

**REMEMBER THIS**

**IF YOU FAIL TO PLAN      YOU PLAN TO FAIL**

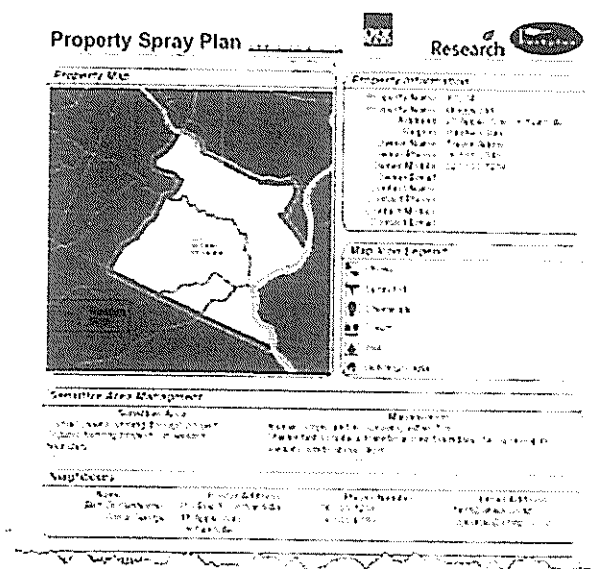
**ITS ALWAYS BETTER TO BE SAFE THAN SORRY**

## YOU MUST KNOW

- WHAT YOUR SPRAYING
- WHAT YOUR SPRAYING WITH
- HOW YOUR SPRAYING
- WHEN YOUR SPRAYING
- WHAT PRECAUTIONS ARE NEEDED
- FIRST AID PROCEDURES

# PROPERTY SAFETY PLAN

Almost all Regional Plans require you to have a property spray plan that is available to neighbours and regional council staff upon request. These will also be inspected by industry auditors.



A property spray plan **identifies hazards** for planned agrichemical use and **details how they will be managed** to avoid or minimise any adverse effects on people and the environment from the agrichemicals used. Unlike a spray diary, it is not used to record specific applications

The plan should include:

- A map showing neighbours and any sensitive areas nearby
- Crops/areas to be sprayed
- The names and types of agrichemicals likely to be used and any specific hazard (e.g. bee toxicity) that may be associated with them
- Times of the year that spraying is likely to occur
- The names and relevant qualifications (e.g. Growsafe certificate) of the people who will be doing the spraying
- Strategies to avoid spray drift on sensitive areas
- Weather conditions that increase potential spray drift hazard.

Sensitive areas include:

- residential areas (e.g. neighbouring houses)
- schools, parks, marae, public roads
- waterways, lakes, wetlands
- neighbouring crops (including organic and greenhouses)
- bee hives.

## CALIBRATION

This is so you apply the right amount of Agrichemical. If you don't you might apply too much or too little. Both of which have their problems

Always use water to calibrate your knapsack.

### Steps

1. Mark out a 25sqm plot (5 X 5)
2. Fill sprayer to known level say 4L  
(Mark with permanent marker if needed)
3. Spray the plot at a steady pace so the whole area is covered
4. When finished take the sprayer to a level area and refill to marked level- this tells you the quantity of water required to Spray 25sqm.
5. Work out how much to do 1000sqm and 1ha

**Water rate/1000m<sup>2</sup> = Litres used on calibration plot x 40**

**Water rate/hectare = Litres used on calibration plot x 400**

Litres used on 25 m <sup>2</sup> calibration plot	Litres/1000 m <sup>2</sup>	Litres/hectare
0.25	10	100
0.30	12	120
0.35	14	140
0.40	16	160
0.45	18	180
0.50	20	200
0.55	22	220
0.60	24	240
0.65	26	260
0.70	28	280
0.75	30	300
0.80	32	320
0.85	34	340
0.90	36	360
0.95	38	380
1.00	40	400

## MIXING UP SPRAY

Your knapsack will hold 15L

You now need to work out the volume of chemical and water required to spray the desired area.

Lets say 1500sqm and we are using glyphosate herbicide at ( 360g/L at 3L/ha)

Having used 0.4L to spray our 25sqm plot, this means we need 160L for a hectare

How many tanks will I need:

$$\begin{aligned}\text{No of Tanks} &= \frac{\text{L}}{\text{ha}} \\ &\quad \text{L/ tank fill} \\ &= \frac{160}{15} = 10.6 \text{ tanks}\end{aligned}$$

therefore 10.6 tanks to spray 1 ha using 160L (chemical and water)

Next calculate the quantity of herbicide Needed to be added to each knapsack

$$\begin{aligned}\text{Litres of chemical/tank} &= \frac{\text{Chemical Rate/ha}}{\text{No of tanks/ha}} \\ &= \frac{3}{10.6} = 0.283\end{aligned}$$

This means that 0.283L of the glyphosate product must be added to each knapsack tank full of water to ensure an application rate of 3L of glyphosate product per hectare in 160L of water per hectare. (Note: 0.283L is 283mL)

If we want to go one step further and calculate many knapsack tanks full of water we will use in total to complete our job, the formula below can be used.

Remember, the total area we have to spray is 50m x 30m, or 1500 m<sup>2</sup> (this is 0.15 hectare, as there are 10,000m<sup>2</sup> in a hectare).

$$\begin{aligned}\text{Number of knapsack tanks} &= \frac{\text{Tanks/hectare} \times \text{Area (m}^2\text{)}}{10,000} \\ &= \frac{10.6 \times 1500}{10,000} \\ &= 1.59 \text{ (1.6 rounded)}\end{aligned}$$

## SPRAYING STEPS

Read the chemical label first, it will tell you

A whole lot of important stuff

- What PPE gear you need
- the active ingredient
- Dilution rates
- Application rates
- Clean up requirements
- First aid requirements

1. Check gear
2. Put on required PPE
3. Do your calculations
4. Prepare your spray according to your calculations
5. Spray area required at steady pace and even cover (same calibration speed)
6. Clean up using appropriate cleaning methods.

## PERSONAL PROTECTIVE EQUIPMENT (PPE)



### Wear appropriate personal protective equipment.

The agrichemical product's label will give you information about the minimum PPE required for its safe application. Additional information can be found on the product's Safety Data Sheet (SDS). Where more than one agrichemical is being mixed or applied, the protective clothing applicable to the most hazardous agrichemical should be worn.

Remember that the concentrated chemical is the most hazardous so you may wish to wear additional PPE during mixing.

Commonly used PPE in horticulture spraying include:

1. **Protective spray suit/apron:** Unless working above shoulder height, always wear your spray suit outside your gloves and boots. For mixing agrichemicals, an impermeable apron may be appropriate. Put protective clothing on before mixing and spraying, and while cleaning up equipment.
2. **Gloves:** Nitrile gloves are the most versatile for handling agrichemicals. PVC gloves are also adequate. **Never** wear rubber products when handling horticultural

pesticides because they can react with some substances and dissolve.

3. **Eye/face protection:** Goggles or a face shield may be appropriate. Wear safety glasses, goggles or a face shield when mixing pesticides and whenever there is a possibility of spray drift. Spraying while wearing soft contact lenses is not advised.
4. **Respirators:** A face mask should be adjusted to fit comfortably over your nose and mouth so that any air you breathe in must only be drawn through the filter (and not around the edges of the mask).

Make sure you choose the right respirator, especially its filter (filter cartridges suitable for agrichemical use will have a brown band). Replace filters after about 6 months - irrespective of the amount of time they have been used - or immediately if you start tasting or smelling the fumes or have difficulty breathing while using the mask.

## PERSONAL PROTECTIVE EQUIPMENT (PPE)

### Cleanup after spraying:

- . Don't wear the protective clothing for any longer than is necessary
- . Non waterproof cotton overalls should be removed and machine-washed separately from other clothes.
- . Waterproof suits should be rinsed-off with clean water before removal and machine wash separately
- . Rinse gloves in clean water before removing them, washing them with warm, soapy water
- . Store all PPE in a dry and clean place outside the agrichemical store.
- . Take a cool shower (hot water opens the skin's pores) and put on clean clothes

### Respirators:

- . Clean your respirator after use. Remove the filter cartridge(s) before washing the respirator in warm, soapy water. Dry the respirator and store it in a sealed container.
- . Store filters in an air-tight container when not being used. **Do not** store them in your agrichemical store.