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Research Article

Social constructs of pesticide effectiveness among social actors in Bouaké

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Abstract: The use of pesticides in agriculture has become a widespread practice in African countries. These products are considered as an essential factor of productivity. There is a diversity of pesticides circulating in the city of Bouaké, which raises the question of the choice of efficient pesticides for the retailer, the farmer and for the applicator. Faced with this situation, the present research aimed at understanding how and why the representations of the effectiveness of pesticides among these social actors in Bouaké are constructed.

The research is qualitative, based on the emic and inductive approach. Seventeen actors were interviewed including three pesticide distributors, eleven sellers and three users. The selection of the respondents was done using the reasoned choice technique. Data collection was based on the use of documentation, participant and structured observation, semi-structured interviews, field logging and image capture.

The data reveal that the various stakeholders appreciate the effectiveness of pesticides by focusing on the names attributed to pesticides, the active ingredient, the diagnosis of plant diseases or nuisances, and the informality or otherwise of the pesticides, as well as the mode of application and the spray and speed of action of pesticides. These various criteria are in line with the systems of representation, knowledge, belief and the experience acquired by the actors.

Keyword: social construction, effectiveness of pesticides, social representations, popular speeches.

Introduction

Several research studies on therapeutic practices show that patients opt for treatment in place of another or choose a drug based on its efficacy (Taverne, 1996; Saliba, 1997; Fainzang, 2006 and 2010). Their choices are based on efficiency criteria that may be related to their system of social representations or that of their home group (Taverne, 1996; Jaffré and De Sardan, 1999).

This perpetual quest for therapeutic efficacy caught our attention during a pesticide research program in which we participated. Our field data allow for a close link between pesticides and drugs. Like drugs, pesticides are used to cure or prevent any disease of the plant. Packaging and dosages of pesticides are similar to those of drugs. The logic of purchasing pesticides is comparable to that of drugs. In addition, pesticides follow the same release process as drugs.

Ivorian legislation on pesticides stipulates that anyone wishing to sell pesticides must have a degree in agronomy or a certificate as a senior agricultural technician. This measure is formulated so that the various actors have knowledge on agriculture in general and pesticides in particular. However, in Bouaké, during the disturbances to public order (socio-political crisis of 2002 and post-election crisis of 2010), some people are introduced into the sale of pesticides without approval. All social categories (men and women, young people and adults of various nationalities) practice the sale of pesticides. Following this qualifying period of social anomie (Merton, 1965), that is to say from 2012, the regional directorates (Agriculture and Commerce) were in charge of putting order in this sector of activity. The Regional Directorate for Agriculture first identified all pesticide traders. Then they summoned them to sensitization meetings followed by communication sessions for behavior change. Then, the Regional Directorate also trained these salespeople so that they have the necessary records to obtain the approval.

After these steps of sensitizing and training salespeople, the regional directorates conduct spot checks on sales approval and the quality and prices of pesticides at the market level. In terms of product quality, they look after the color, the chemical composition and the approval number. Indeed, each group of pesticide has an appropriate color. Herbicides, insecticides and fungicides are green, pink and yellow, respectively, and a registration number is assigned to legal pesticides. Illegal phytosanitary products seized on the market are incinerated by these two directions. These actions undertaken by these state entities certainly help to limit somehow the sale of illegal pesticides in the markets of the city. But, they could just as well lead sellers to conceal this

practice.

During the agricultural activities in the villages and urban districts of Bouaké the social actors resort to pesticides. However, the finding at the point of sale, is that there is a plurality of pesticides having various forms for the same nuisance or plant disease. In such a context, the question of the choice of effective pesticides is acute. From one group of actors to another, the efficiency of pesticides is constructed differently. People sell, buy and use pesticides based on a set of popular representations and discourses related to their "social constructs of pesticide effectiveness". How is the efficiency of pesticides socially constructed? This is the question this article tries to answer.

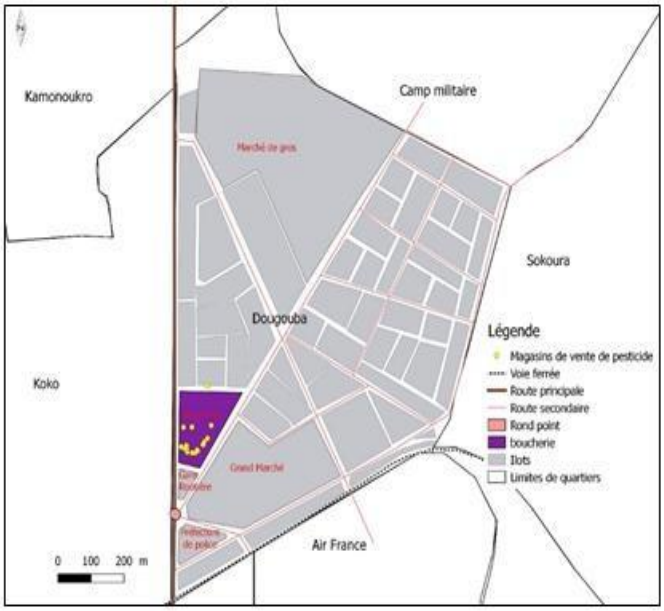
In this article, we describe the social actors interacting in the choice of pesticides. Then, we present the different criteria for evaluating the effectiveness of pesticides. However, let's start by saying a word about the theoretical framework and methodology of this study.

1-Theoretical framework

Like any social object, the sale of pesticides is an activity involving several actors (commercial and users). These, with the exception of a few distributors, evaluate the effectiveness of pesticides outside strictly scientific characters. They analyze and interpret the effectiveness of pesticides according to their know-how or ordinary knowledge. The empirical analyzes and interpretations made of the efficacy of phytosanitary products on the part of these actors led us to study the social construction of the effectiveness of pesticides in order to understand and explain (Loriol, 2012), the evaluation of this substance (pesticide) with chemical and social characters. Indeed, the social construction makes it possible to describe the reality produced by the actors that is related to their interpretation and profane knowledge. It consists of "describing the social reality shared by individuals and showing how reality is constructed by confrontations between actors" (Berger and Luckmann, 2012). The notion of social construction also refers to the understanding of an implicit phenomenon, while seeking the how and why of actions that are related to the fact studied. It is in this context that Berger and Luckmann (1996) deal with the construction of a concept, a notion, a representation, a category of thought, while seeking to explain how and why the fact could win. The analysis of social construction is clearly conceived in the work of sociology and anthropology of health (Taverne, 1996; Jaffré, 1999; Loriol, 2012). Indeed, as Loriol (2008) points out: "The notion of social construction is used in the sociology of the disease to understand how a patient becomes aware of a malaise or a malfunction, why he decides to look for help from a health professional (doctor, psychologist, etc.). How does this, in interaction with the patient, make his diagnosis and finally, how the diagnosis concretely translates into the actualization of a particular "role" of a patient? From the clarification of the notion of social construction, we find that it is close to social representation. Indeed, the analysis of the social construction of a phenomenon concerns all information, knowledge and beliefs about an object, which are girls of the social representation defined by Durkheim (1898) and Jodelet (1989). According to Jodelet (1989) the social representation: "It is a form of knowledge, socially elaborated and shared, with a practical aim and contributing to the construction of a reality common to a social ensemble. Also referred to as "common sense knowledge" or "naïve knowledge", "natural", this form of knowledge is distinguished, inter alia, from scientific knowledge. To study social representation is to observe and analyze the way in which values, social and cultural norms are thought and lived by the actors (Herzlich, 2005; Knaff, 2010). In this article we try to analyze the efficiency criteria of pesticides from the social constructions operated by the actors, resulting from their various representations.

2-Methodology of the research

The study took place in the city of Bouaké. This district is located in central Côte d'Ivoire, about three hundred and eighty (380) km from Abidjan (economic capital of the country). Data collection mainly took place at the butcher's market[1], which is located near the city's large market and in front of the bus station (see map below). We chose this market because it is a meeting place of choice for different actors (distributors, sellers and users of pesticides), involved in the sale and purchase of pesticides**.**



Location of pesticide sales stores in the beef market (Bouaké) 2016

Source: BNETD, 2000: Realization: UAO / CRD, LUPACI Program, 2016

The research is qualitative. We opted for the emic approach (Olivier de Sardan, 1998) in order to determine the actors' logic and popular discourse related to the sale and use of pesticides. The inductive approach allowed to take into account unforeseen facts previously (Baxerres, 2010). The respondents were selected using the reasoned choice technique. The various actors available and likely to provide

[1] Butcher's market: space gathering several butcheries

us with information were selected and the collection tools were sent to them. For the collection of information, we used documentation, participant observation, structured, semi-structured interview, field journal, and image capture. The field survey was conducted in three months from October to December 2015. In total, seventeen stakeholders were interviewed, including three distributors, eleven resellers and three users (market gardeners and applicators) of pesticides. Regarding the processing and analysis of the data, we proceeded to capture all interviews and note taking on word pages. The photographs were stored in respective files and processed using Photoshop and Picasa software. We then ranked this data according to the themes of the study. A thematic content analysis of the data was performed. For ethical questions, an anonymity code has been assigned to each participant so that the actual names are not included in this text.

3-Description of actors interfering in the social construction of efficiency

Actors interacting in the world of pesticides in Bouaké, can be grouped into three social categories, namely: distributors, resellers and users.

3-1-Pesticide Dispensers

Distributors consist of branch companies and pesticide dealers, as well as trade commissioners. The trade commissioners are agents of a pesticide importing company based in Abidjan that provide pesticides to the vendors of the city of Bouaké. Trade commissioners do not have a warehouse or annexed pesticide store in Bouaké. They sell by moving from city to city. Once in Bouaké, they mark a stop at the entrance to the butcher's market where they supply pesticide vendors (semi-wholesalers and retailers). Most often, trade commissioners sell spot pesticides to new customers. They make deposit-sales or sale on credit for loyal customers. The branch companies, in turn, are pesticide companies, which represent, at the level of Bouaké, a company importing phytosanitary products to ensure permanence in the city market. They are also establishments that have a certain autonomy in the management of pesticides, but which remain subordinate to an importing company (parent company). In Bouaké, the branch companies of pesticides are among others Afcote, Rmg, Phytagri, Volcagro, Tropical and Calivoire.

The dealers are wholesalers selling pesticides, to whom, the importers grant exclusivity in Bouaké. With the exception of the first store manager, other members usually do not have an agronomic degree. In an interview he gave us, Mr. Kojean (assumed name), agent of a pesticide dealer, explains here how one becomes a dealer: "To be a pesticide dealer, you have to be exclusive representative of a phytosanitary product structure in a region. We are a supplier of sunphosate (total herbicide, containing 360g / l of glyphosate) in the Gbêkê region. All those who want the sunphosate come in our store. We are sellers of sunphosate and other SHUNSINE products. On the market, for a wholesaler to become a supplier (dealer) he has to be an exclusive representative of a structure in a region and it is at this point that he becomes a supplier to the region "[interview realized on 10/10/2015].

In Bouaké, branch and concession companies are not located at the market but are rather scattered in different parts of the city. The pesticide companies we interviewed were LDC (Louis Dreyfus Commodities) and TRADIS (Service, Distribution Agricultural Works). They are respectively located in the Dougouba district, (near the traffic lights of the wholesale market) and Koko (opposite the former Bouaké stadium). The dealers, in their different stores, have very large quantities of pesticides. This group sells products to pesticide users and sellers (semi-wholesalers and retailers) in the market. What distinguishes them from other sellers in the market is that these dealers have an appropriate premises and only sell products imported by their suppliers (SHUNSINE or LDC).

3-2-Pesticide Resellers

We call resellers, all people and structures that supply pesticides, chemical and / or organic fertilizers from the distributors listed above. These are semi-wholesalers and retailers. These pesticide traders simultaneously sell pesticides from several distribution companies in their stores. In Bouaké, this group of actors generally carries out its various activities related to pesticides in the butchery market and the Bromakoté market. Semi-wholesaler resellers supply a higher quantity of pesticides depending on their financial means. These are sellers who individually buy sixty (60) cartons of pesticides and more with different distributors to resell to retailers and users. This implies that they sell pesticides of all quantities (wholesale, half-wholesale and in detail). The amount of pesticides they own allows them to trade and loan pesticides with other resellers. Per month, a semi-wholesaler reseller makes purchases or orders of pesticides that are worth an average of two to three hundred thousand francs (200,000 FCFA- 300,000 FCFA). As for retailers, they generally buy one to three cartons of pesticides with semi-wholesalers, in order to sell them in detail (one to two cans) to users. Retailers do not have enough pesticides. Generally the shelves of their stores are half empty.

3-3-Pesticide users

Users are the different customers who get pesticides from a reseller to meet their needs. They are individuals, pesticide applicators, market gardeners, rice farmers, farmers (cassava, maize, yam, etc.), planters and cashew buyers. Buyers of cashew supply farmers with pesticides, in return to guarantee that at the time of the trade, they will sell them their crop. For, during the cashew trade, the planters are invaded by a multitude of buyers.

4-Social criteria for evaluating the effectiveness of pesticides

We expose and analyze here the social criteria for evaluating the effectiveness of pesticides**.**

4-1-Selection of the pesticide after a diagnosis of diseases or nuisances of plants

During our investigations, we noticed that when customers arrive in the store, they give a description of their problem to the retailer. The latter pay particular attention to what users say in order to identify the type of damage (nuisance) that threatens their plants. Several expressions, collected during the observation sessions that we carried out on the study site, are used by the users to express their needs. Some say: "The grasses grow in my tomato field" and sometimes give details about the size of the herbs. Others say: "Beasts tire my plants in my garden (market garden site)" or "leaves of my plants fall" or "animals make black spots on fruits and lettuce", and sometimes even "my plants die". Resellers, after listening carefully to the complaint, choose the type of pesticide which, according to their assessment of the situation, is appropriate and will be effective. For example, retailers like homeopaths who use therapeutic techniques to listen to the patients (listen to and prescribe natural substances) (Sévigny, 1999), examine the nuisances to which plants are subjected and take the time to listen and diagnose ailments before proposing a pesticide. From the perspective of resellers, the needs of users are not apparent but hidden. Also, listening to them would reveal the plant diseases, in order to make a correct selection of the effective pesticide. These different complaints from users imply that pesticides are used for multiple functions as is the case for drugs (Lovell and Aubisson, 2008).

4-2-Efficacy due to the active ingredient

Distributors, through their professional training, determine the effectiveness of pesticides by referring to the chemical composition of pesticides. They judge the effectiveness of pesticides, relying on the dosing information on the product packaging. Resellers that we have been dealing with believe that pesticides of the same family have the same efficiency. They also think that the concentration of the active ingredients, that is the dosage of the products, makes the difference. This information is related to their different training received (marketing networks and training related to the granting of accreditation). It is in this context that Mr. Radul, dealer retailer, states:

"Whether you take Rundupe, take kalache, take herbboufe, take glyphader, all these products have the same effects (efficiency). Now there are other products that are more dosed than others, there are others that are dosed at 360 SL against others are dosed at 480g / l. It is the dosage that determines the effect (efficacy) of the product. However, the result is the same "[interview conducted 19/10/2015].

The retailer, Mr. Bada agrees in the same sense as Mr. Radul: "If a person wants Wura super, Bibana, Ladaba, sharp, kalache, and glycote and tells me to give what is effective, I can give him everything I listed. I will tell him to take Wura super, Bibana, Ladaba, glycote. All I just showed you is 480 SL. It's up to you to make the choice. I can show him also glyphader, kalache those, their active ingredient is 360 SL. If, he took one of them, that's what will do his job he chose. Otherwise it is the dosage that does the work. Effective is what is powerful. For the customer, his work must be well done, that's why he took it" [interview completed, 31/10/2015].

These phytosanitary products listed by respondents are total herbicides with different concentrations for their active ingredient (glyphosate). These remarks by the dealers still leave a glimpse of a paradox. Certainly, these actors believe that within the same family of pesticides at the same dosage all have the same efficiency. They offer without distinction any pesticides of the same dosage to their customers. They also admit that pesticides with a high chemical concentration are more powerful than others. However, at this level, although thinking this way, they could offer their client either a high-dose pesticide or a lower-dose pesticide. They justify this attitude by the fact that all these pesticides would have the same effect or result. This contradiction between the representation of the effectiveness of pesticides and sales and use practices is related to the interpretation of the nuisances and the confidence these users have in these pesticides. It is in this context that resellers offer cotton pesticides (insecticides) to market gardeners. According to them, all cotton insecticides are effective for market gardening practices, as these pesticides would effectively destroy insect pests and have high chemical concentrations. Compared with drugs (Jaffré and Olivier de Sardan, 1999; Craig, 2002; Thoër, 2008; Van der Geest, 2012), the use of pesticides is out of step with the indications on the leaflets. Users buy and use phytosanitary products according to their expectations or expected results.

The social construction of pesticide efficacy with regard to the active ingredient factor is also based on the therapeutic combination criterion. Resellers of pesticides set the prices of different pesticides taking into account the chemical composition of the pesticides (photo N ° 1).

Photo N ° 1: Pricing of pesticides

Source : Adou. A. S., Lupaci /C2D PreSeD-CI 1/ UAO-CRD 2015

These three insecticides are products used in market gardening practices. But, they have different prices. From left to right, these products cost respectively 2000 CFA francs, 1500 CFA francs and 1000 CFA francs per unit. Resellers set product prices based on the number of active ingredients. According to them, when a pesticide contains two categories of active

ingredients, it is very effective. The first product (Eforia) has active ingredient lambdacyhalotrin combined with acetamiprid. The active ingredient of the second product (Viper) is Acetamiprid combined with Indoxacarb. The active ingredient of the third product (Lamdor) is lambdacyhalothrin. Thus, by the variation of the prices according to the dosage, the resellers communicate to their customers a social representation of the differential efficiency of the pesticides. Indeed, among users, the most expensive pesticide, is seen as the product potentially most effective.

4-3- Effectiveness after a pesticide demand test

The effectiveness of a pesticide is perceived by resellers in its audience with users after a test. Resellers perform a test. It consists of buying a new product in a small quantity first, which will be sold to some of their loyal customers. When the recipient users come back and claim for the same product, deduction is then made by the sellers that it is an effective pesticide. Then they will buy the pesticide in large quantities. One of the agents of a branch company, reports the following fact: "When I arrived, I traded with some pesticide resellers. I introduced my products to them. Some people have taken them in order to try because people do not know our products too much. After trying they realize it's good. When, I say they tried, it's not the salesmen who try. It is the customers of the resellers who are trying. Then, they come to tell the dealers that the product you gave me is good or not. This is how resellers tell us (the distributor) to provide them with the products of the last time because the product is good. When he takes these products he can sell easily ", [Mr. Mema, branch agent, interview conducted on 27/10/2015]. This shows that resellers are wary of new products because they do not like buying products that will lead to low profitability. In this context, the purchase of pesticides corresponds to the rational choice resulting from the economic theory developed in sociology by Boudon (2004), consisting of profit maximization (for the manufacturer or producer) or utility (for the consumer). Resellers buy the pesticide from distributors, taking into account users' preferences and expectations, but also by calculating the profit margin they can obtain from the pesticide they consider effective. Users are cautious about purchasing new pesticides. They seek to source (effective) pesticides that can provide them with a good agricultural yield and a good economic return from harvesting. Thus, we note that the choice of pesticides calls on the theory of games, according to which social actors develop strategies taking into account the actions of others in order to make a profit (Penard, 2004; Bourlès, 2016). Users prefer to buy pesticides they are used to buying because they do not have complete control over the effectiveness of the products. This allows them to avoid the purchase of falsified or ineffective pesticides.

4-4-Effectiveness through the names attributed to pesticides

In the circulation of plant protection products, the names of pesticides seem important. There is a social construction of efficiency related to the names of pesticides. Indeed, importers with a view to attract customers to new products, attribute popular names to pesticides. They name them for purpose in order to seize the attention of the customers. They give them names that express the idea of the end of rough and tiring manual work in order to convey the image of products with great efficiency. These names are among others bibana (from dioula dialect means the herbs are finished), bin'fla (in Dioula[2] dialect, translated as the drug of the herbs), fanga (in dioula means, the force), bifaga (in dioula, means the herbs were killed). Importers use the words of a popular language to assign trade names to pesticides.

In addition to the vernacular names used in the sale of pesticides, there are also European expressions. These also extol the effectiveness of pesticides by conveying an idea of power. There are names such as kalache (a product whose efficiency is comparable to that of the Kalashnikov war weapon, of Russian origin, frequently used in Africa during armed crises), ladaba (in reference to the hoe, agricultural instrument) emblematic of Africa which forces the peasant to stay bent for hours to exploit each meter of earth hardened by the sun. This name according to the dealers investigated, to tell the farmer that such pesticides now replace the daba and make it possible to do without it; machete: agricultural and gardening tool with multiple functions. According to commercial actors and market gardeners, this herbicide would play the same role as the machete, because it would destroy weeds; hope: it would be a solution, a relief for the peasant victim of many nuisances; catapult: a war machine used during antiquity and the Middle Ages to launch projectiles at great distances. During her passage in the opposite camp, it causes many losses. According to the respondents, this type of pesticide would kill insects in large quantities once it has been applied to a given geographical area. During the purchases, the users imagine the effectiveness of the products through these trade names (photo N ° 2) which are culturally close to them. This cultural proximity can be analyzed on two levels. First, that of the pesticide manufacturers' use of names related to the working tools used in the daily life of the farmer (daba, machete, etc.). The allusion made to these materials, which moreover are linked to the everyday life of the users, allows a quick understanding of their usefulness by those one, contributes to the generation by the users, of representations relating to their efficiency and thus participates in the social construction of the effectiveness of pesticides. Then there is the language used, especially the dioula. This is a sidewalk language, used in commercial transactions in almost all Bouaké markets. The pesticide traders themselves are usually ethnically based people for whom Dioula is a privileged dialect in conversation. This is explained here by a reseller met on our study site:

"Distributors give the trade names according to the commercial zones. As they know that the Dioula language is the most spoken by the actors, they attribute for this purpose

[2] Dioula is the commercial language of the sub-region: language most spoken by pesticide dealers and their customers

dioula ethnic connotations to products to facilitate us to sell. When you give a product as "bifaga" to a dioula trader, he can easily convince his customer ", [Sofa, a reseller semi wholesaler, interview conducted on 11/08/15].

"The name matters a lot. This is very important, if you want to give a name to an article. First, the name should be legible, the name should be pronounceable, and it should also be descriptive. Now the name is given so that it can quickly mark the conscience, impact psychologically by giving a mark of strength of the product, to mark the attention in the zone, it is to sell more. For example we know that in the north of the country the most spoken language is Dioula, we have products called Tassouma, Bifaga and Bibana. Tassouma is fire, Bibana means that the herbs are finished and Bifaga means that the grass has been killed. So in a nutshell these are pronunciations (names) that are given to the products that push to make the choice, the name is the element that will allow the customer to be interested in the product ", [Mr. Maël, semi-wholesaler reseller, interview conducted on 19/10/15].

"People give names with which customer can become familiar, because they know that most people who are in the agricultural field are illiterate. So when you give the names to something with ethnic resonance that is to say in vernacular languages, the customers know what we want to talk about. When you give the name bifaga to a product, even if you do not understand dioula, you still know that bi means grass and that fanga means kill. When you give a name like that, it is to be able to sell easily on the market. It is a marketing system that brings out the power of the product ", [Mr. Radul, reseller semi-wholesaler, interview realized 19/10/15]

Photo N ° 2: Names reflecting the effectiveness of pesticides

Source: Adou. A. S., Lupaci / C2D PreSeD-CI 1 / UAO-CRD 2015

The vernacular names of pesticides are written on different packaging materials (plastic, bottle ...)

4-5-efficiency perceived in illegal uses of pesticides

In Côte d'Ivoire, pesticide regulation is provided by the pesticides committee. This committee is interdepartmental. It is composed of eleven members namely: the Ministry of Agriculture, the Ministry of the Environment, the Ministry of Commerce, the Ministry of Higher Education and Scientific Research, the Ministry of Water and Forests, the Ministry of Justice and Human Rights, the Ministry of Foreign Affairs, the Ministry of Industry, the Ministry of Health and Public Hygiene, the Ministry of the Interior, the Ministry of Animal fishery resources. The Pesticides Committee urges traders to sell approved pesticides. Similarly, it recommends users to use pesticides adapted to their agricultural activity. In Bouaké, the role of the pesticides committee is ensured by the regional directorates of trade and agriculture. These, to ensure the health of the population, make controls often resulting in the withdrawal of certain pesticides from the market. Faced with these withdrawals of pesticides, our various observations made in the stores show that there is clandestine sale of unapproved pesticides. Some of these pesticides do not comply with Ivorian legislation and others' uses are otherwise inappropriate for different crops. Among these pesticides are weed killers (herbicides) containing Atrazine as an active ingredient. The most commonly used illicit insecticides are Tihan, Caiman and Cotalmp all having various doses. They have respectively as active ingredient Flubendiamide, Emamectin and Spirotetramate. These various active ingredients are intended for the cultivation of cotton and are toxic or deadly in case of inappropriate use. These pesticides are hidden and sold by resellers, at the request of users who perceive them to be very effective. The market gardeners especially, in search of beautiful vegetables to satisfy the customers, consider that the prohibited pesticides for the treatments of vegetable crops are very effective. In both the market and market garden sites, we found that market gardeners buy cotton pesticides to use in their market gardening activities. The following comments from people surveyed, show the preference of illicit products among users.

"Some customers agree to take approved products instead of prohibited products. Others also do not accept approved products ", [M. Sofa, reseller semi-wholesaler interview conducted on 10/08/2015].

"You cannot do this kind of work, that is to say, market gardening without using the poisons (pesticides) of cotton. To have a good quality of vegetables then to gain a little benefit in it, it is necessary to use the pesticides of cotton ", [M. Badra, market gardener, interview conducted on 10/26/2015].

According to the respondents, the use of cotton pesticides is good to fight effectively against insect pests, with a view to ensuring the good health and quality of market garden products (impeccable appearance). The destruction of mites and caterpillars of the apple cabbage would necessarily require the use of cotton pesticides (see photo N ° 3). Because these insects would damage a large mass of market gardening products within few time.

Photo N ° 3: Cotton pesticides used in market gardening

Source: Adou. A. S., Lupaci / C2D PreSeD-CI 1 / UAO-CRD 2015

An exploration of some market gardening sites of the city of Bouaké, allowed us to note that some actually use cotton pesticides. From the left to the right, the first image shows a cotton pesticide (Caiman B 19EC, active ingredient: Emamectin benzoate 19 g / l) that was purchased by Mr. Badra (market gardener). The second photo image also indicates a cotton pesticide (Cotalmp 318Ec active ingredient: Lambdacyalotrin 300 g / l + profenofos 18g / l) found on the market gardening site of Mr. Adima. The social actors surveyed believe that the purchase of cotton pesticides for the market gardening activity are good to fight against pests effectively, to grow the plants quickly and to ensure an accelerated production with beautiful aspects. The inappropriate use of pesticides is, as it is the case for drugs, in a tendency to trivialize the chemical risks (Thoër et al, 2008) and leaves an opening to the transgression of the norms of use which aims at legitimating a reconversion of the use of pesticides.

4-6-Spraying method, pesticide effects and speed of action as criteria for effectiveness

For some actors, the ease of use of a product is a criterion of effectiveness. Mr. Bardrey, a marketer tells us this:

"The effectiveness of the products also depends on how they are used. There are products that necessarily require spreading without preparation and are more effective than those requiring prior preparation. In terms of treatment the granular pesticide does not need to be mixed with other products to be effective. When you spray it quickly kills the critters and snails that come to destroy the plants. We do not wait for the result two or three days after, as for the pesticide in liquid. As soon as you put it, it kills the insects that are present by starting with the glasses of earth ", [interview realized, the 24/10/2015]

Similarly, depending on the frequency of use of the products, the customers can represent the effectiveness of the pesticides. Indeed, according to some customers when they repeatedly spray the same product in a well-defined time period on the same space, it means that the product is inefficient.

"The spraying of the products shows the effectiveness of the products. Indeed, the duration of time makes it possible to observe the evolution of the treated plants. When the applicator (the user) sprays a product successively, in the same week it means that the product is not effective "says Mr. Adima, market gardener, [interview conducted on 12/10/2015].

Badra the market gardener, goes on speaking about insecticides or fungicides in these terms:

"It's based on the reaction of the product that we know a product is effective. If you have sprayed for a week and the vegetable leaves have returned to their original form, you can say that this product is effective. Perhaps when it repels insects "[interview conducted on 24/10/2015].

"We are looking at the sprayed plants, if the treatment is to be successful in ten days. So you will already see the effect of the pesticide, "added M Bardrey, market gardener, [interview conducted on 10/27/2015].

Users expect rapid action from the pesticide. They set a number of days after which the results they expect should emerge. If this is not the case and they are then led to use the pesticide more, they conclude that it is inefficient. These comments allow us to say that the effectiveness of the products is measured according to the function of speed of action of the pesticides with regard to the expected results. Therefore, when herbicides destroy or dry weeds quickly in less than three to four days, they are said to be effective.

The effects sought by the users, which emerge from the speeches of the respondents, show that the effectiveness of pesticides refers to a process of symbolization. Indeed, the healing process of the plant is seen through its evolution following the use of pesticides). This healing is characterized by the change of color from yellow to green, the embellishment of the leaves, the disappearance of insects and black spots on the leaves. It is in this case of symbolic efficiency in connection with the expected results, that users perceive the effectiveness of pesticides in increasing their production. When they use a product and their plants grow and produce better, the customers conclude that the pesticide is effective. When these symbols occur, given the improvement in plant health and productivity after use of the pesticide, the user then makes the decision to direct his therapeutic actions of the pesticides as it is the case with the treatments of human diseases (Saliba, 1997). He uses this type of pesticide when the same plant disease is represented to him, while respecting the modes he used to obtain the previous satisfactory result.

5- Discussion

Efficiency is at the heart of all human activities permitting to evaluate the expected result or the purpose of a work. It is the ability to obtain maximum results from a small effort (Merle 1998, Sévigny 1999). Pesticide efficiency or effectiveness related to expected results, testing of pesticide demand, mode and duration of spraying, and pesticide names will be

discussed with other previous efficacy research.

First, as part of the fight against vector-borne diseases in this case malaria, the study conducted by Doudou et al. (2012), shows that the surveyed population evaluates the effectiveness of nets by referring to the smell or scent of the mosquito net (the insecticide). For this surveyed population, the disappearance of the odor is a criterion of inefficiency of the mosquito net because the mosquito net no longer succeeds in killing mosquitoes, other insects and critters (flies, salamanders, etc.) or failing to drive mosquitoes out of the room. Then, the fact that insects come to rest on it or manage to enter without being destroyed, is a criterion of inefficiency of nets. In the mind of populations, mosquito nets had to destroy all insects. This way of assessing the effectiveness of nets is identical to that of pesticides. Indeed, for some users, an effective pesticide must repel insects or kill them. In this case, the analysis of this effectiveness of pesticides is summarized in the results expected by the actors. In this context, the effectiveness of pesticides refers to that of Benoist (2008). For this author "to be effective is to obtain a result consistent with an intention". As part of therapeutic treatments, a drug is effective when patients relieve or recover after use (Desclaux and Lévy, 2003). The use of the laxative is not outside this criterion of effectiveness. Normally in pharmacy, a laxative is a purgative substance used to evacuate feces from the intestine. But Ghanaian girls (Van der Geest and Whyte, 2003) use laxative-based medicines to prevent or interrupt pregnancy. In other words, young Ghanaian women use this substance as a contraceptive to satisfy their needs. This shows that the effectiveness of the laxative is beyond its scientific character in the context of the satisfaction of the need.

The effectiveness of pesticides is also measured by the product's audience. Commercial actors evaluate the effectiveness of pesticides through the enthusiasm generated by its purchase. In Bouaké, a pesticide is said to be effective when it is solicited by users and dealers in the market. This way of evaluating pesticides is similar to buying drugs. Individuals qualify a drug as effective when purchased by all social categories. The study by Yoro (2016), shows that in Abidjan, sellers conclude that sidewalk drugs are effective, because in addition to the population, professional medical actors also use them. Similarly, the traditional practitioners of Abidjan evaluate an effective local (traditional) medicine when, both inside and outside the country, the population show great interest in it (Yoro et al., 2016). This indicates that the effectiveness of drugs is related to the health they provide to individuals (Desclaux and Lévy, 2003).

The mode and duration of pesticide spraying refers to symbolic efficiency. The symbolization consists in attributing socially recognized signs by the users as a state of improvement of the plant, which is characterized by the increase of this one, the change of the color of the foliage (from yellow to green) and the increase in production. But also, this symbolization is characterized by the appearance that takes the plant following the use of a weed killer. Sévigny (1999), through his study of homeopaths, shows that symbolic efficiency consists in reaching the goal thanks to the symbols sought on patients. Indeed, these symbols allow homeopaths to know the evolution of the disease or the health status of the patient. According to the users, in our study, a pesticide is effective when it acts quickly on the plants by making their foliage greener or by eliminating the insects after its use. In this case, it is about insecticides, fungicides including nemanticides that fight against insects and rotting vegetables. Similarly, when total herbicides such as bibana, fanga, ladaba, binfla, etc., destroy or dry weeds quickly in less than three to four days, then they are said to be effective. In fact, after the use of pesticides, signs or symbols, such as the destruction of nuisances, the color change of the plant "from yellow to green", the beautification of the leaves, the disappearance of insects and black spots on leaves, permit to attribute meaning to the disease or the healing process of the plant.

Efficiency also has a psychological component. Levis Strauss (1949) demonstrates this psychological effectiveness through rituals sung during difficult childbirth. When midwives fail, a shaman is used to save the life of the woman and her baby through rituals. These songs not only allow the shaman to help midwives to do their job but also help the woman in labor so that childbirth is easy. They would psychologically impact the woman in labor. In the context of pesticides, psychological effectiveness is reflected in the names of the products. In other words, pesticide users build a representation of the effectiveness of pesticides from trade names with local or European connotations. For pesticides named kalache and catapult, customers are alluding the number of people that these weapons of war can kill in a fraction of minute. Users believe that these pesticides will massively destroy grasses or kill insects when they use them. As for the names bibana, bin'fla, bifaga and fanga, all weedkillers, they symbolize psychologically the rapid and total destruction of the herbs. This representation of the effectiveness of pesticides can be likened to the social construction of vernacular names of street drugs or sidewalk pharmacies. According to Yoro (2016), the anti-inflammatories sold in the pharmacy-sidewalks of Abidjan (Ivory Coast) are designated under various names such as "San Pêrê", "Mossokôrôni ka balon tan" or "brébala". According to this author, these terms come from the Malinke language and translate into the idea that healing is instantaneous. Similarly, Palé and Ladner (2006) show through their study conducted in Nouna (Burkina Faso) that a vitamin product and dexomethasone sold on the informal market are respectively called in Dioula[3] "dafurgu bani" and "cèkoroba yi ballon tan". ". According to these researchers "dafurgu bani" means big cheeks; women use this medication to increase their weight. As for the term "cekoroba yi tan balloon" it means the old played ball. This medicine would dispel fatigue and give energy. Bila (2011), says through research in Ouagadougou, that the drug vegera (pharmaceutical name) is called viagra by the population,

[3] Dioula: the most spoken commercial language of the West African subregion

because of its capacity for sexual stimulation. Through this study, the condom "ultra pleasure" used by men is called "vibrator" by the population given its capacity for sexual stimulation. Pesticide efficacy is socially constructed in the users' native languages, which they understand or control. In this context, the psychological effectiveness of pesticides is the idea that users make from the meanings of the names attributed to pesticides.

Conclusion

The analysis of the social constructs of the effectiveness of pesticides, shows that the different actors act by associating in their actions, the social representations of pesticides, analyze the benefits and interpret the discourses in circulation, with a view to selling, buying or use effective pesticides.

From one group of actors to another and within the same group, the actors evaluate the effectiveness of pesticides differently. This assessment is often in line with the system of representation, personal experience and training of the actors. The sale, purchase, and use of a pesticide are related to the effectiveness of the pesticide perceived. This effectiveness is seen beyond the biochemical character of the latter, in a dynamic of representation, belief and the experience of the actor. Distributors who have generally followed agronomic studies, analyze not only the effectiveness of pesticides based on the active principle, but also take into account the preferences and criteria of effectiveness of the actors in the manufacture of pesticides. Resellers examine the effectiveness of plant protection products based on the profitability or demand of pesticides and the volume of concentration of active ingredients. This last criterion emanates from the marketing trainings dispensed by distributors during their activity. As for farmers, they evaluate the effectiveness of pesticides taking into account their vernacular names and the expected result after using the product.

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