International COCOA Initiative

Children's exposure to pesticides in cocoa-growing households in Ghana

Findings from ICI field research

Revised following comments received at stakeholder workshop on 18 Feb 2025

Context

The use of agrochemical products on smallholder cocoa farms in West Africa has increased significantly over the last decade.

As a result, children's exposure to pesticides has become a key concern in the sector. According to the NORC survey (2020), the proportion of children exposed to agrochemicals in cocoa-growing areas of Ghana and Côte d'Ivoire increased sharply, from 5% in 2008/09 to 24% in 2018/19.

Children are particularly vulnerable to pesticide exposure due to key differences in physiology and behaviour. Exposure to even small doses of pesticides can result in serious short-term and long-term health issues, such as damage to physical and cognitive development, and an increased risk of cancer.

In response to these concerns, the International Cocoa Initiative (ICI) has launched a work stream, with support from The Hershey Company, aimed at developing new approaches to better protect children from exposure to pesticides.

In the first phase in 2023, ICI conducted a field survey in cocoa-farming communities to better understand the context of pesticide use and children’s involvement and exposure.

Research objectives

- Better understand how pesticides are used in cocoa-growing communities in Ghana.
- Assess current knowledge and awareness of the risks pesticides pose to children, and common practices amongst stakeholders in cocoa communities.
- Identify challenges and opportunities for better protect children from pesticide-related hazards.

Method and sample

Structured interviews with four respondent groups:

1. Cocoa farming households (farmers, caregivers, children),
2. Spraying gangs,
3. Extension officers
4. Pesticides retailers

6 cocoa districts in Ahafo, Ashanti, Eastern Region, Western North Region

Data collected by ICI in 2023

Characteristics of households interviewed

334 households

Interviews with one farmer, one caregiver and one child aged 10-17 in each household

69% coop members

39% of farmers were women

51% of farmers had completed Junior High School (or higher)

53% covered by a CLMRS

76% of caregivers were women

47% of caregivers had completed Junior High School (or higher)

Children were 13 years old on average

48% of children interviewed were girls

Characteristics of other respondent groups:

Spraying gangs

36 members

All male, 46 years old on average

Education level:
6 finished high school
18 were illiterate by self-assessment

70% are COCOBOD spraying gangs

Extension Officers

16 Extension Officers

Education level :
14 hold a tertiary education degree

12 COCOBOD
4 private company trainers

Pesticide retailers

34 pesticides retailers

4 female
30 male

Education level:
16 finished high school

21 private shops
5 travelling salespersons
8 agro-leaders

Key findings

Access to training on pesticides

Most farmers had received training on pesticide use

36% participated in training in the last 3 months

88% said the training covered risks for children

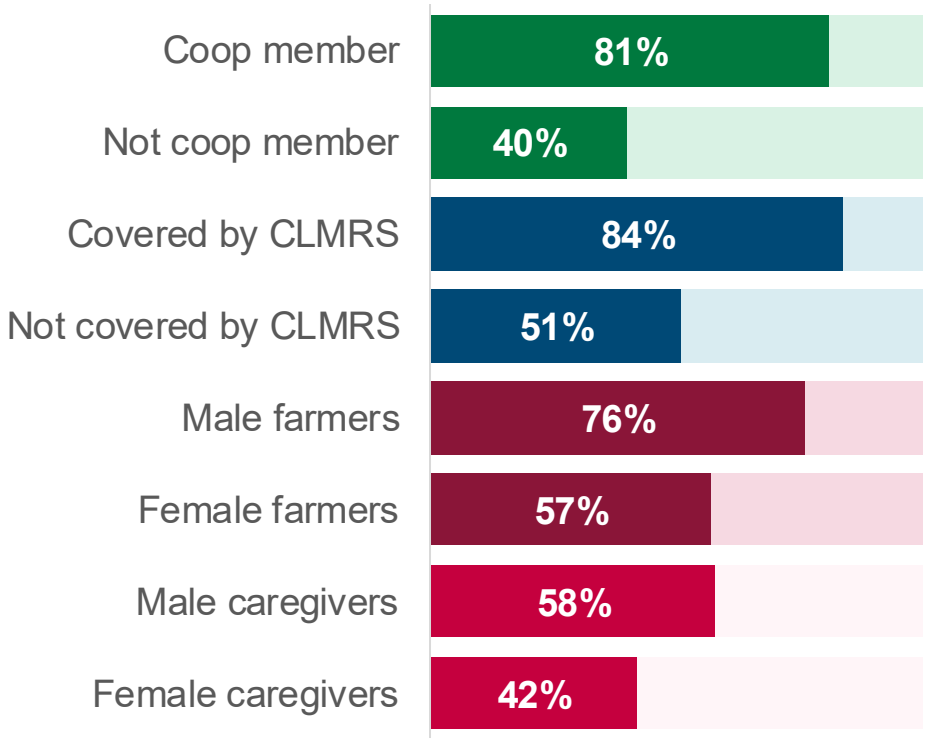
Who provided the training?

- Private company (40%)
- Cooperative (40%)
- COCOBOD (35%)

Access to training on pesticides is higher amongst **coop members** and households covered by **CLMRS**.

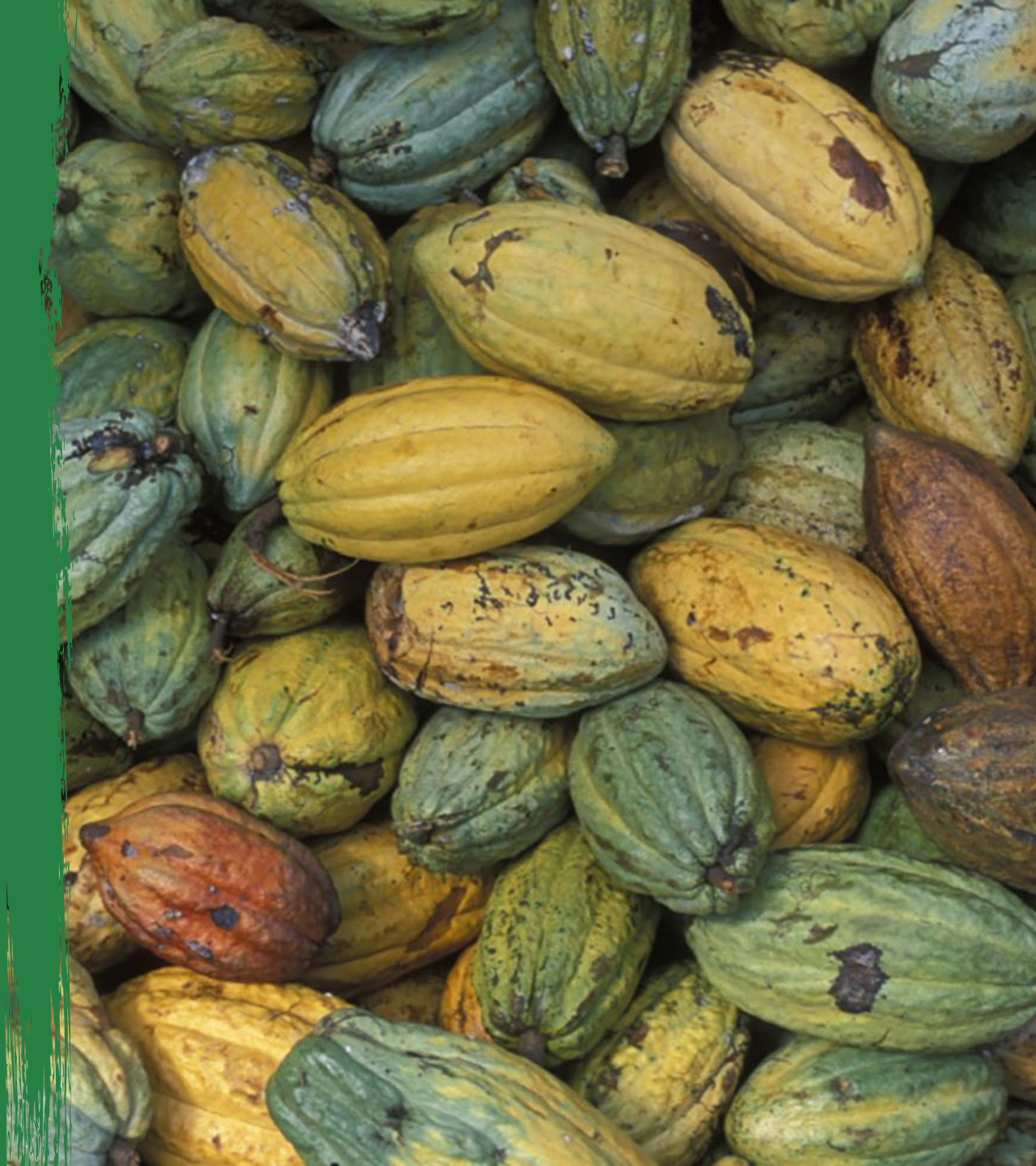
Women are significantly less likely to have participated in training than men.

Within these groups of respondents, % who participated in training on pesticides



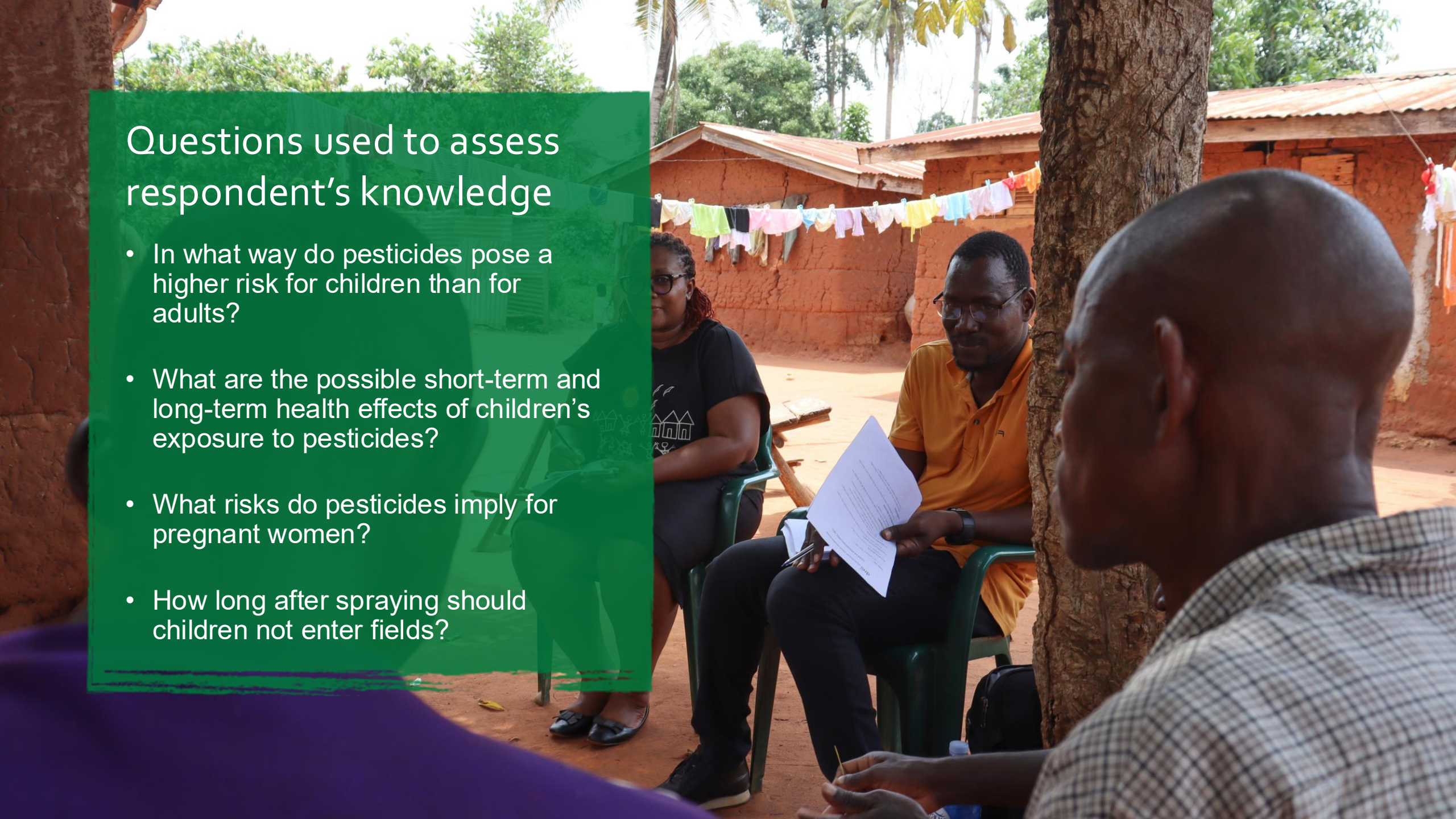
Key findings

Knowledge of pesticide risks: Farmers and caregivers



Questions used to assess respondent's knowledge

- In what way do pesticides pose a higher risk for children than for adults?
- What are the possible short-term and long-term health effects of children's exposure to pesticides?
- What risks do pesticides imply for pregnant women?
- How long after spraying should children not enter fields?

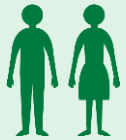


Who is more aware of the risks of pesticides?

Knowledge is slightly higher amongst farmers and caregivers who are **covered by a CLMRS** (not statist. sign.)

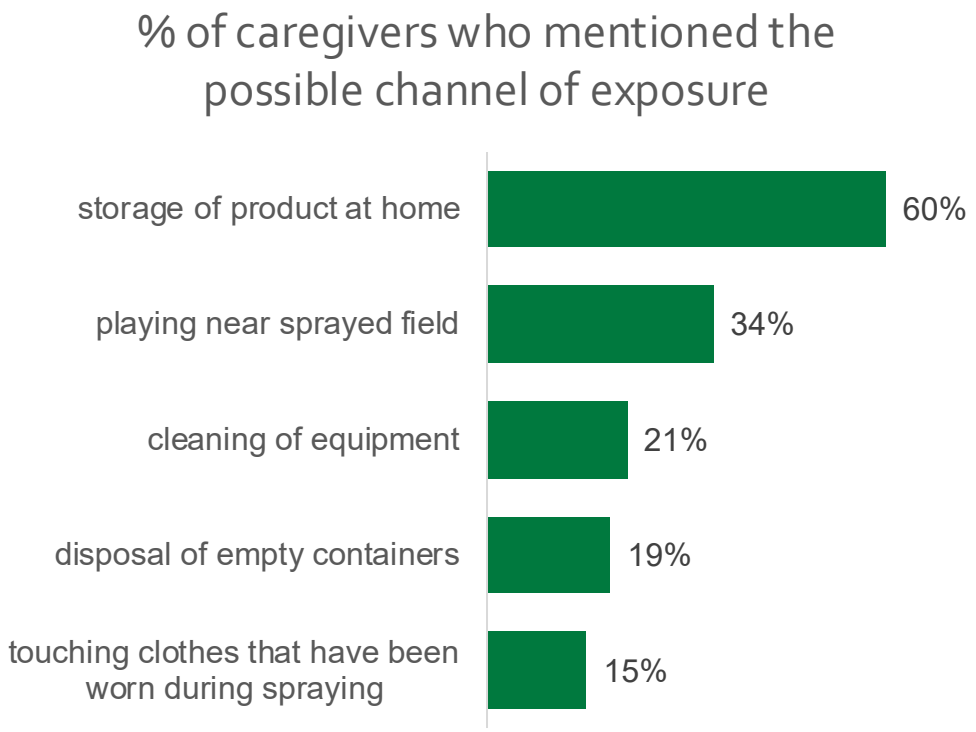
Knowledge is slightly higher amongst farmers and caregivers who have **participated in training**

The level of knowledge is **independent of coop membership**



Men generally have slightly higher knowledge levels than women, except regarding the risks of pesticide exposure to unborn children during pregnancy

Farmers and caregivers seem to draw information from sources *other* than training and awareness-raising



The level of awareness of the different channels of exposure varies considerably

Key findings

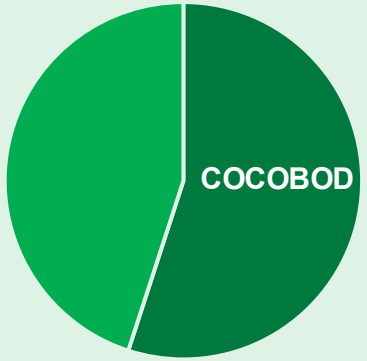
Knowledge of pesticide risks: Spraying gangs

Spraying gangs participation in training on pesticide risks

Participated in training?

86% of spraying gang members had **participated** in a training on pesticides

Who delivered the training?

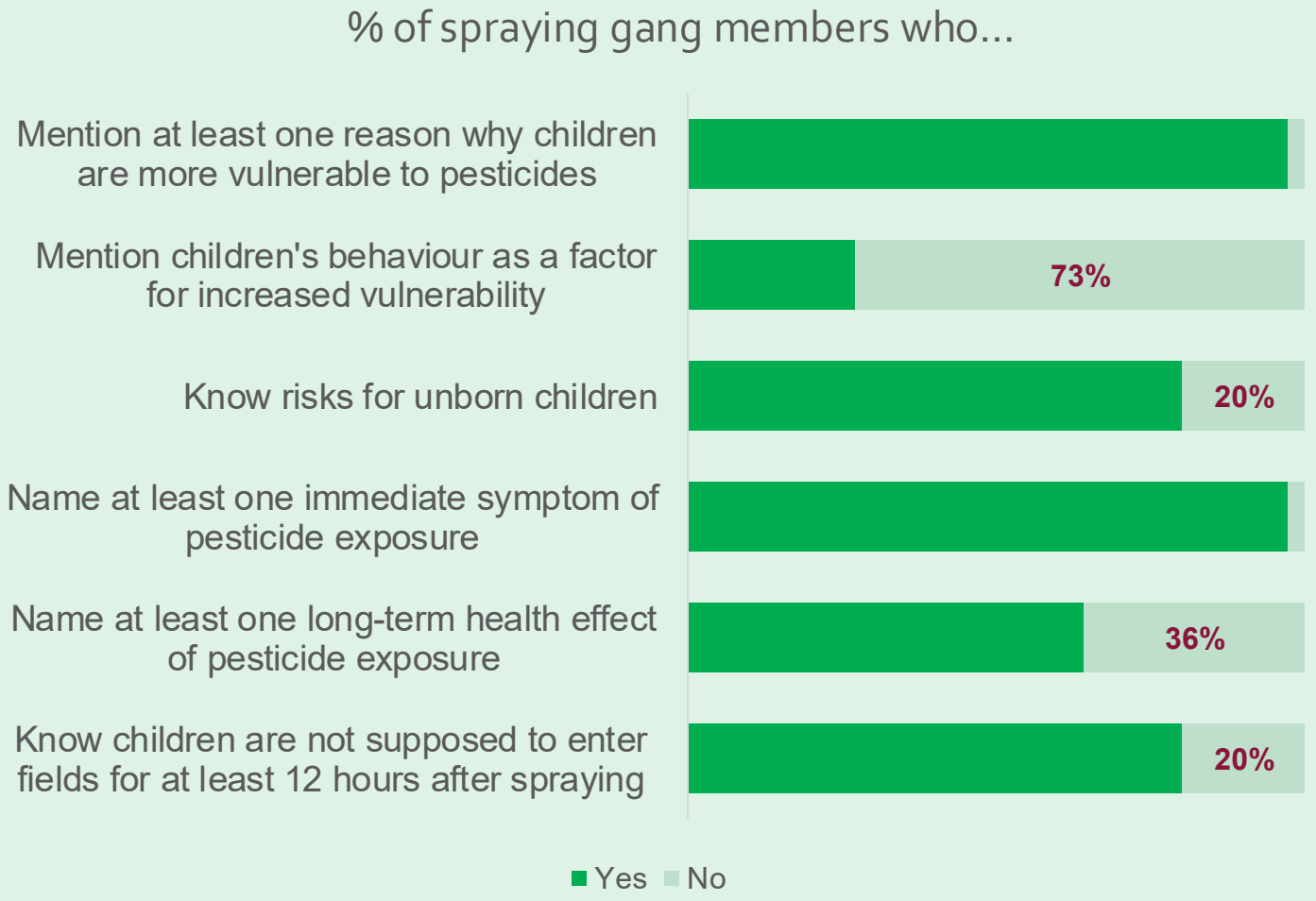


More than half of the trainings were provided by **COCOBOD**, the others by private companies

Did the training cover pesticide risk for children?

Around 50% of spraying gang members who participated in training state that the **training covered risks pesticides pose for children**

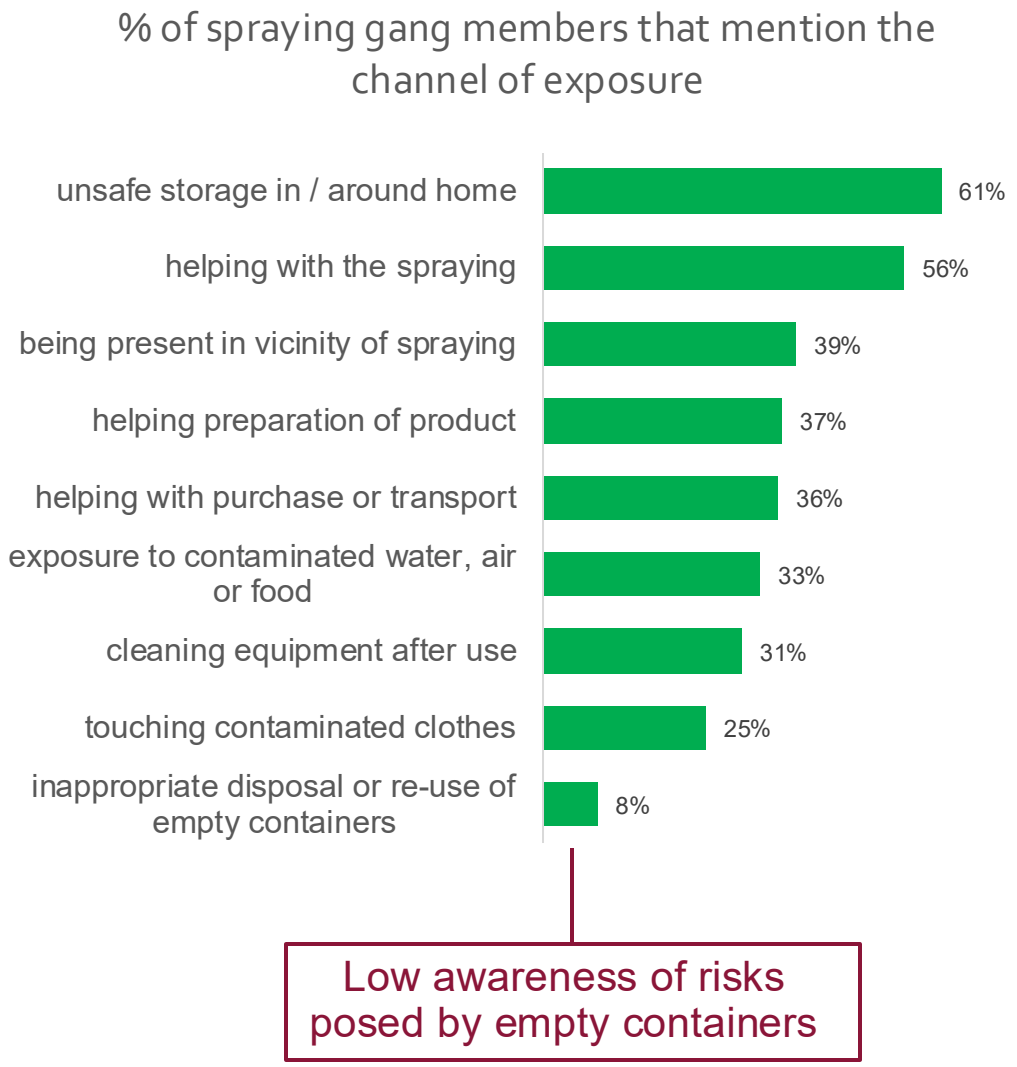
What are the levels of knowledge about children's vulnerability to pesticides?



Long-term risks are less well understood compared to short-term risks

Certain risks for children tend to be neglected.

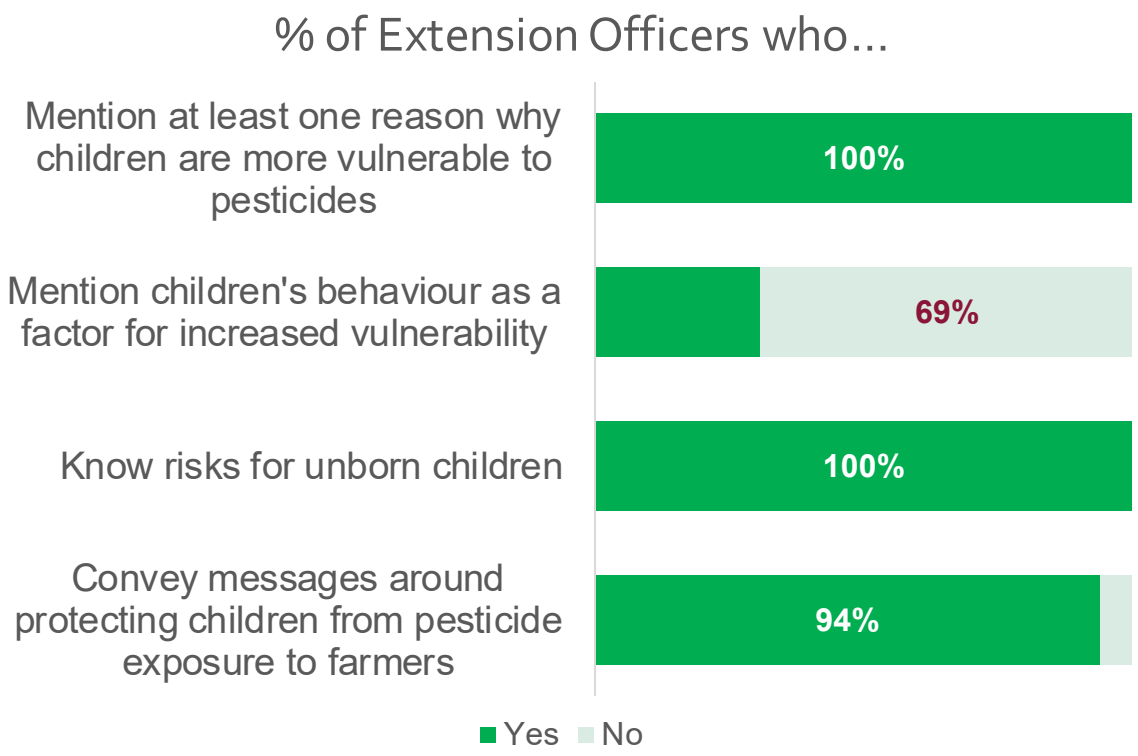
When asked to name channels through which children are exposed to pesticides, spraying gang members are aware of some, but tend to neglect the post-spraying risks.



Key findings

Knowledge of pesticide risks: Extension Officers

What are the levels of knowledge about children's vulnerability to pesticides?



- ✓ More than 80% (13 / 16) of Extension Officers have received some kind of training on risks from children's exposure to pesticides.
- ✓ On average, they have a solid level of knowledge on children's vulnerability.
- ✓ 15 out of 16 Extension Officers state that they convey messages about protecting children from pesticide exposure to farmers.

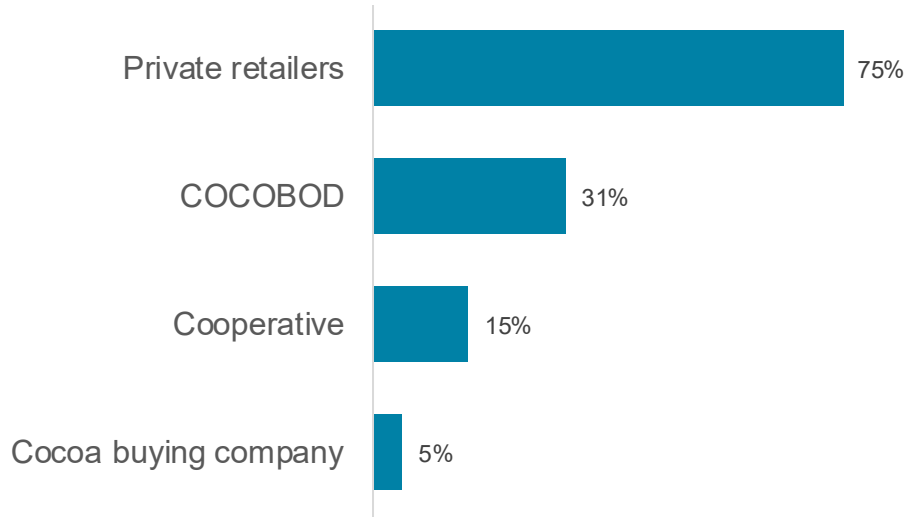
Key findings

Pesticide use

Procuring pesticides

99% of farmers interviewed use pesticides

Where do farmers get their pesticides?

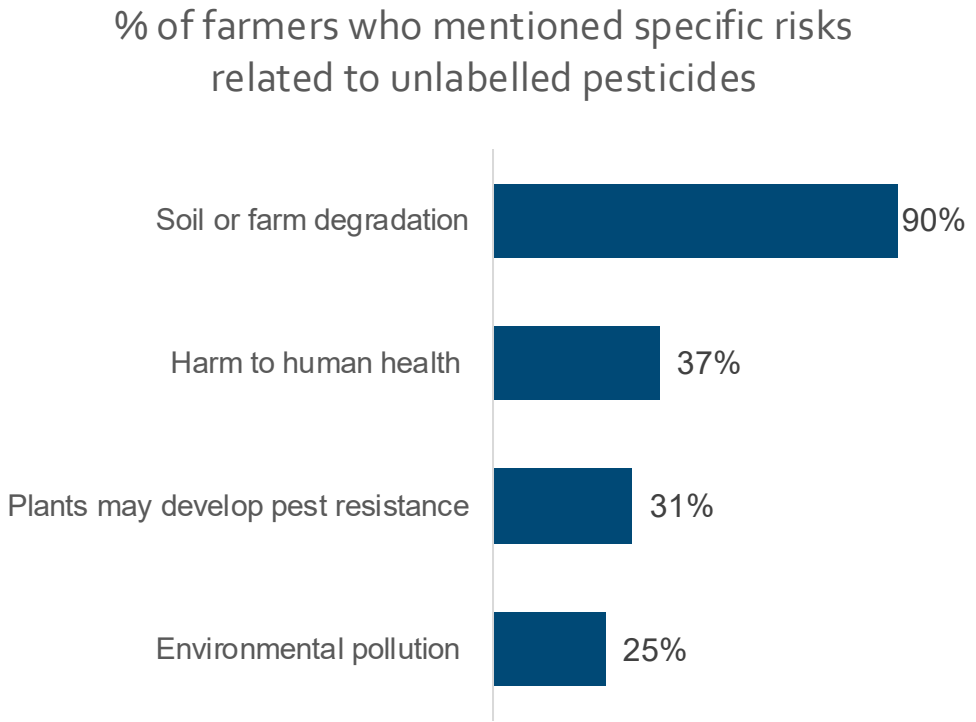


Farmers' considerations when choosing pesticide products

7% of farmers admit to having bought unapproved pesticides (lower prices and more easily accessible)

Farmers' perspectives on product labelling and unapproved pesticides

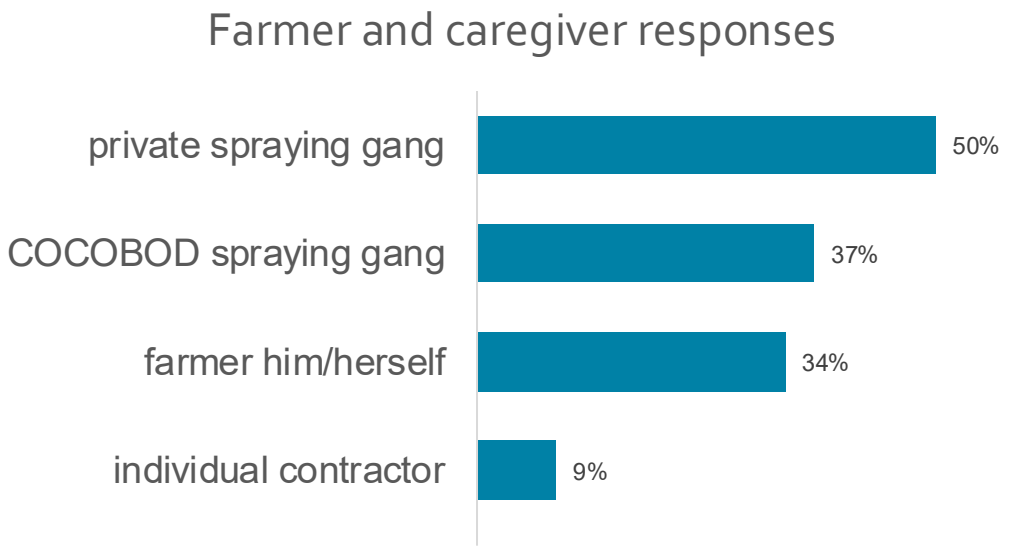
- 27% of farmers admit they **don't understand the information** on pesticide containers
- 87% of farmers can recognise at least one of the **pictograms for hazardous substances**: "toxic", "flammable", "corrosive".
- 4% of farmers admit that they sometimes **buy unlabeled or refilled pesticide** products. The lower price is the main driver for this choice.



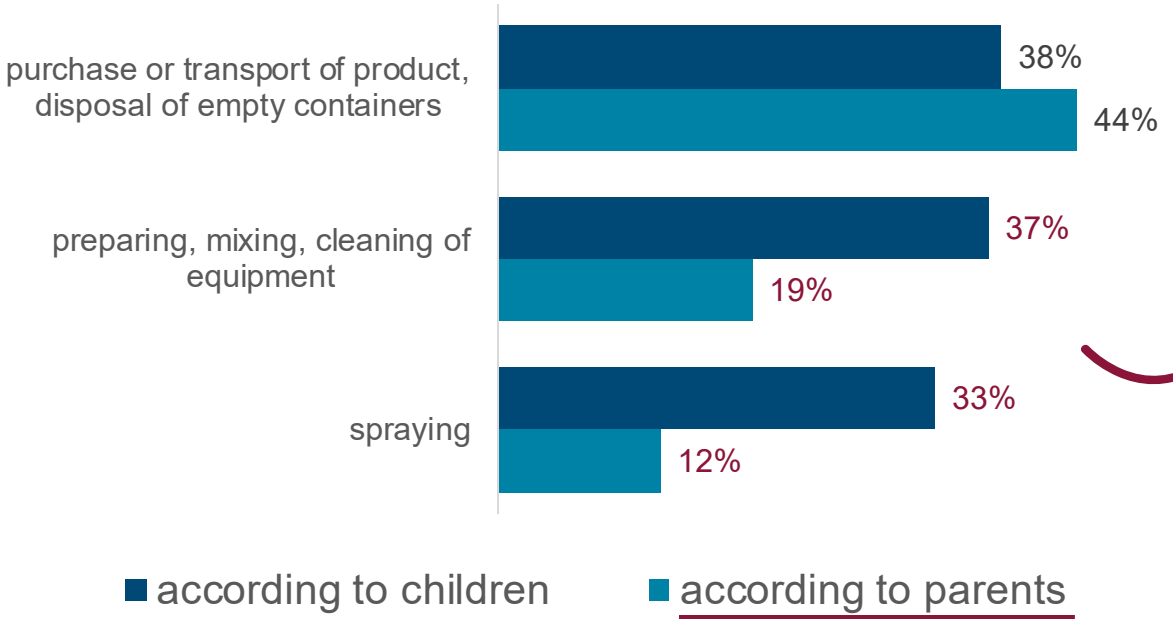
None of the retailers interviewed admitted to selling unapproved products.

Spraying gang members reported unapproved pesticide use in some cocoa districts (Anhwiaso, Nsokote, Suhum) but not in others (Ahafo, Asawinso).

Who sprays pesticides?



How are children involved with pesticides?



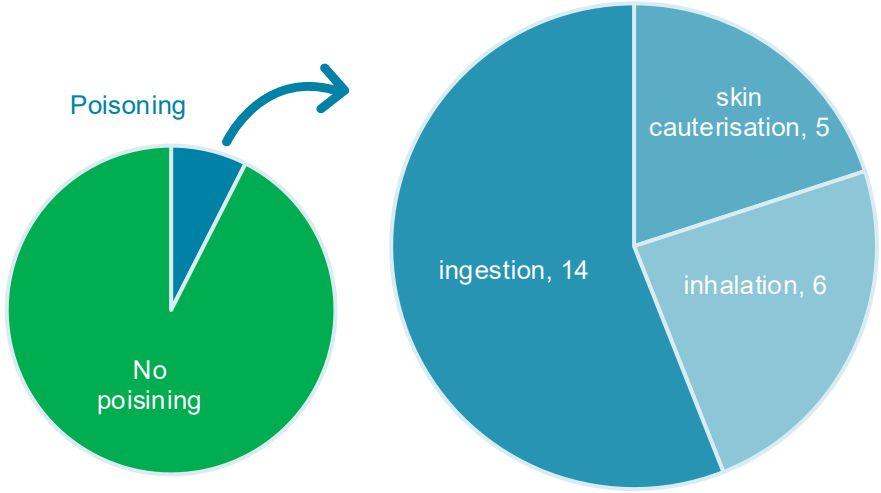
Programmes must give more attention to children's participation in activities before and after spraying

Data suggests that parents underreport children's involvement in pesticide-related activities

19 out of 34 interviewed retailers (56%) reported that **children are sent to buy pesticides**. Boys aged 10-14 years are the group most concerned.

How common are accidents and acute poisoning among children?

Among the 334 respondents, 25 reported pesticide poisoning in their children. In all reported cases, children were taken to hospital.



Which farmers are more likely to engage their children in spraying pesticides?

Regression analysis shows which factors influence children's participation in spraying:

Lower children's participation when…

- Farmers are women
- When farmers are older
- When farmers have participated in **COCOBOD** pesticide training***

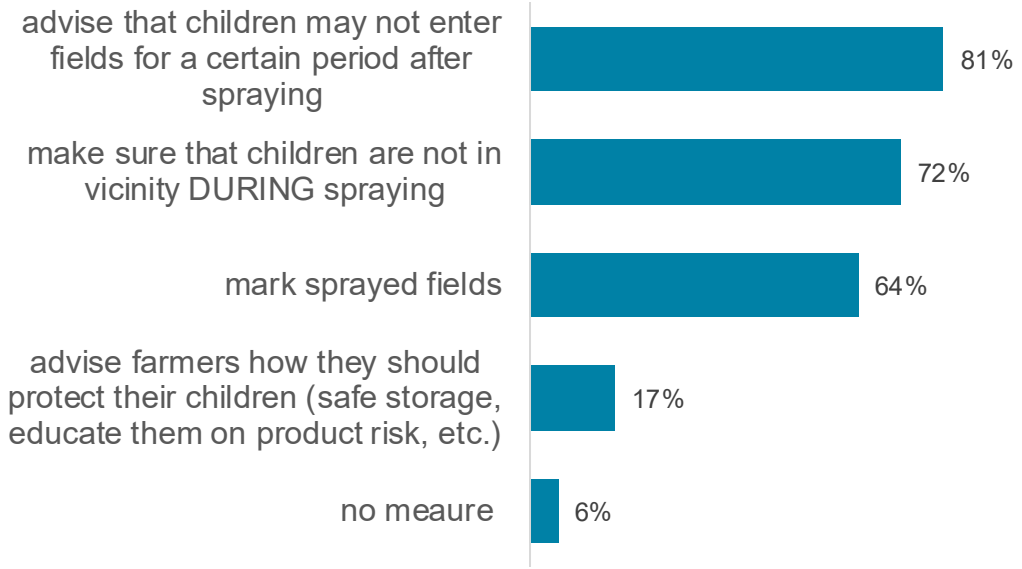
Higher children's participation when…

- Farmers are educated
- When farmers produce other cash crops next to cocoa**

Children's participation in spraying pesticides is **unaffected**, regardless of:

- Farmers being covered by a CLMRS
- Farmers being coop members
- Cocoa land size

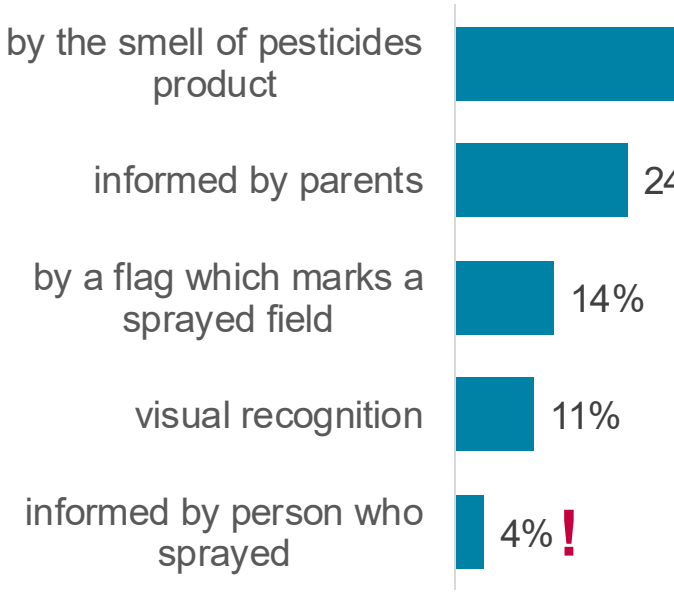
What do spraying gangs do to prevent children's exposure?



When comparing knowledge total scores (from 0 to 1) and total scores of good practices to protect children before, during, and after spraying (from 0 to 1), COCOBOD-trained spraying gangs demonstrate **similar levels of knowledge** but **better practices** than those trained by private providers.

The large majority (33/36) prepare the pesticide product on the farm. The rest (3) prepare the product at the farmers' home.

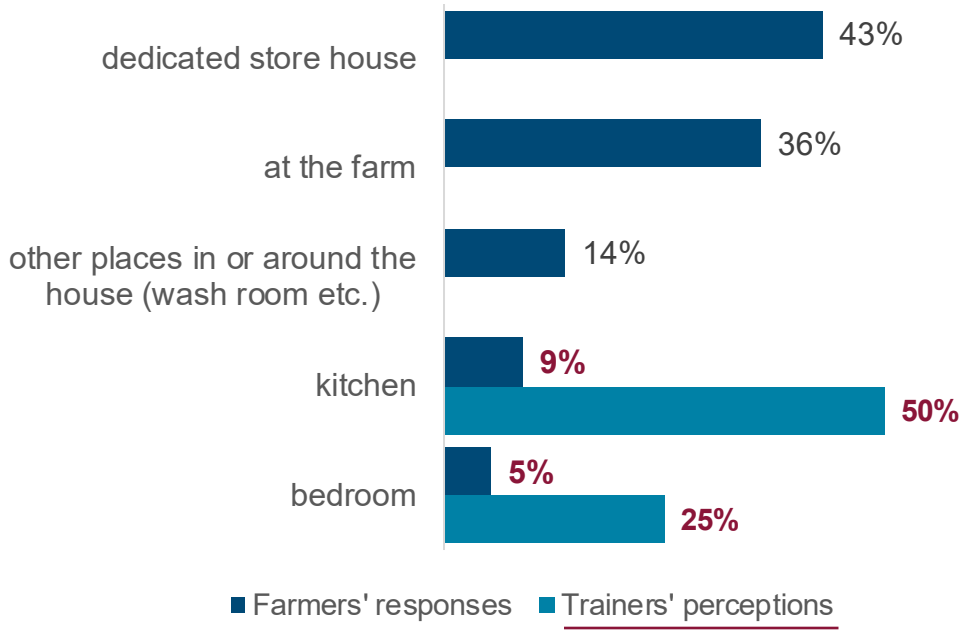
How do children recognize sprayed fields?



Children are familiar with the smell of pesticides

Marking sprayed fields with flags does not seem to be a common practice

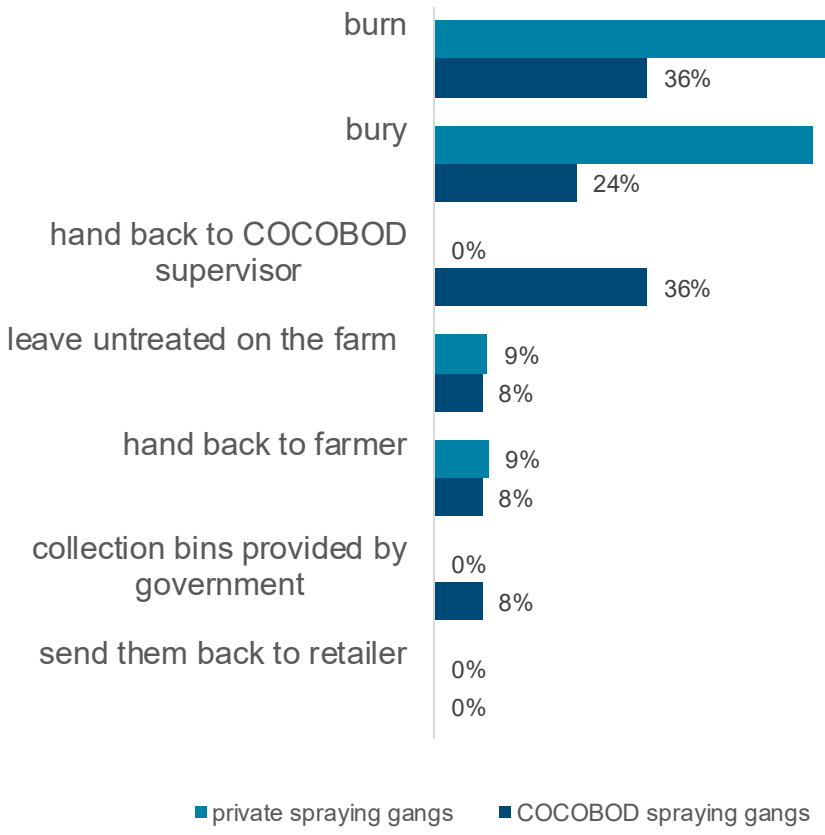
Where do farmers store pesticides?



14% of farmers admit that children have access to places where pesticides are stored

Disposal of empty containers

How do **spraying gangs** dispose of empty containers?

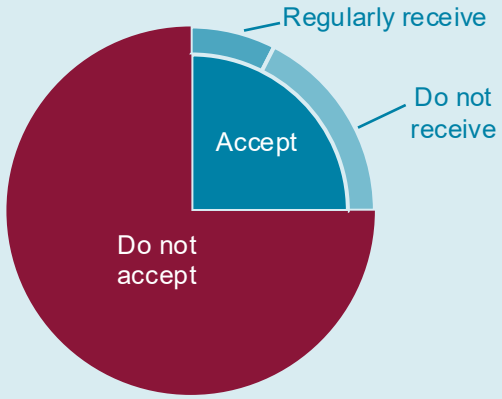


Burning or burying empty containers has been promoted as best practice for a long time, new recommendations will take time to be adopted widely.

Practices differ significantly between COCOBOD and private spraying gangs

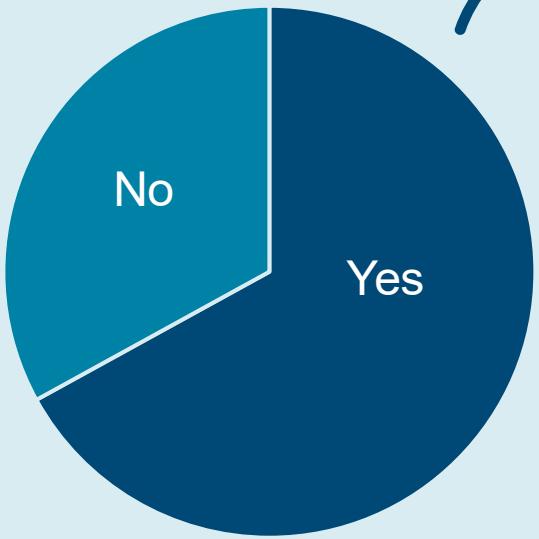
What do retailers say?

Only 25% of retailers accept the return of empty pesticide containers. Out of these, only 3 state that they regularly receive any.



Disposal of empty containers

Are farmers willing to change empty container disposal practices?



67% of farmers are willing to return empty pesticide containers to a collection point if offered a **small incentive**

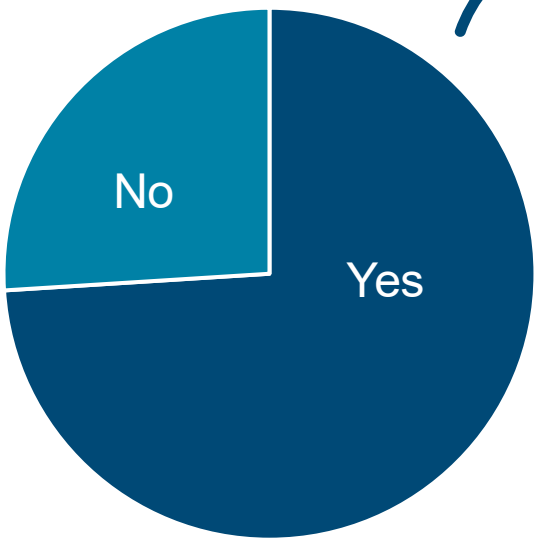
Reasons for not being willing to return empty containers for a small incentive:

- Don't see importance
- Containers are poisonous
- Want to reuse containers

Extension Officers and spraying gang members mentioned that the best reception points for empty containers are:

- Retailers (44%)
- Extension officers (19%)
- Cooperatives (19%)

Are retailers willing to change practices?



74% would be willing to participate in a deposit scheme

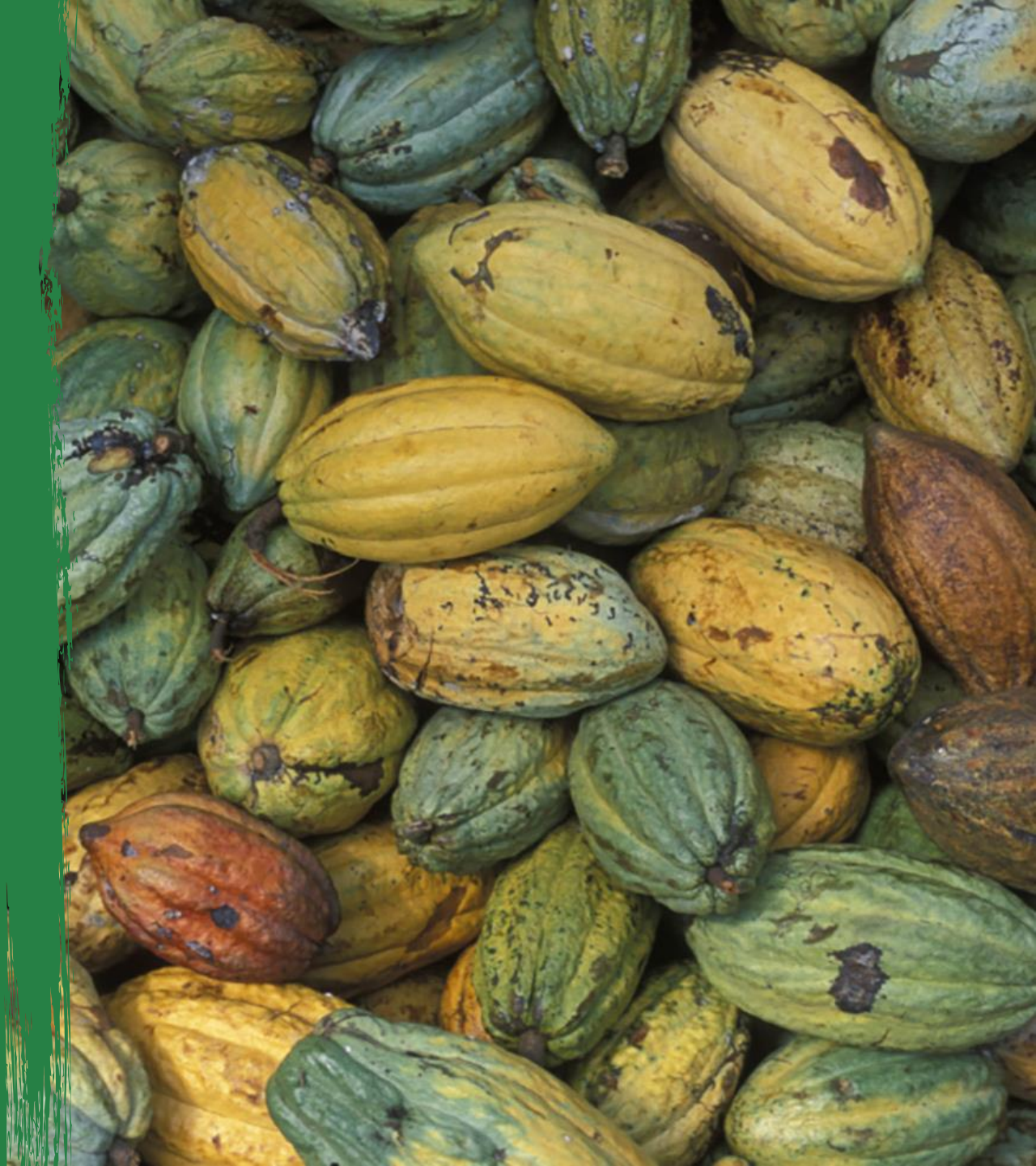
For a deposit scheme to work, retailers mention the following conditions:

- Farmers must be well informed
- Collection of returned containers must be regular and reliable
- Retailers must have a safe storage place to collect empty containers (currently not the case)
- Retailers must be liquid at any time

Some retailers expressed concerns about children engaging in collection to earn money.

Key findings

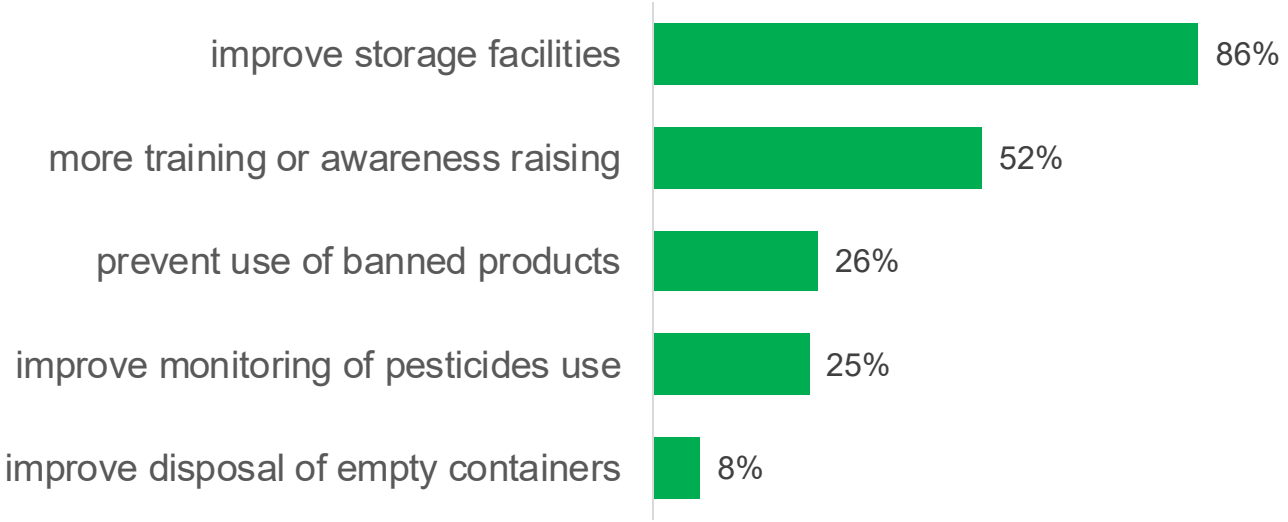
Ways forward to protect children



According to caregivers, the most common measures to prevent children from accessing pesticides stored in or around the home are:

- educating children (47%)
- locking away pesticides (46%)

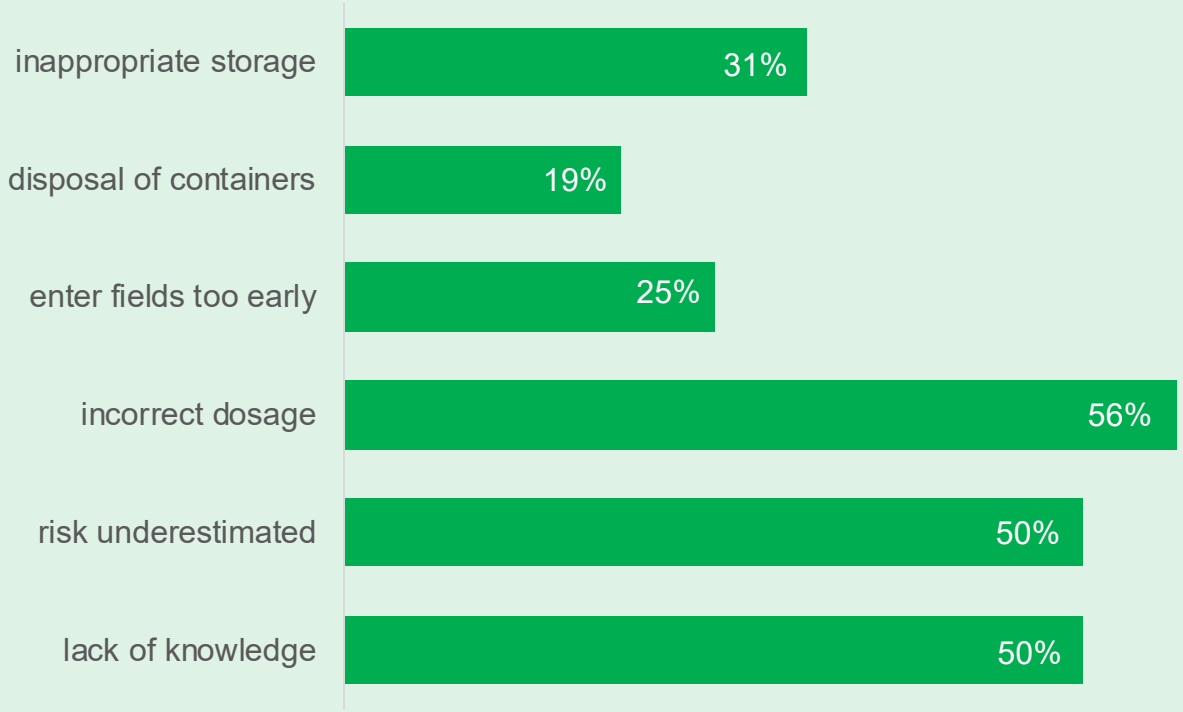
What interventions do farmers believe are most needed to better protect children from pesticides?



High awareness of the need for safer storage solutions

Low awareness of the problem of disposal of empty containers

Where do Extension Officers see the greatest challenges?



Conclusions

Summary of main challenges to address

1. Access to **training on pesticides is unequally distributed**. Women, and farmers who aren't members of cooperatives are less likely to have been trained.

2. While knowledge of risks related to pesticides spreads through various channels, there is a **gap between what farmers know about risks and what they do**.

3. Although local stakeholders are well aware that children should not participate in spraying, other forms of children's exposure – both **before and after spraying** – get significantly less attention.

4. **Empty pesticides containers are often not disposed of appropriately,** in spite of efforts by COCOBOD to set up disposal channels. Burning and burying is still practiced in many places; and empty containers can still be found abandoned in nature.

5. There is room for **improvement in product labelling**, including adjustments to farmers' literacy levels, translation to more accessible language, clearly visible pictograms, and larger font sizes.

6. **Systematic training and supervision** is needed to ensure that **spraying service providers**, incl. spraying gangs set up by private actors, have proper understanding of product risk and follow safety protocols.

Recommendations

Training and awareness-raising

- Ensure efforts reach all community members, and women in particular.
- Consider a variety of communication channels, including radio campaigns, schools, and health services.
- Convey messages on both on-farm practices and experiences outside of the farm, before and after spraying
- Training must go beyond the transfer of knowledge and focus explicitly on how to change practices.

Disposal practices – Establish a network of collection points for empty containers at the local level, providing support for the installation of these collection spaces while preventing children's involvement. Spraying gangs, cooperatives, and local retailers could play a role in ensuring local collection.

Spraying gangs – Invest more in training and supervision of spraying gangs, and expand their roles to include the collection of empty containers and raising farmers' awareness.

Share expertise - Use existing COCOBOD's expertise, certifying agencies, private sector actors (incl. cocoa and agrochemical industry), and facilitate exchange of experience.