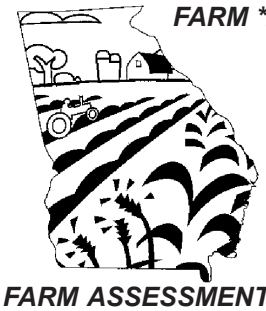
GEORGIA
FARM *A*SYST



FARM ASSESSMENT SYSTEM

PESTICIDE STORAGE & HANDLING

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PRE-ASSESSMENT:

Why Should I Be Concerned?

In certain areas of the country, pesticides are showing up where they are not wanted - in the drinking water. Fortunately, there are not widespread reports of pesticides occurring in Georgia drinking water. However, if pesticides are not handled carefully around the farm, they can seep through the ground after a leak or spill or they can enter a well directly during mixing and loading.

Pesticides play an important role in agriculture. They have increased farm production and have enabled farmers to manage more acres with less labor. Taking voluntary action to prevent potential pesticide contamination of ground water will help ensure their continued availability for responsible use by farmers.

Pesticides are toxic by nature and work by interfering with the life processes of plants and insects. Many pesticides can also be toxic to people. Pesticides entering a water supply in large quantities - which can happen with spills or back siphonage accidents - can produce acute health effects (toxic effects apparent after only a short period of exposure), which can range from moderate to severe, depending on the toxicity of the pesticide and the amount of exposure. Low-level contamination of ground water used for drinking water supplies or prolonged or repeated exposure to high doses of toxic substance can result in chronic health effects, which could be hazardous to people and livestock.

Pesticide concentrations found in water supplies are usually not high enough to cause acute health effects such as chemical burns, nausea, and convulsions. Instead, these concentrations typically occur in trace levels, and the primary concern is related to long-term exposure (chronic health effects) through water use.

How Does This Assessment Help Protect Drinking Water and the Environment?

- This assessment allows you to evaluate the environmental soundness of your farm and operational practices relating to your pesticide storage and handling practices.
- You are encouraged to complete the entire document.
- The assessment asks a series of questions about your pesticide storage and handling practices.
- The assessment evaluation uses your answers (rankings) to identify practices or structures at risk and which should be modified.
- The pesticide facts provide an overview of sound environmental practices to prevent pollution.
- You are encouraged to develop an action plan based on your needs as identified by the assessment.
- Farm *A*Syst is a voluntary program.
- The Assessment should be conducted by you for your use. If needed, a professional from the Georgia Cooperative Extension Service or one of the other partnership organizations can provide assistance in completing the assessment.
- No information from this assessment needs to leave your farm.

** Words found in italics are defined in the glossary.*

ASSESSMENT:

Assessing Your Pesticide Storage Structures and Handling Practices

For each category listed on the left, read across to the right and circle the statement that best describes conditions on your farm. If a category does not apply, for example: if it asks about your sump and you don't have one, then skip the question. Once you have decided on the most appropriate answer, look above that description to find your rank number (4,3,2 or 1) and enter that number in the "RANK" column. The entire assessment should take less then 30 minutes. A glossary is located on page 10 to clarify words found in italics throughout this assessment.

PESTICIDE STORAGE AND HANDLING					
	LOW RISK (rank 4)	**LOW-MOD RISK (rank 3)**	**MOD-HIGH RISK (rank 2)**	**HIGH RISK (rank 1)**	**RANK**
PESTICIDE STORAGE					
Amount Stored	No pesticides stored.	Less than 1 gallon or less than 10 pounds of each pesticide.	More than 1 gallon but less than 55 gallons or more than 10 pounds or less than 550 pounds of each pesticide.	More than 55 gallons or more than 550 pounds of each pesticide.	
Leachability ***(See Table 1, on pages 9-15 for Leachability Factor for various chemicals),***	No chemicals used.	All chemicals classified as having **low** Leachability Factor.	Any chemicals classified as having a **medium** Leachability Factor.	Any chemicals classified as having a **high** Leachability Factor.	
Liquid or dry formulation	No liquids, all dry.	Some liquids, mostly dry.	Mostly liquids, some dry.	All liquids.	
Spill or leak control in storage areas.	Impermeable surface (such as concrete) does not allow apills to soak into soil. Curb installed on floor to contain leaks and spills.	Impermeable surface with curb installed has some cracks, allowing spills to get to soil or impermeable surface without cracks has no curb installed.	Permeable surface (wooden floor) has some cracks OR impermeable surface with cracks and no curb. Spills could contaminate wood or soil.	Permeable surface (gravel or dirt floor). Spills could contaminate floor and underlying soil.	
Containers	Original containers clearly labeled. No holes, tears, or weak seams.	Original containers old. Labels partially missing or hard to read.	***Containers old and deteriorating. Metal containers show signs of rusting.*****	***Containers have holes or tears that allow chemicals to leak. No labels.*****	
Security	Fenced or locked area separate from all other activites.	Fenced area separate from most other activities.	Open to activities that could damage containers or spill chemicals but elevated and visible.	Open access to theft, vandalism, and children.	

*****These conditions are in violation of state and/or federal law***

PESTICIDE STORAGE AND HANDLING					
	LOW RISK (rank 4)	**LOW-MOD RISK (rank 3)**	**MOD-HIGH RISK (rank 2)**	**HIGH RISK (rank 1)**	**RANK**
MIXING AND LOADING PRACTICES					
Location of well in relation to mixing/loading area without a curbed containment pad	More than 100 feet downslope from well.	Greater than 50 feet to 100 feet down slope from well.	Greater than 10 feet to 50 feet down slope from well OR greater than 100 feet up slope from well.	Within 10 feet down slope or within 100 feet up slope from well.	
Mixing and loading pad spill containment	Concrete pad with curb keeps all spills contained and drains to sump.	Concrete pad with curb keeps all spills contained. No sump.	Concrete pad with some cracks keeps most spills contained. No curb or sump.	No mixing/loading pad or containment. Spills soak into ground or drain toward well.	
Sump	Continual removal of debris from sump.	Monthly removal of debris from sump.	Removal of debris from sump once or twice a year.	Sump full of leaves and other debris; never cleaned out.	
Backflow prevention on water supply for filling spray tanks.	Anti-siphon device installed or hose kept above the tank opening to maintain an air gap between hose and tank.	Anti-siphon device installed. Hose in tank above water line.	No anti-siphon device. Hose in tank above water line.	No anti-siphon device. Hose in tank below water line.	
Water source	Separate water tank.	Hydrant away from well.	Hydrant near well.	Water taken directly from well or surface water.	
Supervision of spray tank filling	Remain at site until filling is complete.	Remain near site checking on filling frequently.	Leave site for short periods and check on filling every few minutes.	Start and leave site; check only when filling period is nearly completed.	
Handling system	Closed system (see glossary) for all liquid and dry product transfers.	Closed system for most liquids. Some liquid and dry product hand poured. Sprayer fill port easy to reach.	All liquids and dry products hand poured. Sprayer fill port easy to reach.	All liquids and dry products hand poured. Sprayer fill port hard to reach.	
Sprayer cleaning and rinsate (rinse water) disposal when sprayer rinsing is necessary.	Sprayer washed out in field. Rinsate used in next load and applied to labeled crop.	Sprayer washed out on pad at farm. Rinsate used in next load and applied to labeled crop.	Sprayer washed out at farm. Rinsate sprayed less than 100 feet from well.	Sprayer wasahed out at farm. Rinsate dumped at farm or in field.	

***These conditions are in violation of state and/or federal law*

PESTICIDE STORAGE AND HANDLING					
	LOW RISK (rank 4)	**LOW-MOD RISK (rank 3)**	**MOD-HIGH RISK (rank 2)**	**HIGH RISK (rank 1)**	**RANK**
CONTAINER DISPOSAL					
Disposal location	Return all triple rinsed plastic containers to a collection site for recycling. Take all other properly rinsed containers to an approved landfill. [1]	Take properly rinsed containers and empty bags and bury or dispose of on farm. [2]	***Dispose of empty but unrinsed containers or empty bags on farm.*** [3]	***Dispose or burn partially filled plastic or paper containers on farm.*** [3]	

***These conditions are in violation of state and/or federal law.*

Number of Areas Ranked _____
(Number of questions answered, if all answered, should total 14.)

Ranking Total _____
(Sum of all numbers in the "RANK" Column)

[1] Farmers may have the option to dispose of empty pesticide containers in a licensed landfill, recycle them or burn them in small numbers daily on their farms, where permitted. Check local ordinances before doing so.

[2] While burning on teh farm is legal, it is not considered a good option. Quantities of buried containers (even though empty and rinsed) may be a liability if the property owner wants to sell or mortgage the property. Often environmental audits are required when such transactions occur. If such burial sites are found, the property owner may be required to clean them up.

[3] Besides representing a high risk choice, this practice not only violates Georgia law but also the pesticide label, which specifies triple rinsing, or the equivalent, for empty pesticide containers.

NOTES:

ASSESSMENT EVALUATION:

What Do I Do with These Rankings?

STEP 1: Identify Areas Determined to Be at Risk

Low risk practices (4s) are ideal and should be your goal. Low to moderate risk practices (3s) provide reasonable protection. Moderate to high risk practices (2s) provide inadequate protection in many circumstances. High risk practices (1s) are inadequate and pose a high risk for causing environmental, health, economic, or regulatory problems.

High risk practices, rankings of "1" require immediate attention. Some may only require little effort to correct, while others could be major time commitments or costly to modify. These may require planning or prioritizing before you take action. All activities identified as "high risk" or "1s" should now be listed in the action plan. Rankings of "2s" should be examined in greater detail to determine the exact level of risk and attention given accordingly.

STEP 2: Determine Your Pesticide Risk Ranking

The Pesticide Risk Ranking provides a general idea of how your pesticide storage and handling practices might be affecting your ground and surface water, contaminating your soil and affecting your air quality.

Use the rankings total and the total number of areas ranked on page 4 to determine the Pesticde Risk Ranking.

RANKING TOTAL ÷ TOTAL NUMBER OF AREAS RANKED = PESTICIDE RISK RANKING

_____ ÷ _____ = _____

PESTICIDE RISK RANKING	LEVEL OF RISK
3.6 to 4	Low Risk
2.6 to 3.5	Low to Moderate Risk
1.6 to 2.5	Moderate Risk
1.0 to 1.5	High Risk

This ranking gives you an idea of how your pesticde storage and handling practices might be affecting your drinking water. This ranking should serve only as a very general guide, and not as a precise diagnosis since it represents the average of many individual rankings.

STEP 3: Read the Section on Improving Your Pesticide Storage and Handling Practices.

While reading, think how you could modify your practices to address some of your moderate and high risk areas. If you have any questions that are not addressed in the pesticide facts portion of this assessment, consult the references in the back of this publication or contact your county Extension agent.

STEP 4: Transfer Information to the Total Farm Assessment.

If you are completing this assessment as part of a "Total Farm Assessment," transfer your pesticide risk ranking and your identified high risk practices to the overall farm assessment.

PESTICIDE FACTS:
Improving Pesticide Products Storage and Handling

We will look at five areas of pesticide management on your farm

- Pesticide Storage Practices
- Mixing and Loading Practices
- Spill Cleanup
- Container Disposal Practices
- Other Management Practices

When handling pesticides, wear proper protective clothing as listed on the pesticide product label at all times. Personal protection is important but not addressed in Farm *A*Syst which focuses on environmental protection. The "Contacts and References" section on page 17 provides some safety information sources.

PESTICIDE STORAGE PRACTICES

If stored safely in a secure location, pesticides pose little risk to ground water. Common sense suggests keeping them dry and out of the way of activities that might knock over a jug or rip open a bag. Short-term storage (during seasonal use) poses a higher risk than year-round storage, but **any** storage, regardless of length of time stored, poses a risk to ground water.

If a spill does occur, an impermeable (waterproof) floor, such as concrete, should virtually prevent seepage of chemicals into the ground. A 4-inch curb around the floor prevents most chemical spills from spreading to other areas.

Secondary containment provides an impermeable floor and walls around the storage area. This minimizes the amount of pesticide seeping into the ground if a bulk liquid pesticide storage tank should leak. A mixing/loading pad provides for *secondary containment* during the transfer of pesticides to spraying equipment or nurse tanks.

Building a Storage Facility

Building a new storage facility just for pesticide storage may be expensive, but generally is safer than modifying areas meant for other purposes.

When building a new facility, keep in mind a few principles of safe pesticide storage:

- If your well is not protected, locate the building down slope and at least 100 feet away from your well. The distance from the well should be greater if the site has sandy soil.

- The risk of pesticide contamination of ground water is influenced by properties of both the pesticide chemical and soil type.

- In the event of a fire, contaminated surface water should drain into a confined area.

- The mixing and loading area should be close to your storage facility to minimize the distance that chemicals are carried.

- The building foundation or *secondary containment* floor should be well drained and high above the water table. The finished grade should be 3 inches below the floor and sloped to provide surface drainage away from the building.

- Provide pallets to keep large drums or bags off the floor. Shelves for smaller containers should have a lip to keep containers from sliding off. Steel shelves are easier to clean than wood if a spill occurs. Store dry products above liquids to prevent wetting from spills.

- If you plan to store chemicals in large bulk tanks, provide a containment area large enough to confine 125 percent of the contents of the largest bulk container, plus the displaced volume of any other storage tanks in the area.

- A locked storage cabinet or building provides security. Preventing unauthorized use of pesticides reduces the chance of accidental spills or theft. Provide signs or labels identifying the cabinet or building as a pesticide storage area. Labels on the outside of the building give firefighters information about pesticides during and emergency response for fire or a spill.

- Provide adequate road access for deliveries and emergency equipment.

- Keep pesticides separate to prevent cross-contamination. Keep herbicides, insecticides and fungicides on separate shelves or in different areas.

Contact your county Extension office for other information to consider in the design of a storage facility, such as ventilation, water access, temperature control and worker safety.

Modifying and Existing Storage Facility

If you decide to improve your current storage building, applying the above principles can be expensive. Compared to the cost of a major accident or a lawsuit, however, storage improvements are a bargain.

The cheapest alternative you may have is to cut back on the amounts and types of pesticides stored. If that's not practical, consider how you can protect the pesticides you keep in storage. Sound containers are your first defense against a spill or leak and can save you money by preventing pesticide loss.

If a container is accidentally ripped open or knocked off a shelf, confine the spill to the immediate area and clean up promptly. The building should have a solid floor and, for liquid pesticides, a curb. The *secondary containment* space should be large enough to hold 125 percent of the contents of the largest full container, plus the displaced volume of any other storage tanks in the area.

It may be less expensive to remodel an existing structure that serve other uses than building a new facility, even though remodeling can be complicated. When existing buildings must accommodate other activities, using them to store pesticides could compromise the safety of people and the environment. Storing chemicals in a separate facility reduces the risk associated with fire or accidental spills.

Never Store Pesticides Inside or Near a Well or Water Supply Structure

Anticipate Emergencies

You can reduce the degree of damage by anticipating emergencies. Fires in a storage area present a special hazard to people and the environment. If containers are damaged, the stored chemicals may be carried away by water and spread over a large area.

Label windows and doors to alert firefighters to the presence of pesticides and other products stored in the structure. It's a good idea to keep a separate list of the chemicals and amounts stored. Keep a copy of the list in the house or away from the storage area.

If a fire should occur, consider where the surface runoff water will go and where it might collect. For example, a curb around a floor can help confine contaminated water.

In making the storage area secure, also make it accessible for getting chemicals out in a hurry.

MIXING AND LOADING PRACTICES

Ground water contamination can even result from small spills in the mixing and loading area. Small quantities spilled regularly in the same place can go unnoticed, but the chemicals can build up in the soil and eventually reach ground water. By mixing and loading on an impermeable surface, such as sealed concrete, you can contain and reuse most spilled pesticides.

A Mixing and Loading Pad

Containing pesticide spills and leaks requires an impermeable (waterproof) surface for mixing and loading. The pad should be large enough to contain leaks from bulk tanks, wash water from

cleaning equipment, and spills from transferring chemicals to the sprayer or spreader.

The size of the pad depends also on the equipment you use. It should provide space around the parked equipment for washing and rinsing. Having several separate *rinsate* (rinse water) storage tanks allows you to keep *rinsate* from different chemicals separate. That way, it can be used as mixing water on subsequent loads.

Locate the pad next to the storage area. There must be NO runoff. Runoff can be a violation of Federal Laws (the Clean Water Act, FIFRA, or RCRA). A roof or other rainfall protection is essential.

If you consider constructing a mixing and loading pad, contact your county Extension office.

Better Management on Your Existing Mixing and Loading Site

Spills and leaks are likely to occur from time to time. Even if you don't have an impermeable mixing and loading pad, you can minimize contamination by following basic guidelines:

- Avoid mixing and loading pesticides near your well. One way to do this is to use a nurse tank to transport water to the mixing and loading site. Ideally, the mixing site should be moved each year within the field of application.
- Avoid mixing and loading on gravel driveways or other surfaces that allow spills to sink quickly through the soil. A clay surface is better than sand.
- Install a back siphon prevention device on the well or hydrants to prevent reverse flow of liquids into the water supply. Never put the hose in the sprayer tank. Provide an *air gap* of 6 inches between the hose and the top of the sprayer tank.
- Always supervise sprayer filling. For restricted use pesticides, a trained and certified applicator must supervise operations.
- Consider a *back siphonage* which transfers the pesticide directly from storage container to applicator equipment (through a hose for example). With this system humans and the environment are never inadvertently exposed.
- Use *rinsate* for mixing subsequent loads. Spray the last *rinsate* load on the labeled crop.

Spill Cleanup Procedures

For dry spills, promptly sweep up and reuse the pesticide as it was intended. Dry spills are usually very easy to clean.

For liquid spills, first stop the leakage, and then recover as much of the spill as possible and reuse as it was intended. Spills on impermeable surfaces may be cleaned up with an absorbent material such as kitty litter or sawdust. This material should then be spread over a site specified on the pesticide label. If soil contamination occurs on a permeable surface, it may be necessary to remove and field apply some contaminated soil.

To report a spill, call the Georgia Department of Agriculture at 404-656-4958.

Remove the spilled material and contaminated soil no matter what the quantity, and dispose of according to recommendations you receive when you report the spill.

Have an emergency response plan for the site. Know where the runoff water will go, how to handle your particular chemicals and whom to call for help.

CONTAINER DISPOSAL PRACTICES

Unwashed and improperly stored containers can lead to ground water contamination by allowing chemical residues to leak onto the ground.

Some basic guidelines can help avoid similar problems:

- As often as possible, use returnable containers and mini-bulks and return them to the dealer.
- Pressure-rinse or triple-rinse plastic containers immediately after use, since residue can be difficult to remove after it

dries. Pour rinse water into the spray tank. Puncture containers and store them in a covered area until you can take them to a permitted landfill or to be recycled.

- Recycle plastic and metal containers whenever possible.
- Shake out bags, bind or wrap them to minimize dust and take to a permitted landfill.
- Do not bury or burn pesticide containers or bags.

The Georgia Department of Agriculture and cooperating organizations sponsor collection days that serve as a good methods for disposing of unwanted chemicals and containers. For additional information on this program, contact The Department of Agriculture, Recycling Program at 404-657-8996.

Your drinking water is least likely to be contaminated if you follow appropriate management procedures or dispose of waste at a location off the farm. Proper offsite disposal practices are essential to avoid risking contamination that could affect the water supplies and health of others.

Other Management Practices

Reducing pesticide waste makes financial as well as environmental sense, but it means more than just reducing spills. It also means not buying more than you need to apply, keeping records of what you have on hand, and using older products first.

- Buying only what you need makes long-term storage unnecessary. In addition, you avoid cold weather problems that can make some pesticides useless.
- Record keeping may seem to be a task unrelated to ground water contamination, but knowing what you you've used in the past and what you have on hand allows you to make better purchasing decisions.
- Keep records of past field application rates and their effectiveness. Along with field records, you can add information such as the manufacturer's name and address, chemical types and handling precautions. This information can be important if you must respond quickly to an accident.
- Using older products first keeps your inventory current and effective. Before using chemicals that have been stored for a few years, check with your county Extension agent about possible restrictions on their use.

NOTES:

GLOSSARY:

Pesticide Products Storage

Air Gap: An air space (open space) between the hose or faucet and water level, representing one way to prevent *backflow* or liquids into a well or water supply.

Anti-siphon Device: A safety device to prevent *backflow* of a mixture of water and chemicals into the water supply.

Backflow: The unwanted reverse flow of liquids in a piping system.

Back Siphonage: *backflow* caused by formation of a vacuum in a water supply pipe.

Closed Handling System: A system for transferring pesticides or fertilizers directly from storage container to applicator equipment (through a hose, for example), so that humans and the environment are never inadvertently exposed to the chemicals.

Milligrams per Litter (mg/l): The weight of a substance measured in milligrams contained in one liter. It is equivalent to 1 part per million in water measurement.

Pesticide: Any substance or mixture of substance intended for preventing, destroying, repelling, or mitigating and insects, rodents, nematodes, fungi, or weeds.

Rinsate: Rinse water form pesticide or fertilizer tank cleaning.

Leachability Factor: Is used to evaluate the relative potential for pesticides to leach through soils. Both absorption and degradation are considered in the leachability factor.

Secondary containment: Impermeable floor and walls around a chemical storage area to minimize the amount of chemical seeping into the ground from a spill or leak.

TABLE 1: PESTICIDE LEACHABILITY CHART

The pesticides listed on this chart are identified by **brand name, common name, and rating for movement by leaching.** Identify the pesticides stored on your farmstead from the listing below. Note the "leachability factor" for each pesticide you store. Then use this rating to complete the "Leachability" section on the assessment worksheet. ***Note: Leachability measures the ability of a pesticide to move to the ground water. It has nothing to do with pesticide toxicity.***

HERBICIDES

BRAND NAME	COMMON NAME	RATING
2 Plus 2	mecoprop amine salt 2,4-D dimethylamine	high
2,4-D amine	2,4-D dimethylamine	high
2,4-D esters	2,4-D esters	high
AAtrex	atrazine	high
Ace Lawn Weed Killer	2-4D dimethylamine dicamba salt + mecoprop amine salt	high
Amiben	chloramben salts	high
Amitrol-T	amitrole	high
Ansar	MSMA sodium salt	medium
Ansar 529	MSMA sodium salt	medium
Antor	diethatyl-ethyl	medium
Assure	quizalofop ethyl	high
Asulox	asulam sodium salt	high
Atrazine	atrazine	high
Avenge	difenzoquat methylsulfate salt	low
Balan	benefin	low
Banvel	dicamba salt	high
Banvel/2,4-D	2,4-D acid + dicamba salt	high
Basagran	bentazon sodium salt	high
Benefin Granular	benefin	low
Betamec	bensulide	high
Betasan	bensulide	high
Bicep	atrazine + metolachlor	high
Blazer	acifluorfen	high
Brominal	bromoxynil butyrate + bromoxynil octanoate ester	medium
Bronate	MCPA acid + bromoxynil	high
Bronco	alachlor + glyphosate amine salt	medium
Buctril	bromoxynil octanoate ester	low
Bueno	MSMA sodium salt	medium
Butoxone	2,4-DB dimethylamine	high
Butyrac	2,4-DB	low
Butyrac	2,4-DB acid	low
Butyrac 200 dimethylamine	2,4-DB	high
Caliber 90	simazine	high
Canopy	chlorimuron ethyl + metribuzine	high
Caparol	prometryn	medium
Casoron	dichlobenil	high
Chickweed Spurge	2,4-D acid + dicamba salt + dichlorprop ester	high
Chipco Turf	2,4-D dimethylamine	high
Classic	chlorimuron ethyl	high
Clout	MSMA sodium salt	medium
Cobra	lactofen	low
Command	clomazone	medium
Conquest	atrazine + cyanazine	high
Cotoran	fluometuron	high
Crabgrass Preventer	benefin	low
Crossbow	2,4-D + triclopyr ester	high
Curbit	ethalfluralin	low

BRAND NAME	COMMON NAME	RATING
DMA	2,4-D dimethylamine	high
DMC Weed Control	metsulfuron-methyl	high
Daconate	MSMA sodium salt	medium
Dacthal	DCPA	medium
Dalapon	dalapon sodium salt	medium
Des-I-Cate	endothall salt	high
Devrinol	napropamide	high
Diquat	diquat dibromide salt	low
Direx	diuron	high
Diurex	diuron	high
Drexel Diuron	diuron	high
Dual	metolachlor	high
Dyclomec	dichlobenil	high
Embutone	2,4-DB dimethylamine	high
Enide	diphenamid	high
Eptam	EPTC	medium
Eradicane	EPTC	medium
Evik	ametryn	high
Formula	2,4-D dimethylamine	high
Fusilade 2000	fluazifop-P-butyl	low
Fusilade 2000	fluazifop-butyl	low
Gallery	isoxaben	medium
Gemini	chlorimuron ethyl + linuron	high
Genept	EPTC	medium
Goal	oxyfluorfen	low
Gramaxone	paraquat dichloride	low
Gramoxone Extra	paraquat dichloride	low
Gramoxone Super	praquat dichloride	low
Griffex	atrazine	high
Halt	pendimethalin	low
Halts Herbicide II	bensulide + pendimethalin	high

BRAND NAME	COMMON NAME	RATING
Hoelon	diclofop-methyl	low
Honcho	glyphosate amine salt	low
Hyvar L	bromacil lithium salt	high
Hyvar X	bromacil acid	high
Illoxan	diclofop-methyl	low
Image	imazaquin ammonium salt	high
Karmex	diuron	high
Kerb	pronamide	medium
Kleenup	glyphosate amine salt	low
Krovar I	bromacil acid + diuron	high
Krovar II	bromacil acid + diuron	high
Laddok	atraxine + bentaxon + bentaxon sodium salt	high
Lanex	fluometuron	high
Lasso	alachlor	medium
Lasso II	alachlor	medium
Lesco	2,4-D dimethylamine	high
Lesco Eight-One	2,4-D dimethylamine +dicamba salt	high
Lescopar	2,4-D dimethylamine salt + mecoprop amine salt	high
Lescopex	mecoprop amine salt	high
Lescosan	bensulide	high
Lexone	metribuzin	high
Linex	linuron	high
Lorox	linuron	high
MSMA	MSMA sodium salt	medium
Marksmen	atrazine + dicamba salt	high
Marmer	diuron	high
Mecomec	mecoprop amine salt	high
Mecoprop	mecoprop amine salt	high
Milogard	propazine	high
Modown	bifenox	high
Norosac	dichlobenil	high

BRAND NAME	COMMON NAME	RATING
Ornamec	fluazifop-butyl	low
Paraquat	paraquat dichloride	low
Pennant	metolachlor	high
Phenaban	2,4-D dimethylamine + dicamba salt	high
Poast	sethoxydim	medium
Polado	glyphosate amine salt	llow
Pre-M	pendimethalin	low
Prefar	bensulide	high
Presan	bensulide	high
Princep	simazine	high
Probe	methazole	low
Prograss	ethofumesate	medium
Proturf	bensulide	high
Proturf	dicamba salt	high
Proturf Goosegrass	bensulide + oxadiazon	high
Prowl	pendimethalin	low
Purge	atrazine	high
Quadmec	2,4-D dimethylamine + dicamba salt + mecoprop amine salt	high
Ramrod	propachlor	medium
Reflex	fomesafen sodium salt	high
Remediumy	triclopyr ester	medium
Rescue	2,4-DB dimethylamine + naptalam sodium salt	high
Reqrd	vernolate	medium
Rhonox	MCPA soluble salt	high
Ronstar	oxadiazon	low
Ronstar G	oxadiazon	low
Roundup	glyphosphate amine salt	low
Rout	oxyfluorfen	low
Rout	oxyfluorfen + oryzalin	medium
Rubigan	fenarimol	high

BRAND NAME	COMMON NAME	RATING
Salute	metribuzin + trifluralin	high
Scepter	imazaquin acid	high
Sencor	metribuzin	high
Simidex	simazine	high
Simazine	simazine	high
Simazol	amitrole	high
Sinbar	terbacil	high
Solicam	norflurazon	medium
Sonalan	ethalfluralin	low
Southern Weedgrass Control	pendimethalin	low
Squadron	imazaquin ammonium salt + pendimethalin	high
Storm	acifluorfen + bentazon	high
Super D II Weedone	2,4-D dimethylamine +dicamba salt	high
Super Trimec	2,4-acid + dicamba salt + dichlorprop ester	high
Surflan	oryzalin	medium
Sutan +	butylate	medium
Sutazine	atrazine + butylate	high
Tackle	acifluorfen sodium salt	high
Take Out	fluazifop-P-butyl	low
Tandem	tridiphane	low
Team	benefin + oryzalin + trifluralin	medium
Tillam	pebulate	medium
Tomahawk	atrazine + butylate	high
Tri-Scept	imazaquin ammonium salt + trifluralin	high
Trimec Encor	MCPA dimethylamine + MCPA soluble salt + dicamba salt + mecoprop amine salt.	high
Trimec	2,4-D dimethylamine + dicamba salt + mecoprop amine salt	high
Turbo EC	metolachlor + metribuzin	high
Turf Kleen	2,4-D dimethylamine + mecoprop amine salt	high
Turflon II Amine	2,4-D dimethylamine + mecoprop amine salt	high

BRAND NAME	COMMON NAME	RATING
Turflon	2,4-D acid + 2,4-D esters/amines + trichlopyr amine salt	high
Vantage	sethoxydim	medium
Velpar	hexazinone	high
Vernam	vernolate	medium
Versar	MSMA sodium salt	medium
Weed-B-Gon	2,4-D dimethylamine + mecoprop amine salt	high
Weedar	2,4-D dimethylamine	high
Weedestroy	mecoprop amine salt	high
Weedestroy Tri-ester	2,4-D esters/amines + mecoprop amine salt	high
Weedmaster	dicamba salt + 2,4-D dimethylamine	high
Weedone	2,4-D dimethylamine + MCPA ester	high
Weedone CB	2,4-D esters/amine + 2,4-DB butoxyethyl	high
Weedone DPC Herbicide	2,4-D dimethylamine +dichlorprop ester	high
Weedtrine-D	diquat dibromide salt	low
Whip	fenozaprop-ethyl	llow
XL	benefin + oryzalin	medium
Zorial	norflurazon	medium

INSECTICIDES/MITICIDES

BRAND NAME	COMMON NAME	RATING
AG 500	diazinon	medium
Agronexit	lindane	high
Alkran	parathion	low
Alkron	parathion	low
Alleron	parathion	low
Ambush	permethrin	low
Amdro Bait	hydramethylnon	low
Ammo	cypermethrin	low
Apollo	clofentezine	low

BRAND NAME	COMMON NAME	RATING
Aqua	parathion	low
Apron	metalaxyl	high
Asana	esfenvalerate	low
Asana XL	esfenvalerate	low
Azinphos Methyl	azinphos-methyl	low
Basudin	diazinon	high
Baythroid	cyfluthrin	low
Bidrin	dicrotophos	high
Bladan	parathion	low
Bolstar	sulprofos	low
Broot	trimethacarb	high
Capture	bifenthrin	low
Carbaryl	carbaryl	high
Carzol	formetanate	low
Carzol SP	formetanate	low
Comite	propargite	low
Counter	terbufos	low
Comite	propargite	low
Crusade	fonofos	medium
Curacron	profenofos	low
Cygon	dimethoate	high
Cygon 400	dimethoate	high
Cymbush	cypermethrin	low
Cythion	malathion	low
DZN	diazinon	medium
DZN AG 500	diazinon	medium
DZN Diazinon	diazinon	medium
Dasanit	fensulfothion	high
Dazzel	diazinon	low
Deadline	metaldehyde	medium

BRAND NAME	COMMON NAME	RATING
Defend	dimethoate	high
Diazinon	diazinon	medium
Dibrom	naled	low
Dicarb	bendiocarb	low
Dicofol 4 EC	dicofol	low
Dimecron	phosphamidon	high
Dimethoate	dimethoate	high
Dimilin	diflubenzuron	low
Di-Syston	disulfoton	high
Drezel	endosulfan	low
Dursban	chlorpyrifos	low
Cycarb	bendiocarb	low
Dyfonate	fonofos	medium
Dyloz	trichlorfon	high
Dymet	diazinon + methoxychlor	medium
Ectrin	fenvalerate	low
Ekatox	parathion	low
Ethion	ethion	low
Fosmite	ethion	low
Furadan	carbofuran	high
Furadan 4F	carbofuran	high
Gammex	lindane	high
Guthion	azinphos-methyl	low
Hopkins	parathion	low
Imidan	phosmet	high
Isotox	lindane	high
Karate	lambda-cyhalothrin	low
Karathane	dinocap	low
Kelthane	dicofol	low
Knox Out	diazinon	medium
Lannate	methomyl	high

BRAND NAME	COMMON NAME	RANKING
Lannate	methomyl	high
Lannate L	mathomyl	high
Larvae	methoxychlor	low
Larvin	thiodicarb	medium
Lindane	lindane	high
Lintox	lindane	high
Logic	fenoxycarb	low
Logic Bait	fenoxycarb	low
Lorsban	chlorpyrifos	low
Malathion	malathion	low
Marlate	methoxychlor	low
mavirik	fluvalinate	low
Mavrik	fluvalinate	low
Mensurol	methiocarb	high
Mesurol	methiocarb	high
Metacide	methyl parathion	low
Metacide	parathion	low
Metaldehyde	metaldehyde	medium
Metasystox	oxydemeton-methyl	high
Metasystox-R	oxydemeton-methyl	high
Methoxychlor	methoxychlor	low
Miticide	methyl parathion	low
Mocap	ethoprop	high
Monitor	methamidophos	high
Morestan	oxythioquinox	low
Nemacur	fenamiphos	high
Nexit	lindane	high
Nipsan	diazinon	medium
Miran	parathion	low
Noxfire	rotenone	low

BRAND NAME	COMMON NAME	RATING
Nudrin	methomyl	high
Oftanol	isofenphos	high
Omite	propargite	low
Orbit	propiconazole	high
Ornamite	propargite	low
Orthene	acephate	high
PB Nox	rotenone	low
PB Nox	piperonyl butoxide + rotenone	low
Panthion	parathion	low
Parathion	methyl parathion	low
Penncap	methyl parathion	low
Penncap M	methyl parathion	low
Pentac	diencochlor	high
Pentac	dienochlor ornamental	high
Phosdrin	mevinphos	medium
Plictran	cyhexatin	low
Pounce	permethrin	low
Primicide	pirimiphos-ethyl	high
Proxol	trichlorfon	high
Pydrin	fenvalerate	low
Pynamin	allethrin	low
Pyrenone	permethrin	low
Pyrenone	piperonyl butoxide + pyrethrins	low
Rebellate	dimethoate	hgih
Reldan	chlorpyrifos	low
Rotate	bendiocarb	low
Savey	hexythiazox	low
Savit	carbaryl	medium
Scout	tralomethrin	low
Seis-Tres	methyl parathion +parathion	low

BRAND NAME	COMMON NAME	RATING
Sevin	carbaryl	medium
Silvanol	lindane	high
Spectracide	diazinon	medium
Supracide	methamidophos	high
Swat	phosphamidon	high
Synthrin	resmethrin	low
Talstar	bifenthrin	low
Tame	fenpropathrin	low
Target	cyromazine	high
Temik	aldicarb	high
Tempo	cyfluthrin	low
Thimet	phorate	medium
Thiodan	endosulfan	low
Thiophos	parathion	low
Trigard	cyromazine	high
Trigard (IGR) cyromazine	cyromazine	high
Triumph	isazofos	high
Turcam	bendiocarb	low
Vendex	fenbutatinoxide	medium
Vydate	oxamyl	high
Vydate L	oxamyl	high
Wofatox	methyl parathion	low

FUNGICIDES

BRAND NAME	COMMON NAME	RANKING
Aliette	fosetyl-aluminum	low
Apron	metalaxyl	high
Arasan	thiram	medium
Banner	propiconazole	high
Banol	propamocarb	low
Banrot	etridiazole + thiophanate-methyl	high

BRAND NAME	COMMON NAME	RATING
Bayleton	triadimefon	medium
Benlate	benomyl	medium
Bravo	chlorothalonil	medium
Bravo C/M	chlorothalonil + copper + oxychloride + maneb	medium
Bromosan	thiophanate + thiram	medium
Captan	captan	low
Captec	captan	low
Carbamate	ferbam	medium
Chipco 26019	iprodione	low
Chloroneb	chloroneb	medium
Cheary's 3336-F	thiophanate-methyl	low
Cleary's 3336-WP	thiophanate-methyl	low
Cyprex	dodine	low
Daeonil	chlorothalonil	medium
Difolaton	captafol	low
Dikar	dinocap	low
Dikar (M)	dinocap	low
Dikar (M)	mancozeb	medium
Dithane	mancozeb	medium
Dithane M-22	maneb + zinc	medium
Dithane M-45	mancozeb	medium
Dow Elanco Broadway	chlorothalonil + fenarimol	high
Drexel Manzi	maneb + zinc	medium
Du-Ter	triphenyltin hydroxide	low
Duosan	mancozeb	medium
Duosan	mancozeb + thiophanate-methyl	medium
Dyrene	anilazine	low
Exotherm Termil	chlorothalonil	medium
Exothermermil	chlorothalonil	medium
Ferbam	ferbam	medium
Fernasan	thiram	medium

BRAND NAME	COMMON NAME	RANKING
Flo-Pro	imazalil	medium
Fore	mancozeb	medium
Folpet	folpet	low
Formec	mancozeb	medium
Funginex	triforine	medium
Fungo	thiophanate-methyl	low
Fungo Flo	thiophanate-methyl	low
Griffen Manex	maneb	medium
Gustafson 42S	thiram	medium
Helena Bravo	chlorothalonil + sulfur	medium
Karathane	dinocap	low
Kincaid Terraneb	chloroneb	medium
Koban	etridiazole	high
Lanco Captan	captan	low
Lesco	PBNB	low
Lesco	thiram	medium
Lesco Twosome	chlorothalonil + fenarimol	high
Maneb	maneb	medium
Maneb Plus Zinc F-4	maneb + zinc	medium
Maneb Plus Zinc	mabeb + zinc	medium
Maneb Plus	maneb + zinc	medium
Manex	mancozeb	medium
Manex II	mancozeb	medium
Manzate	mancozeb	medium
Manzate 200	mancozeb	medium
Manzi	maneb + zinc	medium
Mertect	thiabendazole	high
Nova	myclobutanil	high
Orbit	propiconazole	high
Ornalin	vinclozolin	high
Orthocide	captan	low
Pae (M)	mancozeb	medium
Pace (M)	matalaxyl	high

BRAND NAME	COMMON NAME	RATING
Penncozeb	mancozeb	medium
Pennwalt Maneb Plus	maneb + zinc	medium
Pipron	piperalin	low
Plantvax	oxycarboxin	high
Polyram	metiram	low
Pro-Tex	maneb + triphenyltin hydroxide	high
Ridomil	metalzxyl	high
Ridomil MX 58	mancozeb + metalaxyl	migh
Ridomil MX	mancozeb + metalaxyl	high
Ridomil/Bravo	chlorothalonil + metalazyl	high
Ronilan	vinclozolin	high
Rovral	iprodione	low
Rubigan	fenarimol	high
Sanspor	captafol	low
SMCP Thiram	thiram	medium
Spotrete	thiram	medium
Stoller Maneb	maneb	medium
Subdue	metalaxyl	high
Super-Tin	triphenyltin hydroxide	low
Supertin	triphenyltin hydroxide	low
Systhane	myclobutanil	high
Terraclor	PCMB	low
Terraguard	triflumizole	high
Terramec	chloroneb	medium
Terraneb	chloroneb	medium
Terraneb SP	chloroneb	medium
Terrazole	etridiazole	high
Tersan	benomyl	medium
Tersan 1991	benomyl	medium
Tersan LSR	maneb + zinc	medium
Thiophal	folpet	low

BRAND NAME	COMMON NAME	RANKING
Thiram	thiram	meidum
Thiramid	thiram	medium
Tilt	propiconazole	high
Topsin	thiophanate-methyl	low
Topsin M	thiophanate-methyl	low
Triforine	triforine	medium
Truban	etridiazole	high
Turfside	PCNB	medium
Vitavax	carboxin	low
Vitavax 34	carboxin	low
Vorlan	vinclozolin	high
Ziram	ziram	medium
Zyban	mancozeb + thiophanate-methyl	medium

NEMATICIDES

BRAND NAME	COMMON NAME	RANKING
Basamid	dazomet	high
Counter	terbufos	low
Dasanit	fensulfothion	high
Furadan	carbofuran	high
Mocap	ethoprop	high
Mylone	dazomet	high
Nemacur	fenamiphos	high
Oxamyl	oxamyl	high
Sarolex	diazinon	medium
Temik	aldicarb	high
Vydate	oxamyl	high
Vydate L	oxamyl	high
Brom-O-Gas	methyl bromide	high
Brozone	methyl bromide	high
Brozone	methyl bromide	high

BRAND NAME	COMMON NAME	RANKING
Busan	metham sodium salt	high
Carbon	carbon disulfide bisulfide	medium
Chlor-O-Pic	chloropicrin	low
Dowfume	methylbromide	high
Fume	methan sodium salt	high
MC(M)	chloropicrin	low
MC-2R	methylbromide	high
MC-33	chlorpicrin + methylbromide	high
Metho-O-Gas	methylbromide	high
MethylBromide	methylbromide	high
Telone C-17	1,3-dichloropropene chloropicrin	high
Telone II	1,3-dichloropropene	high
Terr-O-Gas	chloropicrin + methylbromide	high
Vapam	metham sodium salt	high

NOTES:

ACTION PLAN:

An action plan is a tool that allows you to take the needed steps to modify the areas of concern as identified by your assessment. The outline provided below is a basic guide for developing an action plan. Expand your plan if you feel the need for detail or additional areas. Consult the list of references on the next page if additional assistance is needed to develop a detailed action plan.

Area of Concern	Risk Ranking	Planned Action to Address Concern	Time Frame	Estimated Cost

REFERENCES:

CONTACTS AND REFERENCES			
Organization	**Responsibilities**	**Address**	**Phone Number**
Chemtrac	Technical assistance for fires, spills or pesticide related medical emergencies.	1300 Wilson Blvd. Arlington, VA 22209	800-424-9300 Available 24 hours .
Poison Control Centers	Questions regarding the ingestion of or a physical reaction to a pesticide.	Human Poison Control _____- — Animal Poison Control (Fee for service)	800-282-5846 _____ 217-333-3611
Georgia Department of Agriculture	Collection days for pesticide container recycling. Structural pest control licensing.	Pesticide Division Capitol Square, Suite 550 Agricultural Building, Atlanta, GA 30334	404-657-8996
Georgia Department of Agriculture	To report a spill.	Department of Agriculture Capitol Square, Suite 550 Agriculture Building, Atlanta, GA 30334	404-656-4958
U.S. Protection Agency	RCRA, CERCLA (Superfund), and EPCRA hotline. (see bottom of page)	1725 Jefferson Davis Hwy Crystal Square 2 Arlington, VA 22001	800-424-9346
Georgia Environmental Protection Division	Questions regarding disposal of pesticides.	Hazardous Waste Management Branch Floyd Tower East 205 Butler St. SE, Atlanta, GA 30334	404-656-7802
Georgia Environmental Protection Division	Report pesticide fires, large spills or leaks.	Hazardous Sites Response Program, Floyd Tower East 205 Butler St. SE Atlanta, GA 30334	404-657-8600
Biologial & Agricultural Engineering Dept., University of Georgia	Design of pesticide storage, mixing, loading facilities, sprayer calibration.	Rural Development Center P.O. Box 1209 Tifton, GA 31793	229-386-3442
University of Georgia Entomology	Pesticide Applicator Certification	Extension Unit Biological Sciences Building Athens, GA 30602	706-542-3687
Agricultural Pollution Prevention (P^2AD)	Questions concerning pollution prevention practices that can save you money.	BAE Department, University of Georgia Driftmier Engineering Center Athens, GA 30602	706-542-2154
National Pesticide Telecommuniation Network (NPPN)	General Pesticide Information	Ag. Chemical Extension Oregon State University 333 Weniger Street Corvallis, OR 97331	800-858-7378 answered during the hours of 9:30am to 7:30am EST.

1. RCRA (Resource Conservation and Recovery Act), Super Fund and EPCRA (Emergency Planning and Right to Know Act) Hotline

PUBLICATIONS:

University of Georgia Cooperative Extensive Service
Athens, Georgia 30602

- Your Drinking Water: Pesticides, Circular 891-6
- Pesticide Safety for Private and Commercial Applicators, Bulletin No. 1105
- Pesticide Storage and Mixing Facilities, Bulletin No. 1095
- Georgia Pest Control Handbook, Bulletin No. 882
- Regulatory Pest Control, Bulletin No. 847

The following publications can be purchased from the University of Georgia:

- Commercial Pesticide Applicators' safety Guides; Apply Pesticides Correctly (General Standards). Special Bulletin No. 15
- Agricultural Plant Pest Control, Special Bulletin No. 8
- Animal Agriculture Pest Control, Special Bulletin No. 19
- Forest Pest Control, Special Bulletin No. 16
- Ornamental and Turf Pest Control, Special Bulletin No. 10
- Right-of-Way Pest Control, Special Bulletin No. 11

College of Agriculture, Business Office
Connor Hall, Room 203
The University of Georgia
Athens, Georgia 30602
706-542-8999

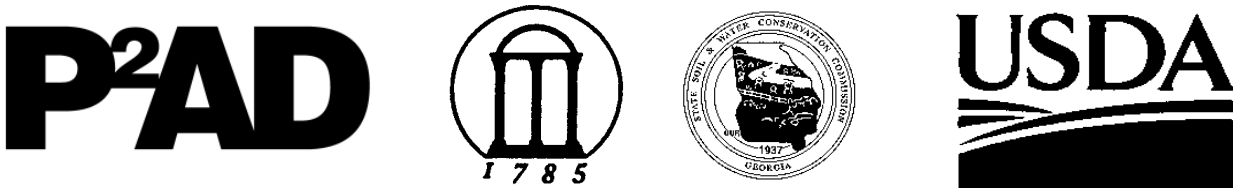
Northeast Regional Agricultural Engineering Service, Cooperative Extension
152 Riley-Robb, Ithaca, NY 14853-5701

- Pesticides and Ground Water: a Guide for the Pesticide User, NRAES-34

Tennessee Valley Authority (TVA)
TVA Bookstore
P.O. Box 1010
Muscle Shoals, AL 35660

- Pollution Prevention at Retail and Farm-Scale Agrichemical Facilities, Conference Proceedings, February 13-16, 1994
- Environmental Handbook for Fertilizer and Agrichemical Dealers

The Georgia Farm Assessment System is a cooperative project of the Pollution Prevention Assistance Division, Georgia Department of Natural Resources, the University of Georgia, College of Agricultural and Environmental Sciences, Cooperative Extension Service, the State Soil and Water Conservation Commission and the USDA, Natural Resources Conservation Service.



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