

TREND OF HIGHLY HAZARDOUS PESTICIDES REGISTERED AND DISTRIBUTED IN SUBSAHARAN AFRICA

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Abstract

Registration of pesticides began in Cameroon in 1996. Less than 5% of pesticides used in 2004 were registered and more than 80% of producers were not aware of this legal process. In 2014, 85% of pesticides used are registered. Among these yet licit chemicals, some are hazardous to human and environment, 40% are registered for use in bananas production (28% for nematodes control alone and 10% for control of both insects and nematodes, and the remaining 2% for others?). Moreover, 20% of highly hazardous pesticides (HHPs) registered are for the control of roudents. In Sub-Saharan Africa, registered HHPs are roudenticides, insecticides and nematocides, frequently used in banana production and for protection of stored products. Licit POPs (heptachlore, chlorobenzène) and HHPs (alluminium phosphide, terbufos, abamectine, ethropophos, ...) are frequently used to protect stored grains. In cotton production, lindane and HCH are used.

Key Words

Cameroon, chemical pest control, highly hazardous pesticides

Materials and methods

To access the diversity of pesticides used by smallholders to protect crops from insect pest attack, since 2004, yearly sampling of names of pesticides used and collection of pesticides containers were carried out in the 3 northern regions of Cameroon. Moreover, the list of authorized pesticides was established by consulting two official releases. The first is from the Cameroon National Committee of Regulation and Quality control of inputs and agricultural products which is in charge of the registration of pesticides in Cameroon¹. These products are also used in neighboring countries in Central Africa where no registration authority is functioning. The second list is from the Sahelian Committee of Pesticides that is in charge of the registration of all the pesticides in use in the West Africa countries². These lists are updated twice a year. The cited pesticides are classified according to their hazards following the Guidelines to classification³.

Results and discussion

1. Typology of the pesticides in the hands of smallholders for crop protection

Pesticides registered for central or for West Africa include 10 categories of products:

- avicides,
- insecticides,
- nematocides,
- fungicides,
- insecticides-acaricides,
- molluscides,
- herbicides,
- insecticides-nematicides,
- rodenticides,
- insecticides-fungicides,

In Central Africa, 4 other categories are added: adjutants, growth regulators, public hygiene products and resistant activators. The last category (pesticides used in public health) requires temporary authorization to be sold.

Since it launched its first pesticides registration commission in 1996, Cameroon government is improving the quality and the availability of pesticides offered to producers. From less than 5% of the farmers in 2004 who used registered pesticides, the statistics changed to 80% in 2014, that is 10 year after, . In the same way the amount of users ignoring registered pesticides has reduced from 50% in 2004 to less than 10% in 2014.

The compilation of the pesticides names collected from users or on pesticide containers labels allowed to come up with a list of pesticides in use. This list was build up throughout years and regularly updated. In comparison with the list of the pesticides registered in 2004, 2009, 2011 and 2014 (figure 1), 3 situations were currently observed:

- Pesticides registered and used ;
- Pesticides not registered but used
- Pesticides registered but not used or not known.

The illustration of the evolution of this situation during the last 10 years is compiled in the figure 1 below. It depicts a positive change in the better use of pesticides quality in the crop protection in Sub-Saharan Africa.

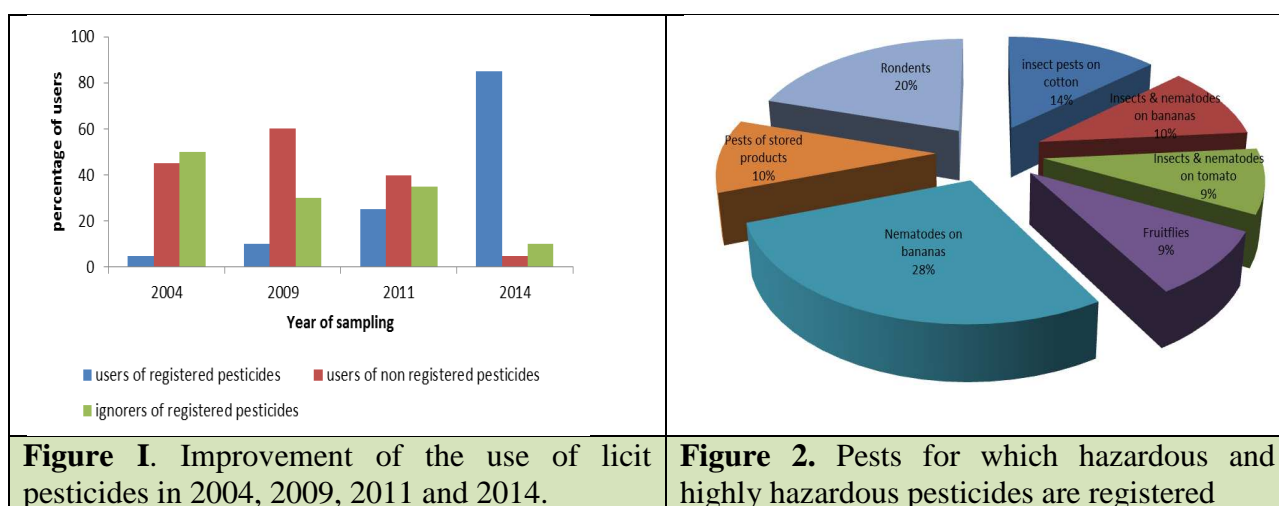


Figure 1. Improvement of the use of licit pesticides in 2004, 2009, 2011 and 2014.

Figure 2. Pests for which hazardous and highly hazardous pesticides are registered

2. Occurrence and uses of hazardous and highly hazardous pesticides

The classification of active ingredients according to the WHO recommendation of the classification of pesticides by hazard was used to categorize pesticides on the list of agricultural chemicals glistered.

A total of 10 highly hazardous substances are currently used in Central and West Africa in the formulation of fungicides, herbicides, insecticides, insecticides-acaricides, insecticides-nematocides, insecticides-fungicides, nematocides, molluscides, rodenticides. These uses are in relationship with some phytosanitary problem occurring in targeted crops (Figure 2).

Among these hazardous and HHPs registered in west and central Africa countries, 40% are registered for use in bananas production (28% for nematodes control alone and 10% for control of both insects and nematodes). Moreover, 20% of highly hazardous pesticides (HHPs) registered are for the control of rondents. In Subsaharan Africa, registered HHPs are rondenticides, insecticides and nematocides, frequently used in banana production and for protection of stored products.

Table 1. List of highly hazardous (Ia) and hazardous (Ib) active ingredients of pesticides registered in Cameroon (1) and by the Sahelian Pesticide Committee (2).

<i>N°</i>	<i>Active ingredients (1; 2)</i>	<i>WHO class</i>	<i>Targeted pests / Ecosystems</i>
1	<i>abamectine (1; 2)</i>	<i>Ib</i>	<i>Insects & Mites / Cotton, Fruits</i>
2	<i>bromadilone (2)</i>	<i>Ia</i>	<i>Rondents / Ware Houses</i>
3	<i>brodifacoun (1; 2)</i>	<i>Ia</i>	<i>Rondents / Ware Houses</i>
4	<i>cadusafos (2)</i>	<i>Ib</i>	<i>Insects & Nematodes/ Bananas, Tomato</i>
5	<i>ethropophos (2)</i>	<i>Ia</i>	<i>Insects & Nematodes/ Bananas, Tomato</i>
6	<i>flocoumafene (2)</i>	<i>Ia</i>	<i>Rondents / Ware Houses</i>
7	<i>oxamyl (1; 2)</i>	<i>Ib</i>	<i>Insects & Nematode / Bananas</i>
8	<i>phenamiphos (1)</i>	<i>Ib</i>	<i>Nematodes/ Bananas</i>
9	<i>aluminium phosphide (1; 2)</i>	<i>Ia</i>	<i>Insects / Stored Grains</i>
10	<i>terbufos (2)</i>	<i>Ia</i>	<i>Insects & Nematodes/ Bananas, Tomato</i>
11	<i>thiazophos (2)</i>	<i>Ib</i>	<i>Caterpillar/ Cotton</i>

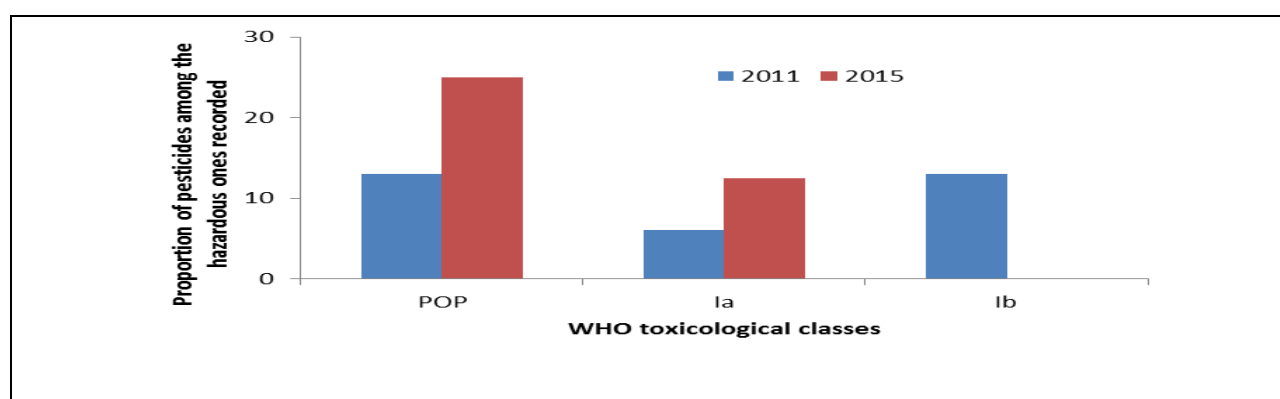


Figure 3. Proportion of dangerous registered pesticides by WHO toxicological classes (Ib: hazardous and Ia: highly hazardous and POP) during the years 2011 and 2015 in west and central Africa countries

Illicit POPs (heptachlore, chlorobenzène) and HHPs (alluminium phosphide, terbufos, abamectine, ethropophos, ...) are frequently used to protect stored grains. In cotton production, lindane and HCH are used.

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