

**Table to accompany *Effect of water pH on the stability of pesticides* by Annemiek Schilder, MSU Plant Pathology. (March 18, 2008)**

| Product                       | Active ingredient         | Optimum pH | Half Life / Time until 50% Hydrolysis**                        |
|-------------------------------|---------------------------|------------|--|
| <b>Insecticides/Miticides</b> |                           |            |  |
| Admire                        | Imidacloprid              | 7.5        | Greater than 31 days at pH 5 - 9                               |
| Agri-Mek                      | Avermectin                |            | Stable at pH 5 - 9   |
| Ambush                        | Permethrin                | 7          | Stable at pH 6 - 8   |
| Apollo                        | clofentezine              |            | pH 7 = 34 hrs; pH 9.2 = 4.8 hrs                                |
| Assail                        | acetamiprid               | 5 - 6      | Unstable at pH below 4 and above 7                             |
| Avaunt                        | indoxacarb                |            | Stable for 3 days at pH 5 - 10                                 |
| Carzol                        | formetanate hydrochloride | 5          | Not stable in alkaline water; use within 4 hrs of mixing.      |
| Cygon/Lagon                   | dimethoate                | 5          | pH 4 = 20 hrs; pH 6 = 12 hrs; pH 9 = 48 min                    |
| Cymbush                       | cypermethrin              |            | pH 9 = 39 hours  |
| Diazinon                      | phosphorothioate          | 7          | pH 5 = 2 wks; pH 7 = 10 wks; pH 8 = 3 wks; pH 9 = 29 days      |
| Dipel/Foray                   | b. thuringiensis          | 6          | Unstable at pH above 8   |
| Dylox                         | trichlorfon               |            | pH 6 = 3.7 days; pH 7 = 6.5 hrs; pH 8 = 63 min                 |
| Endosulfan                    | endosulfan                |            | 70% loss after 7 days at pH 7.3 - 8                            |
| Furadan                       | carbofuran                |            | pH 6 = 8 days; pH 9 = 78 hrs                                   |
| Guthion                       | azinphos-methyl           |            | pH 5 = 17 days; pH 7 = 10 days; pH 9 = 12 hrs                  |
| Imidan                        | phosmet                   | 5          | pH 5 = 7 days; pH 7 < 12 hrs; pH 8 = 4 hrs                     |
| Kelthane                      | dicofol                   | 5.5        | pH 5 = 20 days; pH 7 = 5 days; pH 9 = 1hr                      |
| Lannate                       | methomyl                  |            | Stable at pH below 7   |
| Lorsban                       | chlorpyrifos              |            | pH 5 = 63 days; pH 7 = 35 days; pH 8 = 1.5 days                |
| Malathion                     | dimethyl dithiophosphate  | 5          | pH 6 = 8 days; pH 7 = 3 days; pH 8 = 19 hrs; pH 9 = 5 hrs      |
| Matador                       | lambda-cyhalothrin        | 6.5        | Stable at pH 5 - 9   |
| Mavrik                        | tau-fluvalinate           |            | pH 6 = 30 days; pH 9 = 1 - 2 days                              |
| Mitac                         | amitraz                   | 5          | pH 5 = 35 hrs; pH 7 = 15 hrs; pH 9 = 1.5 hrs                   |
| Omite                         | propargite                |            | Effectiveness reduced at pH above 7                            |
| Orthene                       | acephate                  |            | pH 5 = 55 days; pH 7 = 17 days; pH 9 = 3 days                  |
| Pounce                        | permethrin                | 6          | pH 5.7 to 7.7 is optimal                                       |
| Pyramite                      | pyridaben                 |            | Stable at pH 4 - 9   |
| Sevin XLR                     | carbaryl                  | 7          | pH 6 = 100 days; pH 7 = 24 days; pH 8 = 2.5 days; pH 9 = 1 day |
| SpinTor                       | spinosad                  | 6          | Stable at pH 5 - 7; pH 9 = 200 days                            |
| Thiodan                       | endosulfan                | 6.5        | 70% loss after 7 days at pH 7.3 to 8                           |
| Zolone                        | phosalone                 | 6          | Stable at pH 5 - 7; pH 9 = 9 days                              |
| <b>Fungicides</b>             |                           |            |  |
| Aliette                       | fosetyl-al                | 6          | Stable at pH 4.0 to 8.0  |
| Benlate                       | benomyl                   |            | pH 5 = 80 hrs; pH 6 = 7 hrs; pH 7 = 1 hr; pH 9 = 45 min        |
| Bravo                         | chlorothalonil            | 7          | Stable over a wide range of pH values                          |

|                   |                      |       |  |
|-------------------|----------------------|-------|--|
| Captan            | captan               | 5     | pH 5 = 32 hrs; pH 7 = 8 hrs; pH 8 = 10 min         |
| Dithane           | mancozeb             | 6     | pH 5 = 20 days; pH 7 = 17 hrs; pH 9 = 34 hrs       |
| Nova              | myclobutanil         |       | Not affected by pH                                 |
| Ridomil           | mefenoxam            |       | pH 5 – 9 = more than 4 weeks                       |
| Rovral            | iprodione            |       | Chemical breakdown could take place at high pH     |
| Orbit             | propiconazole        |       | Stable at pH 5 – 9                                 |
| <b>Herbicides</b> |                      |       |  |
| Banvel            | dicamba              |       | Stable at pH 5 - 6                                 |
| Fusilade          | fluazifop-p          |       | pH 4.5 = 455 days; pH 7 = 147 days; pH 9 = 17 days |
| Ignite            | glufosinate-ammonium | 5.5   |  |
| Gramoxone         | paraquat             |       | Not stable at pH above 7                           |
| Poast             | sethoxydim           | 7     | Stable at pH 4.0 to 10                             |
| Princep           | simazine             |       | pH 4.5 = 20 days; pH 5 = 96 days; pH 9 = 24 days   |
| Prowl             | pendimethalin        |       | Stable over a wide range of pH values              |
| Roundup           | glyphosate           | 5 - 6 |  |
| Touchdown         | glyphosate           | 5 - 6 |  |
| Treflan           | trifluralin          |       | Very stable over a wide range of pH values         |
| Weedar            | 2,4-d                |       | Stable at pH 4.5 to 7                              |