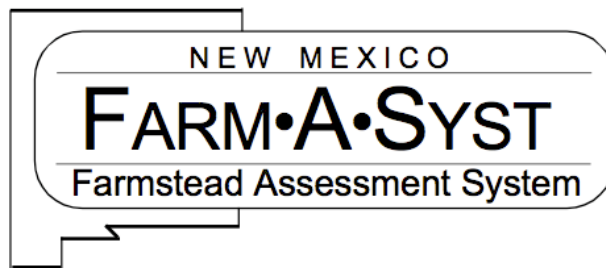




Worksheet #13

**Pesticide Use and IPM:  
Assessing Drinking Water Contamination risk**



## Pesticide Use and IPM: Assessing Drinking Water Contamination Risk

1. For each category listed on the left that is appropriate to your farm, read across to the right and find the statement that best describes conditions on your farm.
2. Look above the description to find your rank number (4, 3, 2 or 1) and enter that number in the last column labeled "Your Rank."
3. Directions on overall scoring appear at the end of the worksheet.
4. Allow about 15-30 minutes to complete the worksheet and figure out your risk ranking for pesticide use and Integrated Pest Management.

	RANK 4	RANK 3	RANK 2	RANK 1	YOUR RANK
<b>SITE CONDITIONS</b>	<i>If your farm has a variety of soil types or site conditions, you may choose to rank each field separately. At the end of the worksheet, calculate an overall risk ranking for each field.</i>				
Soil texture	Fine or moderately fine (silty clay loam, clay loam, silty clay, clay, sandy clay).	Medium (loam, silt loam, silt, very fine sandy loam, sandy clay loam).	Moderately coarse (sandy loam, fine or very fine loamy sand).	Coarse (sand, loamy sand, loamy coarse sand).	_____
Soil structure	Soil is crumbly, loose and well-aerated.	Soil has definite structure and is not compacted.	Soil is lumpy, tight or slightly compacted.	Soil is cloddy or dusty, compacted and poorly aerated.	_____
Soil fertility	All nutrients at recommended levels, based on soil test values.	Major nutrients at recommended levels.	Nutrients below adequate levels or unbalanced.	Soil not tested. Fertility not known.	_____
Depth to groundwater	Greater than 50 feet.	30 to 50 feet.	10 to 30 feet.	Less than 10 feet.	_____
<b>MANAGEMENT ACTIVITIES</b>					
Field scouting	Pests monitored throughout growing season using traps, visual inspection, whole plant counts, surveys, sampling or computer modeling.	Pests monitored during critical periods of crop development (Ex: seedling stage, flowering, fruit set).	General crop condition (including pests) observed during routine farm activities.	Crops are not inspected for pests.	_____
Pest identification	Local professional (Extension agent or consultant) identifies pests.	Pests identified by person trained through Extension agent, short courses, etc.	Pest ID done by self-trained or inexperienced person.	Pests not identified.	_____

	RANK 4	RANK 3	RANK 2	RANK 1	YOUR RANK
<b>MANAGEMENT ACTIVITIES (continued)</b>					
Planning and recordkeeping	IPM-related information recorded in detail, records are kept for several years. AND Manager refers to records to plan pest management program.	IPM information recorded. Records are kept for a few years.	Records kept only on pesticide use as required by federal or state law.	<b>No records kept</b> , or are difficult to access.	_____
<b>CULTURAL PRACTICES</b>					
Crop rotation <i>(not applicable to orchards, pastures or hay crops kept longer than 10 years)</i>	Rotation of at least 3 dissimilar crops designed to reduce pest pressure.	Rotation of 2 to 3 dissimilar crops.	Two crop rotation.	Single or closely related crop species grown in the same field 3 or more years in a row.	_____
Resistant varieties	Resistant varieties always planted when available.	Resistant varieties sometimes planted when available.	Resistant varieties rarely planted.	Resistant varieties not planted when available.	_____
Cultivation	Weed control exclusively by mechanical methods. Mowing, disking, tilling or hand weeding.	Primarily mechanical weed control methods used with directed spray, band spray, spot treatment or wick applicators. OR No-till residue/weed control used longer than two years.	Mechanical weed control used in conjunction with broadcast spraying. OR First or Second year of no-till operation.	Little or no mechanical control used (except no-till). Herbicide control program used exclusively.	_____
Pest habitat management	Breeding/overwintering sites of specific pests identified and reduced by cultural means (Ex: plowdown, removal of prunings, grazing, hoeing).	Breeding/overwintering sites of specific pests identified and reduced with chemicals (spraying fence rows, ditches, turnrows).	Good general sanitation practiced (waste areas mowed, crop residue plowed down [except no-till]).	No effort to remove breeding/overwintering sites. Uncultivated areas overgrown with weeds.	_____

**Boldface type:** Besides representing a higher-risk choice, this practice may be in violation of state or federal law.

	RANK 4	RANK 3	RANK 2	RANK 1	YOUR RANK
<b>CULTURAL PRACTICES (continued)</b>					
Equipment cleaning	Soil and plant parts <i>always</i> cleaned from equipment between fields to prevent the spread of insects, diseases and weeds.	Soil and plant parts <i>frequently</i> cleaned from equipment between fields to prevent spread of pests.	Equipment cleaned only after fields where a transmittable pest is known to exist.	Equipment usually not cleaned between fields.	_____
Irrigation scheduling	Irrigation scheduled by monitoring soil moisture levels in the field. OR Irrigation scheduled using computer model.	Irrigation scheduled using weather data to estimate crop water use.	Irrigation scheduled based on observations.	Irrigation scheduled by calendar, no adjustment for weather conditions.	_____
Water application rate	Water application rate known.	Water application rate estimated.	No measurement of water applied.		_____
Tailwater	No tailwater produced.	Tailwater rarely produced, recycled when present.	Tailwater is common, but is recycled.	Tailwater is common, not recycled.	_____
<b>BIOLOGICAL CONTROLS</b>					
Beneficials and biological controls	Beneficial habitat enhanced. Beneficials released when economical. Biopesticides (Bt, pyrethrum, etc.), pheromones or selective pesticides used to minimize impact on beneficials.	Beneficials have refuge in untreated/undisturbed portions of field, or in nearby fields. Selective or low-rate pesticides used when possible to minimize impact on beneficials. OR Pesticides are not used.	Beneficials are not protected or considered. AND Pesticides are used occasionally.	Beneficials are not protected or considered AND Pesticides are used frequently.	_____
<b>FIELD APPLICATION OF CHEMICALS</b>					
Frequency of pesticide* use	Pesticides are not used.	Pesticides used only when pest levels are large enough to do economic damage (economic threshold).	Pesticides are used at selected stages of pest development, without regard to economic threshold.	Pesticides applied at first sign of pest, or at fixed intervals (Ex: every 2 weeks, every 4 days).	_____

\* Review the glossary definition of this term before ranking yourself on this category.

	RANK 4	RANK 3	RANK 2	RANK 1	YOUR RANK
<b>FIELD APPLICATION OF CHEMICALS (continued)</b>					
Choice of pesticide*	Effective pest control, human health concerns and environmental impact (Ex: low toxicity, effect on beneficials, narrow spectrum, low leaching and runoff potential, low volatility) considered equally when choosing pesticides. Chemicals chosen from different classes.	Impact on environment (Ex: toxicity, effect on nontarget crops and animals, solubility, volatility, persistence) is considered in selecting pesticide. Chemicals chosen from different classes.	Health and environment are not significant factors in pesticide selection. Chemicals mostly in the same class.	Pesticides selected based on past habits, relative cost, advice of others (salesmen, neighbors). Same chemical used repeatedly, no rotation of chemical classes.	_____
Compliance with pesticide labeling	Pesticides <i>always</i> applied, handled and disposed according to label requirements and manuf. recommendations, including rate used, target pest, crop treated, timing, method of application, incorporation, additives and tank mixes.	Pesticides <i>usually</i> applied, handled and disposed according to label requirements and manuf. recommendations.	Pesticide applied at labeled rates, good general pesticide handling principles observed but specific manufacturer's recommendations not considered.	<b><i>Pesticides used in a manner inconsistent with labeling.</i></b>	_____
Weather conditions	Weather forecast considered before pesticide applications. Pesticides <i>never</i> applied when wind could cause drift to reach ditches or waterways, or when rain could move pesticide off-target*.	Steps are taken to reduce drift and runoff, but pesticides <i>occasionally</i> applied when winds could cause drift to ditches or waterways, or when rain is likely to move pesticide off-target*.	Pesticides <i>sometimes</i> applied when winds could cause drift to ditches or waterways, or when rain is likely to move pesticide off-target*.	<b><i>Pesticides are frequently applied when weather conditions are unsuitable.</i></b>	_____

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	RANK 4	RANK 3	RANK 2	RANK 1	YOUR RANK
<b>FIELD APPLICATION OF CHEMICALS (continued)</b>					
Spill response planning and cleanup	Formal written response plan developed. Employees/family trained in response procedures. Assembled spill kit (incl. MSDS*, product labels and emergency phone numbers) is always on hand when handling or transporting pesticides.	No formal response plan. Employees/family instructed to notify supervisor or call authorities in case of a spill. Spill kit is incomplete or not on-site during handling/ transportation. Labels and MSDS* kept with products.	Not fully prepared for a spill. Employees/family unaware of spill response steps. Tools and materials for cleanup not assembled. Spill response would require 1-2 hours. Labels not on hand, or difficult to find. <b>No MSDS*</b> .	No spill response planning. Labels not available. <b>No MSDS*</b> . No tools or materials for spill clean up are available.	_____
Applicator qualifications  (Includes custom applicators)	Persons who mix, load and apply pesticides are trained and licensed by state regulatory agency.	Persons who mix, load and apply pesticides are not licensed, but are supervised by licensed applicator.	<b>No one on the establishment is trained or certified in pesticide application.</b>		_____
Size of target area	Exact acreage known from survey or measurement of fields.	Accurate estimate of acres in each field from aerial photos, NRCS maps, etc.	Rough estimate of acres in each field.	Acreage not known.	_____
<b>EQUIPMENT</b>					
Equipment selection and setup	Equipment treats small areas of field (spot treatment) or contacts only target pest (rope wick) when appropriate. OR Equipment allows use of ultra-low volumes of pesticide.	Equipment confines pesticide to the general (likely) location of pests throughout a field (directed spray, banding). OR Equipment uses low volumes of spray mix (recirculating sprayer*).	Mostly broadcast application, with occasional use of banded application. OR Equipment applies moderate volumes of spray mix.	Equipment for broadcast applications only. OR Equipment applies high volumes of spray mix.	_____

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	RANK 4	RANK 3	RANK 2	RANK 1	YOUR RANK
<b>EQUIPMENT</b> (continued)					
Calibration*	Equipment calibrated by electronic devices. OR Calibrated each time speed, pressure, nozzles or spray width changes.	Sprayer is recalibrated frequently based on amount of use and type of pesticide formulation.	Equipment calibrated once a year	<b>Equipment is not calibrated.</b>	_____
Equipment maintenance	Sprayer maintenance performed after each use and after long periods of non-use.	Maintenance performed on a routine schedule.	Maintenance performed annually.	Repairs made as required.	_____
Chemigation equipment	Chemigation valve in place; injection unit located at pivot tower; all system interlocks being used as required; all check valves in place and functional.	Chemigation valve in place; injection unit located as far from well head as possible; injection line check valve in place; all system interlocks being used where required.	Check valve used in place of chemigation valve; injection unit adjacent to well head; injection line check valve used; no system interlocks being used.	No backflow prevention device used; no check valves used; no system interlocks; injection unit located adjacent to well head.	_____

**TOTAL**

*Use this total to calculate risk ranking on back page of worksheet.*

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