



## The prudent use of agricultural chemicals on dairy farms<sup>©</sup>

Diary Standard Agency

25 October 2023

**PRESENTED BY DR GERHARD H  
VERDOORN**

**© THIS PRESENTATION IS THE PROPERTY OF CROPLIFE SA AND MAY NOT  
BE ALTERED OR REPRODUCED IN ANY FORM UNLESS IT IS USED DIRECTLY  
FOR TRAINING PURPOSES**

# Themes to be addressed

- **Safe storage of agricultural chemicals and stock remedies on dairy farms**
- **Labels and label instructions of agricultural chemicals, stock remedies and veterinary pharmaceuticals**
  - **Safe use practices for agricultural chemicals and stock remedies**
    - **Hazards and risk prevention when using agricultural chemicals**
    - **Post application self-decontamination, application equipment cleaning and empty container management**

## Part 1

# SAFE STORAGE OF AGRICULTURAL CHEMICALS (PESTICIDES) AND STOCK REMEDIES ON FARMS



A farm store should always be a stand-alone building or completely separated from other sections of stores by firewalls



# 1b. OUTDOOR WARNINGS AND SIGNAGE FOR PESTICIDE STORES AND ACCESS CONTROL



**TOXIC SUBSTANCES**



**NO UNAUTHORISED ENTRY**

**NO ENTRY WITHOUT PPE**

**FARM/BUSINESS NAME AND LOGO**

**Manager/owner number 0XX-XXX-XXXX**

**24 hr Poisoning emergency number 082-446-8946**

**SAPS number 0861-10111**

**Hospital/clinic number 0XX-XXX-XXXX**

**Ambulance services number 0XX-XXX-XXXX**

**Fire brigade number 0XX-XXX-XXXX**

Sign board should be 1000 mm by 750 mm with large font size script (75 mm (**this is a MUST**) for easy reading and boards must preferably on all walls at doors/entrances

Script must be in **two local** languages

# 1a. STORAGE PRACTICES ON FARMS – segregation is a key element of safety

Strict access control and stock control



Herbicides away from fungicides & insecticides

All chemicals classified as DANGER locked away inside store

Ectoparasiticides separated from pesticides

No fertilizers, no animal feeds

Endectocides & veterinary medicines in a separate store

No fuels & lubricants



## Part 2

# THE IMPORTANCE OF PESTICIDE AND STOCK REMEDY LABELS

### **Act No. 36 of 1947 and Act No. 101 of 1965**

Both acts and their respective regulations command that the user of pesticides, stock remedies and veterinary medicines use these products strictly according to label instructions

**Registered veterinarians may use stock remedies “off-label” and may compound veterinary medicines under certain conditions of Act No. 101 of 1965**

This does NOT apply to farmers or their employees!!

# 1a. IMPORTANT INFORMATION ON AGRICULTURAL CHEMICAL LABELS

## 2. SIGNAL WORDS

DANGER










OR

WARNING

3. Precautionary statements to inform the user about:

- Prevention (incl. PPE)
- Response (in case of exposure)
- Storage (requirements)
- Disposal (packaging & left-over stock)

## 1. HAZARD SYMBOLS & associated hazard statements

GHS01 Explosive 	GHS02 Flammable 	GHS03 Oxidising 
GHS04 Gas Under Pressure 	GHS05 Corrosive 	GHS06 Acute Toxic 
GHS07 Harmful / Irritant / Skin sensitiser 	GHS08 Carcinogen / Germ cell mutagen / Reproductive toxin 	GHS09 Hazardous to the aquatic environment 

4. Directions for use guides user on effective use

# 1b. HAZARD VERSUS RISK – MANAGING RISKS

## SAFETY AND HEALTH RISK WARNING

By not adhering to label precautions and instructions for use, the user transforms the pesticide's hazard into a risk for people and the environment

**RISK CAN BE MANAGED OR TOTALLY AVOIDED BY READING AND FOLLOWING ALL LABEL INSTRUCTIONS 100%**

## EXPLANATORY EXAMPLE

**A HAZARDOUS OBJECT WITHOUT A PERSON HANDLING IT POSES NO RISK TO PEOPLE OR THE ENVIRONMENT, BUT ONCE IN THE HANDS OF A PERSON, A RISK SITUATION MAY ARISE**



Hazardous object



Extremely risky situation with person with a hazardous object



Hazardous substance, minimal risk



Hazardous substance, minimal risk



Hazardous substance, high risk



## Part 3

# The safe handling, measuring, mixing and application of agricultural chemicals and stock remedies on dairy farms



# 3a. APPLICATION MIXTURE PREPARATION: DOUBLE CHECKING



Read the label instructions before measuring, mixing or applying

Ask yourself the critical questions

Have all the required equipment ready

Balance (scale)

Measuring cylinder

Measuring beaker

Large syringe

PPE

A measuring kit is available from a CropLife SA member



- Is the product registered for the crop (animal) and pest, disease or weed?
  - What are the warnings or precautions to take note of?
- Do I have the required buffers, adjuvants and CLEAN water?
- What is the mixing sequence?
- What is the dosage rate per hectare (animal)?
- How much product do I need to decant into my spray tank (onto the animal)?

*Is my PPE suitable for the product?*

# 3b. PERSONAL PROTECTION IS A PERSONAL RESPONSIBILITY

## BE SMART AND SAFE

ALWAYS WEAR THE APPROPRIATE PERSONAL PROTECTIVE EQUIPMENT WHEN WORKING WITH PESTICIDES



### WHEN DECANTING, MEASURING AND MIXING



### WHEN SPRAYING, DUSTING OR APPLYING GRANULES



### WHEN CLEANING APPLICATION EQUIPMENT



Wear a mask when working with granules, powders or dustable powders.

Wear a respirator when working with very toxic and toxic substances and spray mixtures.

Wear a face shield when working with other pesticides.

Wash shirt, pants and hat daily.

Wash boots, gloves and face shield daily.

Clean respirator daily and replace filters regularly.

Discard the face mask if it was used.

Wash hands, arms, face and neck with soap and cool water.

READ THE PESTICIDE LABEL FOR ANY SPECIAL INSTRUCTIONS ABOUT PERSONAL PROTECTION



The Occupational Health and Safety Act, 1993 (Act No. 85 of 1993) compels farm workers and farmers who handle and apply pesticides, to wear appropriate PPE

# 3c. FORBIDDEN ACTIVITIES WHILE WORKING WITH PESTICIDES AND STOCK REMEDIES



DON'T EVEN  
THINK OF IT



Smoking, eating or drinking while working with pesticides is a definite way of introducing pesticides into the body because food, drinks and cigarettes are handled with contaminated hands

For ablutions: remove PPE, wash hands and face, and then use toilet

Correct protocol: plan spray operation so that adequate breaks are available in the day's work. Remove PPE, wash hands and face, and then eat, drink or smoke (which is bad for you!)

# 3d. SAFETY PRECAUTIONS WHEN SPRAYING



Spectators



Livestock



Wildlife



Pets



Poultry



Children



Bees

Check the entire application area and make sure there are no people, animals or bees that may come in harm's way

# 3e. THE RIGHT WEATHER FOR APPLICATION



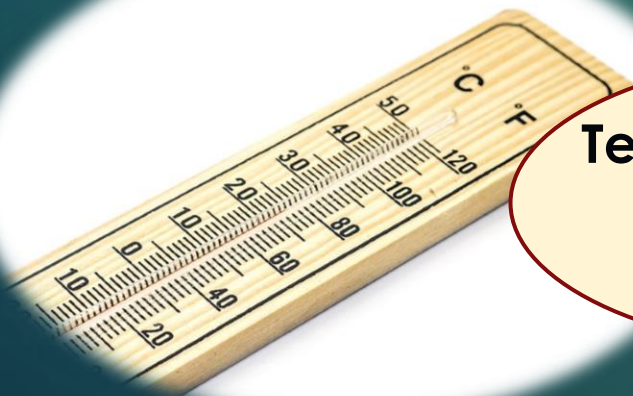
Sunny skies  
without rain for  
at least 6 hours



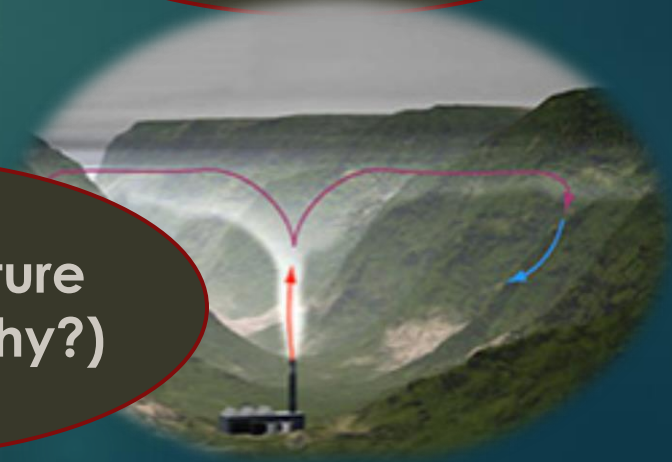
Apply only after dew  
evaporated (why?)



Wind between 5 and  
15 kph (why?) (10 kph  
for glyphosate)



Temperature between  
 $10^{\circ}$  and  $30^{\circ}$  C  
(why?)



No temperature  
inversion!! (why?)

### 3d. WITHHOLDING PERIODS AND MAXIMUM RESIDUE LEVELS

#### **Purpose of listing withholding periods (pre-harvest or pre-grazing interval) on pesticide and stock remedy labels**

- **Safety factor: the time lapse between last application of a pesticide or stock remedy and consumption of the foodstuff; this is the time required for the active ingredient to degrade to at or below its Maximum Residue Level (MRL) on the foodstuff**
- **MRL: a regulated maximum concentration of a hazardous substance in an edible commodity**
  - **Safety factor applies to foodstuffs for human and animal consumption**
    - *E.g. cypermethrin: PHI = 14 days, MRL = 0.5 mg/kg*
    - *E.g. methomyl: PHI = 7 days, MRL 0.1 mg/kg*

**Dairy cows should never be present in paddocks or camps where pesticides are applied  
Strict adherence to PHIs is very important for cow health and dairy product food safety compliance**

**Never use unregistered agricultural chemicals, stock remedies and veterinary medicines!  
Never make own home-made ectoparasiticides!**

# Part 4

## Post-handling and application safety principles





# 4a. PERSONAL DECONTAMINATION AFTER WORK



WASH HANDS AND ARMS FOR 2 MINUTES WITH COLD WATER AND GENTLE SOAP

WASH FACE, NECK AND THROAT WITH COLD WATER AND GENTLE SOAP

SPRAY OPERATORS MUST TAKE A COOL SHOWER WITH GENTLE SOAP

COLD WATER KEEPS SKIN PORES CLOSED AND PREVENTS PESTICIDE RESIDUES FROM ENTERING THE BODY; WARM WATER OPENS PORES AND ALLOWS PESTICIDE RESIDUES TO BE PENETRATE THE BODY

REMEMBER: NO PPE MAY BE TAKEN HOME!! IT MUST BE CLEANED AFTER WORK AND LEFT AT THE STORE IN A SECURE LOCKER



# 4b. TRIPLE RINSING & RECYCLING EMPTY PESTICIDE PACKAGING

Triple rinse your used pesticide containers  
Tšokotša lebotlelo (Setswara) le senago selo ga raro (3)

Follow these steps  
Latela ditaelo tše  
di latelago

**x3**



Empty all pesticides from the container by placing it upside down over the spray tank and holding it there for at least 30 seconds. Tsholla sehlare sa dibolaya-disenyi ka moka mo lebetlelong ka go le kgonamiša godimo ga tanka ya go gaša, mme o se tlogele jwalo metsotswana e masometharo (30).

Always wear protective clothing. Aparo diaparo tsa go tšhireletša ka nako tšohle.

**Remember! Gopola!**

Puncture the rinsed container to render it useless and send to a CropLife SA approved recycler. Hlaba mašoba mo lebotlelong (setshwarong) leo le tšokoditšweng gore le hloke mohola (le se sa šoma), morago ga fao o le romele go bašomišane ka rena bao ba nnetefaleditšwego ke CropLife SA go šomiša di šomišwa gape.

1 Fill with one quarter clean water. Tlatša ka meetse a a hlwekilego a go lekana kotara e tee (1/4).

2 Shake for 30 seconds. Šikinya/ Tšokotša go lekana metsotswana e masometharo (30).

3 Decant into spray tank for 30 seconds. Tšhela ka gare ga tanka ya go gaša go lekana metsotswana e masometharo (30).

Repeat 1 to 3 Bušetša kgato ya mathomo (1) go fihla go ya boraro (3).

**NEVER RE-USE EMPTY CONTAINERS OR BAGS FOR ANY PURPOSES OR GIVE IT TO ANYONE ELSE**

**NEVER BURN OR BURY EMPTY CONTAINERS OR BAGS AS IT DEPOSITS TOXINS IN THE ENVIRONMENT AND PRODUCES TOXIC FUMES**

**NEVER LEAVE HALF FULL OR EMPTY CONTAINERS OR BAGS UNATTENDED IN CROP FIELDS**

**ALWAYS TRIPLE RINSE OR SPRAY RINSE, PUNCTURE AND RECYCLE EMPTY CONTAINERS OR BAGS**

**STORE TRIPLE RINSED EMPTY CONTAINERS OR BAGS IN A SECURE STORE ON THE FARM UNTIL THEY CAN BE TAKEN TO A CROPLIFE SA CERTIFIED RECYCLER**





**WASTE MANAGEMENT PROGRAMME**

**CROPLIFE SA NETWORK**

**CERTIFIED RECYCLERS OF EMPTY  
PESTICIDE PACKAGING FOR THE  
AGRICULTURAL AND PEST CONTROL  
SECTOR**



**APRIL 2023 2<sup>nd</sup> EDITION**

**This not simply a list of recyclers; it contains a load a valuable information about packaging decontamination and recycling**

**Cleaning protocols for all types of pesticide packaging are available on  
<https://croplife.co.za/Home/ContainerManagement>**

# CLEAN YOUR SPRAY EQUIPMENT AFTER USE

**NEVER LEAVE SPRAY MIXTURE IN A SPRAYER OVERNIGHT**

**DISPENSE OF ALL OF THE SPRAY MIXTURE BEFORE RINSING THE SPRAYER THREE TIMES WITH CLEAN WATER**

**IF INSTRUCTED BY THE LABEL, USE A COMMERCIAL DECONTAMINANT**



**ALWAYS WEAR YOUR PPE WHILE CLEANING THE SPRAY TANK**

**CHECK ALL PIPES, NOZZLES, VALVES AND SEALS, AND FIX OR REPLACE IF NECESSARY**

**LEAVE SPRAYER CAP OFF TO ALLOW WATER TO EVAPORATE**

**STORE THE SPRAYER IN ITS RIGHTFUL PLACE IN THE FARM STORE OUT OF DIRECT SUNLIGHT**

# TAKE ALL PESTICIDES BACK TO THE STORE AFTER APPLICATION

**Seal containers with their screw caps or tape PP bags close with duct tape**



Make sure each container or bag is labeled and if label is compromised, put a *full colour* photocopied label into a zip lock bag onto the container AND put that container with the others of the same brand and batch at their rightful places in the store



**Complete all spray and stock records and lock store**



Remember to self-decontaminate body and PPE

# PREVENTING POISONING BY PESTICIDES

**Always use PPE as instructed by label precautions**

**Keep all people and animals away while applying pesticides**

**Follow *ALL* label instructions strictly**

**Do not spray in poor weather conditions**

**Do not smoke, eat or drink while handling or applying with pesticides**

**Never use empty containers or bags for food or drinks**

**Make sure equipment is always in good working order**

**Do not eat crops before the withholding period expired**

**Pay attention to the re-entry period as stated on the label**

**Always keep pesticides under lock and key, out of reach of children and animals**

## END OF THE SESSION

For more information contact Dr  
Gerhard Verdoorn on 082 446 8946  
or [gerhard@croplife.co.za](mailto:gerhard@croplife.co.za)

**RATHER BE SAFE THAN SORRY**

