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

SEP 15 1994

OFFICE OF  
PREVENTION, PESTICIDES AND  
TOXIC SUBSTANCES

MEMORANDUM:

SUBJECT: KS-940003 and NE-940002. Chlorothalonil on Dry Beans.  
Special Local Needs [24(C)]. (No MRID #'s. CBTS  
#14209. DP Barcode #'s D206557 and D206559.)

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TO: Cynthia Giles-Parker/James Stone, PM-22  
Fungicide-Herbicide Branch  
Registration Division (7505C)

The State of Kansas has approved a Section 24(c) registration for the use of the fungicide Bravo® 720 (chlorothalonil) to control rust, anthracnose, downy mildew, and cercospora leafspot (blackeye only) on dry beans, with a 14 day PHI. State approval was granted May 27, 1994.

The State of Nebraska has also approved a Section 24(c) registration for the use of the fungicide Bravo® 720 (chlorothalonil) to control rust, anthracnose, downy mildew, and cercospora leafspot (blackeye only) on dry beans, with a 14 day PHI. State approval was granted May 27, 1994.

Tolerances have been established for the combined residues of chlorothalonil (2,4,5,6-tetrachloroisophthalonitrile) and its 4-hydroxy metabolite (4-hydroxy-2,5,6-trichloroisophthalonitrile) in or on dry beans at 0.1 ppm. (See 40 CFR 180.275).

Chlorothalonil is a List A chemical. A Registration Standard (Guidance Document) was issued in September 1984; a Final Registration Standard and Tolerance Reassessment (FRSTR), Residue Chemistry Chapter, was issued in February 1988.



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### Proposed Use

The proposed use calls for an initial treatment during early bloom stage using 1-3/8 to 2 pints of Bravo 720 (1.0 to 1.5 lb a.i.) per acre per application, treatment may be repeated at 7 to 10 day intervals. Bravo 720 contains 54% chlorothalonil (6.0 lb a.i./gal). Use would be restricted to beans harvested dry with the pods removed. No more than 4 applications per growing season (6.0 lb total a.i./A/season). Do not apply within 14 days before harvest. Do not allow livestock to graze in treated areas or feed treated plant parts to livestock.

The current federally-registered Section 3 use for chlorothalonil on dry beans (harvested dry with pods removed) allows for 1-3/8 to 2 pints of Bravo 720 (1.0 to 1.5 lb a.i.) per acre per application. Applications can begin during early bloom stage and be repeated at 7 to 10 day intervals. The label allows a 42-day PHI. Label restriction reads: "Do not graze treated areas or feed treated plant parts to livestock."

In summary, the States of Kansas and Nebraska have approved a reduction of the 42-day PHI for the use of chlorothalonil on dry beans to 14 days. The stated reason for this request is that a 42 day PHI does not provide adequate protection against late-season epidemics of rust (Uromyces phaseoli) and other foliar diseases of dry beans.

### Background

On several occasions, CB (or RCB or DEB) has recommended against a 14-day PHI for chlorothalonil on dry beans, including a previous Section 24(c) registration requests (See memos of 10/23/90 and 2/26/91, D. McNeilly, and 5/22/91, J. Abbotts), because residue data indicated that the existing tolerance might be exceeded as a result of the proposed use. A summary of chemistry branch reviews on this proposed reduction in the PHI has been previously discussed (See memo of 5/22/91, J. Abbotts). A major concern of the chemistry branches has been the observed differences in chlorothalonil residues in/on dry beans between three sets of field trial data, i.e., one earlier data submission with 28 to 42-day PHI's (Diamond Shamrock report #463-3CR-81-0154-001), and another more recent submissions with 0 to 18-day PHI's (Diamond Shamrock report #612-3CR-82-0181-001 and MRID#418441-01).

These data for dry beans (with pods removed) are listed in the following table:

Location	Formulation	No. of applica-tions	pints/A applied per applica-tion	total lb a.i./A applied (fraction of proposed rate)	PHI, days	Residue range, ppm	
						SDS-2787	SDS-3701
Hoopeston, IL	BRAVO 500	2	2	2.1(0.4X)	43	ND <sup>1</sup> -0.08	ND <sup>1</sup> -0.03
"	"	2	3	3.1(0.5X)	43	ND <sup>1</sup> -0.09	ND <sup>1</sup>
"	"	2	4	4.2(0.7X)	43	0.07-0.19	ND <sup>1</sup> -0.04
Staples, MN	BRAVO 500	3	2	3.1	40	ND <sup>1</sup> -0.08	ND <sup>1</sup>
"	"	3	3	4.7(0.8X)	40	ND <sup>1</sup> -0.04	ND <sup>1</sup>
"	"	3	4	6.3(1.1X)	40	ND <sup>1</sup> -0.08	ND <sup>1</sup>
"	"	3	4	6.3	28	ND <sup>1</sup>	ND <sup>1</sup>
Fargo, ND	BRAVO 500	1	3	1.6(0.3X)	47	ND <sup>1</sup>	ND <sup>1</sup>
Staples, MN	BRAVO 6F	6	2	6.3	28	ND <sup>1</sup>	ND <sup>1</sup>
"	"	6	3	9.2(1.5X)	28	ND <sup>1</sup>	ND <sup>1</sup>
Holyoke, CO	BRAVO 500	3	2	3.1	14	ND <sup>2</sup> -0.03	ND <sup>2</sup>
"	"	3	3	4.7	14	0.02-0.03	ND <sup>2</sup>
Georgetown, DE	BRAVO 500	4	3	6.3	8	0.03	ND <sup>2</sup>
"	"	5	3	7.8(1.3X)	0	0.04-0.07	ND <sup>2</sup>
N. Platte, NE	BRAVO 500	4	3	6.3	13	ND <sup>2</sup>	ND <sup>2</sup>

Location	Formulation	No. of applica-tions	pints/A applied per applica-tion	total lb a.i./A applied (fraction of proposed rate)	PHI, days	Residue range, ppm	
						SDS-2787	SDS-3701
Northwood, ND	BRAVO 500	3	3	4.7	22	0.02	ND <sup>2</sup>
Saginaw, MI	BRAVO 500	5	3	7.8	7	0.04	ND <sup>2</sup>
"	"	4	3	6.3	14	0.01	ND <sup>2</sup>
"	"	3	3	4.7	29	ND <sup>2</sup>	ND <sup>2</sup>
Jackson, TN	BRAVO 500	4	3	6.3	9	0.02-0.03	ND <sup>2</sup>
E. Grand Forks, MN	BRAVO 720	8	2	12 (2X)	14	ND <sup>2</sup>	ND <sup>2</sup>
N. Platte, NE	BRAVO 720	3	2	4.5 (0.8X)	14	ND <sup>2</sup>	ND <sup>2</sup>
Saginaw, MI	BRAVO 720	4	2	6.0 (1X)	14	ND <sup>2</sup>	ND <sup>2</sup>
Fort Collins, CO	BRAVO 720	2	2	3.0 (0.5X)	18	ND <sup>2</sup>	ND <sup>2</sup>
"	BRAVO C/M	2	--	8.0 (1.3X)	18	ND <sup>2</sup>	ND <sup>2</sup>

Formulations: BRAVO 500 (40.4% a.i.); BRAVO 720 (54.0% a.i.); BRAVO 6F (54.0% a.i.); BRAVO C/M [Combination of chlorothalonil (27.0% a.i.) and maneb (5.4% a.i.)]

ND<sup>1</sup>: <0.04 ppm SDS-2787; <0.03 ppm SDS-3701

ND<sup>2</sup>: <0.01 ppm SDS-2787; <0.01 ppm SDS-3701

In reviewing the earliest data (report #463-3CR-81-0154-001), the chemistry branches previously noted that in several instances residues approached the 0.1 ppm tolerance level. In one instance residues exceeded the tolerance at an application rate of 0.7X the proposed rate with a 43-day PHI. With the one site at the 0.7X application rate in which residues >0.1 ppm were observed, 0.19 ppm was the highest residue, with several reported at 0.15 ppm, and a mean value of 0.11 ppm from four samples analyzed in duplicate. Also one untreated control sample from this site showed 0.16 ppm chlorothalonil residues. Thus the data from this site may not be reliable. However, data from other sites with PHI's ranging from 28 to 47 days and at application rates from 0.4X to 1.5X the proposed rate, showed residues below the established 0.1 ppm tolerance. Analyses of these site samples showed chlorothalonil residues <0.1 ppm, and in many cases reported residues as nondetectable (<0.04 ppm) for both chlorothalonil and its 4-hydroxy metabolite SDS-3701. Samples were also analyzed for impurities HCB and PCBN. No residues of either were found at <0.004 ppm HCB or <0.01 ppm PCBN.

Additional field residue data at application rates ranging from 0.5X to 2X the proposed SLN use, and with PHI's ranging from 0 to 29 days, showed no chlorothalonil residues above 0.07 ppm. Approximately half of the analyzed samples showed nondetectable (<0.01 ppm) residues for both chlorothalonil and its metabolite SDS-3701, with the other half of the field samples showing residues in the 0.01 to 0.04 ppm range. Samples analyzed from crops treated with the BRAVO 720 formulation proposed in these SLN's showed no residues of chlorothalonil (<0.01 ppm), or its metabolite (<0.01 ppm), including samples from the crop treated at 2X the proposed rate at a 14-day PHI. Likewise, the samples were analyzed for impurities HCB and PCBN. No residues of either were found at <0.003 ppm HCB or <0.005 ppm PCBN.

CBRS has recently reviewed a snapbean metabolism study for chlorothalonil and has determined that the residues for regulation are the parent chlorothalonil and its 4-hydroxy metabolite SDS-3701 (See memo of 05/26/94, W. Smith). This study also showed that chlorothalonil residues were present on the outside bean surface after foliar application according to the registered label. No systemic action was observed for chlorothalonil. Therefore, since the SLN use is for dry beans (i.e., the pods removed), then any chlorothalonil residues found on the dry beans could possibly be only from minute residues transferred in the harvesting process.

Therefore, based on consideration of the field trial data, CBTS concludes that the proposed decrease of the current 42-day PHI to a 14-day PHI will not give chlorothalonil (plus its metabolite)

residue above the established 0.1 ppm tolerance for the proposed SLN use. Results from the metabolism study imply that the residues that were observed probably resulted from post harvest handling.

Recommendation

CBRS recommends approval of these 24(c) registrations in the States of Kansas and Nebraska. The proposed decrease of the PHI from 42 days to 14 days is adequately supported by residue data and the established 0.1 ppm tolerance for the combined residues of chlorothalonil and its metabolite in/on dry beans.

cc: J. Stokes (CBTS); chlorothalonil 24(c); R.F.; Circu.  
RDI: JGarbus:09/14/94: MFlood:09/14/94  
7509C:CBTS:JStokes:js:Rm 803:CM#2:305-7561:09/15/94