

Agrichemical and Environmental News

A monthly report on pesticides and related environmental issues

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The newsletter is available from the Internet via the Pesticide Information Center Web page at <http://picol.cahe.wsu.edu>

Precision Agriculture: Futuristic farming may be closer than you think

Dr. Joan R. Davenport, soil scientist, WSU IAREC Prosser

One can see from looking across the gently rolling topography and large cropped fields in a southeastern Washington landscape that conditions influencing plant growth will vary. Technological advances in tools like the Global Positioning System (GPS), Geographic Information Systems (GIS), and Variable Rate Application Technology (VRT) offer opportunities to treat different areas in this type of landscape with different management approaches. Currently popular terms used to describe this approach are Precision Agriculture or Site Specific Crop Management (SSCM). An integral part of this approach is to variably manage a field for maximum economic crop yield and quality while attaining environmental benefits.

So, what is "precision agriculture" and how near is it to becoming a widely adopted farming practice?

Taken as a whole, the SSCM approach is to monitor fields and manage variability to provide a crop with the correct amount of a given input it requires when (temporally) and where (spatially) it is needed. Applying materials where they are most effective, reducing

both under and over applications, brings economic and environmental benefits. Obviously, the larger a field, the harder this is to do. The home vegetable gardener does this, but operating this way across a large field requires a lot of assistance. That is where the above list of tools comes in.

Access to the Global Positioning System (GPS) fueled the original concept of SSCM. GPS uses satellites to locate any geographic position according to latitude, longitude, and altitude. The technology is now so affordable that cars often come equipped with simple GPS systems. A key aspect of GPS is that the more accurately the user needs to locate a point, the more expensive the equipment is. Most systems for cars or for agricultural field equipment locate within a few meters or yards. For research, a special type of GPS (DGPS) fine tunes the readings to within 30 cm (1 foot) or less.

Prior to current SSCM approaches, software systems were developed for use in combination with a GPS unit and digitized (converted into computer format) soil surveys to spread fertilizer across a field by soil type. Early work exposed a

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...Precision Agriculture

number of problems with this approach. First, application was either on or off. Second, and more importantly, information in the soil survey was not designed for this use, and so the great differences expected from "farming by soil type" were not obtained. Also, most of the early attempts at using this approach occurred in the Midwest. Much of the ongoing research is still in areas where irrigation is supplemental to rainfall, which is an important issue in terms of the potential impact of SSCM.

Much has occurred to advance SSCM toward becoming a real option. The other two technologies mentioned earlier are key. Geographic Information Systems (GIS) are computer programs that store multiple measurements from a single location as "georeferenced" data (data that have a geographic location via latitude and longitude). These varying measurements can be compared to each other and to patterns across an area. This concept is generally referred to as data layering, where each measurement is considered a data layer. For example, multiple soil samples taken across a single field may be analyzed for a host of different properties. If the soil samples were taken in a georeferenced manner, then soil pH, soil texture, and soil nitrogen content could represent three different data layers. One can then look at a "picture" that graphically shows high and low areas of soil pH and soil nitrogen. Additional information like crop yield can be added. Building up data from year to year or within a season allows temporal patterns to also emerge. The GIS allow relatively easy handling of much more complex information than was previously available.

Variable Rate Application Technology (VRT) is a generic term for any agricultural application equipment that can apply different amounts of a material across a field based on information coding and georeferencing. Availability of VRT equipment is increasing rapidly. Currently, VRT fertilizer equipment is commercially available and in use by some commercial applicators. In fact, soon-to-be marketed VRT fertilizer spreaders for perennial crops (tree fruits, grapes) were developed

in central Washington. Other VRT equipment either in development or at the prototype level includes irrigation equipment and applicators for crop protection chemicals (herbicides, fungicides, insecticides). Additionally, for annual crops, different types of variable rate planters and seeders are in various stages of development. And, for many crops, equipment for monitoring yields as the crop is harvested is anywhere from off the shelf (as with wheat) to in development (as with grapes).

However, precision agriculture is at a turning point. The technological advances to implement SSCM have outstripped the research needed to gain the economic and environmental benefits from using the technology. Although growers using the limited SSCM practices have seen improvements in yield and crop quality, to take these improvements to the level that this technology could provide requires additional work. For a whole host of crop management inputs, understanding and development of a few critical elements are missing.

Research is needed

To accurately and adequately apply materials to an area, certain monitoring is needed. For example, to determine how much and what levels of fertilizer are needed across the field, one would have to collect soil samples at a rate that would cost too much to analyze and remove too much soil. Research is needed to understand what type of sampling area is optimal to balance the economics of testing and the return from changing management. This involves thinking beyond the boundaries of the present approach that soil test values for a given element are the best and only measurement for determining how much of that nutrient to apply as fertilizer. To this end, research is being conducted to reevaluate and expand our understanding of crop response to include factors beyond a single soil test measurement. Factors varying little from year to year (e.g. soil texture) and some routine aspects of soil chemistry that impact an array of nutrients (e.g. soil pH) may provide alternatives.

Dr. Joan R. Davenport, soil scientist, WSU IAREC Prosser

As well as developing knowledge and understanding of scope and scale of testing, research is also being conducted to develop alternative methods of monitoring fields. The concept of remote sensing is something that is practiced to a limited extent in agriculture through techniques like aerial infrared photography. However, looking at alternative types of sensors may provide techniques to remotely monitor important factors in the field such as soil moisture (for crop water management) and certain climatological factors (e.g. leaf wetness, canopy temperature) that have implications in both water and disease management.

Where are we now?

Many tools to begin farming in a way that addresses field variability to improve both environmental and economic impacts are either in place or nearly so. By

applying materials when, where, and at what rate they are required, economic gains occur from improvements in yield and quality plus any associated cost reduction. Environmental gains occur through reducing the potential of off-target application.

Some aspects of precision agriculture are ready for certain crops. Yield monitoring and variable rate fertilizer applications are providing benefits. This is more true in the irrigated agricultural systems of the Pacific Northwest, where the ability to control water application increases the effectiveness of SSCM. However, to increase the gains that this technology has to offer, research is needed to develop ways to apply the technology to the fields. Research lags far behind application technologies, and needs to be developed quickly.

Environmental Issues with Department of Health

In its role of protecting and enhancing public health, the Washington State Department of Health, Environmental Health Programs (EHP) works with a wide range of issues related to agriculture and agricultural products. This includes monitoring shellfish growing bed sanitation, investigating food-borne illness outbreaks, monitoring drinking water quality, and investigating and documenting alleged pesticide-related illnesses. The following briefly describes three EHP areas of interest.

Nitrate Contamination of Drinking Water Supplies

David Jennings, Division of Drinking Water

DOH has been responding to cases of nitrate contamination of drinking water supplies throughout Washington state. Nitrate contamination poses a significant potential health threat to susceptible individuals, particularly pregnant women and young infants.

Nitrates also serve as an indicator of general water quality — nitrate contamination of a drinking water supply may indicate the presence of other contami-

nants as well. Sources of excess nitrate in drinking water include fertilizers, animal manure piles, and septic systems.

Most public water systems routinely test for the presence of nitrates and are required to notify their consumers if the maximum contaminant level (MCL) is exceeded. Private, single family wells, however, do not usually undergo the same water quality monitoring.

In attempting to reduce health risks associated with nitrate-contaminated drinking water supplies, DOH personnel are working together with local health jurisdictions and through primary health care providers to implement educational programs targeted at rural residents on private wells. The department is also working with public water supplies to establish approved water treatment techniques aimed at reducing the concentration of nitrates when present in a drinking water supply. To implement long-term solutions to reduce nitrate concentrations in state waters will require help from the Washington state departments of

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...Environmental issues

Agriculture and Ecology, farmers, and others, in addition to DOH efforts.

Food Safety

Bill White, Community Environmental Health

Washington state has earned a good reputation for food safety in recent years. Rapid identification of sources of food-borne illnesses, as in the *E. coli* outbreaks from Jack-in-the-Box hamburger meat in 1993 and Odwalla apple juice in 1996, resulted from effective collaboration between state and local health jurisdictions. Of recent special interest to DOH is the emergence of food-borne illnesses from unlikely sources, such as fruits and vegetables. Current DOH activities focus on maintaining and improving the effectiveness of its food safety efforts. DOH is now collaborating with other government agencies and industry, developing microbiological and labeling standards for food, and educating both public and private sectors on the best methods to limit risks to the food supply.

Illness Related to Pesticide Exposure

Patricia Macier, Office of Toxic Substances

Part of the responsibility of DOH is to be concerned with both natural and artificial environmental factors. With this in mind, DOH has been given a specific legislative mandate to monitor pesticide-related illnesses.

Pesticide exposure can cause health consequences ranging from eye, skin, and throat irritation to more serious symptoms. Symptoms may mimic other common maladies and, therefore, go unrecognized. The yearly *Pesticide Incident Reporting and Tracking Review Panel (PIRT) Report* summarizes pesticide-related illnesses. The *PIRT Report* is a compilation and analysis of pesticide-related investigations conducted by DOH and the departments of Agriculture (WSDA) and Labor and Industries (L&I). In 1996, DOH investigated 402 incidents involving 504 persons; WSDA investigated 251 complaints; and L&I, Consultation and Compliance Services Division, conducted 39 pesticide-related investigations. The 1996 PIRT Report

indicates that DOH staff have observed a decrease in the seriousness of reported complaints, especially for occupationally related cases. Factors contributing to this decline may be increased awareness of risks associated with pesticide exposure, increased regulatory activity, and a reduction in use of highly toxic chemicals.

King and Yakima Counties each reported the highest number of cases. Yakima had 73 incidents involving 112 individuals, and King County had 40 incidents involving 45 individuals. As in prior years, insecticides were most often involved with illness. Combinations versus single use pesticides were more frequently implicated.

The information in Table 1 summarizes 237 DOH cases classified definitely, probably, or possibly related

Table 1.

Type of Activity	Number of Cases (%)
agriculture	97 (41%)
commercial/industrial	33 (14%)
residential environment	74 (31%)
other	33 (14%)
Source of Exposure	
direct exposure to pesticide	109 (46%)
exposure to pesticide residues	59 (25%)
pesticide drift	36 (15%)
other	33 (14%)

to pesticide exposure. Classification is based on documentation of exposure, medical record review, and case investigation. Agricultural exposure accounted for 41% (97) of the cases. Fifty-three percent of those occurred in the fruit production industry, which is highly labor intensive and requires significant pesticide usage. DOH will continue monitoring illness associated with pesticide exposure to determine current trends and to develop necessary intervention strategies. In addition, DOH and PIRT will identify additional stakeholders that will benefit from the information contained in the *PIRT Annual Report*.

For additional information on the Pesticide and Surveillance Section, or to request a copy of the *PIRT Annual Report*, call DOH at (360) 236-3360.

Here's another fine mess you've gotten us into

Dr. Carol Weisskopf, Analytical Chemist, WSU

Imagine that your child wants to go to a fairly strenuous and demanding summer camp. Before granting permission, you decide a medical examination would be a good idea. The child goes to the doctor, who orders a series of tests. The lab that is to perform the tests makes up numbers for the test results instead of doing the work. The doctor gets the bogus results, doesn't look at them, but states your child is fit for camp. The kid goes to camp and everyone is happy, right? Except that you've paid for a service you didn't receive, and you believe your child is healthy based on falsified data. Most of us would not knowingly tolerate such a cavalier approach to health decisions, and would not be pleased with either the lab or the doctor. One may think medical exams for summer camp are silly, but that doesn't imply approval of corruption in laboratory testing and medical review.

In this analogy, you can think of yourself as EPA, the doctor as a product registrant, your child as a pesticide (instead of a pest), and summer camp as an agrichemical dealership. The lab remains a lab, and what is described above is euphemistically referred to as dry labbing or pencil chemistry. Making up test results is generally considered bad form for grownups, and outside of an educational setting, is usually illegal as well.

Prior to the mid-seventies, EPA accepted laboratory data and reports pretty much at face value without misgivings about the quality of the data. This was a far cry from today's circumstances, when data quality is now documented in excruciating detail. EPA's Good Laboratory Practice (GLP) standards currently regulate facility operation, project conduct, and data documentation for nearly all pesticide studies submitted in support of product registration. GLPs have also spawned a new industry (GLP quality assurance professionals), give lots of people something to complain about, and seem to be widely detested. Implementation of GLP standards resulted in substantial modifications to operations in a wide variety of toxicology testing facilities, chemical analytical laboratories, and agricultural

field stations. Just how did we get into this mess? It turns out the road to GLPs was paved with bad intentions.

The journey towards implementation of GLP standards got its first big impetus during facility reviews by the US Food and Drug Administration conducted in 1974 - 1975. The facilities conducted toxicology testing; the results were submitted to FDA in manufacturers' data packages. In 1975, Searle Laboratories became particularly noteworthy. A review of their facility demonstrated that test results were questionable due to sloppy work, untrained personnel, and poor data collection and analysis. Some test results were omitted from reports, and in many cases neither Searle nor the companies paying for the testing adequately reviewed data or reports.

Since initial review of testing facilities exposed significant defects, there was general agreement that guidance in proper performance standards was needed. A document called *Good Laboratory Practice* was developed and distributed. Industry compliance with these standards was voluntary; for most labs they would provide a reminder of what the agency expected from competent scientists. FDA also initiated a more formal inspection and audit program for study examination.

The next round of inspections, in 1975 - 1978, exposed two companies that made the Searle defects look trivial. Biometric Testing Incorporated and Industrial Bio-Test provided sufficient reason to promote *Good Laboratory Practice* from standard to law. Both companies routinely falsified test procedures and data, and provided fraudulent reports of test results. The Bio-Test animal facility was particularly damning: inadequate environmental control; dead animals unaccounted for; cages so insecure that animals could not only get out, but reenter cages for a different study group; and wild animals loose in the facility. Laboratory animals don't generally get visitation rights; poor animal tracking made study data useless.

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...Another fine mess

Dr. Carol Weisskopf, Analytical Chemist, WSU

Were these shortcomings sufficient reason to inflict a GLP mandate on us all? Industrial Bio-Test alone performed more than a third of all US toxicology studies. Documentation was frequently insufficient to distinguish between acceptable and unacceptable studies. Thousands of studies were invalidated, and several individuals were convicted on criminal charges. Along with pharmaceuticals, flawed testing encompassed more than 300 pesticides, bringing EPA into the picture. Faced with evidence of malfeasance of that magnitude, an enforceable regulation was a predictable agency response.

Final GLP rulings for toxicological research were published by FDA in 1978, and by EPA under TSCA and FIFRA in 1983. Those of us performing non-toxicological pesticide research continued on our casual way, but we didn't dodge the bullet for long. In 1989 EPA extended the coverage to virtually all agrichemical work under FIFRA, including field studies. In 1991 EPA issued a supplement to the FIFRA Enforcement Response Policy, describing responses for violations of the GLP standards. The described civil and criminal penalties made for sobering reading, and stimulated increased attention to the standards.

Another industry spawned by the GLPs was thus production of pocket-sized booklets containing the full text of the 1989 final ruling under FIFRA: Federal Register Vol. 54, No. 158; Part IV; Environmental Protection Agency; 40 CFR Part 160; Good Laboratory Practice Standards. Lab or field research directors seem to have dozens of copies; I think they're welded to the quality assurance folks. The standards are relatively brief, only 12 pages in a normal book. Unfortunately, a single sentence in the regulation can result in an extraordinary amount of work.

Given the nature of the fraud prompting the regulation, it is unsurprising that one focus is on record keeping. Work is now so thoroughly reported that it can be reconstructed, and deficiencies can be recognized. Compliance does *not* indicate good science. Well-

documented poor science can conform to the standards (we can be idiots but not liars). It is undoubtedly still possible to cheat. Aside from the deterrence factor inherent in commission of a federal offense, under the regulations I think it would be both faster and easier to actually do the test than to do the paperwork required for plausible fraud. The documentation requirements, along with the corollary requirement for document retention, augmented another industry: document archiving.

Because many contract laboratories performing toxicological testing perform studies on chemicals destined for FDA and others for submission to EPA, they have been under some type of GLP regulatory standard since FDA's implementation of GLP in 1978. For non-tox studies, those of us in the agrichemical arena are still relative newcomers. Maybe we'll get used to it after we've been at it 20 years. One benefit to the GLPs is the existence of a quality assurance program in compliant laboratories, which tends to improve data quality. But, as with good science, quality assurance programs are not the exclusive property of GLP regulated labs.

I can disagree with the need for some required studies. I can believe that portions of the GLP standards are silly and that the regulations are overdue for revision. I can also resent usurpation of the title good laboratory practice. Is everything except 40 CFR Part 160 *bad* laboratory practice? But I can't say that the standards were an overreaction to finding out that nearly a quarter of the existing data was garbage. It's just that, after much dealing with GLPs, I want to go to summer camp.

Bens, C., M. Mispagel and C. Weisskopf (1997). *Good Laboratory Practices (GLPs) for the Analytical Laboratory: QA/QC Principles and Practices*. El Salvador IAEA GLP workshop materials.

Garner, W. Y., M. S. Barge and J. P. Ussary, eds. (1992). *Good Laboratory Practice standards; Applications for Field and Laboratory Studies*. American Chemical Society, Washington DC.

Container Collection Program

Washington Pest Consultants Association

Container Requirements

1. Must be rinsed, so that no residue remains.
2. Must be clean and dry, inside and out, with no apparent odor.
3. Hard plastic lids and slip-on lids must be removed.
4. Glue-on labels may remain.
5. The majority of the foil seal must be removed from the spout. A small amount of foil remaining on the container rim is acceptable.
6. Half pint, pint, quart, one and two-and-a-half gallon containers will be accepted whole.
7. Five gallon containers will be accepted whole, if lids and bails are removed.
8. 30 gallon and 55 gallon containers are accepted if they are cut into pieces **no larger than 15x18 inches**.

****Containers that do not meet the above criteria cannot be accepted.****

Container Collection Dates

Please put these dates on your calendar! Tell others about the program. Our industry does not want pesticide containers to become a waste issue. If we take the time to clean and recycle these products, we can save money, show that the industry is responsible in its use of pesticides, and reduce inputs to the waste stream. For more information about plastic pesticide containers contact: Clarke Brown (509) 965-6809 or Steve George (509) 457-3850.

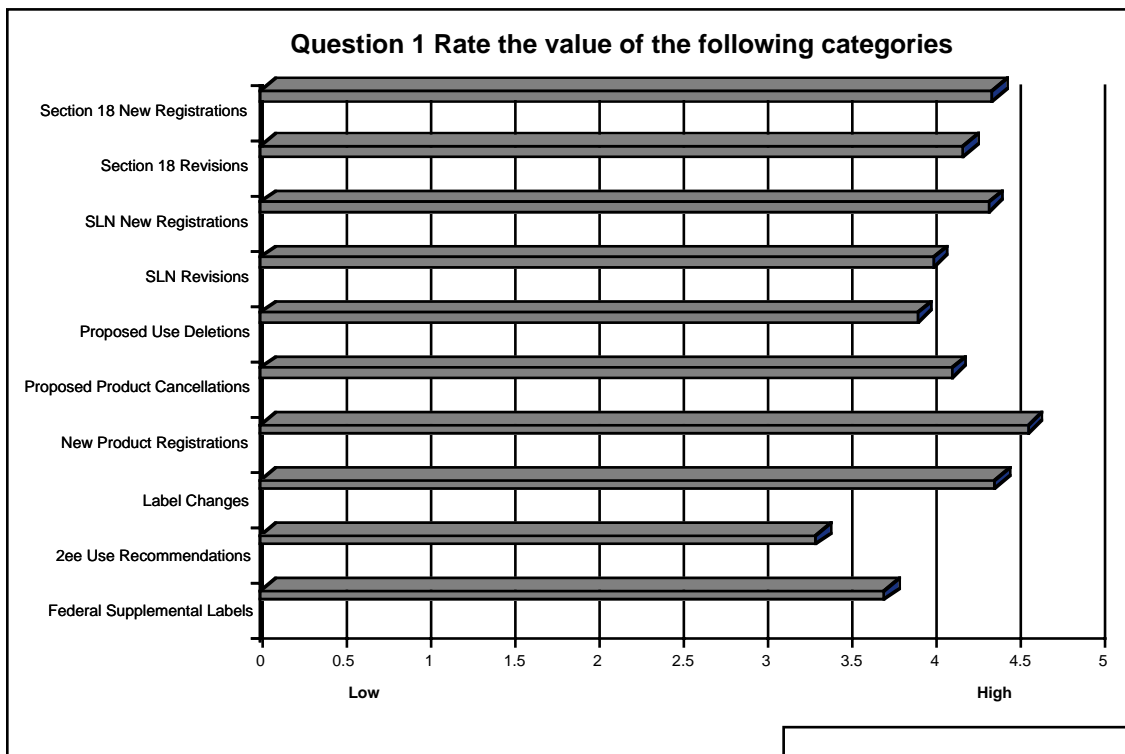
Comments	Site	Sponsor	Contact Phone	Comments
May 18 9a-3p	Snipes Mountain Transfer Station (near Sunnyside)	Yakima County Solid Waste Dept.	Mark Nedrow (509) 574-2472	Cardboard accepted
May 19 8:30-3	Terrace Heights Landfill (near Yakima)	Yakima County Solid Waste Dept.	Mark Nedrow (509) 574-2472	Cardboard accepted
May 26 8a-11a	Flat Top Ranch (near Burbank)	Flat Top Ranch	Clarke Brown (509) 965-6809	
May 26 1p-4p	Broetje Orchards (near Prescott)	Broetje Orchards	Clarke Brown (509) 965-6809	
May 27 8a-12p	Western Farm Service (Pomeroy)	Western Farm Service	John Massey (509) 924-9213	
May 28 8a-12p	McGregor's (Walla Walla)	McGregor's	Gary Burt (509) 529-6787	
June 3 8a-11a	Davenport Airport	Western Farm Service	Lee Swain (509) 725-0011	
June 3 1p-4p	Wilbur Airport	Western Farm Service	Greg Lyva (509) 647-2441 Dennis Buddrius (509) 647-5394	
June 4 8a-12	WSU Tree Fruit Station Wenatchee	North Central Fieldman & Dealers	Jeff Heats (509) 662-1539	
June 5 8a-12	Wilbur-Ellis Quincy	Pacific NW Vegetable Assoc.	Dale Martin (509) 787-4433 Ron Turner (509) 7873556	
June 9 8a-12	Wilbur-Ellis Eltopia	Lower Columbia Basin Fieldmen & Dealers Assoc.	Greg Jackson (509) 545-1865 Vern Record (509) 297-4291	
June 10 8a-12	Tom Dent Aviation Moses Lake	Columbia Basin Crop Consultants Assoc.	Tom Dent (509) 765-6926 Heath Gimmestad (509) 765-5617	
June 11 8a-12	Wilbur-Ellis Mattawa	Wilbur-Ellis & Wolfkill Feed & Fertilizer	Al Hilliker (509) 932-4988	
June 16 8a-12	Cenex Bruce	Bruce Dealers Assoc.	Clarke Brown (509) 965-6809	
June 23 8a-12	Bleyhl Farm Service Sunnyside	Bleyhl Farm Service	Gary Herndon (509) 837-6261 Ted Nulliner (509) 966-2363	

If you are interested in hosting an event at your farm, business, or in a central location in your area, contact Clarke Brown at (509) 965-6809 or Steve George at (509) 457-3850. WPCA members with paid dues for 1998 receive copies of the Agrichemical and Environmental News as part of their WPCA membership. Should you not be receiving copies of the newsletter, please contact Eric Bechtel at (509) 372-7378, ebechtel@tricity.wsu.edu

PNN users give network high marks

Pesticide Notification Network (PNN) users scored the network highly in all categories, according to results received recently from the 1997 PNN Users Survey. The survey, distributed in mid-December, was designed to gauge what types of information distributed by the PNN were most useful, to determine whether users were satisfied with the service, to see if

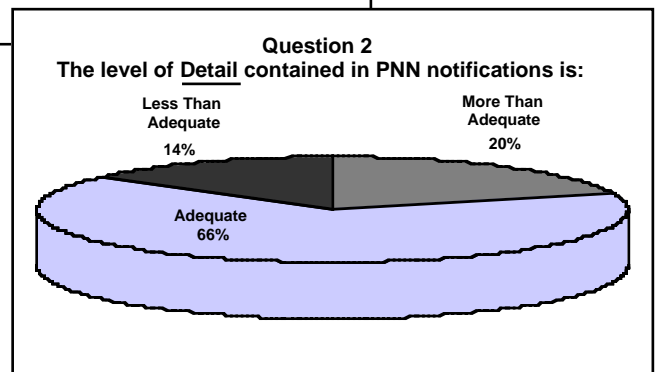
The initial question asked PNN users to rate 10 categories of PNN notifications they receive. The results, summarized below, ranged from an average of 4.6 for new product registrations, to 3.3 for 2ee use recommendations. Even the least valued type of notification received a fairly high score.



The next three questions asked PNN users to comment on the level of detail contained in the notifications, their timeliness, and the quantity of information received from the PNN. Overall, 66% of users reported that the level of detail in the PNN notifications was adequate. Thirteen percent of users responded that the level of detail was less than adequate.

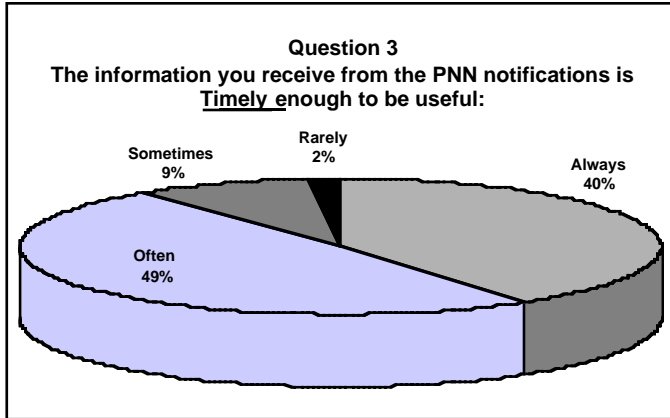
users wanted changes in the types of information they receive, and to assess the system's overall usefulness. The timing of the survey allowed users to respond after experiencing a full year's worth of regulatory activity.

All those who receive information from the PNN received surveys. The contact list is predominantly composed of people from two groups: Commodity/Commission representatives (69%) and WSU Cooperative Extension personnel (31%). There was an overall 47% response to the survey, roughly representative of each of the two groups.



A total of 89% of those surveyed responded that information received from the PNN was timely enough to be useful "always" or "often", and nearly all of the respondents stated that the amount of information received was "manageable."

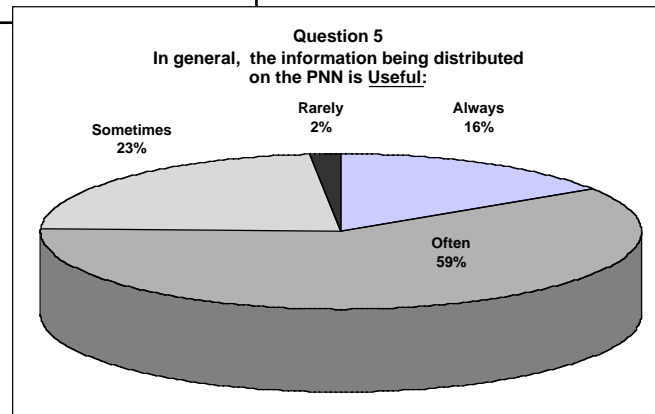
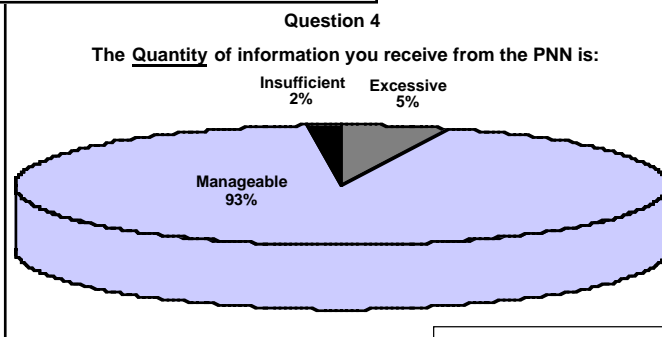
Jane Thomas, Pesticide Notification Network Coordinator, WSU



The response was divided when users were informed that the PNN had not been sending notifications when supplemental labels were revised. Users were asked if this practice should change. Response to this question was considered insufficient to warrant changing present practice. Similarly, PNN operations with respect to tank mix information and SLN revisions will also remain unchanged.

Finally, users were asked to provide a word to complete the following statement: "In general, the information being distributed on the PNN is useful..." The results shown on the attached chart indicate that 75% of the respondents chose "always" or "often". Again, some disparity existed between groups. Of the Commodity/Commission

Several questions were included in the survey to determine if changes should be made regarding the type of information distributed on the PNN. First, users were informed that notifications had not been distributed when SLN revisions only altered waste disposal, spray drift precautions, or pollinator protection statements. When asked if the PNN should be distributing notifications regarding all SLN revisions, 70% of the respondents replied that this was unnecessary. There was some disagreement between PNN user groups: The "no" response from the Commodity/Commission representatives was 85%, but it was much lower from WSU Cooperative Extension personnel (56%).



PNN users were also informed that notifications were not being sent if pesticide label changes only related to either pest or tank mix information. Many of the respondents (67%) stated that notifications should be sent when pest information was revised on a label, while fewer than half (45%) were in favor of notifications covering changes to tank mix information. In response to this reply, the PNN will begin distributing notifications when label changes are made that involve pest information.

representatives, 42% responded with "often" and 33% with "sometimes". Seventy-six percent of WSU Extension personnel responded with "often", while 18% responded with "sometimes".

Survey respondents were also encouraged to provide any comments they had about the system. Most comments were favorable. For questions or comments related to the PNN, contact Jane M. Thomas at (509) 372-7493 or jmthomas@tricity.wsu.edu.

On the Road with FQPA

Jake Mackenzie is western coordinator in the Field and External Affairs Division of the Environmental Protection Agency's Office of Pesticide Management. This article reflects his personal views; it has not been reviewed by EPA.

What a long strange trip it's been! This January, I began a round of travel that's still in progress but is worth reporting on as an indicator of how life was in "FQPA-land" during the first quarter of 1998. These perambulations took me from Seattle to El Centro, from Yuma to Yosemite and from my home base of Sonoma County to Sacramento. The year 1998 started out up at the Western Washington Horticultural Convention, where I was on the program to talk about minor crops and new pesticide registrations as impacted by FQPA implementation. In an earlier issue of the *Agrichemical and Environmental News*, the debate had been joined much earlier by Alan Schreiber with his August 1996 article, "The Food Quality Protection Act: A Trojan iceberg" and in his succeeding October 1997 article, "The Coming Storm-FQPA." In reality, passage of FQPA and its amendment of both the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA) and Federal Food, Drug and Cosmetic Act (FFDCA) brought about a "paradigm shift in the regulation of pesticides used on crops." All of a sudden, on August 3, 1996, there was a new legal standard, new risk evaluations, new procedures potentially involving ALL the parties at interest and, above all, a reassessment of ALL tolerances over a 10-year period. This was to start immediately and be superimposed over the then-imminent "reinvention" of the 800-strong Office of Pesticide Programs (OPP).

By January of 1998, the tip of the political iceberg with the potential to sink the Good Ship FQPA became visible, with the appearance of a newsletter from the Alliance for Reasonable Regulation of Insecticides (ARRI). In this newsletter

dated January 16, 1998, there was clear evidence of great pressures that had been exerted in the fall of 1997 on the House Agriculture Committee and which had just started to be exerted on the House Commerce Committee. On that same day, a letter from the House Committee on Agriculture was sent to EPA expressing concerns about the use of default assumptions that would result in "numerous cancellations of tolerances beginning as early as 1998." So, as I was on the road in January discussing FQPA, gathering of use and residue information, and expecting that these data would help bring decisions on the first phase of tolerance reassessments, it was disconcerting to hear of the concerns with our implementation of FQPA.

When later that same month I had the opportunity to travel in the winter leafy vegetable production areas of Yuma, Arizona and the Imperial Valley, California, it was clear that concerns about the future of many pest management tools were on producers' minds. What stuck with me from that trip was the interest in development of reliable field data with regards to current practices. The need to figure out a clear mechanism to accomplish the transfer of this information from the field to the EPA decision-maker's desk has intrigued me since my days working in the field in the agrochemical business 30 years ago. It was clear that, at the experiment station level, research workers such as John Palumbo with the University of Arizona were gathering data useful not only to the growers in the Yuma area but also critical to a full evaluation of the impact of the potential loss of a standard compound such as methomyl in leafy vegetable production. The components of a pest management system based on imidacloprid can still include an older material as an essential part of delaying the onset of resistance to the newer material. It was also encouraging to find potential field residue data sources available through food processing companies such as Dole Fresh Vegetable.

Jake Mackenzie, Office of Pesticide Programs

The Imperial Valley segment of our tour highlighted lack of registration of newer herbicidal materials on minor crops, while the Nickerson operation out of Welton, Arizona gave an eye-opening look into the world of "boutique" leafy vegetable production with markets as widespread as Federal Express's ability to deliver by air. Again, the availability of components of a pest management system was on growers' minds. On my part, I was able to bring folks up to speed on creation of the Minor Use Team within OPP and with implementation of the National Pesticide Residue Data Base, designed by an Inter-Agency (federal and state) work group to provide risk assessors with available and reliable pesticide residue data.

Travels to Sacramento in January and to Phoenix in March, at the invitation of what has become the Western States FQPA Coalition, provided an interesting opportunity to hear first hand from Leonard Gianessi of the National Center for Food and Agricultural Policy. His description of the quality of use and use systems data being gathered by his organization under contract with EPA was also a plea for help in painting a more complete picture of how organophosphate insecticides fit into the modern day pest management scheme of things. At the same time, this nascent coalition was set to start work on the Pesticide Use Report (PUR) data available through California's 100% PUR program and correlations with both residue and pest management systems. Clearly, a coalition of powerful interest groups such as western growers and associations such as the Western Crop Protection Association can focus both attention and resources on the data problem. That clearly is their intent and one which the new coalition is pursuing actively.

March meetings in El Centro and Fresno with members of the California Agricultural Production

Consultants Association (CAPCA) and others interested in continuing education credits under California's licensing regulations brought me into contact with yet another segment of the community impacted by FQPA. Here, the potential for impact on complex crop production systems is great. It was interesting to contrast the level of knowledge of FQPA in those areas with that of the Sonoma Valley Vintners Association across the hills from me here in Rohnert Park, California or that of the CAPCA North Bay chapter members in Santa Rosa at a very recent presentation. There, where the pesticide problems revolve around forestry weed control, park maintenance, and low-impact pest management in the vineyards of Sonoma County, there is less furor over the potential loss of certain OP or carbamate tolerances.

While the Good Ship FQPA has avoided hitting an iceberg, the next few months will clearly be a critical time of passage as the public process, laid out by Assistant Administrator Dr. Lynn Goldman in her March 11 response to the House Committee on Agriculture, continues. That process means that, "We will work with growers, the United States Department of Agriculture, the registrants and the research community to ease this transition." On April 8, a memorandum from Vice President Al Gore to Secretary Daniel Glickman and Administrator Carol Browner set the national direction for our implementation of FQPA over the months and years to come: EPA and USDA are to work together "to ensure that implementation of the law comports with [these] four principles: sound science in protecting public health, transparency, reasonable transition for agriculture and consultation with the public and other agencies." The stage is set for this passage. I'm looking forward to working with the rest of the crew to make it a successful voyage.

Vice President Gore addresses food quality protection

The following is a memorandum from Vice President Al Gore to Secretary of Agriculture Daniel R. Glickman and EPA Administrator Carol M. Browner in regards to the Food Quality Protection Act. It is reprinted here in its entirety.

OFFICE OF THE VICE PRESIDENT - WASHINGTON

April 8, 1998

MEMORANDUM FOR SECRETARY DANIEL R. GLICKMAN ADMINISTRATOR CAROL M. BROWNER

FROM: THE VICE PRESIDENT

SUBJECT: FOOD QUALITY PROTECTION

In the Food Quality Protection Act (FQPA) of 1996, the Administration joined with the bipartisan leadership of the Congress and a broad array of agricultural, industry, and public interest constituencies to strengthen protection for all Americans from potential risks associated with the food they eat. The purpose of this memorandum is to reaffirm our commitments under the Act and to clarify how we plan to fulfill them.

The landmark protections established by this law, and in particular the new scrutiny given to potential risks to children, will ensure that Americans in the 21st century will have the safest food supply in the world. These protections can be implemented while we maintain our plentiful and affordable food supply and continue the significant increase in the net trade balance favoring United States agricultural production that we have achieved in President Clinton's Administration.

The FQPA is an important achievement in protecting public health, and particularly in addressing potential health risks to children. As President Clinton said

at the time of signing the FQPA into law, this Act puts the safety of our children first. The broad consensus supporting the FQPA's new protection for our families illustrates the fundamental premise of the law's sponsors and President Clinton's policies that we can achieve higher standards of protection, especially for children, while preserving the strengths of our Nation's agriculture and its farm communities.

Implementation of the FQPA's stronger standards presents complex scientific and regulatory issues. As with any major change in the law and the regulatory process, numerous constituencies are concerned about the manner in which the new law will be implemented. There is broad consensus supporting the strengthened protection of the public that Congress mandated in this new law. There are corresponding concerns about potential uncertainty for those whose livelihood and practices are potentially affected as the Environmental Protection Agency (EPA) implements the new law.

Accordingly, on behalf of President Clinton and in accordance with my responsibility for implementation of Executive Order 12866 (Sep. 30, 1993), I am requesting that the EPA Administrator and the Secretary of Agriculture work together to ensure that implementation of the paramount public health goals of the new law is informed by a sound regulatory approach, by the expertise of the Department of Agriculture (USDA), by appropriate input from affected members of the public, and by due regard for the needs of our Nation's agricultural producers.

Implementation Principles

In accordance with the provisions and policies of the FQPA and sound regulatory practice, EPA should work in close consultation with USDA, and USDA should devote sufficient resources to the FQPA regulatory process, to ensure that implementation of the law comports with the following four principles.

Sound Science in Protecting Public Health

Consistent with the provisions of the FQPA, EPA and USDA should work together to ensure that all FQPA decisions follow the Clinton Administration's principles for sound regulation.

1. Regulatory decisions should be based on the best science and data that are available.
2. EPA should continue to seek peer review and public review of its methods and approaches for analyzing potential risk under the new law, particularly with respect to models, exposure scenarios, and use of scientific inferences. Use of default assumptions and exposure scenarios should be carefully considered and fully explained in the public record.
3. In evaluating whether or not to remove or reduce the presumptive tenfold safety factor for risks specific to children, EPA should recognize the discretion provided in the current law. In this evaluation, EPA should exercise its discretion in a manner consistent with the intent of the Congress and the 1993 Report by the National Academy of Sciences concerning risks to children from pesticides. In developing analytical approaches for the exercise of this discretion, EPA should utilize external scientific review panels wherever appropriate.

Transparency

In translating sound science into sound regulatory approaches, EPA and USDA should ensure that the decisions and positions of the two agencies are transparent to affected constituencies.

1. Approaches must be clearly and fully communicated in a manner that facilitates informed review by all affected constituencies.

2. Where there must be a selection among competing or alternative approaches or interpretations in implementing the law, alternatives should be fully presented and explained before moving forward.

3. In determining whether or not to seek additional data from the regulated community, EPA should fully disclose its decisions and reasons to the public.

Reasonable Transition

for Agriculture Implementation of the law will require transition to new pest management strategies for certain pesticide users. EPA and USDA should work together to address transition challenges in future years.

1. I understand EPA does not intend any significant use cancellations in this growing season. If this should change based on new information, there should be immediate consultation with USDA and affected constituencies.

2. To the extent permitted by law and consistent with public health protection, EPA and USDA should implement the FQPA in a way that ensures that affected pesticide users and other affected constituencies have the time, technical assistance, and support they need for transition to new and effective pest management strategies.

3. EPA should facilitate transition to new and more protective pest management strategies by expediting approval of new products that may serve as effective and safe substitutes to pesticides that may present unacceptable risks under the FQPA. USDA should devote appropriate resources to research and expand technical assistance in support of integrated pest management strategies.

...Food Quality Protection

4. EPA and USDA should review their respective operating plans and budgets and identify, within 14 days, those additional resources and strategies that can and will be devoted to expedite new product approvals and expand integrated pest management strategies.
 5. EPA and USDA should identify and implement any appropriate measures that will further streamline the process for responding to emergency pest management challenges, to ensure that EPA is able to respond promptly, and to preserve the FQPA's policies in emergent situations.
 6. EPA and USDA should explore creative, common-sense approaches for achieving any necessary transitions such as targeting elimination of unacceptable risks to those products with known safe alternatives. In particular, EPA and USDA should consider the use of market-based and incentive-based approaches for transitions and the potential for cooperative partnerships with grower groups.
2. At appropriate points in the regulatory process, EPA and USDA should consult directly with relevant offices of the Office of Management and Budget and the Food and Drug Administration, as well as any other Federal agencies or departments that may have data or experience relevant to FQPA implementation.
 3. The Office of the Secretary of Agriculture should enhance its role in coordinating USDA's pest management policy. The Office of the Secretary should provide all appropriate support to implementation of the FQPA and this memorandum.

* * * * *

Consultation with the Public and Other Agencies

EPA and USDA should establish an effective means of consultation with user groups, pesticide manufacturers, environmental and public health organizations, and others concerned about FQPA implementation, while meeting the requirements and timetables set forth in the Act.

1. Within 14 days, EPA should consult with USDA and establish a mechanism for seeking advice and consultation from affected user, producer, consumer, public health, environmental, and other interested groups, following consultation with the Council on Environmental Quality (CEQ). Representation also should

EPA and USDA should provide an initial report to me on implementation of this memorandum within fourteen (14) days.

This memorandum is not intended to create any right, benefit, or trust responsibility, substantive or procedural, enforceable at law or equity by a party against the United States, its agencies or instrumentalities, or any other person.

EPA shall publish this memorandum in the Federal Register.

Dear Aggie

Providing answers to the questions you didn't know you wanted to ask

In contrast to the usually more sober contributors to the Agrichemical and Environmental News, Dear Aggie deals light-heartedly with the peculiarities that cross our paths and helps decipher the enigmatic and clarify the obscure. Questions may be E-mailed to Dear Aggie at dearaggie@tricity.wsu.edu. Opinions are Aggie's and do not reflect those of WSU.

When Does EPA's Right Hand Not Know What the Left Hand is Doing?

EPA recently proposed revocation of 871 tolerances on food products, saying that there were no active registrations for the specific crop-pesticide combinations and that it believed existing stocks of the pesticide products labeled for these uses had been depleted more than a year ago. One wonders where EPA got its information: A quick check of product labels currently registered for use in Washington state revealed that registrations still exist for 26 specific crop-pesticide combinations. Not to worry though; WSDA has submitted a letter to EPA requesting that these tolerances be retained along with the tolerance for phosphamidon, which is still being used statewide on apples. (Sources: Federal Register 63:3057-3060, 1/21/98; Federal Register 63:5907-5915, 2/5/98; EPA Press Advisory R-16 2/6/98)

Is White Sugar Harmful?

It depends on whether you worry about heavy metals. Low levels of arsenic and lead were recently reported in sugar refined in Turkey. Don't worry, however, because the levels are no higher than what is typically found in potatoes as a result of natural uptake processes. Will that be one lump of lead or two with your coffee? (Source: *Journal of Agriculture & Food Chemistry*, 1998, v. 46, p. 173)

What Do Pesticide Drift and Pesticide Residues in Water Have In Common?

Washington State Department of Ecology surface water recently revealed that many surface waters in the state contain pesticide residues, sometimes greater than the EPA water quality criteria suggested for protecting aquatic organisms. The pesticides

found to be frequently above these criteria included DDT, azinphos-methyl, and chlorpyrifos. The water quality criteria for these compounds are at levels ranging from 1 to 41 parts per trillion. Regulators conservatively interpret the criteria as a safety level; if residues are above the criteria, then there is a probability of an adverse effect. The Washington State Department of Ecology has hypothesized that azinphos-methyl and chlorpyrifos spray drift around orchards is contaminating adjacent water bodies. It seems growers may have more to worry about than the Food Quality Protection Act. (Source: *Washington State Pesticide Monitoring Program 1995 Surface Water Sampling Report*, January 1998, Publication No. 98-300)

What Is Happening with the Right to Know Provision of the FQPA?

With attention focused on aggregate and cumulative exposure and protection of children mandated by the FQPA, the provision for consumer right-to-know has been lost in the wind. Yet this section tacked on near the end of the law could have a big impact on the reputation of the agricultural industry. The law requires EPA to develop a brochure for distribution and public display in large retail groceries. Drafts of the brochure are now available on the Internet for viewing and public comment. The brochure poses the following questions with answers: What are pesticides, and why are they on food? Are pesticides harmful? How does the government protect consumers from harmful amounts of pesticides? Are foods grown with pesticides safe to eat? The brochure ends with tips to reduce pesticides on foods (washing, peeling, cooking) and a recommendation to buy "organic." Although not in the draft brochure at this time, information for pesticides registered with consideration of benefits is required by the FQPA. Ironically, only those compounds EPA considers carcinogenic can have their benefits considered before registration. Consumers are going to be very happy to read that they have just spent \$100 on a basket of food items containing carcinogens. (Source: http://www.epa.gov/oppfead1/cb/csb_page/Brochure/index.htm)

Tolerance Information

The following tolerances were granted by EPA since the last report (April 1998). These data do not mean that labels have been registered for these uses. These pesticides must not be used until labels are registered with EPA or a state department of agriculture.

Chemical*	Petitioner	Tolerance(ppm)	Commodity(raw)
(F) dimethomorph	EPA	1.0(a)	cantaloupe
		1.0(a)	cucumber
		1.0(a)	squash
		1.0(a)	watermelon
(I) hydramethylnon	EPA	0.05(b)	pineapple
(F) myclobutanil	EPA	0.5(c)	strawberries
(H) pendimethalin and its metabolite	EPA	0.1(d)	mint hay
		5.0(d)	mint oil
(I) tebufenozide	EPA	5.0(e)	non-brassica leafy vegetables (Crop Grp 4)
		5.0(e)	brassica(cole) leafy vegetables (Crop Grp 5)
		5.0(e)	turnip tops
(H) clomazone	EPA	0.1(f)	watermelons

*Key
A = adjuvant
D = desiccant
D/H = desiccant, herbicide
F = fungicide
FA = feed additive
FM = fumigant
G = growth regulator
H = herbicide
I = insecticide
IN = inert
N = nematicide
P = pheromone
V = viricide
VR = vertebrate repellent

(a) Time-limited tolerance in response to granting of Section 18 to State of Georgia. Tolerances will expire and are revoked on 3/31/2000.

(b) Time-limited tolerance in response to granting of Section 18 to State of Hawaii. Tolerance will expire and is revoked on 1/31/99.

(c) Time-limited tolerance extension in response to granting of Section 18 to State of Florida. Tolerance will expire on 3/31/99.

(d) Time-limited tolerance extension in response to granting of Section 18 to states of Oregon, Idaho, and Washington. Tolerances will expire on 5/31/99.

(e) Time-limited tolerance extension in response to granting of Section 18 to states of California and Texas. Tolerances will expire on 2/28/99.

(f) Time-limited tolerance extension in response to granting of Section 18. Tolerance will expire on 5/30/99.

EPA inadvertently had both a time-limited and a permanent tolerance listed for fludioxonil on potatoes. In a Federal Register notice (3/18/98), EPA has removed the time-limited tolerance while keeping the permanent tolerance (0.02 ppm) on potatoes.

PNN Update

The PNN is operated by WSU's Pesticide Information Center for the Washington State Commission on Pesticide Registration. The PNN system is designed to distribute pesticide registration and label change information to groups representing Washington's pesticide users. The material below is a summary of the information distributed on the PNN in the past month.

Our office operates a web page called PICOL (Pesticide Information Center On-Line). This provides a label database, status on registrations and other related information. PICOL can be accessed on URL <http://picol.cahe.wsu.edu>. For more information, contact our office at (509) 372-7492.

Federal Issues

Manufacturers' Use Deletions

- In the March 18, 1998, Federal Register, EPA announced that it had received a request from Sun Company to delete herbaceous flowers and foliage plants from the usage sites listed on the label for its product Sunspray 6E. Unless this request is withdrawn, these use deletions will become effective on September 14, 1998.
- In the March 18, 1998, Federal Register, EPA announced that it had received a request from Rhone-Poulenc to delete ditchbank from the usage sites listed on the label for its product Weedone Lo Vol 6. Unless this request is withdrawn, this use deletion will become effective on September 14, 1998.

Manufacturers' Product Cancellations

- In the March 18, 1998, Federal Register, EPA announced that it had received a request from Zeneca to cancel the registration for its insecticide Dyfonate II 15G. This product is currently registered for use on the following crops: bean, beet, broccoli, Brussels sprouts, cabbage cauliflower, dry bulb onion, field corn, lima bean, mint, popcorn, potato, radish, strawberry, sugarbeet, sweet corn, sweet potato (supplemental label), and tomato. Unless this request is withdrawn by September 14, 1998, EPA will issue orders canceling this registration. This product is also registered for use on asparagus via SLN WA940012. Although Zeneca has not yet submitted a request, this SLN will also likely be cancelled.
- In the March 18, 1998, Federal Register, EPA announced that it had received a request from Zeneca to cancel the registration for its insecticide Dyfonate 4EC. This product is currently registered for use on the following crops: bean, beet, broccoli, Brussels sprouts, cabbage cauliflower, dry bulb onion, field corn, lima bean, pepper, popcorn, potato, sorghum, sugarbeet, sweet corn, and tomato. Zeneca is also requesting cancellation of SLN WA920046. This SLN provides for use of Dyfonate 4EC on the following cole seed crops: broccoli, Brussels sprouts, cabbage, and cauliflower. Unless these requests are withdrawn by September 14, 1998, EPA will issue orders canceling both the Dyfonate 4EC registration and the SLN.
- In the March 18, 1998, Federal Register, EPA announced that it had received a request from Pace International to cancel the registration for its fungicide/insecticide Uniflow Sulfur. This product is currently registered for use on the following crops: alfalfa, apple, barley, bean, beet, blackberry, blueberry, boysenberry, broccoli, Brussels sprout, bulb, cabbage, carrot, cauliflower, cherry, collard, corn, currant, dewberry, flower, garlic, gooseberry, grape, kale, loganberry, melon, mint, mustard, nectarine, oat, onion, pea, peach, pear, pepper, plum, potato, prune, raspberry, rose, rutabaga, rye, sorghum, soybean, strawberry, sugarbeet, tomato, turnip,

and wheat. Unless this request is withdrawn by September 14, 1998, EPA will issue orders canceling this registration.

Section 18 Specific Exemptions

- On March 3, 1998, EPA approved a Section 18 specific exemption for the use of the herbicide Stinger to control lotus, purple aster, and clover in cranberries. The exemption allows for treatment of 170 acres in Washington and expires 12/31/98.
- On March 4, 1998, EPA approved a Section 18 specific exemption for the use of Valent's insecticide Knack to control pear psylla in pears. (Knack is the replacement for Comply, as discussed in PNN notification 1998-20.) This Section 18 exemption expires May 1, 1998.
- On March 19, 1998, EPA issued a Section 18 specific exemption for the use of Gustafson's LSP Flowable Fungicide as a seed treatment to control Ascochyta blight on lentils. This Section 18 exemption expires June 1, 1998.

Use Recommendations

- Rhone Poulenc has issued a use recommendation for tank mixing its herbicide Chipco Ronstar 50 WSP with other registered preemergence herbicides for broader spectrum preemergence weed control in ornamentals.
- Du Pont has issued a use recommendation for its herbicide Escort. This recommendation provides directions for use to control certain noxious and troublesome weeds in rangeland, pasture, and non-cropland areas.
- Amvac has issued a use recommendation for its product PCNB 10% Granules Soil Fungicide. The use recommendation provides directions for furrow treatment for increased control of stem canker and black scurf on potatoes.

Supplemental Labels

- Zeneca has issued a supplemental label for its insecticide Warrior. The supplemental label provides direction for use on the following crops: alfalfa, alfalfa seed, Brussels sprout, cavalo broccolo, cauliflower, Chinese broccoli, Chinese cabbage, Chinese mustard cabbage, kohlrabi, and leaf lettuce.
- Monsanto has issued a supplemental label for its herbicide Roundup. The label provides use directions for broadcast applications for weed control in Christmas tree plantations in Washington and Oregon.
- Monsanto has issued a supplemental label for its herbicide Roundup Ultra. The supplemental label provides directions for postemergence use on sugarbeet seed crops containing the Roundup Ready gene.
- Monsanto has issued a supplemental label for its product Rodeo Emerged Aquatic Weed and Brush Herbicide. The supplemental label provides directions for use for the control of cordgrass (spartina).

- Zeneca has issued a supplemental label for its herbicide Devrinol 10-G. The supplemental label provides revised use directions for weed control in both established cranberry beds and in new plantings.
- Griffin Corporation has issued supplemental labels for three of its fungicides: Kocide DF, Kocide 101, and Kocide 2000. The supplemental labels reduce the restricted entry interval from 48 to 24 hours and specify certain equipment and precautions that must be used/observed for the seven days following application of the copper hydroxide product. The Kocide products are registered on the following crops:

Kocide 101: alfalfa, apple, apricot, barley, bean, blackberry, broccoli, Brussels sprout, bulb, cabbage, cantaloupe, carrot, cauliflower, celery, cherry, cranberry, cucumber, currant, deciduous/shade tree, eggplant, filbert, flower, gooseberry, grape, honeydew, hop, muskmelon, nectarine, onion, pea, peach, pear, pepper, plum, potato, prune, pumpkin, raspberry, rose, shrub, squash, strawberry, sugarbeet, tomato, walnut, watermelon, and wheat.

Kocide 2000: alfalfa, apple, apricot, barley, bean, beet, blackberry, blueberry, boysenberry, broccoli, Brussels sprout, cabbage, cantaloupe, carrot, cauliflower, celery, cherry, collard, cranberry, cucumber, currant, dill, eggplant, filbert, gooseberry, grape, greenhouse cucumber, greenhouse pepper, greenhouse tomato, herb, honeydew, hop, loganberry, muskmelon, mustard, nectarine, oat, onion, ornamental, pea, peach, pear, pepper, plum, potato, prune, pumpkin, quince, raspberry, spinach, squash, strawberry, sugarbeet, tomato, turf, turnip, walnut, watermelon, and wheat.

Kocide DF: alfalfa, apple, apricot, barley, bean, blackberry, boysenberry, broccoli, Brussels sprout, bulb, cabbage, carrot, cauliflower, celery, cherry, collard, cranberry, cucumber, currant, eggplant, filbert, ginseng, gooseberry, grape, hop, loganberry, melon, nectarine, nursery, oat, onion, ornamental, ornamental tree, pea, peach, pear, pepper, plum, potato, prune, pumpkin, raspberry, rose, spinach, squash, strawberry, sugarbeet, tomato, walnut, and wheat.

Miscellaneous Regulatory Information

- In the March 18, 1998, Federal Register, EPA announced that popcorn and carrot uses were being deleted from six technical grade chlorpyrifos pesticide registrations. These are the registrations granted for the technical grade pesticide, which is used to produce "end use" pesticide products. The EPA required the use cancellations because they have discovered that no tolerance exists (or has ever existed) for chlorpyrifos on carrots or popcorn. The agency will next ask the "end use" registrants to revise their product labels to delete these uses. At this point, it is unclear what action the agency plans to take with respect to popcorn or carrots produced using chlorpyrifos and currently in the channels of trade. The pesticide registration database shows no chlorpyrifos labels currently registered in Washington for use on carrots; however, this message is being sent for your information. The registration database indicates that all of the following products are registered for use in Washington on popcorn:

Chlorfos 15G	Griffin	6622-18-1812
Lorsban 15G	Dow	62719-34
Chlorpyrifos 15G AG	Micro Flo	51036-234
Chlorpyrifos 4E AG	Micro Flo	51036-244
Lorsban 4E	Dow	62719-220 or 62719-23
Nufos 15G	Cheminova	67760-14
Nufos 4E	Cheminova	67760-28

The purpose of this message is twofold: If you have been using products containing chlorpyrifos on carrot or popcorn crops, be aware of the following:

- 1) These uses are going to be removed from the label, and
- 2) EPA has yet to resolve how carrot or popcorn crops showing chlorpyrifos residues will be managed.

● In two Federal Register Notices (January 21 and February 5) EPA announced its intention to revoke 871 tolerances and exemptions from the requirement for a tolerance. These revocations are for specific crop-pesticide combinations that EPA believes have no current registrations. EPA proposed revocation of these tolerances, believing that all existing stocks of these pesticide products had been used more than a year ago. A review of the proposed revocations showed two things: 1) Registrations still exist for some of these uses, and 2) Stocks of phosphamidon remain and this compound is currently being used by Washington apple growers. Based upon the results of this review, WSDA sent the following letter to EPA :

CERTIFIED

March 26, 1998

Mr. Jeff Morris, 7508W
U.S. Environmental Protection Agency
Special Review Branch
401 "M" Street SW
Washington, D.C. 20460

RE: Proposed revocation of tolerances and exemptions for pesticides no longer registered for use on specific food crops

Dear Mr. Morris:

In response to a notice via the Reregistration Notification Network (RNN), the Washington State Department of Agriculture (WSDA), in cooperation with Washington State University (WSU), has checked the Crop-Pesticide List of Canceled Uses Associated with the Tolerances Proposed for Revocation by the USEPA on 1/21/98 and 2/5/98. WSDA has verified that it has active registrations for the specific crop-pesticide combinations listed below except for phosphamidon on apple; it is not registered. In the case of phosphamidon, WSDA has confirmation that existing stocks have not been exhausted.

With this in mind, the Washington State Department of Agriculture (WSDA) requests that EPA retain, not revoke, the tolerances for the following uses:

...continued on next page

Pesticide	Crop
phosphamidon	apple
trichlorfon	cattle
copper oleate	all crops
cryolite	collard, blackberry, boysenberry, dewberry, loganberry, youngberry*
ethoxyquin	apple
ODDA	nectarine, peach, plum, prune, apricot, cherry
simazine	asparagus, artichoke
ferbam	boysenberry**
propachlor	corn
naled	cucumber, legumes
trifluralin	flax, rape
atrazine	grass
dichlobenil	stone fruit

* use on listed berries is registered under EPA SLN Reg. No. WA980001

** use on boysenberry is registered under EPA SLN Reg. No. WA940029

If you have any questions, please contact this office at (360) 902-2030.

Sincerely,

PESTICIDE MANAGEMENT DIVISION

Clinton L. Campbell
Agricultural Chemical Specialist

State Issues

New Registrations

● WSDA has issued a new registration to Gharda USA for its insecticide Pilot 4E. This product is registered for use on the following sites: alfalfa, asparagus, broccoli, Brussels sprout, cabbage, cauliflower, cherry, Chinese cabbage, Christmas tree plantation, collard, corn seed crop, cranberry, dry bulb onion, field corn, filbert, grape, kale, kohlrabi, mint, nectarine, non-bearing apple, non-bearing nectarine, non-bearing peach, non-bearing pear, non-bearing plum, non-bearing prune, peach, radish, rutabaga, sorghum, soybean, strawberry, sugarbeet, sunflower, sweet corn, sweet potato, and turnip.

Section 24c Registrations

● On March 2, 1998, WSDA issued a "me-too" or 3rd party SLN registration to Holland America Bulb Farms

for the use of Vineland Formaldehyde Solution to control nematodes, insects, and certain fungi in daffodil and iris bulbs. This SLN only covers use by the Washington Bulb Company.

- In late February, WSDA issued two SLNs for the use of two Captan products to control various diseases on raspberries and blackberries. The first SLN (WA980002) is issued for Zeneca's Captan 50-WP. This is a "me-too" registration that is identical to WA950034 issued to Drexel. The Zeneca SLN was issued to support a sub-registration of Micro Flo's Captan 50WP. The Zeneca SLN will not be distributed through regular trade channels. The second SLN (WA980002b) is issued to Micro Flo for its fungicide Captan 50WP. This SLN is a sub-registration to allow Micro Flo's product to clear the channels of trade. Both SLNs expire December 31, 1998, and will not be renewed next year.
- On March 12, 1998, WSDA issued an SLN (WA980009) for the use of Drexel's herbicide Diuron 4L to control weeds in hybrid poplar plantations. This is a "me-too" registration, similar to WA920023 for Karmax DF; however, this registration allows for the use of an alternate formulation. This SLN expires December 31, 1998.
- On March 13, 1998, WSDA issued a third party SLN registration, WA980008, to Association of Basin Nurseries for the use of Harvade-5F for defoliation of non-bearing apple nursery stock. This SLN is for use only on trees that will not bear fruit within one year. It will expire on 12/31/98.
- On March 26, 1998, WSDA issued an SLN, WA980011, to Platte Chemical for the use of its herbicide Simazine 90 WDG for the control of annual weeds in cabbage grown for seed. This SLN is similar to WA900005 issued for the use of Simazine 4L DF and is being issued because there is insufficient stock of the Simazine 4L DF for use in 1998. This SLN expires December 31, 1998.
- On March 6, 1998, WSDA issued a third party SLN(WA980007) to Lefeber Bulb Company for the use of Vineland Formaldehyde Solution to control nematodes, insects, and certain fungi in daffodil and iris bulbs. This SLN expires 12/31/98.
- On March 9, 1998, WSDA issued an SLN (WA980005) for the use of Platte Chemical's herbicide Prometryn 4L for selective weed control in dill. This SLN expires on December 31, 1998.

Section 24c Cancellations

- On March 2, 1998, WSDA issued a letter canceling SLN WA910026. This SLN had previously been issued to the Lefeber Bulb Company for the use of Vinco Formaldehyde Solution on daffodil and iris bulbs. The SLN was cancelled due to non-payment of registration fees. WSDA, however, expects to issue a "me-too" or 3rd party registration to Lefeber for Vineland Formaldehyde Solution when all necessary application information has been received.

Section 24c Revisions

- On February 27, 1998, WSDA issued a revision to SLN WA970007. The SLN had previously been issued for the use of Platte's insecticide Diazinon 50W as a dip treatment for grape root stock destined for export to Canada. The revision deletes the expiration date.

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- On March 10, 1998, WSDA issued a revision to SLN WA970029. This SLN had previously been issued to Platte chemical for the use of its insecticide Dimethoate 400 on peas. The revision removes the expiration date and changes the pollinator protection statement to prohibit applications to blooming Austrian winter peas.
 - On March 10, 1998, WSDA issued a revision to SLN WA970008. This SLN had previously been issued to Dow AgroSciences for the use of Lorsban 4E on grapes. The revision removed the expiration date.
 - On March 11, 1998, WSDA issued a revision to SLN WA970015. This SLN had previously been issued for the use of Amvac's Vapam HL Soil Fumigant on fruit orchards. The revision removes the expiration date.
 - On March 11, 1998, WSDA issued a revision to SNL WA980001. This SLN had previously been issued for the use of Gowan's Cryolite Bait to control various weevils on small berries (blackberries, blueberries, boysenberries, dewberries, loganberries, raspberries, strawberries, and youngberries). The revision changes the use rate from a range of 30 to 40 pounds per acre to 20 to 40 pounds per acre.
 - On March 13, 1998, WSDA issued a revision to SLN WA970027. This SLN had previously been issued to Wilbur Ellis for the use of its insecticide Digon 400 to control aphids on peas. The revisions include the removal of the expiration date and the addition of a pollinator protection statement.

Miscellaneous Regulatory Information

- WSDA has again expressed concern regarding the use of ammonium thiosulfate as a blossom thinner and has issued the following cautionary statement on the subject.

PESTICIDE REGISTRATION INFORMATION

(March 16, 1998)

Distribution and Sale of Ammonium Thiosulfate (ATS) as a Blossom Thinner

The Washington State Department of Agriculture reminds distributors, dealers, consultants and commercial applicators again this year that use of any product as a blossom thinner is considered a pesticidal use under state and federal law. Prior to distribution, these products must be registered as pesticides by the U.S.E.P.A. and the state of Washington.

ATS is currently registered as a herbicide to control spurge in lawns (under the brand name Spurge X, EPA Reg. No. 9499-1). It is also registered as a commercial fertilizer in Washington and can be legally distributed as a plant nutrient; however, to knowingly distribute ATS as a blossom thinner is in violation of the Federal Insecticide, Fungicide and Rodenticide Act and the Washington Pesticide Control Act.

If you have any questions, please contact the Registration Services Branch at (360) 902-2030.

Pesticide Information Center
WSU-Tri-Cities
2710 University Drive
Richland, WA 99352-1671

WSU sponsors food safety conference

The Northwest Food Safety Consortium, a group of Washington State University and University of Idaho faculty working in food safety education and research, plans its 6th annual Food Safety Farm to Table Conference for May 27 and 28 at the University Inn in Moscow, Idaho.

Topics for the conference, sponsored by Washington State University Cooperative Extension, include pathogens, antimicrobial resistance, food processing plant technological advances, risk assessment, hazard analysis critical control point (HACCP) plans and fresh produce, community based food safety intervention,

nutraceuticals, herbs, and endocrine disruptor chemicals.

Conference registration, which includes all meeting sessions, a WSU Alumni Centre reception the night of May 27, luncheons, and refreshment breaks for both days, is \$135. Preregistration for the conference is required. Registrations received after May 8 will be charged an additional \$15 late fee.

More information and a schedule of events may be obtained from Chris Eder at (509) 335-2954 or E-mail at cecps@cahe.wsu.edu.