UTZ GUIDANCE DOCUMENT
PEST MANAGEMENT &
PESTICIDE HANDLING (Version 1.0 | August 2016)

Guidance on how to implement Pest Management and Pesticide Handling, as required in the UTZ Certified Core Code of Conduct for group and multi-group certification (version 1.1).

This guidance document is part of a set of documents designed to assist with implementation of specific topics within the UTZ Core Code of Conduct. This document is intended for use by farmer groups and the technical assistants supporting them in the certification process.

Integrated Pest Management (IPM) = Key element of sustainable farming.

Safe pesticides handling.

Reducing risks to workers & environment, while ensuring healthy crop.

Elimination of the use of Highly Hazardous Pesticides.
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Figure 1. UTZ approach on integrated Pest Management
UTZ AND PEST MANAGEMENT & PESTICIDE HANDLING

Synthetic pesticides are widely used in agriculture for controlling pests, diseases and weeds. They can help to reduce yield loss and to maintain high product quality. However, pesticides are often used incorrectly or in too high quantities.

Dependence on pesticides has caused a number of significant problems including: insecticide resistance; health problems among farmers, workers and their families; pollution of soil and water courses; a decline in beneficial soil microorganisms and a decline in beneficial insects such as bees and other pollinators. Amongst others, this creates insect resistance and over-use of pesticides which increases production costs and decreases farmer’s productivity.

UTZ encourages farmers to use an integrated pest management (IPM) approach, see Fig. 1. This enables producers to grow healthy and high quality crops while minimizing their use of pesticides and protecting the health of workers and the local environment. Adopting IPM techniques helps producers to meet product quality requirements such as those relating to Maximum Residue Levels (MRLs).

The key features of IPM in the UTZ program include:

- Implementing the use of combined alternative methods for pest control before chemical control.
- Efficient use of pesticides in line with any specific product recommendations such as dose, re-entry times and use of good protective equipment.
- The correct use of application methods.
- No use of highly hazardous pesticides specified in the banned list.

The aim of this document is to

- Help producer groups implement the Code of Conduct requirements on pest management and pesticide handling
- Provide guidance on good practices in relation to pest management and pesticides handling.

1 For more information on how to improve productivity, have a look at the guidance document on Productivity
WHAT TO HAVE IN PLACE?
To comply with the UTZ Code of Conduct on pest management, your group must:

<table>
<thead>
<tr>
<th>YEAR 1</th>
<th>YEAR 2</th>
<th>YEAR 3</th>
<th>YEAR 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appoint a person or committee responsible for implementation of IPM (G.A.7).</td>
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<tr>
<td>Train group members on IPM (G.A.19).</td>
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<tr>
<td>Provide a complete list of pesticides and fertilizers used by the group (G.B. 53).</td>
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<td></td>
</tr>
<tr>
<td>Implement and document Integrated Pest Management (IPM) measures (G.B. 50).</td>
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<tr>
<td>Carry out a risk assessment (G.A.16).</td>
<td></td>
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<tr>
<td>Develop a Management Plan (G.A.17) (from year 3 onwards). Depending on the outcome of the risk assessment you may need to include the topic of IPM and describe all activities that will be performed by the group to implement IPM.</td>
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</tbody>
</table>

They will be responsible for ensuring safe pesticide handling and implementing measures to protect the health and safety of workers handling pesticides.

IPM is one of the topics which should be covered in training for group members before the end of the fourth year.

This should include brand names, active ingredients, specific PPE and training needed, pre-harvest intervals and re-entry times. If pesticides from the UTZ Pesticides Watch list are included, pictograms must be included to warn group members of the risks and any additional measures required for safe use.

IPM measures are applied in the following order:
1. Prevention, 2. Monitoring of pests and diseases, 3. Application of tolerance levels, 4. Use of non-chemical alternatives, 5. Use of natural pesticides, 6. Spot application of chemical pesticides which have the lowest possible toxicity for people, flora and fauna, 7. Use of other chemical pesticides as a last option.
APPOINTING A RESPONSIBLE PERSON OR COMMITTEE (G.A.7)
You should appoint a person responsible for implementing the Integrated Pest Management program. This person/committee could be:

- A person/committee responsible for Block B (Farming). They should have good knowledge of pests and diseases and be able to give advice on how to prevent and control them.
- A person/committee responsible for Block C (Working conditions), including safe and healthy practices (e.g. PPE), re-entry times, use of machinery and pesticides, first aid and emergency procedures.

CARRYING OUT A RISK ASSESSMENT (G.A.16)
To carry out a pesticide risk assessment, you should take into account different factors and potential hazards (see example Table 2).
Consider all stages of production and processing and identify the hazards and risks that could occur at each stage.

1. Choose the subject
2. Identify the potential problems (see examples in table 2)
3. Analyze the level of risk (hazard, severity, likelihood)
4. Evaluate the importance of the risk

Table 1 Risk assessment

In the following table, you can find examples of hazards related to IPM and pesticides handling that you might include in your risk assessment. Every group should identify their own hazards based on their individual situation and context, not all possible hazards are listed here.

Every group should assess the severity and likelihood for each risk in their particular situation. You can get more information on carrying out a risk assessment in the UTZ Guidance document on risk assessment.
## Subject Hazard Severity Likelihood

<table>
<thead>
<tr>
<th>Subject</th>
<th>Hazard</th>
<th>Severity</th>
<th>Likelihood</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overuse of pesticides/ Economic damage</td>
<td>Planting material with low resistance to pests and diseases or material that is not adapted to local conditions.</td>
<td>The quality of planting material is crucial for the development of the plantation and resistance to pests and diseases. This hazard can be considered critical in contexts with serious pest outbreaks.</td>
<td>Likelihood can be considered high when there is lack of access to good planting material, or when farmers use high yielding varieties with no adaptation to local conditions.</td>
</tr>
<tr>
<td></td>
<td>Unbalanced/inefficient input of nutrients. Not all members of your group have the same soil type, and there may be areas with better soil and/or areas where access to inputs for soil fertility is limited.</td>
<td>Well-nourished plants are less susceptible to pests and diseases. This hazard could be considered critical.</td>
<td>Likelihood can be considered high when members are likely to have lack of access to inputs or have poor soil.</td>
</tr>
<tr>
<td></td>
<td>Low diversified cropping systems/ Mono-cropping. Members with more diverse systems might have less need to use pesticides to control pests and diseases, due to the increased presence of beneficial organisms.</td>
<td>Diversified systems have proven to be more resilient, therefore this hazard may be considered critical.</td>
<td>Likelihood can be considered low when members have agroforestry systems or very diversified cropping systems in place.</td>
</tr>
<tr>
<td></td>
<td>Intensification of production. Members with more intensified production might use more pesticides than other members.</td>
<td>High use of pesticides might be severe, if pesticides are hazardous the severity is even higher. This is critical.</td>
<td>Likelihood can be considered high when members are likely to use hazardous pesticides in high quantities.</td>
</tr>
<tr>
<td></td>
<td>Pest resistance: Level of infestation or resistance to a particular pest differs from region to region, often due to climate conditions.</td>
<td>Pest resistance could be considered critical.</td>
<td>Likelihood can be considered high if a certain region has several episodes of the same resistant pest throughout the whole plantation and several production cycles.</td>
</tr>
<tr>
<td></td>
<td>Lack of knowledge on IPM: Some members of your group may have less knowledge of IPM and you may need to invest more time and resources to help these members and teach them about IPM.</td>
<td>Enhancing natural pest control with IPM enables incremental reductions in the use of pesticides. Severity may be considered low in contexts with very low pest incidence as famers do not need to apply pesticide if no pest incidences occur.</td>
<td>Likelihood can be considered high when most of the members do not understand the concept of IPM and do not really implement it.</td>
</tr>
<tr>
<td>Subject</td>
<td>Hazard</td>
<td>Severity</td>
<td>Likelihood</td>
</tr>
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<td>----------------------------------------------------------------------</td>
<td>--------------------------------------------------------------------------</td>
<td>---------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Use of pesticides from the banned list (used in non-certified crops).</td>
<td>Members might be using banned pesticides in other crops that are not certified. This represents a risk to the UTZ certified crops. Those members should be identified so you can monitor their compliance with the code.</td>
<td>The use of banned pesticides on certified farms is critical.</td>
<td>Likelihood can be considered high when there is lack of access to good planting material, or when farmers use high yielding varieties with no adaptation to local conditions.</td>
</tr>
<tr>
<td>Lack of record keeping skills:</td>
<td>Members with high levels of literacy can keep detailed records (including recording active ingredients, dates of application, plot, dosage, first date of harvesting) which enable you to have a better overview of the effectiveness of the IPM techniques.</td>
<td>Record keeping is critical. Without records it is difficult to know what has been applied, the dosage and pre-harvest intervals, etc.</td>
<td>Likelihood can be considered high when members are likely to have lack of access to inputs or have poor soil.</td>
</tr>
<tr>
<td>Not respecting the pre-harvest interval periods:</td>
<td>It is more challenging to meet MRLs in crops with continuous harvesting, for example tea. In this case it might be difficult to follow the right pre-harvest interval, and therefore a residue analysis is needed. In addition, some pesticides do not state pre-harvest intervals on the label, making it more likely that members will not use the right interval.</td>
<td>Not respecting the pre-harvest intervals is critical because this increases the chances of having pesticide residues in the final product.</td>
<td>Likelihood can be considered low when members have agroforestry systems or very diversified cropping systems in place.</td>
</tr>
<tr>
<td>Lack of training for personnel applying pesticides: Training is compulsory for members that apply pesticides. However, some members also hire workers for spraying who may not receive training meaning the risk of handling pesticides incorrectly might be higher.</td>
<td>This must be considered critical. Members or workers without training are likely to handle pesticides incorrectly which may result in pesticide residues in produce.</td>
<td></td>
<td>Likelihood can be considered high when members are likely to use hazardous pesticides in high quantities.</td>
</tr>
<tr>
<td>No calibration of equipment: Equipment that is not calibrated affects the dosage and thus the residues in the final product. This is likely to occur in systems where the IMS is not directly responsible and calibration is left up to individual members.</td>
<td>Calibration is key to minimizing the impact of pesticides and to avoiding residues in the product. This is critical.</td>
<td></td>
<td>Likelihood can be considered high if a certain region has several episodes of the same resistant pest throughout the whole plantation and several production cycles.</td>
</tr>
<tr>
<td>Chemical contamination (postharvest pesticides, pest control agents, cleaning agents, lubricants, and other substances).</td>
<td>These risks apply in the processing stage of a particular commodity. This can be due to, for example, application of pesticides on warehouses or contamination during processing (e.g. from packaging materials, lubricants, etc.).</td>
<td>Chemical contamination is critical. This might prevent groups from exporting their produce.</td>
<td>Likelihood can be considered high when most of the members do not understand the concept of IPM and do not really implement it.</td>
</tr>
<tr>
<td>Subject</td>
<td>Hazard</td>
<td>Severity</td>
<td>Likelihood</td>
</tr>
<tr>
<td>----------------------------------------------</td>
<td>------------------------------------------------------------------------</td>
<td>---------------------------------------------------------------------------</td>
<td>---------------------------------------------------------------------------</td>
</tr>
<tr>
<td><strong>Health hazards</strong></td>
<td><strong>Incorrect personal protective equipment (PPE):</strong> Different and specific PPE is required for different pesticides. For example some pesticides require specific respirators and canisters that might be difficult for some members to access.</td>
<td>Lack of PPE is critical. PPE is needed to reduce risks to human health.</td>
<td>Likelihood can be considered high when: i) individual beliefs lead members to think that PPE is not needed. ii) members are located in hot/warm areas, where PPE might be impractical. iii) the right PPE for the particular pesticide is not accessible.</td>
</tr>
<tr>
<td><strong>Improper storage:</strong> Some members might only use 1 or 2 bottles of pesticides and are therefore less likely to prioritize safe storage. It is important to teach them about having a box or locker where the products can be stored securely to minimize the risk of other people accessing them.</td>
<td>Poor storage of pesticides is critical.</td>
<td>Likelihood can be considered high when members only have a few bottles and do not see the need to allocate a special place for pesticide storage.</td>
<td></td>
</tr>
<tr>
<td><strong>Water contamination through pesticide run-off or pesticide drift:</strong> Some members of your group may live near a body of water. In this case pesticide drift and run-off are risks that need to be minimized. Using the correct nozzles and the right techniques to apply the pesticide are examples of measures which can be used to minimize risks.</td>
<td>Water contamination with pesticides is critical.</td>
<td>Likelihood is higher when your group has members living near a body of water.</td>
<td></td>
</tr>
<tr>
<td><strong>Improper storage facilities:</strong> Some members might use higher quantities of pesticides, and may not have a storage facility which can contain a pesticide spill.</td>
<td>Improper storage of pesticides is critical.</td>
<td>Likelihood can be considered high when members only use 1 or 2 pesticide products and do not see the need to allocate a special place for pesticide storage.</td>
<td></td>
</tr>
<tr>
<td><strong>Use of pesticides from the Watchlist:</strong> Members that apply pesticides with higher levels of toxicity have a higher risk of exposure. The level of toxicity will determine which measures are needed to reduce risks. For example, the specific personal protection equipment required, as well as specific measures to minimize risks to the environment.</td>
<td>The use of pesticides from the Watchlist may be considered as ‘medium’. These pesticides can be used by certified members if certain conditions are met.</td>
<td>Likelihood can be considered high if most of the members use pesticides from the Watchlist.</td>
<td></td>
</tr>
<tr>
<td><strong>Improper disposal of pesticide containers:</strong> If your area does not have a system for safe disposal of pesticide containers there is a higher risk of group members not complying with this requirement. You need to support members to dispose of containers in the right way.</td>
<td>Improper disposal of pesticides containers is critical as they pose risks to human health and the environment.</td>
<td>Likelihood is higher when there is no collection system in place.</td>
<td></td>
</tr>
<tr>
<td><strong>Improper transport of pesticides:</strong> Pesticides can be spilled during transportation causing environmental pollution. Harvested product can be contaminated with pesticides if they are transported together.</td>
<td>Improper transport of pesticides is critical.</td>
<td>There is higher likelihood in places where members do not have access to proper transport for pesticides and use their own vehicle to transport food, goods and pesticides.</td>
<td></td>
</tr>
</tbody>
</table>

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Before doing a risk assessment, it is important to think about the members of your group and the differences between them such as the cropping systems used and the intensity of production. You could group the farmers according to social, agricultural and ecological conditions and farming practices. This will enable you to focus your risk assessment on the real needs of the different types of farmers in your group, and to target interventions and preventive actions more accurately.

In the following example (Figure 2), there is a group of farmers that can be divided into 3 types:

1. **Type 1:** includes producers with larger farms, mechanized systems and hired labor, which are high input driven.
2. **Type 2:** includes smallholders with intercropping systems and low use of pesticides, and;
3. **Type 3:** which includes farmers with high presence of coffee rust, living near water bodies, and farmers using pesticides from the Watchlist.

When analyzing each type of farmer, identify the hazards related to their particular type of production. For example, ‘high use of pesticides and pesticides residues’ for **Farmer type 1**. For these types of farmers, residues in the final product will be a critical issue, and the severity of the potential impact will be high. The likelihood is also high as most farmers from this type do use high amounts of pesticides. So the overall level of risk is high.

For **Farmer type 2**, farmers using intercropping, the hazard may not be the high use of pesticides, but the potential for the use of banned pesticides on other crops on the farm, e.g. on food crops or on crops used for intercropping. In this case the severity of having ‘banned pesticides’ is high, but the likelihood might be considered ‘low’, as the farmers are using relatively low volumes of pesticides and only those approved by the IMS. Therefore the risk level is ‘medium’.

For the **Farmer Type 3**, farmers located near the river and with high incidence of coffee rust, the main hazard could be ‘water contamination’. These farmers also need to tackle coffee rust, which means the likelihood of using pesticides from the Watchlist may be high as alternatives may not be available. The severity of this hazard can be considered as ‘medium’, because these pesticides are permitted on certified farms. The likelihood of it occurring is high and the overall level of risk is high.
### Table 3: Example of risk assessment by farmer type

<table>
<thead>
<tr>
<th>Identification of hazard</th>
<th>Negative effect that we want to avoid</th>
<th>Severity of negative impact: LOW, MEDIUM, HIGH</th>
<th>Likelihood of occurrence: LOW, MEDIUM, HIGH</th>
<th>Level of risk: LOW, MEDIUM, HIGH</th>
</tr>
</thead>
</table>
| **Farmer type 1**        | High use of pesticides / Higher pesticide residues in the final product (MRLS) | • High residues in the final product  
• Environmental pollution  
• Health hazards | High | High | High |
| **Farmer type 2**        | Use of banned pesticides on other crops including those used for intercropping | • Use of banned pesticides | High | Low | Medium |
| **Farmer type 3**        | High use of pesticides from the Pesticides Watchlist  
Water contamination due to pesticide drift | • Environmental pollution  
• Health hazards  
• Water contamination | Medium  
High | High | High |

### DEVELOPING A MANAGEMENT PLAN (G.A.17)

Your management plan should:

- Identify the measures you need to minimize the risks identified in your risk assessment. These are the preventive actions.
- Include these preventive actions as part of your management plan.
- Specify the responsible person and the timeline for action.

### Table 4: Example of preventive actions that may be included in your Management Plan.

<table>
<thead>
<tr>
<th>Identification of hazard</th>
<th>Negative effect that we want to avoid</th>
<th>Level of risk: LOW, MEDIUM, HIGH</th>
<th>Preventive actions</th>
<th>Who</th>
<th>When</th>
</tr>
</thead>
</table>
| **Farmer type 1**        | High use of pesticides / Higher pesticide residues in the final product (MRLS) | High | • Training on pesticides handling  
• Carry out a residue test every six months | Technical assistant Quality manager IPM responsible person | Training: 2 times a year  
Sampling: 2 times a year |
| **Farmer type 2**        | Use of banned pesticides on other crops including those used for intercropping | Medium | • Training on pesticide risks  
• Awareness sessions on banned pesticides and their hazards  
• Close monitoring of other crops and farm practices | IPM responsible person | January |
### Identification of hazard

**Farmer type 3**

<table>
<thead>
<tr>
<th>Identification of hazard</th>
<th>Negative effect that we want to avoid</th>
<th>Level of risk: LOW, MEDIUM, HIGH</th>
<th>Preventive actions</th>
<th>Who</th>
<th>When</th>
</tr>
</thead>
</table>
| High use of pesticides from the Pesticides Watchlist | • Environmental pollution  
• Health hazards | **High** | • Training on measures to reduce risks associated with pesticides on the Watchlist  
• Monitoring the availability [and use?] of PPE  
• Regular verification of alternatives for members in the area | Technical assistant IPM responsible person | Training: February  
Monitoring & Verification: May |
| Water contamination due to pesticide drift | • Water contamination | **High** | • Training on pesticide drift and run-off prevention  
• Avoiding the use of pesticides toxic to aquatic organisms | IPM responsible person | March |

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**TRAINING MEMBERS ON IPM (G.A.19)**

Many preventive measures in your Management plan might be related to training.

Providing training and knowledge on IPM will help to implement a good program. You might want to ask questions such as:

- What kind of knowledge and skills are needed for the IPM responsible person?
- What kind of training/knowledge and skills are needed at producer level?
- How would you monitor that the training has been done and it has been effective?
- How would you keep records to demonstrate compliance?

Farmer Field Schools (FFS) can be established to support your members. This has demonstrated to be an effective way to adopt IPM. Demonstration plots are helpful to show successful experiences in regards to pest control.

For More information about training please check the Guidance document on Training.
IN PRACTICE: IPM IMPLEMENTATION

PREVENTING PESTS AND DISEASES
A healthy crop is less likely to get infected by a disease or attacked by insects. Integrated Pest Management is the principle of sustainable farming, and therefore it is an essential part of the UTZ program.

The UTZ Code includes measures that prevent pests and must be implemented by your group. These include:
• Selection of suitable crop varieties (pest resistant) (G.B.34)
• Use of healthy planting material (G.B.35)
• Implementation of measures to improve plant health (G.B.36)
• Following suitable crop patterns (G.B.39)
• Removing infested material (G.B.40)
• Weeding to optimize nutrient and water update (G.B.41)
• Pruning and replanting (G.B.42)

In addition, maintaining or improving soil fertility is important (G.B.46-G.B.47) which includes balancing the use of macro and micro nutrients, closing nutrient cycles and not over- or under-fertilizing. The promotion of ecological diversity to enhance habitats and ecosystems also helps to increase populations of natural enemies and beneficial insects which can reduce the overall numbers of pests and diseases (G.D.113)

DECIDING WHEN PEST CONTROL IS NEEDED
Monitoring pest and disease populations is key to deciding when to take action. Your group can monitor pests and diseases on their farms through good observation of pest populations using for example insect traps. Whenever is possible contact an extension officer in charge on IPM programs, to receive information and advice on the right moment to apply certain control. Facilitate knowledge exchange among farmers to identify main pests, their natural enemies their life cycles, and how environmental conditions among them temperature, humidity and, leaf wetness can influence the outbreak of a pest. In this way, farmers can plan which strategies are needed to keep population of pest under control.

The cost of treating pests or diseases can be higher than the cost of the damage caused by the pest or disease. There is a level of damage or insect infestation a crop can tolerate, this is known as tolerance levels. A good way to learn about this is to involve group members in setting up experimental plots. The results will help you to identify the moment at which the cost of crop loss exceeds the cost of using pest controls, and it becomes economically advantageous to take action.

Check the Guide for Participatory Farmer Training on sustainable cocoa production, where examples of threshold levels and other IPM training strategies are described [1].
USE OF NON-CHEMICAL CONTROL

If pest control is needed, non-chemical controls should be used as a first step. This is best for group members, their workers and the environment. The UTZ Code of Conduct includes several methods of non-chemical control:

- Cultural methods, which are practices to make the environment less favorable for pests for example, shade regulation, crop rotation and adequate fertilization and intercropping with suitable crops.
- Mechanical methods which refers to direct removal or killing of pests such as manual removal, heat treatment, and physical barriers like wind breaks and mulching materials etc.
- Biological methods to control pests, for example the use of natural enemies like Beauveria bassiana and Thrichoderma fungi, and the use of parasitoids and predators. Check with the extension officer in your country who can provide information about these options. You can also contact companies specialized in developing natural enemies for commercial use in agriculture. Read more: International Biocontrol Manufacturers Association: www.ibma-global.org
- Natural pesticides such as neem extract should be used when available. These can be homemade or may be commercially available in some regions. Keep in mind that some natural pesticides can pose certain risks e.g. nicotine extract.

USE OF CHEMICAL CONTROL

Chemical control should only be used if cultural, mechanical and/or biological controls have been applied and pests or diseases still reach threshold levels. Chemical controls should be used through spot applications, this means not necessarily if not needed to the whole certified plot, but to areas with high pressure of pest. The next chapter outlines the UTZ guidelines on chemical control.

Chemical/synthetic pesticides must only be used as a last resort for pest control.

When using chemical pesticides the UTZ Code of Conduct requires that:

- Priority should be given to pesticides with the lowest possible toxicity.
- The pesticide must be registered for use in your country for that crop.
- Pesticides from the UTZ List of Banned Pesticides must not be used on an UTZ crop.
- Pesticides from the UTZ Pesticides Watchlist can only be used if IPM is demonstrated, no alternative is available and conditions to minimize risks are followed.
Selecting the right pesticide

You should select pesticides with the lowest possible toxicity for people, flora and fauna (G.B.50). Pesticides containers have warning labels which indicate the level of toxicity using a color code, see Fig. 3. This is based on World Health Organization (WHO) criteria, you can also find more information about the different hazards of pesticides in the Pesticides Action Network list. You must also make sure that the pesticides used by group members on an UTZ crop are registered in your country for that particular crop (G.B.52). Pests can become resistant to pesticides. To avoid this, rotation strategies should be used, including alternating the chemical family of pesticide. You may find which family of pesticide a product belongs to on its label under the commercial name.

You must also make sure that the pesticides used by group members on an UTZ crop are registered in your country for that particular crop (G.B.52). Pests can become resistant to pesticides. To avoid this, rotation strategies should be used, including alternating the chemical family of pesticide. You may find which family of pesticide a product belongs to on its label under the commercial name.

<table>
<thead>
<tr>
<th>Class</th>
<th>Toxicity</th>
<th>Signal word on the pesticide label</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class I</td>
<td>Extremely/highly hazardous</td>
<td>“DANGER” or “DANGER/POISON”</td>
</tr>
<tr>
<td>Class II</td>
<td>Moderately hazardous</td>
<td>“WARNING”</td>
</tr>
<tr>
<td>Class III</td>
<td>Slightly hazardous</td>
<td>“CAUTION”</td>
</tr>
<tr>
<td>Class IV</td>
<td>Unlikely to be hazardous</td>
<td>“CAUTION”</td>
</tr>
</tbody>
</table>

Figure 3. Schematic classification by hazard

You can retrieve it from: http://pan-international.org/wp-content/uploads/PAN_HHP_List.pdf
The UTZ List of Banned Pesticides and Pesticides Watch List (G.B.51)

List of banned pesticides
The UTZ list of banned pesticides is an Annex to the Code of Conduct and can be found on the UTZ website (www.utz.org). This list will be updated frequently, therefore, you should always check the latest version on the website.

Pesticides on this list must not be used on UTZ certified crops because they are highly hazardous.

If pesticides from the banned list are applied on conventional plots next to the certified plot, measures should be in place to avoid contamination of the certified produce. Remember to:

- Advise farmers to label or separate pesticides that are used in conventional plots. Farmers must be able to demonstrate to the auditor that banned pesticides have not been used in certified fields.
- Leave a sufficient buffer zone between conventional and certified fields. The distance needed will depend on a number of factors such as agro-ecological conditions, application method, etc.
- Do not use pesticides from the banned list on intercropped fields. This means, for example, if you grow pepper as an intercrop for coffee, you cannot use banned pesticides on the pepper.

Pesticides Watch List
The UTZ Pesticides Watchlist, which can be found together with the UTZ List of Banned Pesticides on the UTZ website, includes chemicals that are not banned but that potentially pose a severe risk to human health and/or the environment. Pesticides from the Watchlist must not be used unless you can provide evidence that there are no alternative products available to producers.

Pesticides Watchlist (by active ingredient)

<table>
<thead>
<tr>
<th>No.</th>
<th>Active ingredient</th>
<th>Acute toxicity</th>
<th>Chronic Toxicity</th>
<th>Environmental toxicity</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>H331 (Fetal if inhaled)</td>
<td>Probable carcinogenic (US EPA)</td>
<td>EDC (EU)</td>
</tr>
<tr>
<td>21</td>
<td>Fenarimol</td>
<td>x</td>
<td></td>
<td></td>
</tr>
<tr>
<td>22</td>
<td>Fenbutatin-oxide</td>
<td>x</td>
<td></td>
<td></td>
</tr>
<tr>
<td>23</td>
<td>Fenpropathrin</td>
<td>x</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Pesticides on the Watchlist can only be used if three conditions are met (G.B.51):

i) All steps of the IPM process have been followed;

ii) Less hazardous alternatives pesticides are not available; and

iii) All relevant recommendations are followed to mitigate or reduce the risks related to the hazardous nature of the product.
It is expected that groups have a system in place to monitor the use of pesticides on the Watchlist.

As a responsible person for your group, you should know:
- Which producers are using pesticides from the Watchlist,
- Which products are being applied and in what quantities,
- How they are being applied, which considerations are being followed, and how PPE is being used.

You are also expected to closely monitor the development of alternative products, so whenever there is a less hazardous alternative available you can implement changes in your group’s IPM program.

It is up to the responsible person to gather information on the use of chemicals on the Watchlist and to be sure that those applying pesticides know how to minimize risks to themselves and the environment (see table). These considerations must be included in the list of pesticides that you must provide to your members (G.B.53), see table 5.

**Table 5** Summary of some of the key considerations for use of pesticides on the Watchlist.

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pesticides ‘Fatal if inhaled’ H330 pesticides</td>
<td>These pesticides are highly hazardous and ‘fatal if inhaled’. For many of these pesticides the use of air-purifying respirators equipped with organic vapor cartridges or canisters is required. Only use respirators approved and certified by the National Institute of Occupational Safety and Health (NIOSH) and use the recommended TC number that may be listed in the label of the product. Follow manufacturer recommendations for using the respirators and check the filters. Respirators/filters must be changed regularly to guarantee protection to the user. Check the expiration date of the canisters or cartridges. Some material safety data sheets (MSDS) recommend not using these pesticides for longer than eight hours.</td>
</tr>
<tr>
<td>Pesticides toxic to bees</td>
<td>Theses pesticides are toxic to bees and to other pollinators and wildlife such as butterflies. When you use these pesticides you are not only targeting the pest, but also beneficial insects and natural enemies of your pests. When you kill natural enemies, it is more difficult to maintain pests at manageable levels. If any of these pesticides are included on your list, you should give clear recommendations on when and how they can be applied to minimize the hazard for bees. This includes avoiding pesticide applications to blooming plants or when bees are foraging.</td>
</tr>
<tr>
<td>Pesticides that are very bio-accumulative, very persistent in water soil sediment and very toxic to aquatic organisms</td>
<td>Identifying risks relating to pesticide accumulation and water pollution both on ground and surface water is very important. Producers using these type of pesticides, should evaluate the soil type to identify if there is higher risk of leaching or runoff. Always respect the spraying distances stated in the code, and whenever possible avoid using these pesticides when there is high risk of ground water pollution. You can contribute to safe drinking water by implementing measures to reduce runoff and drifting of pesticides. The calibration of the equipment for spraying pesticides is very important. Adequate nozzles should be used to minimize pesticide drifting to surface water when there is such risk. Remember that many of these pesticides can remain in the environment for years, and some can accumulate in the food chain.</td>
</tr>
<tr>
<td>Pesticides probably likely carcinogenic (US EPA) and EDC (EU)</td>
<td>These pesticides might cause chronic illness like cancer or disruption of the endocrine system. Whenever possible, remind producers of the hazard these pesticides represent, and emphasize that the poisonous effects are not immediate but take place over the long term. Unlike other pesticides causing headaches, vomiting, dizziness, etc., the impacts on health are not easily noticeable. All guidance regarding PPE must be in place to minimize risk for pesticides applicators.</td>
</tr>
</tbody>
</table>
Providing a list of pesticides for group members (G.B.53)

Groups must provide members with a list of pesticides that can be used. The list should include brand names and active ingredients, and specific protective equipment and training needed when applying the products. It should also include any important conditions or restrictions on the use of each pesticide, particularly if pesticides from the Watchlist are included. For an example see Figure 4.

Using pictograms on the list can be a helpful way of communicating risks associated with particular chemicals. You can view globally used pictograms at [http://www.unece.org/trans/danger/publi/ghs/pictograms.html](http://www.unece.org/trans/danger/publi/ghs/pictograms.html).

If a high percentage of farmers in your group are illiterate, you must find other ways to communicate the recommendations and safety information on the material safety data sheet (MSDS) and label. Remember that only trained people is allowed to apply hazardous pesticides.

### List of pesticides Farmer’s Association ‘LAS NUBES DE CORONADO’

<table>
<thead>
<tr>
<th>Active ingredient</th>
<th>Commercial name</th>
<th>Toxicity</th>
<th>Recommendations</th>
<th>PPE &amp; training</th>
<th>Pre-harvest (PHI) intervals and Re-entry times (REI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lambda-cyhalothrin</td>
<td>Acelam Super 35 SC</td>
<td>Fatal if inhaled, Toxic to bees, Endocrine Disruptor</td>
<td>Do not apply to flowering crops. Apply only in early morning or late evening out of ‘bee flight ’timing. Keep down flowering weeds.</td>
<td>As minimum properly fitted half-face air-purifying respirator with a NIOSH/MSHA EU CEN or comparable certification organization overall, chemical resistant boots, gloves, apron, goggles. Required training “: handling HHPs</td>
<td>7 days PHI 24 hours: REI</td>
</tr>
<tr>
<td>Acetamiprid</td>
<td>Acetamiprid 20% SP</td>
<td>Toxic to bees</td>
<td>Do not apply to flowering crops. Apply only in early morning or late evening out of ‘bee flight ’timing. Keep down flowering weeds.</td>
<td>overall, chemical resistant boots, gloves, apron, goggles. Required training: Pesticides application and pollinators</td>
<td>7 days PHI 12 hours: REI</td>
</tr>
</tbody>
</table>

*Figure 4. Example of a list of pesticides*
Provide training for handling hazardous pesticides (G.B.55)
Only properly trained persons should be permitted to handle or apply hazardous pesticides. If your group hires a spraying service or trained farmers themselves to apply the pesticides, you must remind them to:
- Read the labels and Material Safety Data Sheets.
- Wear suitable personal protective equipment (PPE).
- Check that equipment used to apply the pesticides is functioning correctly
- Calculate the correct dosage.
- Clean PPE and other equipment after use.
- Never take home any protective clothes or equipment used during pesticide handling or application. Leave the PPE and/or clothes for washing at a designated place.
- Rinse the pesticide spray tanks after use.
- Take a shower after completing the spraying.
- Keep pesticides in a safely locked place

If the government offers spraying services in your country you should contact your local government representative or spraying coordinator to make sure that: no banned pesticides will be applied; that pesticides from the Watchlist are only applied if no other alternatives are accessible; and that spraying gangs use products in accordance with label requirements and MSDS and use appropriate PPE.

Follow the label and Material Safety Data Sheet (MSDS) (G.B.56)
A product’s label and MSDS include important information on the risks associated with a particular pesticide product and practical recommendations of use. They often use pictograms and color coding to indicate the level of toxicity (see Figure 5).

You must make sure that people handling pesticides read, understand and comply with the information and instructions provided on a product’s label and MSDS. If an MSDS is not available in your country, you can contact your local government agency, pesticide provider or manufacturer to obtain this information. It is your responsibility to make this information available to everyone involved in handling pesticides in your group.

Calibrate and test equipment before use (G.B.60)
You should always correctly calibrate and test equipment before applying pesticides. This includes calculating the correct quantity and dosage of the product and testing that nozzles and other equipment components are installed and working correctly. This will help you to reduce drifting and pesticide pollution.

Remember that impact of pesticides on the environment can vary greatly depending on how pesticides are applied, the moment of application, weather conditions, solubility of the pesticide in water and pesticide persistency.

Respect re-entry times (G.B.58)
After pesticides have been applied, people without Personal Protective Equipment (PPE) must not re-enter the area until it is safe to do so. Respecting re-entry times is essential to protect people against pesticide poisoning. Remember that different pesticides have different re-entry times and re-entry times can also vary between crops.
Depending on the outcomes of your risk assessment and factors such as literacy rates among farmers and workers in your group, you will need to set up a system to implement and enforce re-entry times. This topic should be included in farmer training and your pesticide list (see Figure 4). You should also use warning signs so that workers and other people that might need to go into the field know when treated areas can be re-entered (see Figure 6).

### Respect pre-harvest intervals (G.B.59)

To minimize the risk of pesticide residues on UTZ products and to meet maximum residue levels, there is a period between pesticides application and first day of harvest. This is known as the pre-harvest interval. It is the responsibility of the IPM person/committee to:

- Train group members so they understand why pre-harvest intervals are important.
- Implement a procedure and record-keeping process so that members know when pesticides have been applied and when it is safe to harvest the products.
- Ensure that warning signs are used on fields so people know when it is safe to harvest the product.

Pesticide labels usually include information on the pre-harvest interval but this information can also be obtained from government agencies or the pesticide provider or manufacturer. Be aware that the risk of not complying with pre-harvest intervals can be higher in crops that are continuously harvested.

### Implement a mechanism to comply with the Maximum Residue Levels (MRLs) (G.B.75)

UTZ certified crops must meet maximum residue level (MRL) standards. MRLs cover pesticides and other contaminants and substances that could affect the crop during production, processing, transportation, and storage.

Producers in your group can help ensure compliance with the UTZ MRL requirements by implementing good practices in relation to pesticide use, for
example harvesting the product at appropriate time (G.B.70), respecting the pre-harvest intervals (G.B.59) and taking steps to avoid contamination of the product after harvest including during transportation and storage (G.B.72-G.B.74). However, further action may also be needed at group level. The outcome of your risk assessment will help you decide if your group needs to conduct residue tests and if so, how many are needed and where and when samples should be taken.

Meeting MRL requirements can be more challenging for some crops, for example tea, because it is the leaves of the plant that are consumed.

**Safe transport of pesticides (G.B.65)**

All inorganic fertilizers and pesticides must be transported safely. If in your group the IMS provides pesticides to group members, the following is recommended:

1. Check that vehicles used to transport pesticides are in good condition. The vehicle must be suitable for the transport of pesticides and the load carried.
2. Cover pesticide products during transport.
3. Ensure that the load is appropriate (correct weight) for the vehicle and is safely secured. Liquid products must be stowed below dry goods and heavy loads such as drums should be stowed under lighter packs. Take care that packs are not damaged by sharp corners.
4. Equip the vehicle with fire extinguishers, a first aid pack and PPE for use by the people loading and unloading pesticides. PPE should include: Neoprene or Nitrile rubber gloves, face shields or goggles, coveralls, rubber or plastic aprons and rubber boots.
5. Pesticides must be kept separate from passengers, livestock and any other goods being transported.
6. Train the driver on the proper loading of pesticides and emergency procedures to be used in the event of an accident.

Read more about safe transport of pesticides in the Guidelines for the safe transport of crop protection products [4]

**Safe disposal of empty containers and obsolete pesticides (G.B.61-G.B.62)**

You must dispose of empty pesticide containers and obsolete pesticides safely to prevent environmental pollution or contamination of living areas. It is always better to buy only the amount of pesticides you need to avoid having obsolete pesticides and to minimize waste. Empty containers must be kept securely before collection.

You will need to make sure that farmers know to:
- Triple rinse and shred empty containers.
- Use PPE when rinsing containers.
- Never reuse empty pesticide containers for any reason.
- Never burn containers.
- Containers can be buried to prevent them being reused. However, this should only be used as a last resort in situations where there is no safer alternative method of disposal available.

UTZ encourages farmers to use established collection, return, and/or disposal systems, such as those organized by governments or suppliers, where these are available. This is the safest way to dispose of pesticide containers.

Farmer groups should support members in the safe collection and disposal of containers. Whenever possible the group should set-up a system and support members to use it, including bringing their empty containers to a central point for safe disposal. For example, the group should ensure that contracts with
PESTICIDE STORAGE
Did you know that?
• You must always keep storage facilities locked.
• The oldest product in storage should be used first. Always follow the ‘first in, first out’ rule.
• Storage facilities must be designed with enough capacity to guarantee the safe storage of pesticides.
• You must follow the specific requirements for central storage facilities, such as setting up an emergency procedure.
• Liquid products should not be kept on top of powder formulations.
• Liquid products should not be kept on top of powder formulations.
• You must always keep pesticides in their original containers.

Further information is available in the FAO guidance document on pesticide container management and from private initiatives such as the CropLife International global steering/advisory body which provides guidance and advice on this issue.

Read more:

Pesticide and fertilizer storage, handling and diluting (G.B.63 – G.B.64)
Pesticides and inorganic fertilizers must be stored safely in a way that reduces risks for people and the environment (G.B.63). These considerations apply whether pesticides are stored by individual group members or in central facilities managed by the IMS.
Central storage facilities must be dry and clean, well ventilated and with good lighting. They must be structurally secure and covered with non-absorbent material such as plastic. There are additional requirements for central storage facilities because of the volume of pesticides stored. These include establishing an emergency procedure (G.B.64).

Group members who store small volumes of pesticides can use other approaches including storing pesticides in a box with a lock (Figure 8). All farmers should know what to do in the event of a pesticide emergency and this topic should be included in producer training.

**Use the right Personal Protective Equipment (PPE) (G.C. 98)**

PPE must be used by all group staff, members and Group member workers who handle pesticides. Different PPE is needed depending on the product and application method used. You can find information about the appropriate PPE on the product label (see Figure 9) and must make sure that farmers know which PPE is needed. Remember that PPE is also required for people mixing or loading pesticides and those in indirect contact with pesticides, such as personnel washing workers’ clothes.

Check the pictograms in the label to know what PPE should be used in general the basic equipment includes:

- Overall or long sleeve shirt, pants and hat
- Face shield or goggles
- Gloves, the ones that are chemical resistant with a ☢️ or ☢️ symbol.
- Rubber boots
- In case of mixing and loading an apron with resistant material should be used.
- When specified in the label, adequate respirator must be used

![Figure 9. Example of PPE](image)

If you provide PPE to your group, remember to:

- Provide appropriate PPE for the job with the highest possible protection.
- Consider ambient factors and movements, so you can be sure that those applying pesticides will be comfortable using the PPE. You might want to set up field trials to test PPE in practice and/or ask workers to give you feedback. Check the Guidelines for personal protection when using crop protection products in hot climates.[7] Inspect the equipment regularly and carry out repairs where needed. For example, test gloves regularly for leaks.
- Training should include information on how to use, maintain, store and clean PPEs, reminding users to wash gloves and equipment properly after use.
Remind farmers about the different routes through which poisonous substances can enter the body including through the skin and by ingestion and inhalation.

Pesticides can cause either acute or chronic effects. Acute health effects include respiratory, gastrointestinal, circulatory and neurological effects that can result in death. Chronic health effects include birth defects, cancer, reproductive problems, developmental and behavioural impacts and effects on the endocrine and immune and neurological systems (PAN, 2007)

Exposure to pesticides is particularly harmful for some groups. For example, children are more vulnerable to pesticides because their bodies are still developing. Pregnant women are also at risk because pesticides can cause miscarriage, birth defects or pregnancy complications. For this reason Group Staff, Group Members, and Group Member Workers who are under 18 years of age, or pregnant or breastfeeding must not handle pesticides (G.C.99). You should take into account that pesticide exposure can happen indirectly, for example, when washing worker’s clothes. Steps should also be taken to avoid exposure to pesticides during the early stages of pregnancy when a woman may not yet know that she is pregnant.

**Health checks for staff regularly handling hazardous pesticides (G.C. 100)**

You must provide annual health checks for any staff handling pesticides in your group. This must include a cholinesterase examination for those applying organophosphate and carbamate pesticides. [8]

You should also check whether you have any other pesticides which inhibit cholinesterase [9] Extension officers can advise on where in your country these types of tests are available.

**Changing and washing facilities (G.C. 101)**

If you have staff handling pesticides you must provide access to changing and washing facilities. Washing facilities must be located near to the chemical storage facility in case an accident occurs and workers need to quickly take a shower.

Any place where staff can shower off pesticides residues from their body is acceptable and specific shower facilities are not required.
IN PRACTICE: WAYS TO MONITOR AND RECORD KEEPING

Monitoring the implementation of IPM is essential. It enables you to learn from farmers’ experiences, judge the effectiveness of different techniques, identify points of improvement, assess whether farmers need more support, and adapt and strengthen your IPM program.

A good monitoring system will show you if you are successful at reducing the impact of pesticide use. As the responsible person for IPM and pesticides handling, you must be able to cross check against written records to assess whether farmers are implementing good agricultural practices in relation to pesticide use. For example, you can check if farmers are following Pre-harvest Intervals adequately see box 1.

The IMS should help group members with record keeping if needed. This could include, for example, delivering a calendar with pictograms to group members, so farmers can indicate which activities have been done and when.

Box 1: CROSS CHECKING PRE-HARVEST INTERVALS

- Check the sales invoice or receipt the farmer received from the cooperative when delivering the UTZ product to the processor/buyer.
- Check when this UTZ product was harvested
- Compare this to the record of pesticide application: which pesticide was applied during that period? Was the dosage correct? Were other measures implemented first? Was the chemical choice justified?
- Check the date of application and verify it meets the pre-harvest interval specified on the label or MSDS
- Verify the harvest records. Check that there was no harvesting in that field before the safe harvest date and that no workers entered the treated field.
- Repeat this check with another invoice

The following documentation is required by the UTZ Code of Conduct:

- Product brand name, dates of application and quantity applied.
- For illiterate group members, it is sufficient that the farmer can explain during an audit which products have been used, when they were applied and what dosage was used. Smallholders can also demonstrate compliance with the Code of Conduct by keeping the pesticide labels (G.B.54)
- Records of IPM measures used (G.B.50)
- List of allowed pesticides (G.B.53)
- Emergency procedure for the central storage facility (G.B.64)
- Documentation to show that pesticides and fertilizers have been prepared, mixed and applied according to national agronomic research institute or national board requirements. (G.B.56)
- Equipment calibration record when needed (G.B.60)
- Results of health checks for group staff who handle hazardous pesticides (G.C100)
## ANNEX 1: IPM MANUALS

| PAN Germany database: [http://www.pesticideinfo.org/Search_Products.jsp](http://www.pesticideinfo.org/Search_Products.jsp) |


