



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OFFICE OF CHEMICAL SAFETY
AND POLLUTION PREVENTION

MEMORANDUM

DATE: June 4, 2012

SUBJECT: PCNB Post-RED Assessments; "Use Closure Memo," revised

TO: PCNB RED Team

FROM: Jill Bloom, Review Manager
Risk Management and Implementation Branch 2
Pesticide Re-Evaluation Division (7508P)

A handwritten signature in dark ink, appearing to read "Jill Bloom", is written over the typed name and title of the sender.

The Agency is planning to conduct a revised and updated assessment of the ecological and other risks associated with exposure to PCNB and its degradates, for the registered uses of PCNB, including those granted through amendments to existing registrations on November 23, 2011. These amendments were granted subsequent to the assessment of worker risks associated with toxic impurities found in PCNB and the Agency's determination of appropriate risk mitigation measures for worker risks.

After the November 2011 amendments were granted, the registrant (Amvac) submitted another set of amendment requests for additional uses. Like the earlier amendment request, the disposition of the amendment requests will be based on the worker risks associated with the toxic impurities found in PCNB. If the amendment requests are granted, the associated uses can be included in the updated risk assessment for PCNB and degradates. Although the requested use sites are known, specific conditions and use parameters will not be identified until an assessment of the worker risks associated with toxic impurities in PCNB is completed. Overall, it does not appear that the risk mitigation measures needed to achieve an acceptable MOE for the worker risks associated the toxic impurities in PCNB products will impact the ecological risks associated the parent PCNB and its degradates. The worker risk management measures are likely to focus on limiting the amount of pesticide a worker can handle in a day. The PRIA deadline for a decision on these amendments is August 12, 2012, but the Agency hopes to be able to make the decisions before that time.

Amvac recently requested that the Agency expedite its review of one of the use sites included in the pending amendment requests, i.e., the proposed use of PCNB on potatoes, applied to foliage via chemigation. Section 24(c) labels have been approved in the past for this use pattern, but Amvac now wishes to register the potato chemigation use as a Section 3 registration, albeit limited geographically to the former 24(c) states. We anticipate that the Agency's decision on the potato chemigation use will be made before decisions are made on the other pending amendments.

The use sites for the amendments granted in November 2011 and the use sites associated with the pending amendment requests are listed in Table 1.

Table 1. Uses Associated with PCNB Amendment Requests

Amendments granted on 11/23/11:	Pending amendments:
Broccoli	Cole crops, containerized stock
Brussels sprouts	Commercial/industrial lawns
Cabbage	Sod farms
Cauliflower	Peanut
Collards, kale, mustard greens	Beans
Cotton	Garlic
Golf course tees, greens, and fairways (TGFs)	Magnolia
Ornamental bulb plants	Tomato
Potatoes	Pepper
	Southern pine (seed orchard)
	Ornamental shade trees, herbaceous/woody shrubs/vines
	Potato (chemigation)

This Use Closure memo captures the uses and use parameters covered by the amendments of November 2011. When decisions are made on the pending amendments, this "Use Closure" memo may be revised.

Usage information

These usage data do not reflect recent changes in approved use sites, labeling, or the impact of the 2010-2011 SSURO.

Table 2. Screening Level Estimates of Agricultural Uses of PCNB , 2010

Crop	Lbs. A.I.	Percent Crop Treated	
		Avg.	Max.
Beans, Green	30,000	15	20
Brussels Sprouts *	6,000	N/C	N/C
Cabbage	2,000	<1	<2.5
Cotton	100,000	<2.5	5
Dry Beans/Peas	1,000	<1	<2.5
Peanuts	30,000	<1	<2.5
Potatoes	200,000	5	10
Soybeans	2,000	<1	<2.5
Spinach	<500	5	5
Tomatoes	5,000	<1	<2.5
Wheat	<500	<1	<2.5

* CA data only (95% or more of U.S. acres in California)

Data Sources

- USDA-NASS (United States Department of Agriculture's National Agricultural Statistics Service) – pesticide usage data from 2003 to 2010.
- Private pesticide market research – pesticide usage data from 2003 to 2010.
- California Department of Pesticide Regulation (DPR) Pesticide Use Reporting (PUR) data for 2006 to 2009.

Table 3. PCNB Non-Agricultural Usage (lbs. of active ingredient)

Segment/Site	2002	2004	2006	Average
Golf Courses	180,000	225,000	260,000	220,000
Institutional Turf	<500	*	<500	<500
Landscape	18,000	1,000	85,000	35,000
Lawn Care Operators (LCOs)	10,000	25,000	1,000	12,000
Nurseries/Greenhouses	3,000	2,000	5,000	3,000
Turf Farms	1,000	*	*	1,000

* Data not available

Data Source: Kline and Company, Inc., 2002-2006

The general variability in the non-agricultural usage estimates for the three years 2002, 2004, and 2006 may be an artifact of reporting rather than representing true differences in usage. BEAD believes that the golf course data may be more reliable than the rest, and that they show an actual increase in use during that time period.

Registrants

The terms and conditions of Amvac's registrations have been amended and this use closure memo applies to Amvac products. Amvac has committed not to market its end-use product for other uses and its technical grade product for reformulation for use on other sites. The technical-grade product (Reg. # 5481-197) is not directly addressed in this memo.

Formulations

The Agency granted amendments for Amvac's technical product (Reg. # 5481-197) and two end-use products. Amvac is not supporting any other formulations or PCNB registrations at this time.

Table 4. PCNB End-Use Product Registrations

Registration #	Product name	% ai
5481-8992	Turfcide 4F	40% (4 lbs. ai/gallon)
5481-8988	Turfcide 10% Granular	10%

Currently approved use sites/pest combinations

Table 5. Uses and pests for which the end-use products are being marketed.

Use site	Target pests (diseases)
Cole crops	
Broccoli	Clubroot only
Brussels sprouts	Clubroot only
Cabbage	Clubroot only
Cauliflower	Wirestem/ bottom rot), clubroot
Collards, kale, mustard greens (granular only)	Clubroot only
Other	
Cotton	Damping-off
Golf course tees, greens, and fairways (TGFs)	Brown patch, melting out/leaf spot, dollar spot, pink snow mold, gray snow mold
Ornamental bulb plants (commercial use, bulb dip only; flowable only)	Root rot, stem rot, crown rot, bulb rot, black rot
Potatoes	Stem canker/black scurf

Application methods/equipment

Application methods that are expressly permitted are groundboom (flowable only), bulb soak (flowable only; ornamental bulb plants, commercial use), and tractor-drawn equipment (granular only). Methods that are specifically prohibited are aerial, chemigation, by hand (hand-held equipment). Except for turf and bulbs, all applications are soil applied and incorporated at the time of planting. All these are in-furrow applications, except for cole crops, which may be band-row applied or broadcast and then disked in; bulbs, which are soaked in a solution of PCNB prior to planting; and turf applications, which are foliar.

Application rates, individual & seasonal; retreatment intervals; number of applications; geographical restrictions

Application parameters are summarized in Table 6; some other details that didn't fit well into the table are presented here separately:

- For cauliflower, band row treatments must be incorporated to a depth of 2 inches. For all cole crops, in-furrow or broadcast-applied granules must be incorporated to a depth of 4-6 inches.
- After application to turf, applicators are required to water treated areas with ¼ inch of water “in order to move material down to the soil level.”
- Bulb soak—there is considerable uncertainty in calculating application rates for the bulbs, in part because we do not have a reliable way to estimate how much of the PCNB in the soaking solution stays with the bulb after soaking.
- Additional directions for use and precautionary statements aimed at reducing worker exposure:
 - For golf course applications, mixer/loaders must not handle more than 150 gallons of the Flowable product in one day.

- For golf course applications, mixer/loaders must not handle more than 150 gallons of the Flowable product in one day; applicators must not apply more than 337 gallons of Flowable in a day.
- PPE as shown on product labels

Table 6. Application parameters

Use site	Pest(s)/state restrictions	Rate for single application ¹	Seasonal maximum rate ²	Minimum retreatment interval	Seasonal max. # applications
Cole crops					
Brussels sprouts, broccoli, cabbage	Clubroot	22.5 lbs. ai/A	22.5 lbs. ai/A	At-plant only	
	Wirestem	14.9 lbs. ai/A (G)			
Collards, kale, mustard greens	Clubroot/GA only	22.5 lbs. ai/A (G)			
Cotton	Damping-off	1.0 - 2.0 lbs. ai/A (G) 0.75 - 1.5 lbs ai/A (F)	2.0 lbs. ai/A		
	AZ and CA	1.0 - 2.0 lbs. ai/A (F)			
TGFs					
Warm season grasses, dichondra	Brown patch	32.7 lbs. ai/A (G) 21.8 – 32.7 lbs ai/A (F)	87.12 lbs. ai/A (G) 66 lbs. ai/A (F)	3 – 4 wks	2 (inferred)
		8.71 - 10. 9 lbs. ai/A (G) 6.79 – 8.15 lbs. ai/A (F)		7 – 10 days	Not specified
Cool season grasses	Gray snow mold	21.8 - 43.6 lbs. ai/A (G) 16.3 – 21.7 lb. ai/A (F)		One application only (G)	Not specified
	Pink snow mold	21.8 - 32.7 lbs. ai/A (G) 16.3 – 21.7 lb. ai/A (F)		4 – 6 wks	
All varieties	Melting out/leaf spot, dollar spot ³	21.7 - 32.7 lbs. ai/A (G) 15.0 – 21.7 lbs. ai/A (F)		3 – 4 wks (G)	2 (inferred)
				One application only (F)	
Ornamental bulbs					
Hyacinth, iris, narcissus, tulip, gladiolus, and lily (Easter, Asiatic, Oriental)	Root rot/stem rot/ bulb rot, bulb rot/crown rot, black rot	Cannot be accurately estimated	Not specified	At-plant only	
Potato	Stem canker/black scurf ⁴	2.5 lbs. ai/A (G) 2.5 - 5 lbs. ai/A (F)	Not specified (G) 20 lbs. ai/A (F)	At-plant only, yet maximum seasonal rate is many times greater than single application rate	
	CA	2.5 - 5 lbs. ai/A (F)	16 lbs ai/A (F)		

¹ G = granular formulation, F = flowable; if not specified, applies to both formulations

² Annual maximums not specified

³ Use of granular to control dollar spot prohibited in CA

⁴ Use of granular on potato prohibited in CA

Pre-harvest Intervals (PHIs) for food uses

The only currently registered food/feed uses of PCNB are cole crops, cotton, and potatoes. A PHI has been established for potatoes, and is shown on the label of one formulation only. (Directions for use on the proposed labels associated with the pending PCNB amendments include proposals for PHIs for some applications to potatoes).

Table 7. PHIs

Use	Formulation type	PHI	Comments
Cole crops			Labels are silent on PHI
Cotton			
Potatoes	Granular	45 days	PHI not cited on Flowable label