td>4.4 Surfaces proportional to stocks in order to avoid overstocking</td>
<td>5.4 Appropriate protective clothing</td>
<td>6.4 Unskilled persons not admitted</td>
</tr>
<tr>
<td>1.5 Outside zones liable to flooding</td>
<td>2.5 Permanent building with a good air circulation</td>
<td>3.5 Visible and legible labels</td>
<td>4.5 Well kept stock sheets</td>
<td>5.5 Cleaning necessities (shower…)</td>
<td>6.5 Updating of working documents</td>
</tr>
<tr>
<td></td>
<td>2.6 Spacious and well ventilated interior, watertight roof</td>
<td>3.6 Gathering the products according to their types</td>
<td>4.6 Labelling problem during the repackaging</td>
<td>5.6 Barrels for recovery</td>
<td>6.6 To get supply in time</td>
</tr>
<tr>
<td></td>
<td>2.7 Impounding system of cleaning waters and leak.</td>
<td>3.7 Batches easy to locate</td>
<td>4.7 Stock forecast according to needs</td>
<td>5.7 Periodical check-up</td>
<td>6.7 Periodical control by managers</td>
</tr>
<tr>
<td></td>
<td>2.8 Separated from the other buildings of the complex</td>
<td></td>
<td>4.8 “First arrived, first let out” rules</td>
<td>5.8 Absorbent materials in case of leaks</td>
<td>6.8 Periodical training of the staff</td>
</tr>
<tr>
<td></td>
<td>2.9 Fire-fighting equipment</td>
<td></td>
<td>4.9 Periodical analysis of quality control</td>
<td>5.9 Sign board</td>
<td></td>
</tr>
</tbody>
</table>