MODULE 1:
PRELIMINARY PARTICIPATORY DIAGNOSTICS

EDUCATIONAL OBJECTIVE:

Be able to carry out participatory village diagnostics in order to identify the main problems leading to the use of pesticides, their management and the agroecological alternatives already known to farmers.

Educational advice
These diagnostics can be performed by literate farmers using the survey frameworks developed with technicians. As carried out in Kita in 2017 in partnership with UR-CUMA of Kita, teams of 2 or 3 literate farmers can take charge of the 3 issues below. We suggest that women participate in these surveys, or even take charge of some of them as experience shows that they are often more aware than men of the impacts pesticides have on human health. Appendix 2 provides village survey guides on pesticides and alternatives.

TOPIC 1:

In the villages, identify where the persons undergoing training come from, the main problems encountered with "weeds" management and the main pests and diseases impacting crops and animals.

The task is to know the problems associated with crop and livestock farming systems that can explain the use of pesticides and veterinary products.

TOPIC 2:

Be aware of the use of synthetic pesticides and veterinary products in the villages and identify the places of purchase and sources of advice:

1. Main crops being treated with pesticides in the village with, for each crop, the name of the main products used and their target organism, the relative importance of the treated areas and the application periods of these products.

2. Veterinary products used for animals including – sorted by species type – the name of the products used, the purpose of the treatment and frequency.

3. Place of purchase and price of the main products used. Attention: insecticides, herbicides, fungicides, veterinary products ... can be purchased in different locations.

4 Names of "illicit" pesticides purchased on the market, including those that are not registered in the country and, in particular, those whose labels are not in an official language of the country and therefore cannot be read by farmers or even by technicians.

5 Identification of persons and organizations providing advice on the use of these different pesticides and veterinary products. Identify which of these persons give advice which can be considered objective (or "neutral") because it is not linked to a sales context.

TOPIC 3:

Identify the pesticide application methods, the nature of protection used, packaging management, incidents involving people and animals and their frequency.

1 Collection of information on **application methods** for herbicides, insecticides, etc. (type of equipment and types of nozzle used for insecticides, herbicides, etc.) as well as on the usual practices concerning treatment conditions: time of day, taking into account or not the temperature, wind, dew, probability of rain, etc.

2 **Types of protective equipment used:** boots, gloves, masks, overalls, etc.; how often each type of protection is used; steps taken between multiple treatments: is protective equipment cleaned? If yes, how? Or is new equipment used? Factors restricting their use (economical, accessibility-related, technical and physiological, sociological, etc.)

3 **How is the packaging** (container and bags) **of the pesticides managed?** How aware are those involved of the risks associated with such packaging? What are the storage locations for packaging that still contains pesticides or for empty packaging? Proportion stored in closed locations which are not accessible to children? Proportion of packaging buried or burned? Reuse of containers and nature of their reuse (in connection with food, other)? What alternatives have been implemented in the villages to prevent reuse? Are there any efforts to collect this packaging? By whom? Possible involvement of vendors and distributors in their collection? (Appendix 3 provides some answers to these questions based on surveys in villages in Kita Cercle Mali).

4 **Nature, cause and frequency of incidents involving people** (including any suicides) following the use of pesticides in the participants' villages over the past 10 years? How are these incidents handled and how is care administered (traditional methods or those implemented in health centers)?

5 Have certain pesticide application practices led to animal mortality (as noted in several villages in Kita Cercle, incidents can occur when animals enter plots that have just been treated with certain pesticides)?

The following box summarizes the findings of AVSF teams in northern Togo and the next one mentions human incidents that occurred in four villages in Kita Cercle Mali.

Summary of findings in 2014 in Northern Togo (Savannah Region)
Excerpts from the report of an AVSF-UROPC-S training session

1. Numerous active ingredients used in the Savannah Region are, due to their high toxicity, prohibited in the EU and many other countries in the world. A significant portion of these active ingredients are old compounds that are no longer protected by patents and whose prices are very low on the African markets (cf. glyphosate, paraquat, atrazine, diuron, alachlor, lambda-cyhalothrin, ...). These low prices explain the increase in their use. Some of the products containing highly toxic active ingredients come from China or India. However, they are no longer allowed in Togo, but nonetheless enter illegally through borders that are too porous (see border with Ghana). These "illegal" products are often sold in plain sight and the authorities fail to enforce their own legislation.

2. The majority of farmers in the Savannah Region are illiterate and cannot read the labels on pesticide containers. It was documented in the surveys that some of those surveyed confused insecticides and herbicides! The problem is compounded when the labels of these products are in English and not readable by most technicians.

3. Pesticides are often stored in the farmers' homes; only a small number of farmers store them in closed rooms that are not accessible to children.

4. With a few exceptions, there is no protection for the people performing the treatments; they often walk through the treated vegetation in shorts and flip-flops. However, the skin is the main route through which pesticides enter the body!

5. The spraying of "cotton" insecticides on food crops associated with cotton is sometimes observed, even though these "cotton" insecticides are most often not authorized for use on food crops, particularly organophosphates (given the strong land pressure, the husband's cotton is rarely grown on its own; his wives often plant cowpeas, Guinea sorrel, okra, sesame, etc.). A portion of the biomass of these food crops is directly used in food or sold on markets without taking into account chemical treatments (e.g. sorrel leaves and flowers, cowpea leaves and pods), ...).

6. The use of pesticide containers by humans for watering is observed although it is very difficult to eliminate the active materials that have impregnated the plastics. Unlike the majority of EU countries, no recycling of packaging has been organized to date in Togo.

7. On the markets, one also encounters the sale of very dangerous pesticides in stores which also sell food products.

Some pesticide-related accidents noted during surveys conducted by an AVSF team in 4 villages in Kita Cercle in 2017

1) In the village of Kéniéroba, a woman ate the fruits of a shea tree in a field treated with the insecticide Tenor 500 EC (Profenofos). The woman died following consumption.

2) In the village of Noumouténé, 6 children consumed shea fruits from a field treated with the herbicide known as Béret rouge (glycel - glyphosate 41% S.L). The children were hospitalized and the families spent more than 80,000 CFA francs to treat them.

3) In the same village of Noumouténé, a farmer mixed the insecticide TENOR 500 EC (Profenofos) in earthenware to coat his granary. He died the next day.

4) After treating a field with the insecticide CALIFE 500 EC (Profenofos), a farmer went to work in the field the next day without waiting for rainfall. He fainted in the field but fortunately did not die.

5) In the village of Kodala, an elderly woman used NOMOLT 150 SC (Teflubenzuron) insecticide to try to kill lice that were on her children's heads. This had a severe effect on the 8 children and the mother, but no one died. NB: Teflubenzuron is no longer registered in France and in the EU [16].

6) One farmer failed to take into account the wind direction during an insecticide treatment of cotton with the product ATTAKAN (imidacloprid 200 g/l + cypermethrin 144 g/l). Local treatment with dah leaves (Guinea sorrel), lemon and curd saved him.

TOPIC 4:

Identify agro-ecological, chemical-free alternatives implemented by people from the villages for the care of their crops and animals, collect opinions on their relevance and the limits on widespread use. To a greater degree, take advantage of local knowledge to devise new approaches based on solutions existing in nature.

1- **Listing by crop of the main pests** (with their vernacular names) and **alternative chemical-free practices** identified in the village.

2- **Concrete examples of the implementation of alternative practices to pesticides** in the village with a description of the time needed to collect the ingredients, the preparation time, the application methods and their frequency. This census is very important: a form that can be used for surveys among farmers is attached 4.

3- **Listing of traditional animal care practices,** including a description of the plants used, recipes for their preparation, intended uses (for which diseases and which animals?), and if possible feedback on the effectiveness of these uses. This listing presupposes a thorough survey of several livestock farmers in the area concerned, and even of traditional practitioners if they exist: an example of a survey form used in the context of a veterinary thesis is given in Appendix 5.

4- **Users' opinions on the effectiveness of each alternative method identified.**

5- **Collection of constraints reducing the dissemination of alternative** methods recognized as the most effective.

Appendix 6 presents a table summarizing the documents produced as a result of this type of study within the framework of actions carried out by AVSF and/or its partners. Other studies and bibliographical references may be available depending on the country, as practices are by definition very much linked to the specific territory in which one is located.
The box below lists the main farming practices identified in north Togo. This is a basic list: the effectiveness of these practices has not been validated.

Alternative farmer practices identified by AVSF teams in 2014 in northern Togo.

These are mainly plant-based repellents **and bio-pesticides** available in the Savannah region. Some of these plants do not pose any toxicity problems for humans.

Animal products such as cow dung and urine are also used. Mixed with plants, dung-based preparations can be used as bio-stimulants or foliar fertilizers or as repellents.

On the other hand, other preparations contain active ingredients with a fairly high toxicity for humans, such as neem or tobacco.

1. Use of chili pepper (Capsicum frutescens) based sprays to control slug attacks on young plants produced in nurseries (vegetable or forest nurseries).

2. Spraying of decoction of **tobacco** leaves and stems to keep away small ruminants that feed on young fruit and forest plants.

3. Spraying of dung-based **slurry** on the leaves of forage plants (and young forage shrubs) to prevent ruminants from feeding on these plants.

4.Sprinkling of **ordinary ash** on young Guinea sorrel plants to control insects.

5. Soaking of **African locust bean** and **African mahogany** barks and use of the filtrates on poultry to control newcastle disease.

6. Use of **Sapium elliptium** (in moba: “Koudaltug”) or Anogeissus leiocarpus leaves to control lice and insects in chicken coops.

7. Planting of **greasy vetiver** in the fields to attract termites which disturb the crops.

8. Soaking of **néré pods (Parkia biglobosa) + onion + omo washing powder** (wetting agent) to control tomato insects.

9. Preparation for controlling insects attacking cabbage: a bowl of neem seeds in a 10-liter bucket of water + **cow dung**; let the mixture soak for 3 days. The mixture should be stirred at least once a day. Then filter and spray it.

10. Use of **neem seed soaked preparation + chili + omo washing powder** to protect onions for various insects.

11. Use of a mixture of **eucalyptus, neem and**

[16] Source: https://ephy.anses.fr/node/1280/deconnecte

caulcedra leaf ash for insects attacking stored goods (ordinary ash can also be used but it would be less effective).

12. To control **storage insects**, use ultra fine sand mixed with seeds in a sealed container (ultra fine sand reduces the amount of air available and prevents insects from moving). A suitable sieve is then used to separate the seeds from the sand.

13. To also reduce insect **attacks**, use of **Hyptis spicigera leaves** (in Moba: Djouguelangbiang) placed on the floor of the granaries.

NOTES