



Department of Pesticide Regulation



Gray Davis
Governor

Winston H. Hockox
Secretary, California
Environmental
Protection Agency

Paul E. Helliker
Director

Ground Water Protection Best Management Practices

Date October 12, 2001

EM Branch Letter EM 01-01

Distribution County Agricultural Commissioners

Referrals If you have any questions, please contact Mr. Mark Pepple at (916) 324-4086.

Approval

John S. Sanders, Chief
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Introduction Over the last 15 years the Department of Pesticide Regulation (DPR) has detected several pesticides in ground water. Our current regulatory approach does not prevent pesticide movement to ground water, but applies use restrictions after the pesticide is detected in ground water. To insure the continued availability of these pesticides, we must implement effective mitigation measures. The purpose of the attached Best Management Practices (BMPs) is to encourage users of pesticides detected in ground water to adopt practices that prevent pesticide movement to ground water. We plan on adopting the BMPs into regulations in the near future.

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Ground Water Protection Best Management Practices,

Continued

Migration Mechanisms

DPR has demonstrated that pesticides migrate to ground water by two mechanisms, which are dependant upon soil type:

- Leaching
- Runoff

BMPs have been customized to address leaching and runoff within Pesticide Management Zones (PMZ). Addressing the problem from a prevention perspective will create a more effective “ground water protection program”.

Best Management Practices

The Department strongly encourages the BMPs listed in attachment B be adopted as permit conditions for the agricultural uses of:

- simazine,
- bromacil,
- diuron,
- norflurazon, including outdoor institutional and outdoor industrial uses.

The BMPs are divided into the following two categories according to the migration mechanism: “runoff PMZ BMPs”, and “leaching PMZ BMPs”. Attachment A lists PMZs by county, chemical and the migration mechanism.

Current Regulations

The current ground water protection regulations still apply:

- Prohibition of atrazine and prometon in their respective PMZs;
 - Prohibition of noncrop uses of simazine, bromacil and, diuron in their PMZs;
 - Prohibition of norflurazon use inside canal and ditch banks and in recharge areas in their PMZs;
 - Permit requirement for allowed uses of simazine, bromacil, diuron and norflurazon in their PMZs;
 - Ground water protection advisories;
 - Pest control adviser training for writing those advisories;
 - Requirement that purchasers of ground water pesticides regulated in PMZs must submit to dealers in writing whether they plan to use those pesticides in PMZs.
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Continued on next page

Ground Water Protection Best Management Practices, Continued

References

Title 3. California Code of Regulations, sections:

- 6416 Ground Water Protection Restrictions.
- 6486.2 (.3) (.4) and (.8) Use Requirements.
- 6557 Advisories for Ground Water Protection.
- 6570 Ground Water Protection Materials Requirements.
- 6800(a) Ground Water Protection List.
- 6802 Pesticide Management Zones.

**Irrigation
Training**

One suggested BMP for applying simazine, bromacil, diuron, and norflurazon in leaching PMZs is efficient irrigation management. DPR will identify appropriate irrigation management classes for users to implement this BMP.

Attachments

- A. PMZs listed by county, chemical and the migration mechanism.
- B. Ground Water Protection Best Management Practices for Crop Uses of Simazine, Bromacil, and Diuron, and All Allowed Uses of Norflurazon, in their Respective Pesticide Management Zones.

cc: Mr. Daniel J. Merkley (w/Attachments)
Mr. Roy Rutz (w/Attachments)

bcc: Rutz Surname File (w/Attachments)

ATTACHMENT A

List of Pesticide Management Zones by County, Chemical, and Mechanism of Movement to Ground Water (Leaching or Runoff)

The areas listed below, designated by meridian, township, range and section, are Pesticide Management Zones (PMZs). They are designated by county, chemical, and as either “leaching” or “runoff.” Allowed uses of simazine, bromacil, diuron, and norflurazon are subject to Leaching PMZ Conditions in Leaching PMZs and Runoff PMZ Conditions in Runoff PMZs. These conditions are listed in Attachment B. Chemicals detected in ground water in PMZs are designated in parentheses by numbers corresponding to the following list.

- (1) Atrazine
- (2) Simazine
- (3) Bromacil
- (4) Diuron
- (5) Prometon
- (6) Bentazon (Basagran®)
- (7) Norflurazon

Butte County -- Mount Diablo Meridian
21N/01E/01 (1,3) Runoff

Colusa County -- Mount Diablo Meridian
13N/01W/06 (2) Runoff
14N/01W/32 (2) Runoff

Contra Costa County--Mount Diablo Meridian
01S/03E/04(1) Runoff
02N/02W/14 (3,5) Runoff
02N/02W/24 (1,2,5) Runoff

Fresno County -- Mount Diablo Meridian
12S/20E/01 (2,4) Leaching
13S/21E/01 (2) Runoff
13S/22E/06 (2,3,4) Runoff
13S/22E/33 (2,3,4) Leaching
13S/22E/36 (1,2,3,4) Runoff
13S/23E/24 (1,2,3,4) Leaching
13S/23E/26 (1,2,3,4)
 NE Leaching
 NW Runoff
 SE Leaching
 SW Leaching

| | |
|------------------------|----------|
| 13S/23E/27 (2,3,4) | Runoff |
| 13S/23E/28 (2,3,4) | Runoff |
| 13S/23E/31 (1,2,3,4) | Runoff |
| 13S/23E/32 (1,2,4) | Runoff |
| 13S/23E/33 (2,3,4) | Runoff |
| 13S/23E/34 (1,2,4) | Leaching |
| 14S/21E/13 (2,4) | Runoff |
| 14S/21E/16 (2) | Runoff |
| 14S/21E/20 (2,4) | Leaching |
| 14S/21E/21 (2) | Runoff |
| 14S/21E/23 (2) | Runoff |
| 14S/21E/24 (2) | Runoff |
| 14S/21E/25 (2,3) | Runoff |
| 14S/21E/26 (2) | Runoff |
| 14S/21E/28 (2) | Leaching |
| 14S/21E/32 (2) | Leaching |
| 14S/21E/34 (2) | Leaching |
| 14S/21E/35 (2) | Leaching |
| 14S/21E/36 (2,4) | Leaching |
| 14S/22E/01 (1,2,3,4) | Runoff |
| 14S/22E/03 (4) | Runoff |
| 14S/22E/12 (1,2,3,4,7) | Runoff |
| 14S/22E/13 (1,2,4) | Leaching |
| 14S/22E/14 (2,3,4) | Runoff |
| 14S/22E/18 (2) | Runoff |
| 14S/22E/19 (2,4) | Runoff |
| 14S/22E/20 (1,2,4) | Runoff |
| 14S/22E/22 (1,5) | Leaching |
| 14S/22E/23 (2) | Leaching |
| 14S/22E/31 (2,4) | Leaching |
| 14S/22E/33 (2,3,4) | Leaching |
| 14S/23E/22 (1,2,4,7) | Leaching |
| 14S/23E/26 (1,2,7) | |
| NE | Runoff |
| NW | Leaching |
| SE | Runoff |
| SW | Runoff |
| 14S/23E/28 (1,2,4,7) | Leaching |
| 14S/23E/32 (1,2,4) | Leaching |
| 14S/23E/33 (2,4,7) | Leaching |
| 14S/23E/34 (2,4) | Leaching |
| 14S/23E/35 (1,2,4) | Runoff |
| 14S/24E/35 (1,2,4) | Runoff |
| 14S/24E/36 (2,3,4) | Runoff |

| | |
|------------------------|----------|
| 15S/21E/02 (2) | Leaching |
| 15S/21E/03 (2) | Leaching |
| 15S/21E/04 (2,4) | Leaching |
| 15S/21E/05 (2,4) | Leaching |
| 15S/21E/08 (2,5) | Leaching |
| 15S/21E/09 (2) | Leaching |
| 15S/21E/10 (2) | Leaching |
| 15S/21E/12 (2) | Leaching |
| 15S/21E/13 (2,4) | Leaching |
| 15S/21E/14 (1,2,4) | Leaching |
| 15S/21E/15 (2) | Leaching |
| 15S/21E/17 (2) | Leaching |
| 15S/21E/24 (1,2) | Leaching |
| 15S/21E/34 (2) | Leaching |
| 15S/22E/03 (1,2) | Leaching |
| 15S/22E/05 (2,3,4) | Leaching |
| 15S/22E/06 (2) | Leaching |
| 15S/22E/07 (2) | Leaching |
| 15S/22E/08 (2) | Leaching |
| 15S/22E/09 (2,3) | Leaching |
| 15S/22E/11 (2) | Leaching |
| 15S/22E/15 (4) | Leaching |
| 15S/22E/16 (5) | Leaching |
| 15S/22E/17 (2) | Leaching |
| 15S/22E/18 (2) | Leaching |
| 15S/22E/19 (2) | Leaching |
| 15S/22E/20 (2) | Leaching |
| 15S/22E/21 (2) | Leaching |
| 15S/22E/22 (2) | Leaching |
| 15S/22E/28 (2) | Leaching |
| 15S/22E/30 (2,4) | Leaching |
| 15S/22E/32 (2) | Leaching |
| 15S/22E/33 (2) | Leaching |
| 15S/23E/01 (1,2,4) | Runoff |
| 15S/23E/02 (1,2,4,7) | Runoff |
| 15S/23E/06 (2,3,4) | Leaching |
| 15S/23E/07 (2,4) | Runoff |
| 15S/23E/12 (1,2,4,5,7) | Runoff |
| 15S/24E/01 (2,3,4) | Runoff |
| 15S/24E/10 (2,3,4) | Runoff |
| 15S/24E/11 (2,3,4) | Runoff |
| 15S/24E/12 (1,2,4) | Runoff |
| 15S/24E/13 (1,2,3,4) | Runoff |
| 15S/24E/14 (1,2,3,4) | Runoff |

| | |
|----------------------|----------|
| 15S/24E/23 (1,2,4) | Runoff |
| 15S/24E/25 (1,2,3,4) | Runoff |
| 15S/24E/31 (2,4) | Leaching |
| 15S/24E/33 (2,3,4) | Leaching |
| 15S/24E/36 (1,2,3,4) | Runoff |
| 16S/21E/04 (2) | Leaching |
| 16S/21E/05 (2) | Leaching |
| 16S/21E/07 (2) | Leaching |
| 16S/21E/16 (2) | Leaching |
| 16S/21E/21 (1,2) | Leaching |
| 16S/22E/01 (2,4) | Leaching |
| 16S/22E/02 (1,2) | Leaching |
| 16S/22E/03 (2) | Leaching |
| 16S/22E/11 (2) | Leaching |
| 16S/22E/33 (1,2,3) | Leaching |
| 16S/22E/34 (2,4) | Leaching |
| 17S/19E/35 (4) | Leaching |
| 17S/22E/05 (2) | Leaching |

Glenn County -- Mount Diablo Meridian

| | |
|--------------------|--------|
| 18N/03W/05 (1,2,5) | Runoff |
| 18N/03W/07 (1,2) | Runoff |
| 18N/03W/18 (2,5) | Runoff |
| 18N/04W/01 (1) | Runoff |
| 19N/02W/05 (1) | Runoff |
| 19N/02W/09 (4) | Runoff |
| 19N/03W/03 (1,2) | Runoff |
| 19N/03W/04 (1) | Runoff |
| 19N/03W/06 (1) | Runoff |
| 19N/03W/07 (1,2) | Runoff |
| 19N/03W/08 (1,2,5) | Runoff |
| 19N/03W/09 (1,2,5) | Runoff |
| 19N/03W/10 (1,2) | Runoff |
| 19N/03W/17 (2,5) | Runoff |
| 19N/03W/18 (1,5) | Runoff |
| 19N/03W/22 (1) | Runoff |
| 19N/03W/31 (1) | Runoff |
| 19N/04W/01 (5) | Runoff |
| 19N/04W/02 (1) | Runoff |
| 19N/04W/12 (1) | Runoff |
| 19N/04W/23 (1) | Runoff |
| 19N/04W/25 (1) | Runoff |
| 20N/03W/03 (1) | Runoff |
| 20N/03W/09 (1,2) | |

| | |
|------------------|----------|
| NE | Leaching |
| NW | Runoff |
| SE | Leaching |
| SW | Runoff |
| 20N/03W/16 (5) | Runoff |
| 20N/03W/19 (1) | Runoff |
| 20N/03W/20 (1) | Runoff |
| 20N/03W/25 (1,2) | Runoff |
| 20N/03W/33 (1) | Runoff |
| 20N/03W/34 (2,5) | Runoff |
| 20N/03W/36 (1) | Runoff |

Kern County -- Mount Diablo Meridian

| | |
|----------------|----------|
| 28S/25E/14 (4) | Leaching |
| 31S/27E/16 (1) | Leaching |

Los Angeles County -- San Bernardino Meridian

| | |
|------------------|--------|
| 01N/08W/33 (1) | Runoff |
| 01N/09W/35 (1,2) | Runoff |
| 01N/12W/05 (1) | Runoff |
| 01N/12W/08 (1) | Runoff |
| 01S/08W/03 (3) | Runoff |
| 01S/08W/05 (1,3) | Runoff |
| 01S/09W/03 (1) | Runoff |
| 01S/11W/02 (1) | Runoff |
| 01S/11W/09 (1) | Runoff |
| 01S/11W/10 (1,2) | Runoff |
| 01S/11W/11 (2) | Runoff |
| 01S/11W/12 (1) | Runoff |
| 01S/11W/14 (1,2) | Runoff |
| 01S/11W/15 (1) | Runoff |
| 01S/11W/21 (1) | Runoff |
| 01S/11W/23 (1) | Runoff |
| 01S/11W/26 (1) | Runoff |
| 01S/11W/27 (1) | Runoff |
| 02S/11W/05 (2,4) | Runoff |
| 02S/11W/07 (1,2) | Runoff |
| 02S/11W/08 (1,2) | Runoff |
| 02S/11W/18 (1,2) | Runoff |
| 02S/11W/19 (1,2) | Runoff |
| 02S/12W/01 (1,2) | Runoff |
| 02S/12W/08 (1) | Runoff |
| 02S/12W/12 (1,2) | Runoff |
| 02S/12W/13 (1,2) | Runoff |

| | |
|--------------------|----------|
| 02S/12W/14 (1,2) | Runoff |
| 02S/12W/15 (1,2) | Runoff |
| 02S/12W/16 (1,2) | Runoff |
| 02S/12W/20 (1) | Runoff |
| 02S/12W/21 (1,2,4) | Runoff |
| 02S/12W/22 (1,2) | Runoff |
| 02S/12W/23 (1,2) | Runoff |
| 02S/12W/24 (1,2) | Runoff |
| 02S/12W/25 (1,2) | Runoff |
| 02S/12W/26 (1,2) | Runoff |
| 02S/12W/27 (1,2) | Runoff |
| 02S/12W/28 (1,2,4) | Runoff |
| 02S/12W/29 (1,2,4) | Runoff |
| 02S/12W/30 (1,2) | Runoff |
| 02S/12W/31 (1) | Runoff |
| 02S/12W/33 (1,2) | Runoff |
| 02S/12W/34 (1) | Runoff |
| 02S/12W/35 (1,2) | Runoff |
| 02S/12W/36 (1) | Runoff |
| 03S/12W/01 (1,2) | Runoff |
| 03S/12W/02 (1,2) | Runoff |
| 03S/12W/03 (1,2,4) | Runoff |
| 03S/12W/04 (1,2) | Runoff |
| 03S/12W/05 (1,2) | Runoff |
| 03S/12W/08 (1) | Runoff |
| 03S/12W/09 (1) | Runoff |
| 03S/12W/10 (1) | Runoff |
| 03S/12W/11 (1) | Runoff |
| 03S/12W/12 (1,2) | Runoff |
| 03S/12W/13 (1) | Runoff |
| 03S/12W/14 (1) | Runoff |
| 03S/12W/15 (1) | Runoff |
| 03S/12W/17 (1) | Runoff |
| 04N/15W/21 (2,5) | Leaching |

Madera County -- Mount Diablo Meridian

| | |
|------------------|----------|
| 08S/20E/34 (2,4) | Leaching |
| 09S/20E/02 (2) | Leaching |

Mendocino County -- Mount Diablo Meridian

| | |
|----------------|----------|
| 15N/12W/16 (2) | Leaching |
|----------------|----------|

Merced County -- Mount Diablo Meridian

| | |
|----------------|----------|
| 06S/12E/32 (2) | Leaching |
|----------------|----------|

| | |
|--------------------|----------|
| 07S/13E/36 (2) | Runoff |
| 08S/13E/01 (1,2,5) | Runoff |
| 09S/12E/25 (4) | |
| NE | Leaching |
| NW | Runoff |
| SE | Leaching |
| SW | Runoff |
| 09S/12E/36 (1,4) | Runoff |

Orange County -- San Bernardino Meridian

| | |
|--------------------|----------|
| 03S/09W/27 (1,2,4) | Leaching |
| 03S/09W/28 (1,2,4) | Leaching |
| 03S/09W/32 (1,2) | Leaching |
| 03S/09W/33 (2) | Leaching |
| 03S/09W/34 (2,4) | Leaching |
| 04S/09W/03 (2,3,4) | Leaching |
| 04S/09W/04 (2,4) | Leaching |
| 04S/09W/05 (1,2) | Leaching |
| 04S/09W/07 (1,2) | Leaching |
| 04S/09W/18 (2) | Leaching |
| 04S/10W/01 (2) | Leaching |
| 04S/10W/03 (1,2) | Leaching |
| 04S/10W/04 (1,2) | Leaching |
| 04S/10W/09 (1) | Leaching |
| 04S/10W/14 (2) | Leaching |
| 04S/10W/24 (2) | Leaching |
| 04S/10W/25 (1,2) | Leaching |

Placer County -- Mount Diablo Meridian

| | |
|----------------|--------|
| 15N/10E/04 (3) | Runoff |
|----------------|--------|

Riverside County -- San Bernardino Meridian

| | |
|----------------------|----------|
| 02S/04W/07 (2) | Runoff |
| 02S/04W/17 (2) | Runoff |
| 02S/05W/12 (2) | Leaching |
| 02S/05W/20 (2) | Leaching |
| 02S/05W/21 (2) | Leaching |
| 02S/07W/36 (2) | Leaching |
| 03S/04W/30 (1,2,3,4) | Leaching |
| 03S/04W/31 (1,2,3,4) | Runoff |
| 03S/05W/06 (2) | Runoff |
| 03S/06W/14 (2,3,4) | Runoff |
| 03S/06W/15 (2,3) | Runoff |
| 03S/06W/22 (1,2,4) | Runoff |

| | |
|--|----------|
| 03S/06W/23 (2,3,4) | Runoff |
| 03S/06W/28 (2) | Runoff |
| 03S/06W/31 (2) | Runoff |
| 03S/07W/25 (2) | |
| NE | Leaching |
| NW | Runoff |
| SE | Runoff |
| SW | Runoff |
| San Bernardino County -- San Bernardino Meridian | |
| 01S/04W/32 (2,4) | Leaching |
| 02S/04W/05 (2,4) | |
| NE | Leaching |
| NW | Runoff |
| SE | Leaching |
| SW | Runoff |
| 02S/04W/06 (2) | |
| NE | Leaching |
| NW | Leaching |
| SE | Runoff |
| SW | Leaching |
| San Joaquin County -- Mount Diablo Meridian | |
| 01S/06E/12 (3) | Leaching |
| 01S/06E/13 (3) | Leaching |
| 02S/05E/13 (1,2) | Runoff |
| 02S/05E/14 (1) | Runoff |
| 02S/05E/23 (1,3) | Runoff |
| 02S/05E/24 (1,4) | Runoff |
| 02S/06E/19 (1,2,4) | Runoff |
| Solano County -- Mount Diablo Meridian | |
| 07N/01E/04 (1) | Runoff |
| Stanislaus County -- Mount Diablo Meridian | |
| 04S/07E/29 (4) | Runoff |
| 04S/07E/30 (4) | Runoff |
| 04S/09E/10 (2) | Leaching |
| 04S/09E/15 (2) | Leaching |
| 04S/09E/16 (2) | Leaching |
| 04S/09E/20 (2) | Leaching |
| 04S/09E/21 (2) | Leaching |
| 04S/09E/22 (1,2,4) | Leaching |
| 04S/09E/23 (2,4) | Leaching |

Tehama County -- Mount Diablo Meridian

| | |
|------------------|----------|
| 25N/03W/23 (1,2) | Leaching |
| 25N/03W/24 (1,3) | Leaching |
| 26N/03W/35 (2,4) | Runoff |

Tulare County -- Mount Diablo Meridian

| | |
|----------------------|----------|
| 15S/25E/05 (2,3,4) | Runoff |
| 15S/25E/08 (1,2,4) | Runoff |
| 16S/23E/01 (2,3) | |
| NE | Leaching |
| NW | Runoff |
| SE | Leaching |
| SW | Leaching |
| 16S/24E/01 (2,3,4) | Runoff |
| 16S/24E/03 (2,4) | Runoff |
| 16S/24E/04 (2,3,4) | Runoff |
| 16S/24E/05 (1,2,4) | Runoff |
| 16S/24E/06 (3) | Runoff |
| 16S/24E/08 (2) | |
| NE | Runoff |
| NW | Leaching |
| SE | Runoff |
| SW | Leaching |
| 16S/24E/09 (2,3,4) | Runoff |
| 16S/24E/10 (2,3,4,5) | Runoff |
| 16S/24E/11 (4) | Runoff |
| 16S/24E/12 (2,3,4,7) | Runoff |
| 16S/24E/13 (1,2,3,4) | Runoff |
| 16S/24E/14 (4,7) | Runoff |
| 16S/24E/15 (4) | Runoff |
| 16S/24E/16 (2,3,4) | Runoff |
| 16S/24E/22 (2,3,4) | Runoff |
| 16S/24E/24 (1,2,4) | Runoff |
| 16S/24E/25 (2) | Runoff |
| 16S/24E/26 (2,3,4) | Runoff |
| 16S/24E/27 (2) | Runoff |
| 16S/24E/33 (1,2,4) | Runoff |
| 16S/24E/34 (2) | Runoff |
| 16S/24E/35 (4) | Runoff |
| 16S/24E/36 (2,4) | Runoff |

| | |
|----------------------|----------|
| 16S/25E/04 (2,3,4) | Runoff |
| 16S/25E/05 (2,4) | |
| NE | Runoff |
| NW | Leaching |
| SE | Runoff |
| SW | Leaching |
| 16S/25E/06 (2,3,4) | Leaching |
| 16S/25E/08 (3) | Runoff |
| 16S/25E/09 (3,4) | Runoff |
| 16S/25E/16 (4) | Runoff |
| 16S/25E/18 (2,4) | Runoff |
| 16S/25E/19 (2,4) | Runoff |
| 16S/25E/21 (2,3,4) | Runoff |
| 16S/25E/28 (1,2,3,4) | Runoff |
| 16S/25E/29 (2,4) | Runoff |
| 16S/25E/31 (1,2) | |
| NE | Leaching |
| NW | Runoff |
| SE | Runoff |
| SW | Runoff |
| 16S/25E/32 (2,3,4) | Runoff |
| 16S/25E/34 (2) | Runoff |
| 17S/24E/01 (4) | Runoff |
| 17S/25E/02 (1,2) | Runoff |
| 17S/25E/03 (2,4,5) | Runoff |
| 17S/25E/04 (1,2,4,5) | Runoff |
| 17S/25E/05 (2,4) | Runoff |
| 17S/25E/11 (2,3,4) | Runoff |
| 17S/25E/12 (2,4) | Runoff |
| 17S/25E/13 (2,3,4) | Leaching |
| 17S/25E/23 (2,3,4) | Runoff |
| 17S/25E/24 (2,3,4) | Leaching |
| 17S/25E/25 (2,3,4) | Runoff |
| 17S/25E/36 (2,3,4) | Runoff |
| 17S/26E/13 (1,2) | Runoff |
| 17S/26E/14 (1,2) | Runoff |
| 17S/26E/18 (2,3,4) | Leaching |
| 17S/26E/19 (2,3,4) | Leaching |
| 17S/26E/20 (2,3,4) | Runoff |
| 17S/26E/21 (2,4) | Runoff |
| 17S/26E/23 (2,4) | Runoff |
| 17S/26E/24 (3,4) | Runoff |
| 17S/26E/25 (4) | Runoff |
| 17S/26E/26 (1,2,3,4) | Runoff |

| | |
|------------------------|----------|
| 17S/26E/27 (2,4) | Runoff |
| 17S/26E/28 (1,2,3,4) | Runoff |
| 17S/26E/29 (2,3,4) | Runoff |
| 17S/26E/30 (2,3,4) | Runoff |
| 17S/26E/31 (2,3,4) | Runoff |
| 17S/26E/32 (2,3,4) | Runoff |
| 17S/26E/33 (1,2,3,4) | Runoff |
| 17S/26E/34 (2) | Runoff |
| 17S/26E/35 (2,3,4) | Runoff |
| 17S/26E/36 (2,4) | Runoff |
| 17S/27E/29 (1,2) | Runoff |
| 17S/27E/31 (2,4,5) | Runoff |
| 18S/23E/36 (3) | Leaching |
| 18S/24E/31 (2,4) | Leaching |
| 18S/25E/01 (2,3,4) | Runoff |
| 18S/25E/12 (2,3,4) | Runoff |
| 18S/25E/13 (2,4) | Leaching |
| 18S/26E/01 (2,4) | Leaching |
| 18S/26E/02 (2,3,4) | Runoff |
| 18S/26E/04 (2,4) | Runoff |
| 18S/26E/06 (2,3,4) | Runoff |
| 18S/26E/09 (2,4) | Runoff |
| 18S/26E/14 (2) | Leaching |
| 18S/26E/16 (2) | Runoff |
| 18S/26E/21 (2,5) | Leaching |
| 18S/26E/22 (2,4) | Runoff |
| 18S/26E/23 (1,2,3,4,5) | Runoff |
| 18S/26E/24 (2,3,4) | Runoff |
| 18S/26E/25 (2,4) | Runoff |
| 18S/26E/26 (2,3,4) | Runoff |
| 18S/26E/27 (2) | Runoff |
| 18S/26E/28 (2) | Runoff |
| 18S/26E/33 (2,4) | Runoff |
| 18S/26E/34 (3) | Runoff |
| 18S/26E/35 (2,3,4) | Runoff |
| 18S/26E/36 (2,3,4) | Runoff |
| 18S/27E/02 (2,3,4) | |
| NE | Leaching |
| NW | Runoff |
| SE | Leaching |
| SW | Runoff |
| 18S/27E/08 (2,3,4) | Runoff |
| 18S/27E/09 (2,3,4) | Runoff |
| 18S/27E/10(2,4) | Runoff |

| | |
|----------------------|----------|
| 18S/27E/11 (2,4) | |
| NE | Leaching |
| NW | Leaching |
| SE | Leaching |
| SW | Runoff |
| 18S/27E/14 (4) | Runoff |
| 18S/27E/15 (2) | Runoff |
| 18S/27E/16 (2,3,4,5) | Runoff |
| 18S/27E/17 (2,3,4) | Runoff |
| 18S/27E/18 (2,3,4) | Runoff |
| 18S/27E/19 (2,4) | Runoff |

| | |
|----------------------|----------|
| 18S/27E/20 (2,3,4) | Runoff |
| 18S/27E/21 (4) | Runoff |
| 18S/27E/29 (2,3,4) | Runoff |
| 18S/27E/30 (2,3,4) | Runoff |
| 18S/27E/31 (2,4) | Runoff |
| 19S/24E/36 (4) | Leaching |
| 19S/25E/31 (4) | Leaching |
| 19S/26E/01 (2,3,4) | Runoff |
| 19S/26E/02 (2,3,4) | Runoff |
| 19S/26E/04 (2,4) | Runoff |
| 19S/26E/10 (2,4) | Runoff |
| 19S/26E/11 (2,3,4) | Runoff |
| 19S/26E/12 (2,3,4) | Runoff |
| 19S/26E/13 (2) | Runoff |
| 19S/26E/14 (1,2,3,4) | Runoff |
| 19S/26E/15 (2,3,4) | Runoff |
| 19S/26E/16 (7) | Runoff |
| 19S/26E/23 (2,3,4) | Runoff |
| 19S/26E/24 (2,4) | Runoff |
| 19S/26E/25 (1,2) | Runoff |
| 19S/26E/26 (2,3,4) | Runoff |
| 19S/26E/34 (2,3,4,5) | Runoff |
| 19S/26E/35 (2,3,4) | Runoff |
| 19S/26E/36 (2,3,4) | Runoff |
| 19S/27E/18 (2,4) | Runoff |
| 19S/27E/19 (2,3,4) | Runoff |
| 19S/27E/29 (1,2) | Runoff |
| 19S/27E/30 (2) | Runoff |
| 19S/27E/31 (2,3) | Runoff |
| 19S/27E/32 (2) | Runoff |
| 20S/26E/01 (2,4) | Runoff |
| 20S/26E/02 (2,3,4) | Runoff |
| 20S/26E/03 (2,4) | Runoff |
| 20S/26E/11 (2,3,4) | Runoff |
| 20S/26E/12 (2,3) | Runoff |
| 20S/26E/24 (2,4) | Runoff |
| 20S/26E/25 (2,3,4) | Runoff |
| 20S/26E/35 (2,4) | Runoff |
| 20S/26E/36 (2) | Runoff |
| 20S/27E/06 (2,3,4) | Runoff |
| 20S/27E/07 (2,3,4) | Runoff |
| 20S/27E/08 (2,3,4) | Runoff |
| 20S/27E/09 (3) | Runoff |
| 20S/27E/10 (3) | Runoff |
| 20S/27E/16 (2,3) | Runoff |
| 20S/27E/17 (3,4) | Runoff |

| | |
|----------------------|----------|
| 20S/27E/18 (2,3,4) | Runoff |
| 20S/27E/19 (1,3) | Runoff |
| 20S/27E/20 (3) | Runoff |
| 20S/27E/21 (3) | Runoff |
| 20S/27E/29 (1,2,3) | Runoff |
| 20S/27E/30 (2,3,4) | Runoff |
| 20S/27E/31 (2,3,4) | Runoff |
| 20S/27E/32 (2,3) | Runoff |
| 21S/26E/02 (1) | Runoff |
| 21S/26E/03 (4) | Runoff |
| 21S/26E/21 (4) | Runoff |
| 21S/26E/27 (4) | Runoff |
| 21S/26E/28 (2) | Runoff |
| 21S/26E/32 (2,4) | Leaching |
| 21S/26E/33 (2) | Leaching |
| 21S/26E/34 (2) | Leaching |
| 21S/26E/36 (4) | |
| NE | Leaching |
| NW | Leaching |
| SE | Runoff |
| SW | Leaching |
| 21S/27E/05 (7) | Runoff |
| 21S/27E/06 (2) | Runoff |
| 21S/27E/08 (1,2) | Runoff |
| 21S/27E/17 (1,2) | Runoff |
| 21S/29E/09 (2) | Runoff |
| 21S/29E/10 (3,4) | Runoff |
| 21S/29E/11 (4) | Leaching |
| 21S/29E/14 (2,4) | Runoff |
| 21S/29E/15 (2,4) | Runoff |
| 21S/29E/16 (2,4) | Runoff |
| 22S/26E/02 (2,4) | Runoff |
| 22S/26E/03 (2) | Leaching |
| 22S/26E/10 (4) | Leaching |
| 22S/26E/11 (2,3,4) | Runoff |
| 22S/26E/12 (2,4) | Runoff |
| 22S/26E/13 (2,4) | Runoff |
| 22S/26E/24 (4) | Runoff |
| 22S/26E/29 (1) | Runoff |
| 22S/26E/32 (4) | Runoff |
| 22S/27E/06 (2,4) | Runoff |
| 22S/27E/07 (2,4) | Runoff |
| 22S/27E/18 (1,2,3,4) | Leaching |
| 22S/27E/34 (2,4) | Runoff |
| 23S/26E/09 (2,4) | Runoff |
| 23S/26E/17 (1) | Runoff |

| | |
|------------------|----------|
| 23S/27E/03 (2,4) | Runoff |
| 24S/25E/13 (2) | Runoff |
| 24S/25E/24 (2) | Leaching |
| 24S/25E/25 (2) | Runoff |
| 24S/25E/36 (2) | Leaching |
| 24S/26E/07 (2) | Leaching |
| 24S/26E/30 (2) | Leaching |

Ventura County -- San Bernardino Meridian

| | |
|--------------------|----------|
| 02N/19W/19 (1,2,3) | Leaching |
| 02N/19W/30 (1,2,3) | Leaching |
| 02N/20W/23 (1,2,3) | Leaching |
| 02N/20W/24 (1,3) | Leaching |
| 02N/20W/25 (1,2) | Leaching |
| 02N/20W/26 (1,2,3) | Leaching |

Yolo County -- Mount Diablo Meridian

| | |
|------------------|--------|
| 08N/01E/01 (1) | Runoff |
| 08N/01E/02 (2) | Runoff |
| 08N/01E/11 (1) | Runoff |
| 08N/01E/14 (2) | Runoff |
| 09N/01E/36 (1,2) | Runoff |

October 5, 2001

**BEST MANAGEMENT PRACTICES FOR CROP USES OF SIMAZINE, BROMACIL,
AND DIURON, AND ALL ALLOWED USES OF NORFLURAZON, IN THEIR
RESPECTIVE PESTICIDE MANAGEMENT ZONES**

I. Runoff Pesticide Management Zone Conditions

Uses of bromacil, diuron, norflurazon, and simazine are prohibited inside their Runoff Pesticide Management Zones (see attached List of PMZs) unless **one** of the following mitigation measures can be met and is designated by the commissioner on the permit:

(1) Soil Disturbance.

The soil to be treated shall be disturbed, within seven days before the pesticide is applied, by using a disc, harrow, rotary tiller, or other mechanical method; **OR**

(2) Incorporation of the Pesticide .

The pesticide shall be incorporated on at least 90 percent of the area treated, within seven days after the pesticide is applied, by using a disc, harrow, rotary tiller, or other mechanical method, or by sprinkler or low flow irrigation, including chemigation if allowed by the label, using a minimum of ¼ inch of irrigation water and a maximum of either one inch or the maximum amount of irrigation water specified on the label, at application rates that do not cause surface water runoff from the treated property or to wells on the treated property; **OR**

(3) Band Treatment.

The pesticide shall be applied as a 2-4 foot band on each side of the tree or vine row, not to exceed 33 percent of the distance between rows; **OR**

(4) Timing of Application.

The pesticide shall be applied between April 1 and July 31; **OR**

(5) Retention of Runoff on Field.

The field shall be designed, by berms, levees, or non-draining circulation systems, to retain, for six months following the application, all irrigation runoff and all precipitation on, and drainage through, the field from a 10-year, 24-hour storm. The

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**BEST MANAGEMENT PRACTICES FOR CROP USES OF SIMAZINE, BROMACIL,
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RESPECTIVE PESTICIDE MANAGEMENT ZONES**

retention area on the field shall not have a percolation rate of more than 0.2 inches per hour; **OR**

(6) Retention of Runoff in a Holding Area off the Field.

The field shall be designed so that all runoff is channeled to a separate holding area, under the control of the property operator, that is designed to retain, for six months following the application, all irrigation runoff and all precipitation on, and drainage through, the treated field and all other areas draining into that holding area from a 10-year, 24-hour storm. The channel by which the runoff from the treated field is transported to the holding area as well as the holding area itself shall not have a percolation rate of more than 0.2 inches per hour.

II. Leaching Pesticide Management Zone Conditions

Uses of bromacil, diuron, norflurazon, and simazine are prohibited inside their Leaching Pesticide Management Zones (see attached List of PMZs) unless **one** of the following mitigation measures can be met and is designated by the commissioner on the permit:

(1) No Irrigation.

The permittee shall not apply any irrigation water to the treated area within 6 months after the pesticide is applied; **OR**

(2) No Contact with Irrigation Water.

The permittee shall apply the pesticide to the planting bed or the berm above the level of irrigation water in the furrow or basin so that the irrigation water does not contact the treated area; **OR**

(3) Efficient Irrigation.

Irrigation shall be managed so that the ratio of the amount of irrigation water applied divided by the net irrigation requirement is 1.33 or less. "Net irrigation requirement" is the amount

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**BEST MANAGEMENT PRACTICES FOR CROP USES OF SIMAZINE, BROMACIL,
AND DIURON, AND ALL ALLOWED USES OF NORFLURAZON, IN THEIR
RESPECTIVE PESTICIDE MANAGEMENT ZONES**

of water needed to bring the soil in the crop root zone to field capacity at the time of irrigation. It can be determined by direct measurements of soil moisture, such as by using tensiometers, or indirect measurements of soil moisture,

such as by estimating evapotranspiration that has accumulated since the last irrigation. "Field capacity" means the content of water, on a weight or volume basis, remaining in a soil two or three days after having been fully wetted with water and after free drainage is negligible. "Evapotranspiration" means the combined loss of water from a given area, and during a specified period of time, by evaporation from the soil surface and by transpiration from plants. Evapotranspiration data can be obtained from the California Irrigation Management Information System (CIMIS) or other local sources.