

HANDLING

This chapter covers:

- handling principles
- mixing/loading systems
- best management practices for mixing/loading
- what to do in case of a spill
- managing empty containers.



Pesticide handling activities pose the greatest risk to human safety because handlers are exposed to concentrated forms of pesticide products.



Permanent handling facilities should be located near storage areas and should be designed to prevent runoff.

PRINCIPLES

Pesticide handling is the on-farm transfer, mixing, and loading of pesticides and pesticide mixtures.

These activities pose the greatest risk to human safety because handlers are exposed to concentrated products. The environment is also at risk because pesticide spills are most likely to occur at this stage.

For these reasons, all farmers should implement best management practices for handling.

To help you be ready in the event of a spill, there are also best management practices for contingency planning, personal safety, and cleanup.

When designing or planning a pesticide handling system, consider the following points.

PRINCIPLE	CONSIDERATIONS
LOCATION	<ul style="list-style-type: none"> • locate permanent site as near as possible to pesticide storage and other equipment • keep handling as far away as possible from wells, watercourses, wildlife habitat, and livestock feed
PRACTICALITY	<ul style="list-style-type: none"> • consider permanent system or other approach • contrast capital costs with management costs • ensure a protected source of water is nearby • size system to fit sprayer for loading and cleaning tasks
SAFETY	<ul style="list-style-type: none"> • consider systems (such as closed systems or soluble packages) that require less handling • wear protective clothing and equipment • develop and post contingency plans in the event of spills • keep away from children, livestock, pets, and wildlife
ENVIRONMENTAL PROTECTION	<ul style="list-style-type: none"> • contain all liquids • prevent runoff from spills to environmentally sensitive areas • prevent backflow to water sources (e.g., wells) • prevent runoff to unprotected wells • implement management practices that prevent spills and overfills • implement management practices that collect rinsate and sumpage, and dispose of pesticide waste materials properly

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MIXING/LOADING SYSTEMS

Mixing/loading systems are one or a combination of structures, facilities, equipment or approaches used to mix and load pesticide products in sprayers or other application equipment.

There are three main types of mixing/loading systems:

- permanent mixing/loading facilities
- mixing/loading at application site
- portable pads and trays.

Permanent facilities are impermeable concrete pads designed to contain spills and overflow and/or contaminated precipitation. When they are properly bermed, they also divert uncontaminated surface runoff from the mixing/loading structure. These systems are usually sized to fit equipment, and for convenience are located near storage areas. Liquid that is contained within the mixing/loading facility is called a sump mixture.

A sump mixture:

- should contain the tank mix remnants or sprayer rinsate of one product or approved product mix
- should not be mixed with other pesticide products
- should be stored in separate containers and labelled
- should be applied to labelled crop or used as part of the next tank using the same pesticide product(s).

Each sump mixture should be collected and stored in a separate container following the use of that pesticide (and before a different pesticide is used). This mixture can then be used to apply to that labelled crop or used as mix water for the next batch of similar pesticide to be made.



A sump is a pit or reservoir that serves as a receptacle for liquids. Sumps are designed for short-term recovery and transfer, not for storage.

Permanent mixing/loading facilities should be constructed with impermeable concrete to contain spills.



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MIXING/LOADING AT APPLICATION SITE

Permanent sites for mixing/loading are the preferred system for environmental protection. However, due to practicality or cost, many operators do mixing/loading in the field or orchard – provided the operation is conducted no closer than 90 metres (300 ft.) to surface water sources. Two acceptable methods are:

- move the mixing/loading area on a regular basis – provided recommended separation distances are observed
 - ▷ acceptable method for large-scale (field crop) applications when you bring source of water to mixing/loading site

OR

- excavate or berm a shallow area for in-field mixing/loading and line this area with an impervious liner
 - ▷ be sure to bring source of water to mixing area and observe recommended separation distances.

PORTABLE PADS AND TRAYS

There are several commercial products available to help with mixing/loading at site of spray application.

Portable pads can be used at temporary sites to contain spills from overflow – provided they are used at least 90 metres (300 ft.) from any surface water. They are fabric liners with berms around the perimeter. Ensure that purchased portable pads are recommended for use with agricultural chemicals. After use, they can be cleaned and stored for reuse.

Flexible or inflatable synthetic drive-over pads are designed to catch drips and spills (like an inflatable swimming pool).

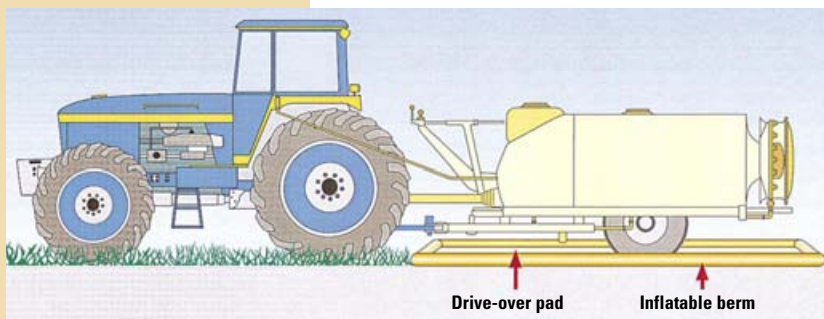
Shallow (15 centimetres [6 in.] curb) rigid plastic or fibreglass trays have built-in ramps or elevated vehicle tracks. The trays measure from 2.4 to 3 metres by 4.8 to 6 metres (8-10 x 16-20 ft.).



Avoid contaminating water sources by using nurse tanks.



By attaching tanks of water to his field sprayer, this producer is able to rinse out his tank and apply rinsate to the sprayed fields.



Portable pads are fabric liners with berms around the perimeter.

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PERMANENT MIXING/LOADING FACILITIES

SITE SELECTION

To be safe, permanent facilities should be at least 90 metres (300 ft.) from:

- surface water sources
- wetlands and other wildlife habitat
- wells

OR

Refer to pages 16 and 17 for specific information, including soil materials, slope, depth to bedrock, water table, and distance to wells and surface water sources.

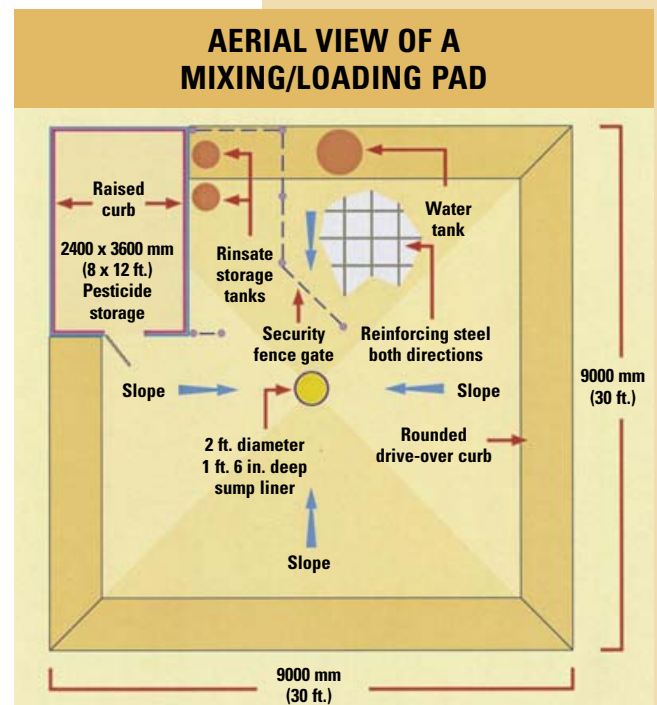
FLOOR AREA REQUIREMENTS

Floors for combination mixing/loading pads have rounded curbs at the perimeter for access and are sloped to a central sump.

Floor-area size requirements should be based on type of application equipment and expected use of the pad. For example, aerial sprayers or wide, hydraulic boom sprayers need more space. Further, if the area is to be used for unloading, cleaning and calibrating, the floor area should cover the boom width. Select the floor area based on your specific requirements. The guidelines below may assist you.

For a small, drive-across combined mixing, loading and storage system – such as one suitable for a field crop operation – select a pad with the minimum dimensions of 9.1 x 9.1 metres (30 x 30 ft.).

A combination pesticide storage/mixing/loading facility for aerial application could have a pad dimension of 18.2 x 18.2 metres (60 x 60 ft.) with an additional 6.1 x 18.2 metres (20 x 60 ft.) for the storage area. The pad size (excluding storage area) should never be less than 4.5 x 7.5 metres (15 x 25 ft.).



Floors for combination mixing/loading pads have rounded curbs at the perimeter for access and are sloped to a central sump.

Source: Designing facilities for pesticide and fertilizer containment, Mid-West Plan Service-37

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PAD DESIGN AND CONSTRUCTION

SITE PREPARATION

- remove 15-25 cm (6-10 in.) of topsoil from site where pad is to be constructed
- ensure layer of soil below concrete pad is well-drained and compacted
- consider removing soils that swell (clays) or have high moisture-holding capacities (silt loams, loams, and clay loams), and backfilling with compactable, quick-draining coarser materials, e.g., pit-run gravel
- add 15-25 cm (6-10 in.) depth of granular fill to replace topsoil, and compact well
- note that berms and subsurface tiles may be needed in areas with naturally high water tables or in areas where runoff collects

PAD DESIGN

- size pads according to functions and application equipment
- choose materials for strength and impermeability, i.e., sealed, reinforced concrete pads
- ensure pads are sloped and curbed to contain and direct liquids
- size sumps to capture all liquids from spills, leaks, overfills, and cleanouts
- ensure curbs prevent surface water from flowing onto pad – curbs should be designed so that sill plates for open, roof-supporting walls can be readily erected
- design ramps for easy access by application equipment
- design curbed pads to hold at least 125% of volume of largest spray tank

PAD CONSTRUCTION

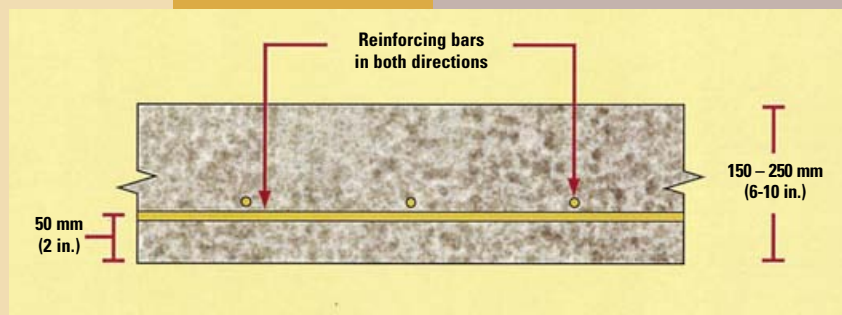
- place 15 cm (6 in.) granular sub-base on top of sub-grade to cushion vehicle pressures, reduce expansion pressures from sub-grade, and improve drainage beneath the pad
- ensure proper pad strength for application equipment

SINGLE AXLE LOAD (lbs.)	CONCRETE SLAB THICKNESS (in.)	REINFORCED BARS & SPACING*
up to 20,000	6	#3 @ 10 in. o.c.
20,000-30,000	8	#4 @ 12 in. o.c.
30,000-40,000	10	#4 @ 10 in. o.c.

* Install reinforcing bars at this spacing in both directions

Source: *Designing facilities for pesticide and fertilizer containment, Mid-West Plan Service-37*

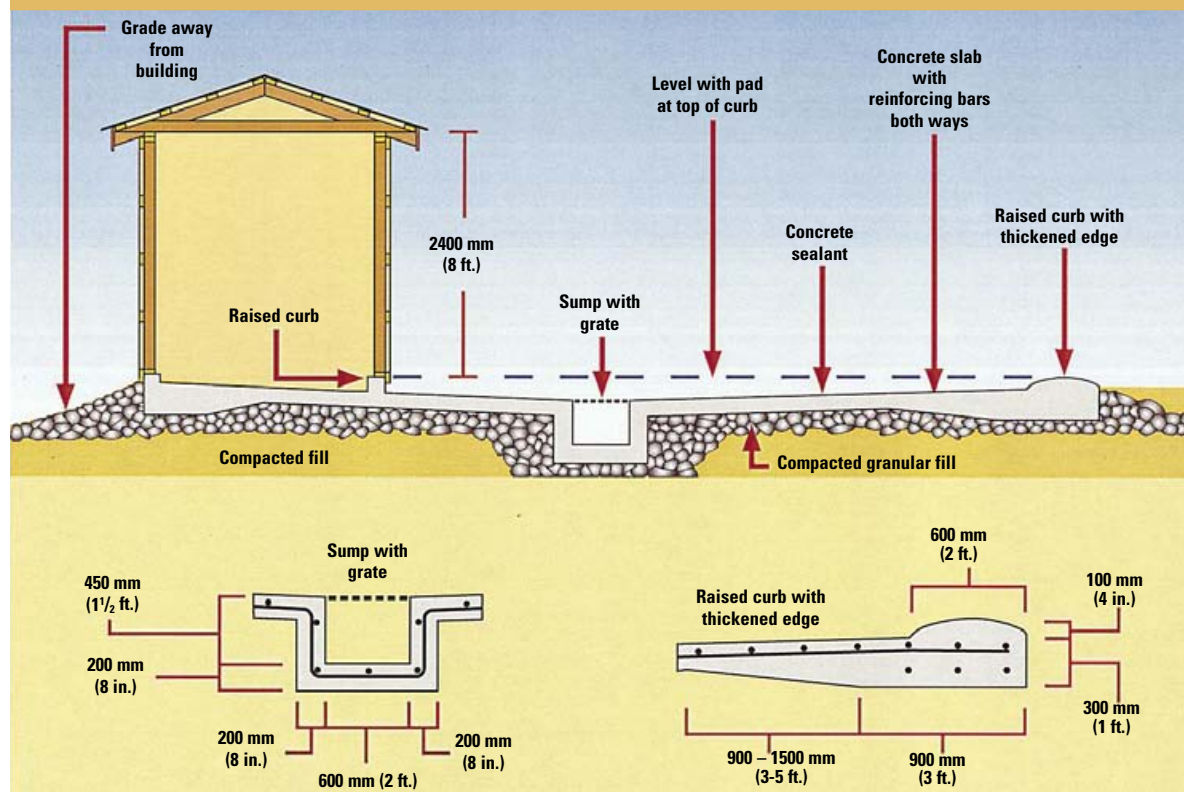
- use 30 MPa (4,000 psi) concrete and steel bars laid in both directions according to numbers above, for maximum strength
- place additional reinforcement bars around perimeter to support pad edges
- ensure concrete surface quality to withstand deterioration and reduce infiltration by liquids
 - avoid excessive joints with continuous-pour floors
 - finish with aluminum or magnesium float
 - coat with concrete-sealing products



Mixing/loading pad structural design. See table above for thickness and steel reinforcement requirements.

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CROSS-SECTIONAL VIEW OF A MIXING/LOADING PAD



Permanent mixing/loading pads require reinforcing bars laid both ways.

Source: *Designing facilities for pesticide and fertilizer containment, Mid-West Plan Service-37*

SUMP

- slope floors to sump
- size sump to contain liquids deposited on floor area, i.e., spray tank, spillage, rinsate, contaminated water, etc.
- use curbed area of pad as containment volume
- line sumps with materials such as high density polyethylene (HDPE) or stainless-steel – liner type should be selected based on anticipated pesticide products to be used
- ensure sumps have shallow cone design for cleanout of liquids and sediment
- cover sumps with a structural grate for safety
- pump or drain sump by gravity to a storage system

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Sprayer rinsate (rinse water) is wastewater from cleaning the inside of product containers, spray tanks, or other application equipment.

RINSATE STORAGE AND HANDLING CHECKLIST

- ☑ Sprayer rinsate and sump liquids require temporary storage prior to disposal.
- ☑ Rinsate storage tanks should be located adjacent to the mixing/loading area.
- ☑ Tanks of high density polyethylene or fibreglass (200-600 gal. volumes) are recommended. Smaller tanks provide greatest flexibility.
- ☑ Tanks and plumbing should be labelled and records kept to avoid cross-contamination of incompatible pesticides.
- ☑ Use temporary hoses with quick release connections to avoid contamination.
- ☑ Mount rinsate tanks 7.5-15 cm (3-6 in.) above pad height for easy access and observation.

ROOF DESIGN AND RAINWATER MANAGEMENT

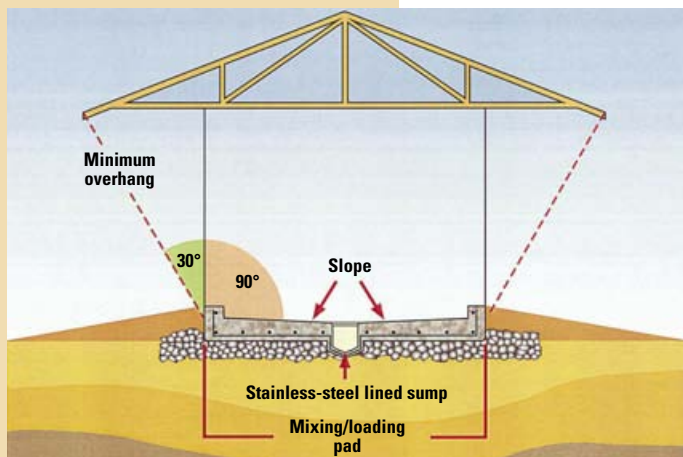


This producer converted a driveshed into a permanent covered storage and handling facility.

Roofed mixing/loading areas are recommended to reduce the disposal dilemma of surplus tank mixes, rinsing wastes plus precipitation.

The best designs for cold humid climates are open-ended walled mixing/loading areas – they can be used for winter storage of pesticide application equipment.

An alternative to closed wall structures are ‘roof-only’ buildings with extended overhangs.



The cost of a roofed pad is much lower than the cleanup costs of a pesticide spill.

Pads should be constructed so that surface runoff is diverted away from the site:

- berms and raised pads are best
- drop inlet diversions for uncontaminated runoff must be designed to prevent any contamination from pesticides.

When considering roof options, remember:

- wood-frame, steel-clad roof systems are most common
- all-steel roof systems are a good option
- roof overhang should extend as much as possible to eliminate rain/snow problems – don't curtail height of entry for large equipment
- roof snow-load requirements for extra overhang length.

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BEST MANAGEMENT PRACTICES FOR MIXING/LOADING

Effective mixing and loading systems require the best choices for facilities, equipment, and management practices.

PREVENTIVE MAINTENANCE

Regularly inspect structures and equipment for wear and tear:

- check floor surfaces, valves, pumps, and seals
- repair structures and equipment as needed
- repair cracks in concrete by routing and sealing, injecting epoxy materials or other means.

Maintain drainage by keeping vegetation mowed and rodents away.

Clean up area to prevent buildup of pesticides.

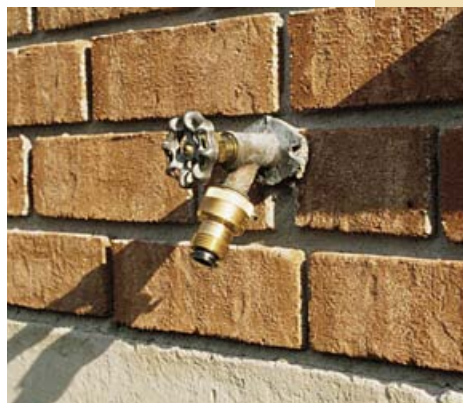
Clean sumps to prevent corrosion and pump problems.

Prevent concrete deterioration by inspection and application of protective coatings.

HOW TO PREVENT BACKFLOW TO WATER SUPPLY

An accidental spill or backsiphoning of a chemical into your well or surface water can severely impair water quality (drinking, etc.) and may take an extended period of time to rectify. Immediate health problems can result. The effects of repeated exposure to these low levels of pesticides are unknown, but may produce health problems many years after the exposure.

Pesticide contaminants can also cause health problems for livestock and wildlife. Pesticide-contaminated water sources are unfit for irrigation.



This one-way valve attached at the faucet will prevent draining back to the water source.

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There are three ways to prevent backflow into wells.

WATER TANKS

Permanent, separate water tanks can be furnished in the storage/mixing/loading area.

Portable water storage tanks can be taken to application sites.

In both cases, water is pumped to them – eliminating all contact of pesticides with source.

GAPS

A 15 centimetre air gap between the hose and the top of the sprayer tank will allow tank filling, and eliminate the possibility of the filled tank (water or mixture) from draining back to the water source.

ANTI-BACKFLOW DEVICE

Devices such as check valves should be attached to any faucet that provides water to storage and handling systems.

The one-way valve prevents liquids from flowing back through the faucet and into the well.



Portable water tanks can be taken to application sites.



An anti-backflow device may be as simple and effective as this farmer's innovation. The sprayer modification is placed over the tank opening and the hose is attached to the device during filling.



This volumetric hand pump will help producers add precise volumes and avoid splashes and spills.

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HOW TO AVOID SPILLS AND HANDLING RISKS

- ☑ Make your movements slow and sure.
- ☑ Don't leave sprayer unattended when filling.
- ☑ Have a good loading platform on or beside sprayer.
- ☑ Check for leaks, defective hoses, and faulty valves. Maintain all application equipment regularly.
- ☑ Add chemicals to the spray tank carefully. Ensure that the loader is upwind of where the chemical is poured.
- ☑ Add chemicals slowly. Rapid pouring of liquid leads to splashes.
- ☑ Never lift or pour concentrates above waist height.
- ☑ Always half fill the spray tank with water and start agitation before adding any chemical to the spray tank.
- ☑ Add the remaining water with continuous agitation to assure thorough mixing. Don't overfill. An external water-level sighting tube is helpful.
- ☑ If handling liquids, triple-rinse the empty container immediately and add the rinsate to the spray tank, or pressure-rinse directly into the spray tank.
- ☑ When triple-rinsing or pressure-rinsing, wear the same protective clothing and equipment used for mixing and loading.
- ☑ The use of soluble packaging that can be added directly to the spray tank with the pesticide reduces operator exposure and eliminates the need to rinse and dispose of containers. Make sure you agitate long enough so that all the packaging material is dissolved. Soluble packaging allows for mixing without risk to operator and eliminates container wastes.

A leak is a continuous low-volume discharge of a pesticide or pesticide mixture.



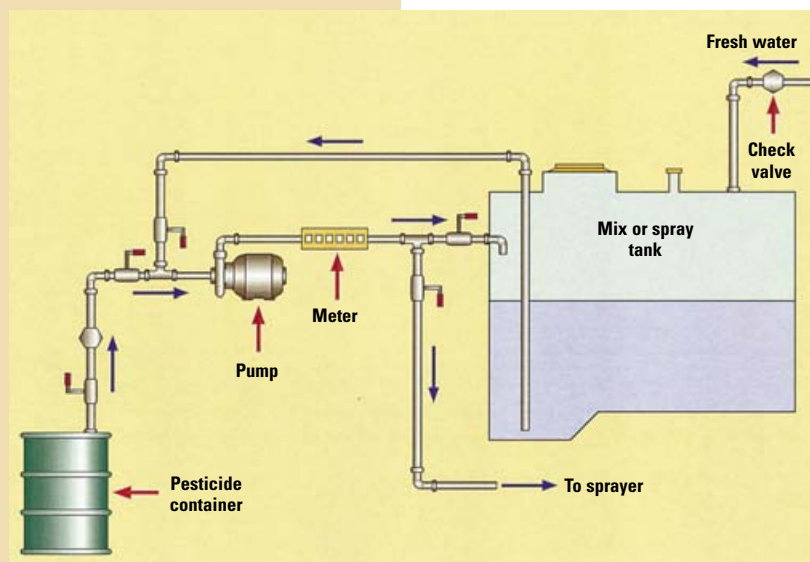
Never mix pesticides near your water well.



This grower attached a mixing tub to a nurse tank, allowing him to load herbicides, thoroughly mix the product, and rinse containers right in the field.

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CLOSED MIXING SYSTEMS (CMS)



This diagram shows a closed mixing system (CMS). A CMS allows producers to mix and load pesticides without being exposed to them.

Source: Designing facilities for pesticide and fertilizer containment, Mid-West Plan Service-37

A CMS reduces the need for full protection equipment, and will help prevent backflow to water sources.

A CMS means you can mix and load pesticide solutions without exposure to pesticide materials.

It uses a vacuum to move materials through the system.

In a typical mechanical pump-type system, pesticides and water are drawn by the pump, through a metering system to the spray tank. From there, the mixture is pumped to the sprayer.

The pesticide is removed from a closed container. Empty containers can be triple-rinsed and rinsate added to the mix for application.

Monitoring systems can improve accuracy in pesticide measurement.

SAFETY CHECKLIST

- ☒ Keep children, pets and livestock away from mixing/loading areas.
- ☒ Know the product:
 - the health effects from pesticide contamination depend on the type of chemical and the amount of exposure
 - read product label to familiarize yourself with the chemical type you're using and what safety measures are needed.
- ☒ Have clean clothing and safety equipment as well as properly serviced respirators available for use by the loader/operator:
 - most user exposure occurs during handling.
- ☒ Use the proper tools for opening container, e.g., designated knives for bags and aluminum foil seals, and clean the tools after use:
 - don't use tools for other purposes.
- ☒ Wear chemical-resistant gloves (not leather) with cuffs turned back, since the main source of exposure is through the hands and forearms:
 - wear gloves when taking off chemical-laden aprons and other safety equipment
 - rinse gloves properly before taking them off
 - inspect gloves for holes and tears, and replace if necessary.

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- ☑ Wear a chemical-resistant apron (not leather) to prevent exposure to the abdomen and upper legs:
 - make sure the apron is long enough to cover boots, but not so long as to cause you to trip
 - be careful around PTO with protective aprons.
- ☑ Proper safety equipment includes:
 - chemical-resistant gloves and apron
 - safety goggles
 - waterproof boots
 - properly serviced respirators
 - face shield, mask
 - goggles
 - breathing apparatus
 - boots.

HOW TO DECONTAMINATE APPLICATION EQUIPMENT

It's important to decontaminate spray tanks and booms when pesticide changes are being made.

Wear the same safety equipment (gloves, apron, etc.) as you would for mixing and loading.

We know that some chemicals such as the hormone-type herbicides – even in minute amounts – are injurious to many plants. We also know that some new herbicide chemistry is extremely active in very minute amounts.

Check with your chemical supplier and read the label for warnings and specific directions regarding the best procedure for decontaminating application equipment. If the equipment must be used for application of other chemicals, the following methods for cleaning are suggested.

The best sites for cleanouts are permanent mixing/loading pads followed by application to target crop at approximately 1% of the application rate. (Most tank mixes have a 10% concentration. Dilute water:rinsate @ 10:1 ratio to give 1% application rate.)

The next best is in the field where rinsate is applied at approximately 1% solution directly to target crop or headlands where you're working. Provided you never use the same spot twice, no significant pesticide accumulations should occur.



When mixing and loading pesticides, wear the proper safety equipment.



This device, when attached to a field sprayer, allows the producer to triple-rinse pesticide containers while channelling the rinsate immediately into the tank.

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DECONTAMINATING APPLICATION EQUIPMENT

FORMULATION TYPE

METHOD

WATER-SOLUBLE
HERBICIDES

1. Prepare mixture of 250 ml household ammonia to 7 litres of water.
2. Flush some of the solution through spray system, and out through boom or nozzles.
3. Let remainder stand overnight in spray tank.
4. Empty and thoroughly rinse the tank, hose, booms and nozzles.

OR

1. Prepare mixture of 50 grams sal soda (sodium carbonate) or a washing soda to 7 litres water.
2. Add to spray tank and allow to stand at least 2 hours.
3. Discharge through spray booms or nozzles.
4. Rinse tank well.
5. Refill twice with water and empty through spray system each time.

OR

1. Use commercial tank and equipment cleaner recommended on pesticide manufacturer's label

OIL-SOLUBLE
FORMULATIONS ONLY

1. Add 750 ml kerosene, 50 grams washing soda, and 50 grams detergent to 7 litres of water.
2. Allow mixture to stand at least 2 hours.
3. Discharge through nozzles and rinse system twice with clean water.

OR

1. Use commercial tank and equipment cleaner recommended on pesticide manufacturer's label.

OIL- OR WATER-SOLUBLE
SOLUTIONS

1. Add 1 ounce of activated charcoal and 1 ounce of detergent to 7 litres water.
2. Shake well.
3. Discharge through boom.



It's important to decontaminate application equipment when changing pesticides.

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HOW TO MANAGE RINSATE

Rinsate is the mixture of water that's contaminated with low concentrations of pesticide products. It may come from:

- ▶ rinsed containers
- ▶ sumps
- ▶ cleanout water or leftover tank mix
- ▶ previously stored rinsate
- ▶ spill cleanups.

Rinsate becomes a waste problem when it cannot be recycled on the farm. The chart below gives some tips to manage rinsate effectively.

RINSATE 3 R's		
REDUCE	REUSE	RECYCLE
<ul style="list-style-type: none">• use water-efficient measures to clean tanks, such as:<ul style="list-style-type: none">◦ using power washers, e.g., pressurized hook or wand rinser◦ avoiding spills with careful management◦ roofing or otherwise covering the mixing/loading area◦ using a CMS approach to mixing/loading	<ul style="list-style-type: none">• use rinsate* as a diluent for future field tank mixes• dilute 10:1 water:rinsate** and apply to same field<ul style="list-style-type: none">◦ should not exceed a 1% solution◦ this is within label rates and is well within accuracy of the meters for most application systems• if you plan to store the material, segregate and label recovered materials• apply label rates – and no more – to accommodate likely application of diluted surplus tank solutions or rinsate	<ul style="list-style-type: none">• use bulk containers or CMS to minimize waste and mixed solutions<ul style="list-style-type: none">◦ some partially used bulk containers can be returned• recycle unused pesticides in original containers<ul style="list-style-type: none">◦ check with local authorities for recycling depot locations

* Non-segregated rinsate cannot be diluted and applied to field. There are unknown concentrations of products.
** Most tank mixes are already at 10% concentration.



Use bulk containers or cans to minimize waste and mixed solutions.

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A best management practice for tank rinsate disposal is to dilute the rinsate 10:1, and then to apply the diluted material to the same field.

Several techniques for disposing of rinsate are being researched:

- evaporation pits – lined pits of sand and gravel with perforated tiles
 - ▷ pesticide rinsate migrates upward where it breaks down over time
- rinsate recycle system – non-segregated rinsates are filtered and ‘clean’ water is reused for cleaning equipment or containers
- biodegradation two-chamber disposal system
 - ▷ the first is ozone to break down pesticide compounds, and the second a microbial digester
 - ▷ other systems combine evaporation and microbial breakdown.

These systems are experimental and not necessarily practical, cost-effective, or effective in cool, moist climates.

Before constructing such systems, be sure to seek approval from local agencies responsible for environmental protection.

PESTICIDE SPILLS

A spill is the discharge of a pesticide or pesticide mixture into the natural environment, from or out of a structure, vehicle, or other container, that is abnormal in quantity or quality in light of all the circumstances of the discharge.

If you use pesticide products, there’s always the risk of a spill. Spills can be a safety hazard for staff, children, livestock, pets and wildlife. Spills pose the greatest environmental hazard for the contamination of groundwater, surface water, and fish and wildlife habitat.

Managing a spill effectively takes both proactive and reactive best management practices.

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PREPARATION FOR POSSIBLE SPILL

CONTAINMENT

Materials to have at hand:

- soil or sand – for spreading to absorb liquids and form dams
- absorbent blankets and granules – to be piled to form dams
- booms (cylindrically shaped tubes), some with absorbent materials – to contain spills.

CLEANUP

Materials and equipment to have at hand:

- absorbents – limestone, peat, clays, kitty litter, activated charcoal, and absorbent blankets
- equipment – oil/water separators (for larger operations), personal safety equipment, shovels, and drums
- spill kits – purchase already made up, or make your own.



Commercial spill kits complete with absorbent materials and safety equipment are also available.



This homemade spills kit uses readily available materials for diking, containing, absorbing and disposing of contaminated materials from a spill.

WHEN A SPILL OCCURS

SAFETY

Address safety first by:

- protecting yourself from contact – use personal protection equipment and clothing
- if exposed, removing clothing and thoroughly cleaning up
- reading label – getting medical attention if recommended
- keeping people and animals away.



Step 1 Protect yourself and others.

CONTROL

After addressing safety concerns, control the spill by:

- identifying the source
- if container is spilled –
 1. stopping leak (e.g., turn container upright)
 2. isolating container
 3. transferring remaining material to suitable container
- if tank overflows, turning off water source
- if tank upsets, containing the spill.



Step 2 Stop leak and control the spill.

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CONTAINMENT



Once control is achieved, ensure containment by:

- making a dike with containment products such as clay, absorbent materials, or booms
- damming flow to sensitive areas such as wells, watercourses, and livestock areas.

Step 3 Contain the spill.

DO NOT HOSE DOWN PRIOR TO PROPER CLEANUP

REPORTING



All spills must be reported. Use emergency plan numbers to report spill. Know your legal responsibilities.

Step 4 Report the spill.

CLEANUP



Decide how to clean up area by:

- contacting regulatory agency for procedures to follow
- consulting local authorities, product labels, product suppliers, spill kits, and your contingency plan.

Also:

- recover as much product as possible with pumps – filter and store for reuse
- use absorbents to sponge up liquids that can't be pumped and recovered – cover contaminated area with absorbents
- if a liquid pesticide product or mix spills onto soil, either decontaminate soil in place, or excavate soil and decontaminate at remote site – obtain some professional assistance
- store other used absorbent materials in designated waste drums, and dispose of them at hazardous waste sites – check with regulatory authorities for details and procedures.

Step 5 Clean up the spill.



The **SPILLS ACTION CENTRE** at 1-800-268-6060 has been established by the Ontario Ministry of the Environment to receive calls 24 HOURS A DAY.

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EMPTY PESTICIDE CONTAINERS

Empty containers should never be reused. Don't give empty, rinsed containers to anyone, especially children.

All containers, including plastic bags, should be triple-rinsed.

Puncture all containers to render them unusable.

Cardboard and paper containers can be taken to designated landfill sites.

Metal and plastic containers should be taken to an authorized recycling depot. Consult your pesticide vendor for location of the site in your area.

The following best management practices are alternatives to container disposal:

- use bulk returnable or refillable containers
- use water-soluble packaging that dissolves in the spray tank.

HOW TO RINSE EMPTY CONTAINERS



Step 1 Fill empty container 10% full with water. If you're using pressure rinse, rinse for at least 30 seconds.



Step 2 Close cap. Shake, rattle, and roll.



Step 3 Empty into spray tank. Then repeat Steps 1-3 twice more.



There are several devices on the market designed to puncture and, through the use of pressure, properly rinse pesticide containers.

Check with your local vendor for opportunities to recycle pesticide containers. Cleaned and rinsed containers are being recycled into plastic products such as fence posts.

