Pesticide, Fertilizer and Other Chemical Storage, Handling and Disposal

BMP Type	
Design	
Installation	
Maintenance/Operations	X

Green Industry Relevance			
ASLA		GCC	X
ALCC	X	ISA	X
CALCP	X	RMSGA	X
CGGA	X	WFC	
CNA	X		

Description

Pesticides, herbicides, fertilizers, fuel and other maintenance chemicals must be properly applied, stored, handled and disposed of to prevent contamination of surface water and groundwater. Misuse of pesticides and herbicides can result in adverse impacts to aquatic life, even at low concentrations. Misuse of fertilizer can result in algae overgrowth in waterbodies due to excessive phosphorus and nitrogen loading.

Basic Practice Guidelines

Application and Handling

1. Apply fertilizers, pesticides and other chemicals according to manufacturer's directions. The label is the law for pesticide usage. *(See the Pesticide Application and Fertilizer Application BMPs for more discussion on proper application.)*

2. Keep pesticide and fertilizer equipment properly calibrated according to the manufacturer's instructions and in good repair. Recalibrate equipment periodically to compensate for wear in pumps, nozzles and metering systems. Calibrate sprayers when new nozzles are installed.

3. All mixing and loading operations must occur on an impervious surface.

4. To prevent possible backflow and contamination of a water supply, never submerge a water supply hose in a chemical tank or container. Provide proper backflow prevention devices where required by the Colorado Plumbing Code.

5. Do not apply pesticides during high temperatures or windy conditions.

6. Avoid application of any pesticide, herbicide or fertilizer immediately prior to forecasted or inclement heavy rainfall or irrigation that would result in runoff of the chemicals.

7. Keep records of pesticide application and provide signage as required by law.

Storage

8. Storage areas should be secure and covered, preventing exposure to rain and unauthorized access. Basic safety equipment such as fire extinguishers, warning signs (e.g., "no smoking"), adequate light and ventilation and spill clean-up materials should be present. Floors and shelves should be non-porous (e.g., metal, concrete) to prevent sorption of chemicals. If possible, temperature control should be provided to avoid excessive heat or cold. Storage areas should be kept clear of combustible material and debris.

9. Many above-ground fuel storage tanks require a concrete enclosure (secondary containment) in the event of a tank rupture. Also, greenhouses and nurseries that are storing recycled water laden with fertilizer often are required to do the same.

10. Store nitrate-based and other oxidizing fertilizers separately from solvents, fuels and pesticides to reduce fire risk. Follow the general principle of storing like chemicals together.

11. Store chemicals in their original containers, tightly closed, with labels intact. Also inspect them regularly for leaks.

12. Dry chemicals should be stored above liquids and on pallets to ensure that they do not get wet.

13. Locate chemical storage and maintenance areas, as well as vehicle refueling and maintenance areas, away from wells and surface waterbodies in accordance with local regulations, typically at least 50 to 100 feet away.

14. Make available all Material Safety Data Sheets (MSDSs) in a readily accessible area. A list of all hazardous chemicals in the work place must be completed to ensure that all MSDSs are readily available.

15. Do not store large quantities of pesticides for long periods of time. Adopt the "first in-first out" principle, using the oldest products first to ensure that the shelf life does not expire. Buy smaller quantities of pesticides and fertilizers, thereby reducing storage issues.

Spills and Disposal

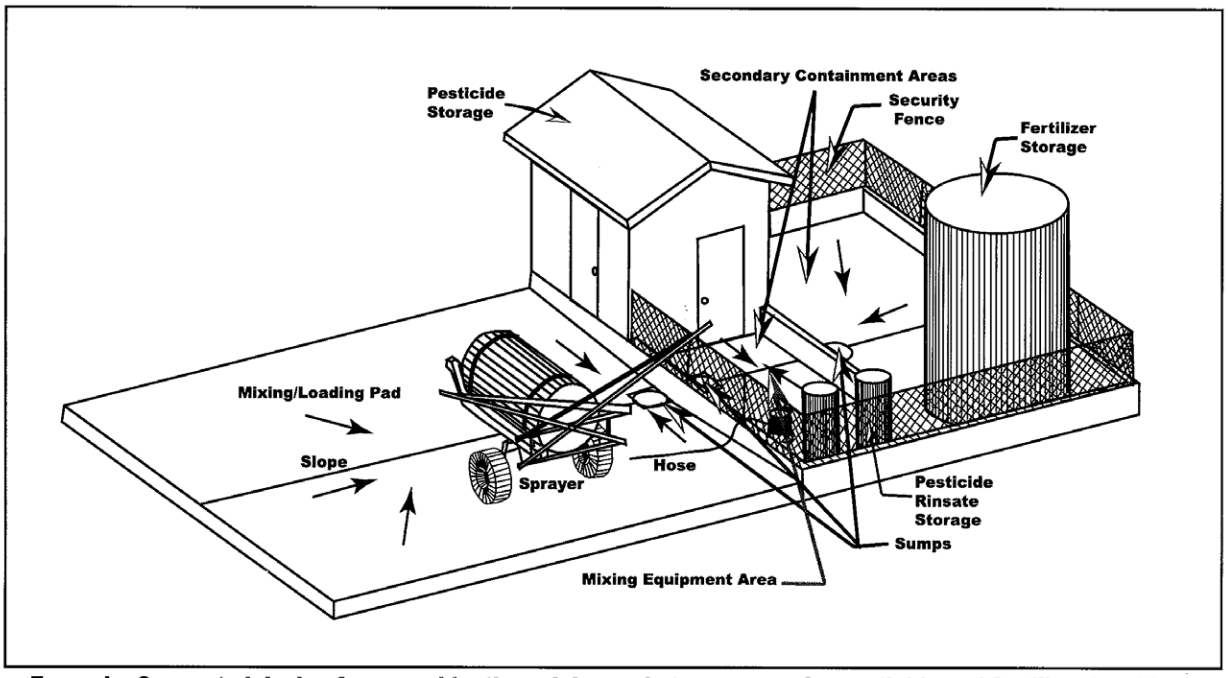
16. Keep chemical spill cleanup equipment, personal protective equipment and emergency phone numbers available when handling chemicals and their containers.

17. Properly manage chemical spills by cleaning them up as soon as possible, controlling actively spilling or leaking materials, containing the spilled material (e.g., with absorbents, sand), collecting the spilled material, storing or disposing of the spilled material, and following relevant spill reporting requirements. “Washing down” a spill with water is not an appropriate cleanup approach.

18. Basic spill reporting requirements include: name, address and phone number of person reporting and of person responsible for release; date and time; type, name and estimated amount of substance released; location/address of released substance; size/description of affected area; containment/cleanup actions taken; and other agencies/persons contacted.

19. Never pour lawn and garden chemicals or rinse water down storm drains (or sanitary drains) and keep chemicals off of impervious surfaces (e.g., streets, gutters) during application. Use local recycling centers to dispose of chemicals.

20. Follow label directions for disposal. This typically involves triple-rinsing empty containers, puncturing and crushing. All visible chemicals should be cleaned from the container prior to disposal.



Example: Suggested design for a combination mixing and storage area for pesticide and fertilizer handling which would meet Colorado regulations.

Source: Designing Facilities for Pesticide and Fertilizer Containment. (MWPS-37)
MidWest Plan Service, Agricultural Engineering, Iowa State University, Ames, IA. 1991

Regional or Industry Considerations/Adaptations

1. Be familiar with existing state and federal regulations on pesticide application, certification and weed control, as well as CSU Cooperative Extension horticultural guides. Several federal and state laws control the handling, storage, application, disposal and reporting of chemical spills. Examples include the Colorado Pesticide Applicator's Act, the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA), the Superfund Amendments and Reauthorization Act (SARA), the Emergency Planning and Community-Right-to-Know Act (EPCRA) and Occupational Safety and Health Administration (OSHA) requirements, particularly the Hazard Communication Standard. The Colorado Water Quality Control Act (25-8-601 and 25-8-606) also contains requirements for notification of the Colorado Water Quality Control Division of spills and accidental discharges and provides the Division with the authority to order cleanups. It may be necessary to file information with the local fire department based on these and other laws.

2. Colorado Senate Bill 90-126, The Agricultural Chemicals and Groundwater Protection Act, identifies special requirements for facilities handling more than 3,000 pounds (or 500 gallons) of bulk-formulated pesticides. Even if this threshold is not reached, the general principles of this act provide good guidance for pesticide users.

Key References

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