



**STANDARD OPERATING PROCEDURE**  
**Boom Spraying/Backpack Hand spraying**

**IMPORTANT NOTES**

- DO NOT proceed in this operation unless appropriately instructed in its safe use and permission has been given
- Ensure personal protective equipment and clothing is available and worn.
- Ensure you have undergone thorough practical training and have been signed off as competent to carry out this task.
- Do not use faulty equipment. Report suspect equipment immediately.

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**POTENTIAL HAZARDS AND INJURIES**

- Slip and fall injuries
- Inhalation of Harmful substances
- Skin absorption
- Poisoning through ingestion
- Eye damage
- Environmental Damage

**PERSONAL PROTECTIVE EQUIPMENT (PPE) REQUIRED**

Protective Clothing



Safety Footwear



Gloves or Gauntlets



Earmuffs



Hardhat



Safety Glasses or Goggles



Full Face-shield



Dust mask



Respirator

**PRE-START CHECK****Boom Sprayer**

1. Identify spray job and equipment required.
2. Make sure you have all PPE on hand.
3. Ensure that all guards on the boom spray are fitted, secure and functional.
4. Ensure that the hitch points, securing pinions and safety chains are in sound condition and connected.
5. Ensure that hydraulic rams, hoses, and couplings are in sound condition and not leaking.
6. Check tractor hitch and frame for cracks.
7. Check all hoses and nozzles for leaks before any start up.
8. Make sure all electrical plugs to rig are clean.
9. Faulty equipment must not be used. Report and repair faulty machinery before use.

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**PRE-START CHECK**

10. Check First Aid kit and eye wash is present and complete.

**Hand Sprayer**

1. Check that it is empty, there are no obvious breaks in the pipes or the tank and that the straps are secure.
2. Add some water and check for leaks.
3. Pump to operating pressure and again ensure there are no leaks.

**Weed Wiper**

1. Identify the job and equipment required
2. Ensure you have the required personal protective equipment on hand
3. Ensure that the hitch points, securing pinions and safety chains are in sound condition and connected.
4. Check tractor hitch and frame for cracks.
5. Check all hoses and nozzles for leaks before any start up.
6. Make sure all electrical plugs to rig are clean.
7. Faulty equipment must not be used. Report and repair faulty machinery before use.
8. Check First Aid kit and eye wash is present and complete.

**Operator Wellbeing**

Ensure sprayers adhere to the following:

1. Carry an adequate supply of drinking water to avoid dehydration.
2. Do not eat, smoke, or drink while handling, working with, or apply Hazardous Substances.

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**OPERATIONAL SAFETY CHECKS****Boom Sprayer**

1. Ensure all required PPE required on the Hazardous Substance label is worn while handling, mixing and applying the chemical.  
[https://www.hazardoussubstances.govt.nz/media/1076/wsnz\\_2268-working-safety-with-haz-sub-v26-0-fa-lr.pdf](https://www.hazardoussubstances.govt.nz/media/1076/wsnz_2268-working-safety-with-haz-sub-v26-0-fa-lr.pdf)
2. Clean up work loading area after each fill.
3. Travel to the field at a speed no more than safe travel permits. Keep to safe speed limit around farm
4. Ensure all road transport rules for driving Agriculture equipment on roads are observed while ferrying.  
<https://www.nzta.govt.nz/assets/resources/agri-vehicles-guide/Agricultural-vehicles-guide.pdf>
5. Once at field check the weather and fill out SPRAY LOG. If good spraying conditions proceed, if in doubt ask supervisor.
6. Regularly check and maintain spray boom pressures.
7. Only spray if wind is between 3 - 20 km per hour.
8. Do not spray with temperature over 35°C for glyphosate and 28°C for LVE hormone pesticides.
9. Always maintain a boom height of preferably 50 cm above the ground or plant canopy. But not at the risk of boom damage.
10. Make sure and DO NOT SPRAY if there are livestock in the field that you are about to spray (report if there are and do not spray until they are moved).
11. SPRAY all the edges of the field FIRST and be fully aware of the paddock and terrain so there are NO MISSED AREAS.
12. Maintain spray buffers surrounding the field just in case weather changes while spraying.
13. Spray field keeping in mind all environmental factors around you. Spray at a speed that is safe for the rig and operator but do not exceed 25 km per hour spraying in field.

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**OPERATIONAL SAFETY CHECKS**

14. IF YOU CAN'T SPRAY AN AREA, YOU MUST REPORT IT IMMEDIATELY
15. DO NOT spray outside of recommended spray pressures or rates
16. KEEP WEATHER SPRAY DATA LOG
17. At end of job rinse out the spray rig and tank. Thoroughly rinse rig and tank between different spray types using a tank cleaner.
18. Make sure all nozzles are cleaned regularly and filters checked and cleaned if needed before use
19. Make sure you clean your PPE at the end of the job
20. Ensure that no person or equipment is endangered when operating the equipment. Children under 15 should not be present when Hazardous substances are used.
21. Ensure at hand over, that the next operator is fully informed of the status of the machine and job.
22. ONLY USE spray nozzles, droplet size and minimum water volumes as stated on Hazardous chemical labels.
23. Observe all label recommendations for use and storage and withholding periods of the Hazardous Substance you are using
24. Special caution needs to be taken to ensure drinking water is not contaminated.

**Hand Sprayer**

1. Leaking equipment wets operator back, buttocks and legs. Hot working conditions increases operator absorption. Incorrect use of handpiece can cause spraying onto feet and legs leading to a high skin absorption rate.
2. Spraying above shoulder height may cause the operator to be covered by blow back of mist leading to skin exposure plus mist inhaled.
3. Feet and legs can be sprayed by mist deflected from plants and the ground. If the pressure is too high, a fine mist will be produced and can blow back on operator.
4. Absorption is via skin and inhalation.

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**OPERATIONAL SAFETY CHECKS**

5. DO NOT SPRAY WHEN:
- Target vegetation is wet, or it is about to rain.
  - In high wind speeds.
  - If the ambient temperatures exceed the range stated on the label or by the spray equipment manufacturer.
6. DO NOT allow spray drift to be a risk to downwind bystanders, crops, and/or animals.
7. SPEED / HEIGHT / PRESSURE When applying Hazardous Substances:
- Workers should move forward at a STEADY pace, ensuring the spray nozzle is kept at an EVEN spraying height.
  - Nozzle should be 50cm above ground height unless advised.
  - Operators need to spray upwind of the area just treated such that the wind blows drift away from the operator.
8. SPRAY PLAN This is required to ensure all areas are covered effectively, efficiently, and only once. It will also reduce the risk of workers walking through sprayed areas. Erect warning signs to inform others of recently sprayed areas and the time when it is safe to re-enter.

**Special caution needs to be taken to ensure drinking water is not contaminated.**

**Weed Wiper**

1. Leaking equipment kills plants not targeted leaving dead stripes in the paddock.
2. Use the right chemical for the targeted weeds and observe correct withholding and record
3. DO NOT WEED WIPE WHEN:
  - Target vegetation is wet, or it is about to rain.
  - If the ambient temperatures exceed the range stated on the label
4. DO NOT weed wipe if stock are present as some targeted weeds become palatable while also toxic.

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**OPERATIONAL SAFETY CHECKS**

5. **SPEED / HEIGHT / WIPER WETNESS** When applying Hazardous Substances:
  - set height to avoid vegetation you want to leave in the paddock but low enough to achieve the greatest contact to targeted weeds
  - Travel speeds are usually around 5 km per hour. For denser stands of weeds, the operator must slow down, and for less dense stands of weeds, the operator should speed up. If travel speed is too slow, the wiper will drip herbicide onto the crop, causing crop injury. Sometimes it is needful to double pass from different directions
  - Wetness of wiper should always be just before dripping point
6. **SPRAY PLAN** This is required to ensure all areas are covered effectively, efficiently.

**ENDING OPERATIONS AND CLEANING UP****Boom Sprayer**

1. Hazardous Substance needs to be stored safely in approved locked and signed storage, away from children and animals. It should not be stored in direct sunlight and must be protected from frost.
2. All used containers must be triple rinsed and disposed of according to regulations
3. Clean away any foreign material, debris from the engine and transmission.
4. Clean tractor and spray rig with power washer to remove spray residues.
5. Park the tractor on level ground with park brake on and remove the key.
6. Service the tractor and spray rig as per manufacturers recommended maintenance schedule
7. Any faults with equipment must be reported promptly. This can be done efficiently through B-Compliant Smart forms using the "Notify Someone" tab. Use the following two forms to guide any maintenance actions needed to be taken

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## ENDING OPERATIONS AND CLEANING UP



Notify Someone  
Workflow .docx



Machine pre-start  
check workflow.docx

**Hand Sprayer**

1. **RINSING OF KNAPSACK TANK.** When cleaning the filters, it is important to ALWAYS use clean water and to clean the sprayer after every use. Sprayers should NEVER be stored with Hazardous Substances still inside, as parts will become corroded, and the sprayer will not operate properly.
2. **PPE CLEANING** The washing of shirts and trousers should be done at a designated laundry facility and separately from other clothing. Boots, gloves, and other PPE equipment should be washed inside and out and be fully air dried.
3. **PERSONAL HYGIENE** Wash hands and face properly before any food or drink is consumed. Bodies should be washed from the top down to ensure contamination doesn't occur during the washing process.
4. **EQUIPMENT MAINTENANCE** As described by the manufacturer. If servicing is required, ensure that this is done within the allotted time frame.
5. **STORAGE** Equipment and Chemicals needs to be stored safely, away from children and animals. It should not be stored in direct sunlight and must be protected from frost.

**Weed Wiper**

1. Hazardous Substance needs to be stored safely in approved locked and signed storage, away from children and animals. It should not be stored in direct sunlight and must be protected from frost.
2. All used containers must be triple rinsed and disposed of according to regulations
3. Clean weed wiper with clean fresh water to remove residues, giving particular attention to wicks
4. Park the tractor on level ground with park brake on and remove the key.
5. Service the tractor and weed wiper as per manufacturer's recommended maintenance schedule

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Farming	<p align="center"><b>STANDARD OPERATING PROCEDURE</b></p> <p align="center"><b>Boom Spray/Backpack Hand Spraying</b></p>
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<b>ENDING OPERATIONS AND CLEANING UP</b>
<p>Resource used for weed wiper</p> <p><a href="https://www.noble.org/globalassets/docs/ag/pubs/soils/nf-so-11-06.pdf">https://www.noble.org/globalassets/docs/ag/pubs/soils/nf-so-11-06.pdf</a></p>

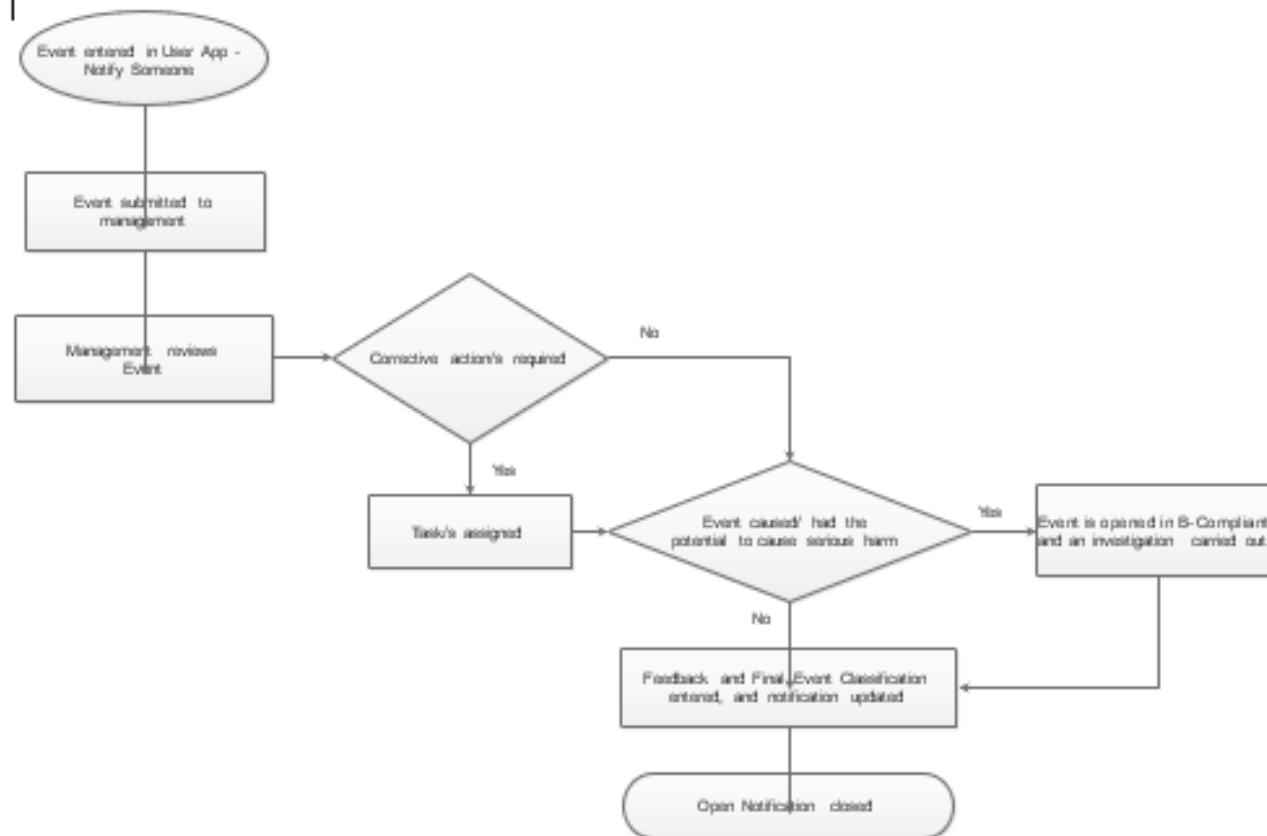
<b>APPENDICES</b>
<ul style="list-style-type: none"> <li>• Notify Someone Workflow</li> <li>• Machine Pre-Start Check Workflow</li> </ul>

*This SOP does not necessarily cover all possible hazards associated with the machine and should be used in conjunction with other references. It is designed to be used as an adjunct to teach Safety Procedures and to act as a reminder to users prior to machine use.*

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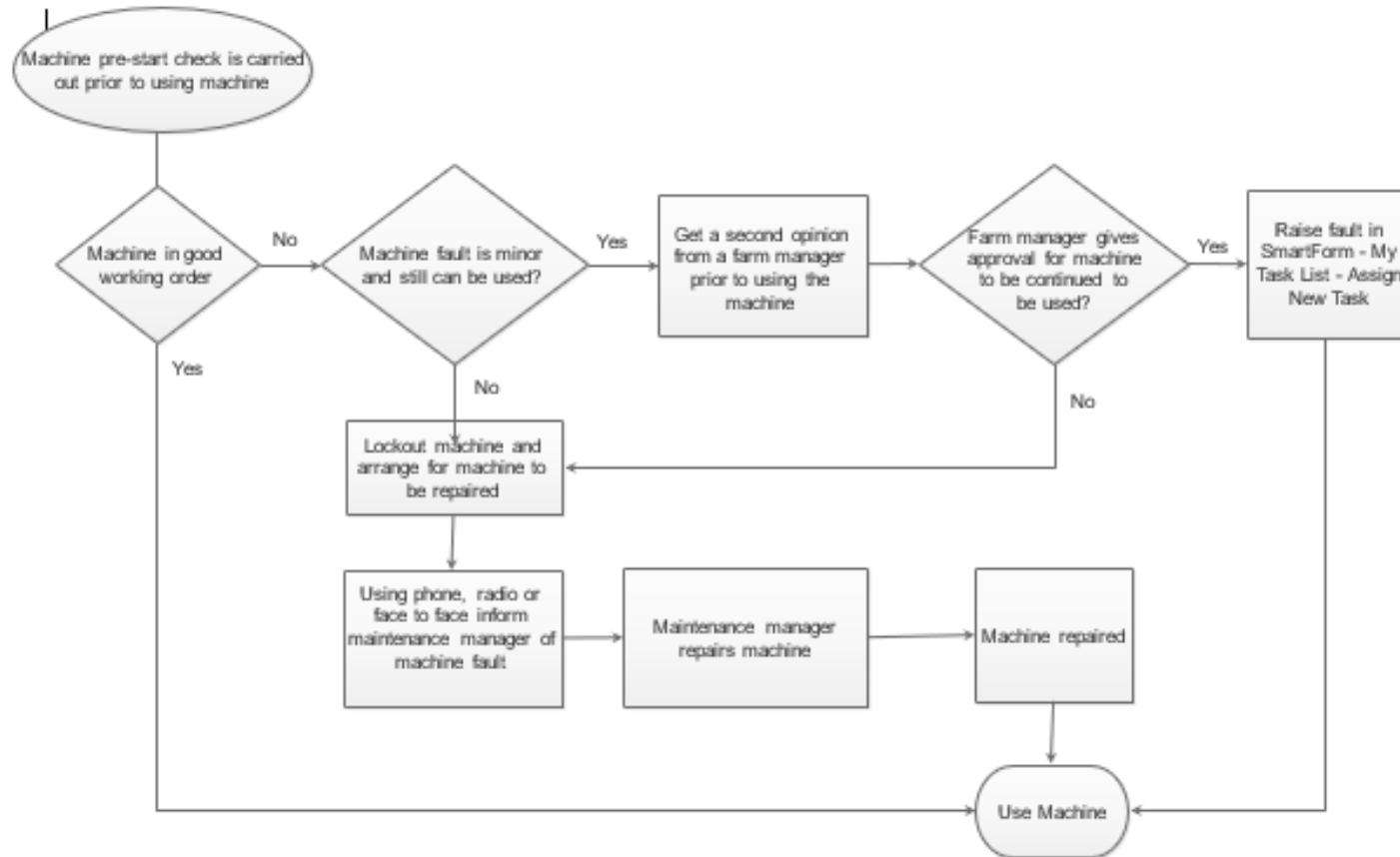
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## Notify Someone Workflow



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### Machine Pre-Start Check Workflow



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