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Important: Use Crop Protection  
Products safely. Always read the label  
and product information before use.  
The document does not replace the  
product label and local rules and  
regulations take precedence over  
any recommendation made in  
this document.

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# Guidelines on Safe Use Training

## Good Practice Recommendations

# Six commitments to make a difference

The Good Growth Plan is Syngenta's commitment to make a measurable contribution by 2020. We are setting ourselves six specific targets related to improving resource efficiency, rejuvenating ecosystems and revitalizing rural communities.

## Six commitments



Make crops more efficient



Rescue more farmland



Help biodiversity flourish



Empower smallholders



Help people stay safe



Look after every worker

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## Help people stay safe

Train 20 million farm workers on labor safety, especially in developing countries.

### Why does this matter?

Agriculture is the world's second largest source of employment, often involving long hours and heavy work in challenging climates and harsh conditions. We have a responsibility to help improve occupational safety and health in agriculture.

### How are we going to do it?

We aim to raise awareness of the risks associated with agricultural work, and share knowledge of how these can be effectively managed and prevented. Each year, we train as many farmers as possible through partnerships with local organizations and product retailers. To reach 20 million farm workers by 2020, we will partner with even more organizations. Training will be done by Syngenta employees or partners. We will ensure that training is high-quality and leads to measurable impacts on attitudes, knowledge and behavior.

# Introduction

Syngenta is committed to train growers on the safe use of crop protection products (CPPs). These guidelines summarize the key topics that should be included in safe use training delivered by Syngenta and its alliance partners. As local conditions across geographies can vary substantially, each region, territory and country will need to adapt the emphasis of the training according to local regulations and requirements, conditions and grower needs.

The content herein is organized around the on-farm life cycle of CPPs from the point of sale, through use on the farm to the safe disposal after use. The on-farm life cycle is divided into eight main phases of buying, transporting, storing, before application, during application, after application, waste management, and recording. Guidance for good personal hygiene practices, and response to and management of incidents (for example, spills or accidental exposure to product) at each of these stages is also covered (see page 4 and 5). This structure aims to follow the broad course of action typically taken by growers

when handling CPPs, irrespective of the size, type of production or location of the farm.

This guidance document provides an overview of what we believe should be considered good practice for the safe and effective use of CPPs. However, it is important to consult with the appropriate local field experts to comply with local laws and requirements. It is Syngenta's intention that, where appropriate, employees in direct contact with growers should aim to raise awareness of the safe use of our products by reminding growers about "The 5 Golden Rules" for the safe and effective use of CPPs, namely:

## The 5 Golden Rules:



### Exercise caution at all times

- ✓ Always handle CPPs carefully, avoiding contamination of yourself and the environment.
- ✓ Always clean up spills of CPPs immediately.
- ✓ Keep children, animals and bystanders away when handling CPPs.



### Read and understand the product label

- ✓ Always read and understand the product label, or have someone read it to you. If unsure, seek the advice of local field experts.
- ✓ When using CPPs, always comply with your local regulations and laws.



### Practice good personal hygiene

- ✓ Always practice good personal hygiene when handling CPPs.
- ✓ Do not eat, drink or smoke while handling CPPs.



### Wear appropriate personal protective equipment (PPE)

- ✓ Wear the PPE recommended by the label or applicable local requirements when handling CPPs. Products with different toxicity level require different PPE.
- ✓ Wear protective gloves (e.g. nitrile and other non-absorbent materials) whenever you handle CPPs.



### Take care of and maintain application equipment

- ✓ Regularly maintain your spraying and drilling equipment so that it works effectively and does not leak.

# The main phases of CPPs on farm lifecycle



**This symbol indicates particularly important messages that must be communicated to the growers**



Personal hygiene  
Incident management

**The 5 Golden Rules  
for the safe use  
of CPPs**



1. Buying



2. Transporting



3. Storing



4. Before  
application



5. During  
application



# Good practices for personal hygiene and incident management

## Personal hygiene

Growers in contact with CPPs should carefully remove and clean PPE, and wash themselves before coming in contact with other people and the “clean” areas of the farm. Taking small steps – like always washing hands after using CPPs – can prevent cross-contamination, and therefore prevent exposure risks for other people and animals. For example, growers should take particular care to prevent unintentional exposure to anyone in their immediate surroundings, such as members of their household.

- ✓ **Always wash your hands after handling CPPs.**
- ✓ **Always keep a thick plastic bag to transport contaminated clothing from the field.**
- ✓ **Wash clothes used during pesticide application separately from everyday clothes.**
- ✓ **Wash yourself thoroughly after spraying.**

- ✓ **Rubber boots, gloves and other reusable PPE should only be washed in dedicated areas.**

Reusable PPE for pesticide use should be thoroughly cleaned at the end of each day’s work and replaced if it is not in good condition, for example, if it is torn. Although gloves should only be removed after being washed, growers should avoid touching the outside of the gloves with their hands.

- ✓ **It is recommended that gloves should be removed as follows: partly remove one of the gloves as far as the wrist; pull the other glove down to thumb level; grasp the gloves by the insides with your free hand and insert your thumb in the unremoved glove to remove it; always hold the gloves by their insides.**
- ✓ **The PPE for CPPs use should be kept exclusively for this purpose.**
- ✓ **Do not eat, drink or smoke while handling CPPs or contaminated PPE.**

## Incident management

Growers need to know what to do in case of accidental spills of CPPs or in case of accidental exposure to CPPs. As a basic rule, it is always important to clean up spills immediately and to thoroughly wash exposed skin immediately. If necessary, growers need to seek medical help. If in doubt, the product label explains the correct measures to take in case of emergency. Below is a list of actions to take in the event of accidental spills or exposure.


- ✓ **Wash any splashes or spills from skin and eyes immediately. Always have access to clean water to wash skin and eyes in case of emergency. Always refer to product label or safety data sheets, which contain instructions on how to handle a spill.**
- ✓ **Contain small liquid spills by covering with earth, sand or other suitable absorbent material. Solid spillages should be vacuumed wherever possible, ideally with a high efficiency particulate absorption (HEPA) filtered vacuum cleaner. If a vacuum cleaner is not available use a designated broom and dustpan. All waste should be disposed of in accordance with local regulations.**
- ✓ **Make sure emergency contact numbers are available on the farm and be aware of basic emergency procedures.**
- ✓ **Exchange damaged or contaminated protective clothing for clean ones.**
- ✓ **In the event of contamination of the eyes, immediately wash eyes with clean water, keep the eye open and rinse for 15 minutes, letting the water run into the eye from the side of the face towards the nose. In the event of contamination of the body, immediately remove contaminated clothing, and wash the affected area carefully with soap and water.**
- ✓ **In case of accidental exposure of others, seek medical help, keep the label and collect as much information as possible about the accident. Make sure the affected person is breathing normally, and do not allow them to smoke or drink anything.**
- ✓ **Poisonings involving CPPs need expert advice. Incorrect treatment may worsen a patient's condition.**
- ✓ **Always keep the label/bottle of the product and show it to the treating physician.**
- ✓ **All Syngenta labels contain emergency numbers for local or international poison centers. This number should be called in case of CPPs exposure.**



# 1. Buying crop protection products

The safe and effective use of CPPs starts from their purchase. Growers should be aware of the key recommendations for buying CPPs, and the risks to humans and the environment associated with buying and using counterfeit products.



 **Always buy CPPs from reputable and authorized dealers.**

In most countries, distributors need to have an official authorization to sell CPPs. Growers should be reminded to only buy pesticides from official and reputable dealers and to ask to see the necessary authorizations if in doubt.

 **Check CPPs are genuine and be aware of the risks of counterfeit products.**

Genuine CPPs go through years of strict testing and risk assessments to ensure that they are safe to use. Counterfeit and other illegal agrochemicals are often: untested, unauthorized, not meeting the specifications as described on the label, lacking the quality compared to genuine goods, or simply unsafe. Unfortunately, increasing quantities of them are being produced – some looking very similar to the genuine product – and placed on the market all over the world.

Growers should check when buying a CPP that it is the genuine article. Using counterfeit agrochemicals may mean that the intended control is not achieved or crop damage is incurred, impacting growth and yield. Also, untested products may have harmful consequences for the safety of users and the environment. Counterfeit containers often fail to meet market standards, meaning they are also prone to breakages and spills.

- ✔ **CPPs must be in their original, undamaged, container with clear legible label.**

Ensuring that the product is in its original undamaged packaging not only protects the growers from potential spills and incidents during transport and storage, but also acts as an additional guarantee on the quality of the product. Note, however, that the packaging integrity does not necessarily ensure that the product is not a counterfeit.

- ✔ **CPPs must be recommended for the crop and target pest you need to control.**

The intended use of any CPPs is indicated on the label, which the grower must always consult before purchasing and using CPPs. If the grower does not understand the label and pictograms, he should seek the assistance of local field experts or the distributor.

- ✔ **Only buy the amount of CPP you need to avoid unnecessary waste and to minimize risk during storage.**

- ✔ **Make sure you have the necessary machinery and PPE to use CPPs.**

In order to ensure the safe use of CPPs, growers should always follow the recommendations on the product label. When buying a product, growers must always read the label first (or have someone read it to them), and make sure they have all the PPE and machinery necessary for its safe and effective use.



## 2. Transporting crop protection products

Growers should be trained on best management practices to transport small and large quantities of CPPs from the seller to the farm and also within the farm.

✓ **Always comply with local laws and regulations of transport CPPs in your country/state.**

✓ **If using a vehicle, make sure it is in good conditions and safe to transport pesticides.**

A general check of the vehicle and its conditions can help growers to ensure that CPPs can be transported safely. This means, for example, that CPPs should be transported in a compartment of the vehicle that is separated from the driver and passengers. The compartment should be dry, clean and free from any projecting screws or other objects that could pierce the container.

✓ **Transport in original containers away from foodstuffs, animals and people.**

Growers should always transport CPPs separately from people, animals, foodstuffs and animal feed. If this is not possible and the same vehicle must be used, then growers should make sure that products, people and livestock are physically separated within the vehicle through barriers or nets.

✓ **Secure containers during transport to prevent them from shifting.**

CPPs should be evenly distributed within the vehicle, with heavier packaging at the bottom, and occupying the entire surface of the compartment where possible to avoid shifting during transport.

Growers should read the label instructions to establish whether special recommendations exist on how to transport CPPs. If possible, the load within the vehicle should be secured with ropes or straps and protected with padding materials.

- ✓ **Avoid exposing packaging to excessive heat, rain, cold and other climatic extremes during transportation.**
- ✓ **Whenever handling the packaging it is best practice to always wear the minimum recommended PPE (gloves, long-sleeved shirts and long trousers).**
- ✓ **Do not lift heavy loads without help.**

- ✓ **To avoid contamination of yourself, other people, pets or farm animals and the environment, always clean up spills of chemicals in or around the vehicle immediately. If unsafe to do so, call the appropriate authorities.**



## 3. Storing crop protection products

Growers should be aware of best management practices for the storage of CPPs on the farm, and should be informed of the minimum characteristics that storage boxes or rooms should have in order to minimize exposure risks.

- ✓ **Comply with local CPPs storage laws and regulations in your country/state.**
- ✓ **Never eat, drink or smoke in the storage room or close to the storage box.**



- ✓ **CPPs should be stored in a securely locked place away from food, humans and animals.**


Storage boxes or rooms should be used exclusively for storing CPPs and also measuring devices used to prepare for CPPs applications. The storage boxes or rooms should be securely locked and ideally separated from other buildings (especially residential buildings). Unauthorized users, especially children and animals, should not have access.


- ✓ **Storage boxes or rooms should contain a visible and up-to-date list of emergency numbers.**

In case of emergency, the storage boxes or rooms should be equipped with a list of emergency contact numbers like firefighters, medical emergency, and poison centers, and have the safety data sheets for all products in storage.

 **Only store CPPs in their original containers.**

CPPs should only be stored in their original containers to avoid accidental use for purposes other than their intended ones. They should also be placed in a way where their label is easily readable.

 **Materials used to build storage rooms should be impermeable and resistant to fire. There should also be sufficient ventilation within the storage room.**

 **Storage rooms should have equipment for dealing with spillages and emergencies.**

If storing large amount of CPPs, growers will need a storage room instead of a storage box. For this purpose, the materials used to build the storage room should be impermeable and resistant to fire. There should be sufficient ventilation within the storage room to ensure renewal of air. The storage room should also be able to retain spillages

or firefighting water. This can be achieved by building the floor a few centimeters below soil level, or by building a bund and waterproofing the floor surfaces. In addition, as a minimum requirement, growers should equip their storage room with a fire extinguisher, sand, strong plastic bags, buckets, brush, dustpan and protection against packaging freezing (if that is a possibility in the location).

 **Store solid products above liquid products.**

This ensures that no liquid drops on solid products in the event of a leak or spillage.





## 4. Before application of crop protection products

There are a number of steps growers need to take in planning their application to confirm conditions are suitable to use CPPs. These include checking the recommended spray timing (particular stage in the life cycle of the pest and/or crop) on the label and also checking if the weather conditions are favorable for the application.

- ✔ **Check the product label for any recommendation regarding CPPs application crop and/or pest stages, pre and post-harvest intervals.**

In order to apply CPPs effectively, growers should make sure they follow the CPPs label recommendation on the type of crop and/or pest stage. It is also important to check the pre- and post-harvest intervals as this can



- ✔ **Check the weather conditions as these may affect the efficacy and safety of the treatment.**
- ✔ **Do not apply products if wind speeds are above 20kph (moderate breeze where small branches and leaves move constantly in the wind) or below 3kph (calm to light air where leaves are still and smoke rises vertically).**

Some products are easily washed off by rain, so a dry period following spraying is necessary. Spray drift caused by wind may be hazardous if blown in the direction of the operator, other crops, water sources, animals or homes. Applying in very calm conditions can result in CPP spray droplets moving off-target, including through the effect of temperature inversions, so this should also be avoided.

affect the residue profile of the crop following application and is also a legal requirement for the use of the product.

Preparing the spray mixture calls for special precautions. There are a number of safe use recommendations that the grower should follow:

- ✓ **Always read the product label before preparing the spray mixture/seed treatment/drilling.**

Grower must always consult the label before using a CPP. The label contains legal requirements, and all of its instructions and stipulations must be followed and respected.

- ✓ **Always wear the right PPE for the mixing and loading of CPPs. Check and understand pictograms/instructions on the label before you start your application task.**

It is essential to follow the recommended PPE for mixing and loading as indicated on the label. This will vary according to the product used, but as a general rule,

it is good practice to wear at least waterproof non-absorbent gloves, rubber boots, long-sleeved shirt, long trousers and eye protection.

- ✓ **Always prepare the mixture at a dedicated location on farm.**

The mixing location should ideally be close to the storage room with an impermeable floor and capable of retaining accidental spillage. If the mixture is prepared in the field, growers should regularly change the location where this action is performed and ensure that this is not done in close proximity to a water courses. Whatever location they chose, they must ensure that bystanders and animals are kept at a safe distance during all operations with pesticides.

- ✓ **Always check that the application equipment is in good condition and safe to use (no leakages, no damage to straps for knapsack sprayer, etc). Repair any leaks in spraying equipment immediately.**

Growers should also make sure that hoses and clips fastening them to the sprayer are not leaking and nozzles are properly functioning. It is always useful to have emergency tools on hand to repair the sprayer and other equipment as necessary.

- ✓ **Calibrate equipment to apply the recommended quantity of your spray mixture (product diluted with water).**

Growers should carefully calculate the amount of product required to complete the spray task and only mix the required volume of spray solution.

- ✓ **Open the product container carefully, avoiding spills and keeping away from the body and face.**

Growers should never use their mouth or teeth to open a container. They should always use the utmost care when handling an open container and close the container as soon as they have finished dispensing the product.

- ✓ **Do not eat, drink or smoke when mixing and loading CPPs.**

- ✓ **Close containers carefully and place in storage room after use.**

When containers are empty, growers should triple rinse them, put the rinsate into the sprayer, and dispose of it according to local regulations. Rinsed containers should be punctured to prevent inappropriate reuse and then should be disposed of according to local regulations. Growers must never discard containers on the field or in water courses. If unsure of what type of disposal mechanism is available (such as collection, recycling, and incineration) growers can contact local authorities or refer to the local crop protection association.



## 5. During application of crop protection products

Through adhering to good practices during application, growers can minimize potential CPPs exposure to human and the environment.

- ✓ **Always read the product label and wear the recommended PPE for application of CPPs.**

It is essential to follow the recommended PPE for application as indicated on the label. PPE will vary according to the product used, but as a general rule, it is good practice to wear at least non-absorbent gloves, rubber boots, long-sleeved shirt, long trousers and eye protection.

- ✓ **Keep people and animals away from the areas to be treated, inform your neighbors as appropriate, and place signs to restrict bystander and worker access to the application area.**

Some CPP labels specify a re-entry period, or the time that must be allowed to pass after spraying before it is safe for people or animals to


re-enter the treated areas. Growers should check the product's label to find out if a re-entry period applies. If so, they should place clear and obvious signs to restrict access to the treated area.

- ✓ **Always have a source of clean water available on or near the field during application.**

Growers should make sure that there is a source of clean water nearby in case of unexpected incidents, such as spills. It is also important that growers keep themselves hydrated and avoid applying CPPs during the hottest time of the day in warmer climates.

- ✓ **Always spray in the same direction as the wind so that any spray drift is away from the operator. Avoid any drift contamination onto neighboring land or people.**

The spray drift caused by the wind may be hazardous if it blows in the direction of the operator, other crops, water sources, animals or homes.

 **Do not use your mouth to unblock nozzles.**

Growers should have gloves and tools to fix nozzles and other equipment in the field. If for any reason growers need to stop during application, they should clearly mark the location where they stopped applying the product so they know where to start spraying again.



## 6. After application of crop protection products

After the application of CPPs, growers should ensure that access to sprayed area is restricted (if a re-entry period applies), that the application equipment is cleaned and that PPE is properly cleaned or disposed of.

- ✓ **If the product label specifies a re-entry period following application, clear signs should be placed to warn against entering the fields.**
- ✓ **If the product label does not specify a re-entry period following application, dried CPP residues should be considered as minimum requirement before re-entry in the fields.**
- ✓ **Clean and check the application equipment at the end of each day's work, leaving it ready for the next treatment.**

The equipment should be maintained in accordance with the manufacturer's instructions. Special attention should be paid during long off-season periods when the equipment is not used.

- ✓ **Always follow the manufacturer's cleaning instructions.**

For example, certain PPE made of water repellent materials should be ironed to maintain its water repellent characteristics.

- ✓ **Before taking off the first article of PPE, the operator should first wash his gloves.**
- ✓ **Reusable PPE (e.g. rubber boots, gloves) and clothing worn during application should be washed in dedicated areas away from water sources, animals and people, and should be kept separate from everyday laundry.**
- ✓ **Disposable PPE should be replaced after use. Disposable PPE should not be washed or re-used because this may cause them to lose their protective properties and therefore become ineffective.**



## 7. Waste management

The way growers manage CPP waste is very important as unsafe handling practices may have adverse impacts on human health and the

environment. It is very important that empty packages and leftovers from the spraying are handled carefully and according to local regulations.



Growers should only prepare the amount of spraying solution that they need in order to minimize waste. It is important that growers dispose of all waste carefully and in accordance with local regulations. This includes disposing of empty CPP containers, empty treated seeds bags, used disposable PPE, leftover products, leftover water from cleaning the equipment.



**Never dispose of pesticide containers, waste or contaminated material carelessly especially near open water or residential areas.**



**Empty pesticides packaging should be triple-rinsed, punctured and disposed according to local law and regulations. Do not reuse empty containers.**



**If you have leftover CPP spray mix, spray it over part of the field not previously treated in diluted quantities. Do the same with the washings from cleaning the spray tank.**



**Always clean up liquid or solid spills immediately, and dispose of the leftovers according to local regulations.**



## 8. Recording crop protection products use

Recording the use of CPPs is an important step in improving the overall safety and well-being of the grower. Recording promotes compliance with safe pre-harvest intervals and can allow a grower to identify farm efficiencies and improve their profitability. Record keeping can also be important in demonstrating that label instructions, growing protocols and resistance management strategies have been followed, which is increasingly important in helping growers to access local and international markets. Reporting CPPs use can also protect growers' health and also help avoid future pesticide incidents. Growers should look to keep the following records:

- ✓ **Records of CPPs used on farm and CPPs stored in the storage room should be kept up to date.**
- ✓ **Records of application times and weather conditions at time of application.**

- ✓ **Records of health incidents should also be kept in order to monitor, investigate and report any incidents when handling pesticide.**
- ✓ **Records of equipment maintenance, staff training and PPE renewal.**