SECTION II

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II- WATER QUANTITY AND QUALITY INTERPRETATIONS

INTRODUCTION

Non-point Source Pollution

Water quality interpretations and predictions are very much a part of planning. Non-point source agricultural pollutants in California can result from animal-waste handling and disposal, application of nutrients (both animal wastes and manufactured products), the application of pesticides, and the movement of soil particles. Impacts from any and all of these pollutants can occur in both surface and groundwater.

The current focus of this subsection is on water quality and the use and impacts of pesticides in agriculture. This subsection contains soil and pesticide information that is primarily used for early screening of pesticide fate in the landscape.

Interpretations and data currently included in this subsection include:

- Pesticide Data Base
- Target Pesticides for Water Quality
- Soil-Pesticides Interaction Ratings
- Interim Soil Ratings for Determining Water Pollution Risk for Pesticides

Plans are to expand this subsection in the future to include more information on the use and impacts of nutrients on water quality, especially in terms of nutrient leaching and transport potential. Specific near-term plans include providing information on phosphorus in order to assess the potential water quality impacts from its application on the landscape.

Pesticide Data Base

NRCS uses the data base maintained by U.S. Environmental Protection Agency (EPA). EPA's agricultural pesticide Website address is http://es.epa.gov/oeca/ag/tpes.html. In addition, the California Department of Pesticide Regulation has a Website address at http://www.cdpr.ca.gov/

Soil-Pesticides Interaction Ratings

Soil-pesticide interaction ratings help determine the potential for pesticide loss from surface runoff and from leaching or percolation below the root zone when a specific pesticide is used on a specific soil. These ratings are contained within an interactive data base of soils and pesticides used to do gross estimates of pesticide movement both off and through the soil profile.

II- WATER QUANTITY AND QUALITY INTERPRETATIONS

SOIL-PESTICIDES INTERACTION RATINGS

Soil-pesticide interaction ratings help determine the potential for pesticide loss from surface runoff and from leaching or percolation below the root zone when a specific pesticide is used on a specific soil.

Soil and Pesticide Ranking

Soils are ranked according to potential for pesticide loss from surface runoff and from leaching. The surface loss potential and soil leaching potential are ranked as slight, moderate, or severe.

Potential Pesticide Losses

Pesticides are also ranked according to potential for loss to surface runoff and leaching. The ranking is based on pesticide properties that include the surface loss potential and leaching potential for each pesticide. The surface loss and leaching potentials are ranked as high, intermediate, low or very low.

The leaching potential indicates the tendency of a pesticide to move in solution with water and leach below the root zone into deep percolation. A rating of HIGH means the pesticide has the greatest tendency to leach. A rating of LOW means the pesticide has a slight tendency to leach. A rating of INTERMEDIATE means the pesticide has a moderate tendency to leach. A rating of VERY LOW means the pesticide is totally used, totally decomposed, or that there is such a small amount of pesticide remaining that it is not expected to leach with the percolating water.

The runoff potential indicates the tendency of the pesticide to move with sediment in runoff. A rating of HIGH means the pesticide has the greatest tendency to move with sediment. A rating of LOW means the pesticide has a slight tendency to move with sediment. A rating of INTERMEDIATE means the pesticide has a moderate tendency to move with sediment.

Both the soil ranking and the pesticide ranking are used to determine the potential for pesticide loss to leaching or to surface runoff. The intersection of the soil leaching potential and the pesticide leaching potential in the matrices gives an overall leaching potential of potential 1, potential 2, or potential 3. The same applies to surface runoff potential.

Potential 1 - This pesticide applied on this soil has a high probability of being lost to leaching or surface runoff. Potential 1 pesticides should be further evaluated for their hazard to humans and animals. If a pesticide is a potential danger to health, an alternative pesticide or other pest management techniques should be selected.

Potential 2 - This is an intermediate rating. This pesticide applied on this soil has a possibility of being lost to leaching or surface runoff. The effect of the pesticide on the water resource will need additional on-site evaluation.

Potential 3 - This pesticide applied on this soil has a low probability of being lost to leaching or surface runoff. This pesticide can be used according to label instructions with little hazard to the respective water resource.

Figure 1. Potential Pesticide Loss to Leaching Matrix

	---------- Pesticide Leaching Potential ----------			
	High	**Intermediate**	**Low**	**Very Low**
Soil Leaching Potential				
Severe	Potential 1	Potential 1	Potential 2	Potential 3
Moderate	Potential 1	Potential 2	Potential 3	Potential 3
Slight	Potential 2	Potential 3	Potential 3	Potential 3

Figure 2. Potential Pesticide Loss to Surface Runoff Matrix

	---------- Pesticide Runoff Loss Potential ----------		
	High	**Intermediate**	**Low**
Soil Runoff Loss Potential			
Severe	Potential 1	Potential 1	Potential 2
Moderate	Potential 1	Potential 2	Potential 3
Slight	Potential 2	Potential 3	Potential 3