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April 12, 2007

Chemigation and Fertigation Technical Assistance Program

Electronic Access to WSDA-Approved Section 18 Emergency Use Exemption Labels

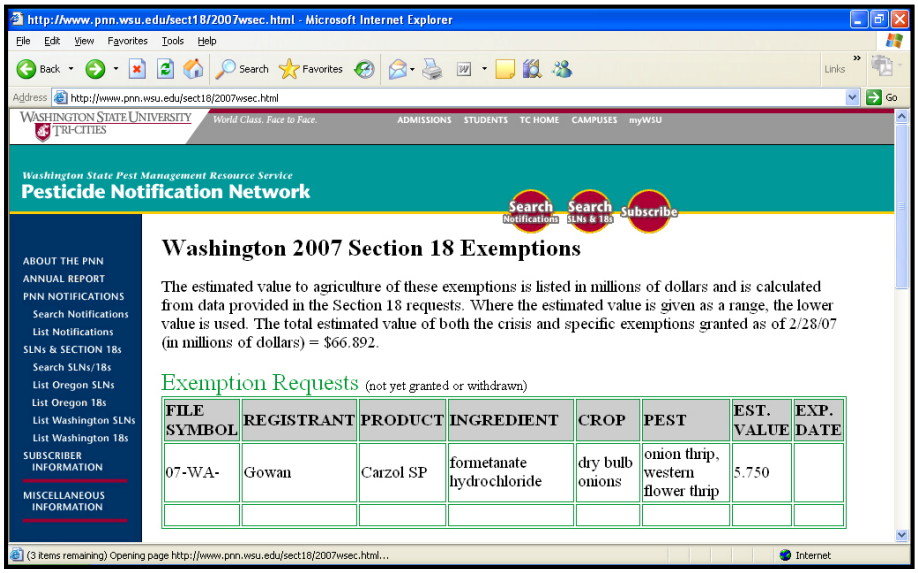

Figure 1. Section 18 postings on WSU Pesticide Notification Network website.

WSDA-approved Section 18 labels can now be viewed at and downloaded from the Washington State University (WSU) Pesticide Notification Network (PNN) website for use by the pesticide applicator (Figure 1).

In the past, the applicator was responsible for obtaining approved Section 18 labeling directly from the registrant prior to using the product. A copy of the approved Section 18 labeling was made available to the public on the WSU PNN webpage for information purposes only.

The Section 18 labels are provided through a cooperative effort between the WSDA and Washington State University. The Internet address for the PNN website is http://www.pnn.wsu.edu/pnnwasect18.html.

As a reminder, a Section 18 label must be in the possession of the user at the time of application, and that the label is only valid for the time-period specified, on the treatment site(s) listed, and within the geographic area(s) indicated (Figure 2).

Please remember: Section 3 (federally registered) labels must be securely attached to the product container. As referenced in the February 2007 issue, at this time, a printed Section 3 label from a website or from a CD is not legal nor is it a valid substitute for an original label, which is required to be affixed to a container or package at the time of sale.

The position and policy of USEPA regarding electronic labels may change soon with

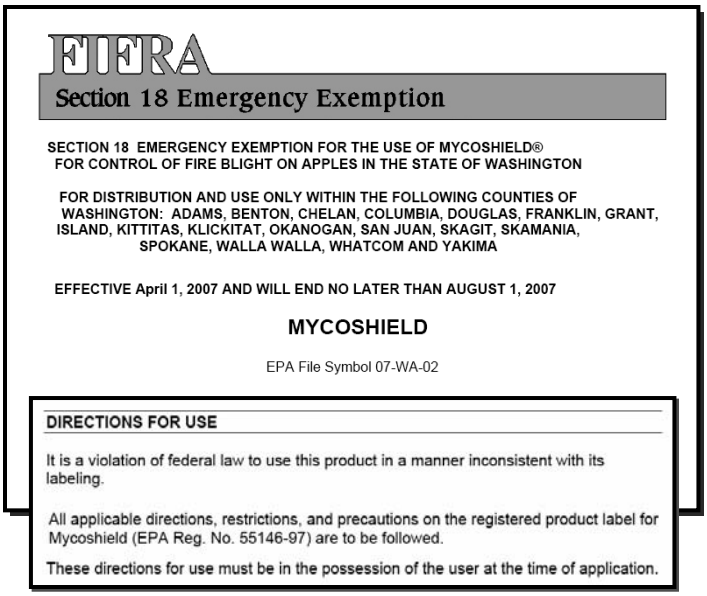

Figure 2. Section 18 label for Mycoshield (Nufarm, Inc.).

Endangered Species Protection Bulletins coming on-line late this year or early next year, the recent approval of the first NAFTA (North American Free Trade Agreement) label, and the formation of an Elabeling Sub-committee within the Pesticide Operations and Management Working Committee of the State FIFRA Issues Research and Evaluation Group (SFIREG).

The goal of the E-Labeling Sub-committee is to map out where States are on the general issue of e-labeling, identify who is currently working on the issues (e.g. electronic distribution, printing, and subsequent field use of supplemental labels), and, finally, what are the needs to resolve the issues.

Drip Lubrication of Deep Well Turbine Pumps – And the Safe Drinking Water Act

Congress originally passed the Safe Drinking Water Act (SDWA) in 1974 to protect public health by regulating the nation's public drinking water supply. As amended in 1986 and 1992, the law requires many actions to be taken by operators of public water supply systems to protect drinking water and its sources, which include rivers, springs, lakes, reservoirs, and groundwater wells. The SDWA requires the USEPA establish regulations that protect human health from contaminants in drinking water and establish national standards for drinking water delivered to the public by means of water supply systems.

Figure 4. Lubricant oil should be monitored for leaks and line breaks.

In 1990, Washington State enacted Chapter 173-200 WAC: Water Quality Standards for Ground Water of the State of Washington (GWQS). These standards are designed to protect groundwater to its highest beneficial use (drinking water). These standards differ from the SDWA in that they apply to all sources of groundwater rather than the quality of water delivered to the consumer through a public water supply system. Both in the SDWA and in the GWQS appear numeric and narrative criteria that are required to be met in order to protect drinking water for all citizens of Washington State.

Over 30 categories of potential groundwater contamination sources have been identified as threatening groundwater, which was once thought to be "self-cleaning" and naturally protected by layers of soil. Among the major contaminants are synthetic and organic chemicals; fertilizers; pesticides; and wastes from agriculture, industry, humans, and animals. Petroleum-based oils have also been identified to pose a threat to the beneficial use of groundwater. Because the "cleaning up" of a groundwater contamination event is expensive – if at all possible, protection and prevention are the preferred strategies to ensure groundwater quality.

Among the potential sources of groundwater contamination in both Western and Eastern Washington is the introduction of excess lubrication fluids into deep well turbine pumps. This is especially true in those instances where the pump intake is located within a freestanding borehole

that lacks well casing, where the casing is perforated, or where a well screen is installed. In these circumstances, when the pump is not in operation, excess lubrication fluid may move from the well hole into the surrounding aquifer and degrade water quality.

ISO VG 32 mineral lubricant oil is commonly placed at wellheads for drip lubrication of turbine pumps (Figure 4). Although a highly refined paraffinic mineral oil, it is, nonetheless a petroleum-based product. All lubricant oils, regardless of the parent source, have the potential to degrade groundwater quality. Consequently, whenever a lower risk product is available, such as a vegetable oil based lubricant, the Washington State Department of Ecology encourages its use (Figure 5). In addition, a thorough and implemented maintenance program that will identify and repair leaks or supply line breaks as quickly as possible is encouraged.

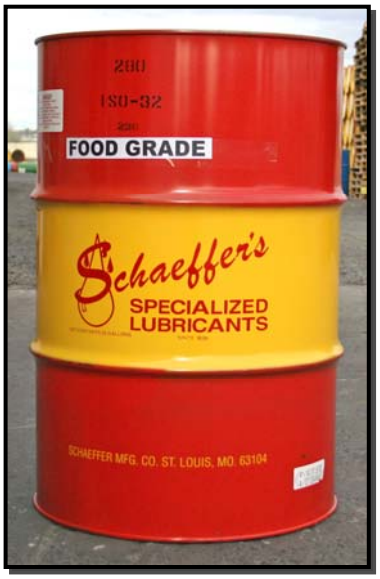

Figure 5. Food grade vegetable oil has a proven history as a drip lubricant for turbine pumps.

Use of vegetable-based lubricants coupled with a maintenance program will greatly reduce the potential for impacting beneficial use of the aquifer. These measures will also reduce potential costs to public water supply systems and to rural well owners who might otherwise have to employ added treatment prior to use to remove lubricants that have migrated into the drinking water source.

Apollo Chemigation Injection Line Check Valve – The Detail is in the Material List

Figure 6. Apollo check valve manufactured by Conbraco Industries.

In the August 14, 2006 issue, the Durabla chemigation injection line check valve was discussed with specific reference to the stock spring, and the need to retrofit the valve with a larger gauged spring before use. The same precondition also applies to the Apollo Stainless Steel Ball-Cone Check Valve (Conbraco Industries, Incorporated).

To prevent the backflow of product from the point of injection to the product tank, the pesticide label, in citing USEPA Pesticide Regulation Notice (PRN) 87-1, requires a "functional normally closed, solenoid-operated valve located on the intake side of the injection pump." However, in response to comments and information received after the implementation of PRN 87-1 in 1988, USEPA approved a list of chemigation equipment that could be used as an alternative to specific backflow protection devices required by pesticide product labeling: hence, alternative technology.

Known as the "List of USEPA Authorized Alternative Chemigation Safety Equipment," Alternative Device 1 for the normally closed, solenoid-operated valve is a "functional spring-loaded check valve with a minimum of 10-psi cracking pressure," which is also referenced in the Washington State Chemigation and Fertigation Rules. However, off-the-shelf, the Apollo valve is fitted with either a .2- or a .5-psi cracking (opening) pressure spring (Figure 6).

Fortunately, the valve can be ordered with a 10 PSIG opening pressure spring. Replacement springs are also available from the manufacture.

> Remember: An improperly configured chemigation injection line check valve is a violation of the pesticide label and of Washington State Chemigation Rule and Fertigation Rule.

When Doing with Less is Better – Embracing No Plant Zones Around Pivots

Figure 7. System leaks serve as loci for plant diseases.

Endeavoring to maximize gross returns – especially on rented ground, there is the inclination to produce a crop on as much of the ground as possible. However, what is seemingly gained could cost you dearly. This is particularly true with potato production under center pivots.

Whether the source is a leaking collector ring, damaged gaskets, or improperly sized or worn nozzles, areas under a center pivot, especially near the pivot itself, are oftentimes more suitable for an aquaculture venture than a row crop (Figure 7). Plant pathologists frequently allude to these over-watered areas as loci for plant diseases, especially soil-borne pathogens (i.e., bacteria and fungus) where free moisture is needed for germination, infection, and colonization, and for spread to healthy tissue.

Many plant diseases are associated with poor irrigation practices. Some of these include Black Leg (and Bacterial Soft Rot), Black Scurf, Late Blight, Powdery Scab, *Pythium* Leak, Pink Rot, Translucent End, *Verticillium* Wilt, and White Mold, Of particular interest to potato producers is Potato Late Blight (*Phytophthora infestans,* Figure 8).

Figure 8. Late blight symptoms, water-soaked spots, on potato leaves. Source: An Online Guide to Plant Disease Control, OSU Extension.

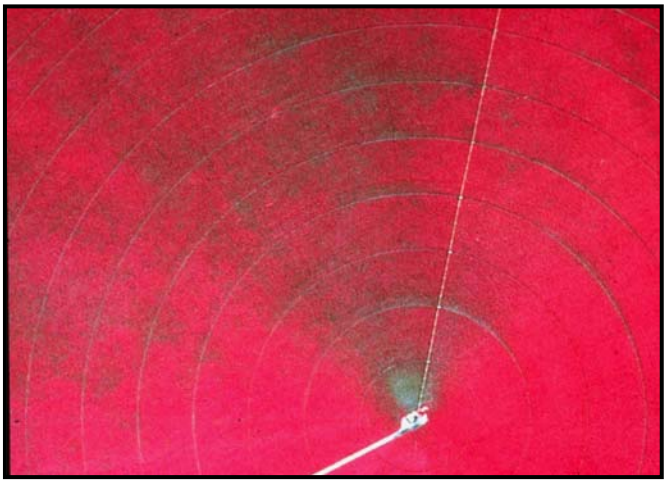

Figure 9. Infestation loci (gray areas) at pivot and in wheel tracks where excessive irrigation water collects. Photograph courtesy of Dr. Dennis Johnson, WSU.

While cultural practices are effective in managing for late blight – such as clean seed tubers, proper planting depth, control of volunteer potatoes, and disposal of tuber refuse, proper water management is a critical management strategy in suppressing the in-field spread of late blight (Figure 9). Besides wind-driven or splashing rain, irrigation water can spread sporangia (spores) or mycelium to healthy tissue. Other factors that contribute to disease dispersion include machinery and humans.

Efforts to fabricate a sprayhead package for the first span of a pivot with the hope to achieve a uniform distribution pattern are a problematic undertaking. The small nozzle orifices commonly plug and the typical small droplet sizes or narrow spray streams are prone to wind distortion. Figure 10 illustrates the poor distribution pattern of sprinkler nozzles nearest to the pivot.

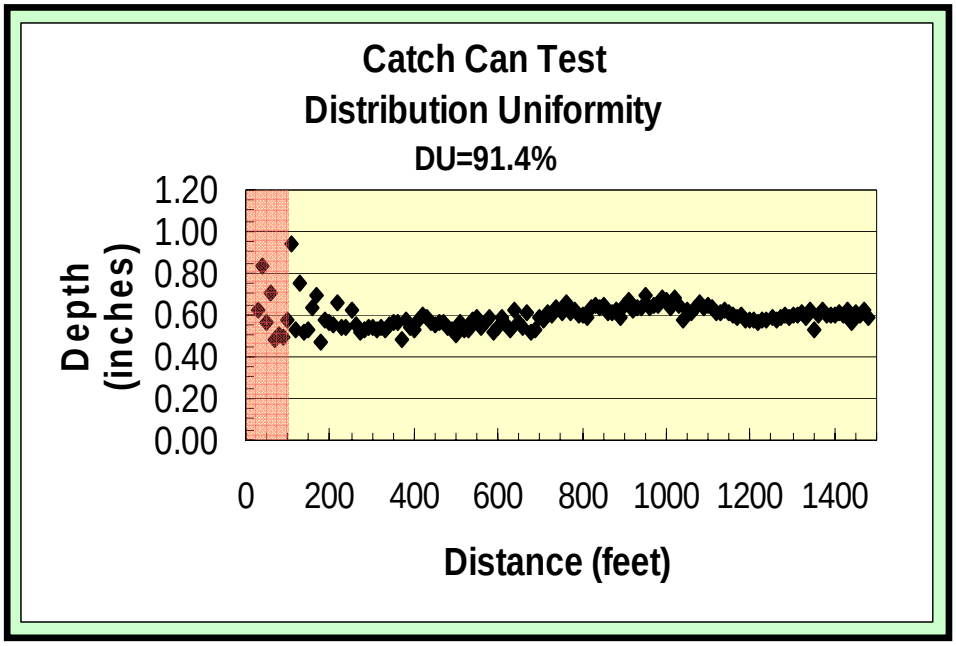

Figure 10. An actual catch can test of a center pivot that illustrates the ofttimes poor distribution uniformity (DU) of sprayheads mounted on the first span.

Because of excessive irrigation water due to poor nozzle flow pattern and to system leaks that foster foliar diseases, as a cultural practice, it is recommended that the nozzles within 80 feet of the pivot be disabled. This is typically achieved by inserting a one-quarter turn valve upstream of the sprayhead or sprinkler nozzle, or by plugging it.

While foregoing production on the area within an 80-foot radius of the pivot may seem a significant sacrifice, in fact, it is not – comprising less than 0.5 of an acre. Given that the pivot structure and pad covers a 25-foot diameter area or more, what is lost in production is negligible. The monetary gains realized with improved crop quality and storability and in reduced pesticide cost can be substantial. This is of particular concern with 'Norkotah', 'Russet Ranger', and 'Shepody', which are especially susceptible to late-blight tuber rot.

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