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

JUN 24 1987

OFFICE OF
PESTICIDES AND TOXIC SUBSTANCES

Memorandum:

SUBJECT: Benomyl Registration Standard. Response by Du Pont (letter dated 9/10/86) to the 3(c)2(B) letter of 4/7/86. (#352-354, RCB#'s 1594, 2159)

FROM: Jerry B. Stokes, Chemist
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Hazard Evaluation Division (TS-769C) Jerry B. Stokes

THRU: Charles L. Trichilo, Chief
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Hazard Evaluation Division (TS-769C) R D Schmitt for

TO: Lois Rossi/Phil Hundemann, PM-21
Registration Division (TS-767C)

and

Toxicology Branch
Hazard Evaluation Division (TS-769C)

In response to 3(c)2(B) letter of 4/7/86, Du Pont has submitted letter (See letter of 9/10/86, I. Wellings, Reg. Specialist, E. I. Du Pont De Nemours & Company) to address data gaps in the crop residue requirements for benomyl, methyl N-(N-butylcarbamoyl)-2-benzimidazolyl carbamate, as expressed by EPA according to §40 CFR 158.125.

Note: This Du Pont letter of September 10, 1986 has been submitted twice to RCB: RCB#1594 (19271 HED) and RCB#2159 (34048 HED).

Each data gap will be stated as cited in the 3(c)2(B) letter, followed by Du Pont's response and RCB's conclusion for each response.

171-4 Magnitude of the Residue-Residue Studies

The Agency has required data to determine whether actual measurable residues of benomyl result in/on raw agricultural commodities and/or processed foods/feeds from the maximum registered use of benomyl.

Carrots:

"Additional carrot residue data are required: data reflecting multiple ground and aerial foliar applications (applied at 7-day intervals) of the 50% WP formulation at 0.5 lb a.i./A application from tests conducted in CA (48.5%), TX (13%), and WI (9%). Samples must be collected 4 days after the final application."

Du Pont's Response:

Additional residue data will be submitted from tests conducted in CA, TX, and WI.

RCB's Comments/Conclusions:

Du Pont intends to supply the data; no submission date is given.

Note: According to the Residue Chemistry Chapter of the Benomyl Registration Standard, residue data for carrots was submitted by Du Pont (See PP#5F1707) from FL. Geographical representation was not adequate because the major US production areas are CA (48.5%), TX (13%), WI (9%), WA (8%), MI (6%), and OR (4%). In addition the ground equipment used was not adequately identified. However, in order to compensate for inadequate geographical representation, and the ground equipment use, data involving benomyl residues in/on sugar beets collected in states of CA, DE, IA, MI, MN, MO, OH, and TX, were translated (See PP#'s 0G0936, 0F1000, and 1F1010). The states of CA ,MI, and TX in which sugar beet tests were conducted, are major production areas for carrots; also the states of IA, MI, and MN are in close proximity to WI which is a major production area for carrots. Thus RCB concluded that the available data are adequate and that the combined residues of benomyl and its metabolites, methyl N-(2-benzimidazolyl) carbamate (MBC) and 2-aminobenzimidazole (2-AB) in/on carrots would not exceed the established tolerance following the registered use. RCB considers this data gap resolved.

Note: If it is the intent of Du Pont to pursue a group tolerance for root and tuber crops, then residue data for carrots will be required; data must also be submitted for potatoes and radishes.

Celery:

"Certain data reflecting residues of benomyl and MBC in/on celery (untrimmed) 7 days after the last of 28 ground and aerial applications (made at 7-day intervals) of the 50% WP or 75% F1C formulation at 0.25 lb a.i./A are required. Tests should be conducted in CA, FL, and MI, states which represent the major US celery production areas. Samples must be collected 4 days after the final application. Additional celery residue data are required: data reflecting 28 aerial applications (made at 7-day intervals) of the 10% SC/L and either the 50% WP, 3% F1C, or 75% F1C formulation from tests conducted in CA."

Du Pont's Response:

EPA's request for residue studies involving twenty eight (28) ground and aerial applications does not seem reasonable since 'Benlate' is used only sporadically for celery. Du Pont requests that the labeling for celery be revised to restrict the number of applications to 4 to 6 per crop. This limited use on celery is covered by existing residue data.

RCB's Comments/Conclusions:

Residue data submitted by the petitioner in PP#1F1145 are adequate to cover Du Pont's proposed use (4 to 6 applications per crop). In the original submission of petition for a tolerance in/on celery, data were collected from crops grown in CA and FL. These two states account for 66% and 25%, respectively, of the total US annual production. MI grows only 6% of the US celery production. Thus additional data will not be required from the state of MI.

Additional celery residue data in reference to data reflecting 28 aerial applications (made at 7-day intervals) of the 10% SC/L and either the 50% WP, 3% F1C, or 75% F1C formulation from tests conducted in CA will not be required. CA has cancelled (See letter of 7/3/84, F. Bishop, RD, HED) an intrastate registration (CA 10965-09918-variance) for use of benomyl on seed crops (foliar spray). Du Pont does not need to submit residue data on this use. RCB considers this data gap resolved.

Dandelions:

"Data reflecting residues of benomyl and MBC in/on dandelion greens per the proposed use of the 50% WP formulation at 0.25 lb a.i./A applied 4 times at 7-day intervals are required. Additional data showing the recovery of benomyl and MBC following storage of fortified samples at intervals approximating the celery data are required."

Du Pont's Response:

Since dandelions constitute a minor use crop, the tolerance for residues of benomyl on this crop was established on data generated by IR-4. The whole concept of minor use registration is based on established interactions between EPA, IR-4, and the Company involved to generate residue data to establish a tolerance and adequate data to support the proposed use. It is understood that a lesser quantity of residue and data are required to support tolerances and registrations on minor crops than on major crops. Du Pont suggests that EPA should take up the general question of generating additional residue data to support the existing tolerance on dandelions with IR-4.

3

RCB's Comments/Conclusions:

No additional data are submitted. In the original petition (PP#3E2891) residue data were submitted from FL only. This data had several slight deficiencies, i.e., low recovery of fortified samples for 2-AB (33-68%), and slight decrease in residues of 2-AB on frozen storage for 43 days. Currently there are no federal or state registered uses for benomyl on dandelions. Dandelion is defined as a minor crop: <2000 A total US annual production with growing areas consisting of FL, IL, NJ, NY, and TX (USDA statistics). In this regard, dandelion can be automatically considered for a tolerance with a geographical registration. RCB considers the residue data (PP#3E2891) sufficient to establish a tolerance with a geographical registration for dandelion in FL only. This data gap is still outstanding.

Note: If the proposed use is extended to any (or all) of the other growing areas, i.e., IL, NJ, NY, or TX, then additional residue data will be required.

Spinach:

"Data reflecting residues of benomyl and MBC in/on spinach per seed treatment at 1.00 lb a.i./100 lb of seed using the 50% WP formulation in a slurry from tests conducted in CA, CO, MD, NJ, TX, or VA."

Du Pont's Response:

Du Pont does not understand why residue data for additional seed treatment studies from different geographical locations (CA, CO, MD, NJ, TX, and VA) is necessary, since the procedure is independent of location. Existing data (PP#OE2309) from CA and WA show no detectable residues of benomyl in seeds treated at 1 lb a.i./100lb seed. Du Pont asks that EPA consider the existing data as adequate to support the present use on spinach seed.

RCB's Comments/Conclusions:

The Residue Chemistry Chapter of the Registration Standard for Benomyl discussed the analytical method used to collect the residue data for benomyl and its metabolites in/on spinach in support of the current tolerance. The use of a colorimetric procedure (See MRID#00026042) as described in the original method of Pease and Gardiner, or in the revised method (See MRID#00097338) is unacceptable for data collection or enforcement. In this regard the previously submitted data are invalid and cannot be used to support the tolerance. There are no current federal or state registered uses for benomyl on spinach.

The correct statement from the Residue Chemistry Chapter of the Benomyl Registration Standard requests data from states of CA, CO, TX, and MD, or NJ, or VA, a total of four states. Treated seed grown in various locations for a specific crop may lead to different residue

profiles in the aerial (edible) portions of plants. After treating and planting of the seed, the various lengths of growing seasons, amount of solar energy, and soil conditions can affect possible residues in mature plants. It is imperative that adequate data be generated for a reliable evaluation and consideration of any tolerance request. This data gap is still outstanding.

Broccoli, Cabbage, and Cauliflower:

"Certain data reflecting residues of benomyl and MBC in/on mature broccoli (cabbage) immediately after the last of three foliar treatments (applied at 14-day intervals) with the 50% WP at 1.00 lb a.i./A are required. Both ground and aerial applications must be represented. Tests must be conducted in AZ and WA."

"The Agency will extrapolate residue data required in/on mature broccoli for residue data on cauliflower."

Du Pont's Response:

The only existing registrations for the use of 'Benlate' on broccoli, cabbage, and cauliflower are for seed treatment or for seed crops. The seed crop label contains the statement "Do not graze treated areas; do not use seed or plant parts for food or feed purposes". Du Pont requests that the Agency consider the existing data as adequate to support the current IR-4 supported (PP#6E1874) tolerance on broccoli, cabbage, and cauliflower.

RCB's Comments/Conclusions:

Data are adequate to cover the currently registered seed treatment. Additional data from AZ and WA were requested to support a 24(c) registration for use of benomyl on broccoli, cabbage, and cauliflower seed crops as a foliar spray. The registrant has not submitted any residue data on this use reflecting analyses for benomyl (and its metabolites).

In the western growing area, state registrations for foliar treatments of benomyl on seed crops of broccoli, cabbage, cauliflower, collards, kale, and mustard greens are in effect. At present no residue data for these foliar treatments are available to assess the possibility of residues of benomyl (and its metabolites) in/on the seed crops.

According to the Department of Agriculture, state of Washington, (See letter of 5/8/85, Art G. Losey, Assistant Director Chemical & Plant Division), seed crops are different from the normal edible crops grown for food or feed. Plant spacing, planting times, pesticide applications, and other cultural practices are different from the normal edible crop. A seed crop is grown for a longer period than the comparable edible crop, and costs the grower more to produce. Therefore, vegetable

seed crops are expensive and are not diverted to food or feed. In general, seed crops are grown under contract with a seed house for a guaranteed price much higher than the price for the equivalent edible crop.

According to RCB guidelines, a seed crop can be exempted from a tolerance if the treatment is classified as a non-food use. To qualify for this, 1) at time of treatment, the crop must be unfit for human or livestock consumption, and 2) crops from the treated seeds must have the likelihood of no residues at maturity.

The 'Benlate' (a.i., benomyl) label calls for the pesticide to be applied at the beginning of petal fall. This is beyond a marketable, edible product, and at this growth stage the crop is considered unfit for human comsumption and livestock feed. Thus for the proposed use (foliar treatment) of benomyl, the seed crops of broccoli, cabbage, cauliflower, mustard greens, collards, and kale, could be considered to meet requirement 1.

However, residue data have shown the presence of 'real residues' after seed treatment of these crops. Residue data for benomyl (and its metabolites) in/on commodities of broccoli, cabbage, cauliflower, collards, and mustard greens after seed treatments (4 oz a.i./100 lb seed and 8 oz a.i./100 lb seed) have been submitted previously (See PP#6F1874). Residue data (1X treatment) show levels of benomyl in/on seedlings, in most cases, below the established 0.2 ppm tolerance for the crops. The data also show that on growth of the treated seed to mature plants, no detectable (<0.01 ppm) to very low residues (<0.07 ppm) are present in/on the crops. Treatment of the crops at a 2X level give residues of less than double that for the 1X treatment. Sensitivity levels of methods are 0.005 and 0.02 ppm.

In consideration of the forementioned, the crops cannot be considered as a non-food use in regard to requirement 2 for the proposed use. Thus, a tolerance must be established for the treated commodities. RCB requires that specific residue data, for a specific application, is needed to support a tolerance, unless RCB is able to transfer other residue data in support of the proposed use. With these seed crops, although 'real residues' of benomyl (and its metabolites) are detected, the crops are unfit for human food or livestock feed at treatment, and a tolerance is already established to cover residual benomyl (and its metabolites) from seed treatments.

A worst case maximum residue level can be calculated if all the applied pesticide concentrated in the seed. If benomyl is applied at maximum of 1 lb/A to a seed crop of broccoli, then a total theoretical residue level of 3 lb/A could remain in/on the seed crop per acre. In addition, an average cole crop yields approximately 1500 lb seed/A and 1.44×10^5 seeds/lb, thus giving a total of 2.2×10^7 seeds/A. If all the pesticide (3 lb/A) would

concentrated in/on the seed (2.2×10^7), then each seed could theoretically possess approximately 63 micrograms of benomyl (and its metabolites). If this residue is translocated totally to a 2 lb-edible portion of the subsequent plant, then a maximum residue of 0.07 ppm might exist in the mature plant. This residue level is below the established 0.2 ppm tolerance and within the sensitivity (0.02 ppm) of the PAM II enforcement method. Similar results would be expected for cabbage, cauliflower, mustard greens, kale, and collards. Presently a restrictive clause on the end-use label prohibits the use of the treated seed for food, feed, or any other purpose other than planting.

Broccoli, Cabbage, and Cauliflower:

Therefore, in consideration of the above theoretical calculations, and the evaluation of the supporting residue data for seed treatments, TOX considerations permitting, RCB can transfer the seed treatment residue data for benomyl (and its metabolites) to the requested residue data in support of the 24(c) registrations for foliar treatment of seed crops only. RCB considers the data gaps in regard to broccoli, cabbage, and cauliflower resolved.

Note to PM: The use of benomyl after flowering starts for broccoli and/or other cole crops, for other than treatment for seed crops, will require additional data to support any such expanded use.

Collards, Kale, and Mustard Greens:

"Data from mustard greens harvested at normal maturity which were seed-treated at 4 oz a.i./100 lb seed are required. The tests should be conducted in WA, which can also represent OR. Additional data are required showing residues in/on mature mustard greens harvested immediately after the last of three foliar treatments (applied at 14-day intervals) with the 50% WP at 1.00 lb/A. Both ground and aerial applications must be represented. Tests must be conducted in WA. The Agency will extrapolate residue data required in/on mustard greens for residue data on collards and kale."

Du Pont's Response:

The only existing registrations for the use of 'Benlate' on collards, kale, and mustard greens, are for seed treatment or for seed crops. The seed crop label contains the statement "Do not graze treated areas; do not use seed or plant parts for food or feed purposes". Du Pont requests that the Agency consider the existing data as adequate to support the current, IR-4 supported (PP#6E1874), tolerance on these crops.

RCB's Comments/Conclusions:

Data are not adequate to cover the currently registered seed treatment for mustard greens and kale. The available data do not reflect the normal planting-to-harvest interval for mustard

greens (35-40 days) or for kale (55-65 days); the available data reflect an interval of 96 days. If it is the intent of Du Pont to support this use, then adequate residue data will have to be submitted for mustard greens: residue data from mustard greens harvested at normal maturity which are seed-treated at 4 oz a.i./100 lb seed should be collected in WA. Residue data collected from mustard greens will be extrapolated for required data for kale. This data gap for seed treatment is still outstanding.

Additional data from WA are requested to support a 24(c) registration for use of benomyl on seed crops of mustard greens, kale, and collards (foliar spray). The registrant has not submitted any residue data on this use reflecting analyses for benomyl. Residue data collected from mustard greens will be extrapolated by the Agency for needed data for kale and collards. See comments, in this memo, on treatment of seed crops, discussed with broccoli. RCB considers this data gap for the 24(c) use (treatment of seed crops in WA) resolved.

Soybeans:

"A processing study is required depicting a) combined residues for benomyl and MBC in/on soybean hulls; and b) residues of benomyl (including its conversion products STB and BUB) in refined oil and soapstock."

Du Pont's Response:

Du Pont has conducted a processing study for soybeans treated with 'Benlate' fungicide. A copy of this study will be submitted to the Agency within 3 months.

RCB's Comments/Conclusions:

Du Pont has not yet submitted the results of the soybean processing study. This data gap is not yet resolved.

Bean Vine Forage:

"Certain residue data are required: data reflecting residues in/on bean vine hay harvested 14 days after the last of two foliar applications (made with aerial and ground equipment) with either the 50% WP or 75% F1C formulation at 1.00 lb a.i./A. The first application should be made at 25-50% bloom and the second at peak bloom. Tests should be conducted in MI, NY, OR, and WI, where these states represent the major growing areas for beans. A tolerance must be proposed; alternatively, a bean vine hay restriction may be imposed."

Du Pont's Response:

The petitioner will add a restriction to the end-use label which prohibits the use of treated bean vine forage.

RCB's Comments/Conclusions:

The requirement for residue data reflecting analyses for benomyl in/on bean vine forage is no longer necessary, since the registrant will add a restriction against hay feeding on his end-use labels. This data gap has been resolved, provided that Du Pont adds this label restriction. A revised label that contains the change should be submitted for approval.

Note to PM: The revised end-use label should be checked to ensure that the restriction is indeed listed.

Bell Peppers:

"Certain residue data are required: data reflecting residues in/on bell peppers harvested immediately after the last of >8 foliar applications of the 50% WP and 10 SC/L formulations at 0.5 lb a.i./A. Both ground and aerial applications must be represented. Tests must be conducted in CA."

Du Pont's Response:

The only registration for the use of 'Benlate' on peppers involves a drench treatment of the seedlings of pepper bedding plants in greenhouses. Du Pont asks that this request be dropped for the present time.

RCB Comments/Conclusions:

Data are adequate for the drench treatment. Residue data reflecting residues in/on bell peppers harvested immediately after the last of >8 foliar applications of the 50% WP and 10 SC/L formulations at 0.5 lb a.i./A from tests conducted in CA are not required. CA has cancelled (See letter of 7/3/84, F. Bishop, RD, HED) an intrastate registration (CA 10965-09920variance) for use of benomyl on seed crops (foliar spray). Du Pont does not need to submit residue data on this use. RCB considers this data gap resolved.

Note to PM: Any federal registration for this use on seed crops (foliar spray) should also be cancelled.

Tomatoes:

"An additional processing study utilizing standard industrial procedure is required using tomatoes containing measurable, weathered residues of benomyl and reflecting analysis of concentrated tomato products and wet and dry pomace."

Du Pont's Response:

Du Pont submitted a processing study to EPA on 2/27/86 (See Benomyl Reg. Std., Acc#261596).

RCB's Comments/Conclusions:

This study has been reviewed by RCB. RCB has requested recovery studies on tomatoes, tomato juice, and puree at the claimed method sensitivity and at less at one higher fortification. (See memo of 2/19/87, K. Arne and S. Malak). We reserve conclusions on this data gap pending resolution. This data gap is still outstanding.

Citrus:

"Certain residue data are required: a) Data pertaining to oil processed from field-treated orange bearing detectable weathered residues, b) data showing residues in dried pulp processed from whole oranges bearing measurable, weathered residues, and c) data showing residues in/on whole oranges bearing measurable weathered residues and in/on peel processed from these oranges; alternatively, submit calculation of residues in whole orange fruit in MRID#00040272."

Du Pont's Response:

Du Pont submitted a processing study to EPA on 2/27/86 (See Benomyl Reg. Std., Acc#261596).

RCB's Comments/Conclusions:

This study has been reviewed by RCB. RCB has requested storage conditions details, recovery studies for orange juice at the method sensitivity (and at one level higher), and a reinvestigation for residues of 2-AB in dry peel (See memo of 2/19/87, K. Arne and S. Malak). We reserve conclusions on this data gap pending resolution of the questions raised in the above memo of 2/19/87. This data gap is still outstanding.

Plums (Prunes):

"Data are required depicting combined residues for benomyl and MBC in/on prunes (dried) processed from fresh prunes bearing measurable, weathered residues."

Du Pont's Response:

Du Pont will conduct the required study to generate these data.

RCB's Comments/Conclusions:

Du Pont intends to supply the data; no submission date is given. This data gap is still outstanding.

Grapes:

"Residue data are required from raisin waste, processed from grapes bearing measurable, weathered residues."

Du Pont's Response:

Du Pont will conduct the required study to generate these data.

RCB's Comments/Conclusions:

Du Pont intends to supply the data; no submission date is given. This data gap is still outstanding.

Strawberries:

"Residue data are required from mature strawberries harvested on the day of the last of five aerial and ground applications (separate tests) with the 1.5% D (dust) formulation, at 0.6 lb a.i./A. The applications should be made at 7-day intervals. The tests must be done in CA or OR where D formulations are registered."

Du Pont's Response:

Du Pont does not manufacture such a formulation and asks that this request be made to the formulator of the dust formulation.

RCB's Comments/Conclusions:

These uses are not registered by Du Pont. Du Pont does not intend to submit data to support these uses.

Note to PM: The holders of the registered 24(c) uses should be notified because this data gap needs to be resolved. If the states, CA and OR, wherein this use is registered wish to continue this use, then data will have to be submitted by interested parties. This data gap is still outstanding.

Sweet Corn:

"Residue data are required reflecting residues in/on fresh sweet corn harvested immediately after the last of $\geq$ 5 foliar applications of the 50% WP and 10% SC/L formulation at 0.5 lb a.i./A. Both ground and aerial application data must be represented. Tests must be conducted in CA."

Du Pont's Response:

Du Pont does not manufacture a 10% SC/L formulation and has no current registrations for use of 'Benlate' on sweet corn. The established tolerance of 0.2 ppm for benomyl and its metabolites are supported by an IR-4 petition (seed treatment, PP#6E1760). Du Pont requests that this should be dropped for the present time.

RCB's Comments/Conclusions:

Residue data (PP#6E1760) for sweet corn seed treatments is adequate to support the established 0.2 ppm tolerance. CA has cancelled (See letter of 7/3/84, F. Bishop, RD, HED) an intrastate

11

registration (CA 10965-09920-variance) for use of benomyl on seed crops (foliar spray). Du Pont does not need to submit residue data on this use. RCB considers this data gap resolved.

Rice:

"Data are required depicting combined residues for benomyl and MBC in/on rice hulls, polished rice, and milled products processed from rough rice containing measurable, weathered residues."

Du Pont's Response:

Du Pont submitted a processing study to EPA on 2/27/86 (See Benomyl Reg. Std., Acc#261596).

RCB's Comments/Conclusions:

This study has been reviewed by RCB. RCB has requested detailed storage conditions, a reinvestigation of 2-AB residues by confirmatory method, and recovery studies for unmilled rice and rice hulls at the method sensitivity (and one level higher). (See memo of 2/19/87, K. Arne and S. Malak). We reserve conclusions on this data gap pending resolution of the deficiencies raised in the above memo of 2/19/87. This data gap is still outstanding.

Cereal Grains Group:

"Residue data are required per Agency memorandum of 10/10/84 in file (PP#6F1748: Tolerances on Cereal Grains Group):

a. Validated analytical method determining the total toxic residues including bound metabolites of benomyl in liver,

b. Establishing tolerance of 4 ppm in liver of cattle, goats, hogs, horses, and sheep, and,

c. Establishing tolerance of 1 ppm in milk."

Du Pont's Response:

a. Du Pont has been unable to develop such a method, and work is therefore being undertaken to determine whether there is a plateau level reached in the liver during feeding studies which would be below the threshold of toxicological concern.

b. Du Pont is currently working with the Agency to agree on a goat-feeding study which could address this question.

c. Du Pont has been working with the Agency on this subject, and the present status of this matter is such that the Agency has suggested that a tolerance of 0.02 ppm for benomyl in milk is acceptable. Du Pont will pursue its request to confirm the adequacy of the existing tolerance of 0.1 ppm for benomyl

residues in milk based on the extreme low residues of benomyl that could possibly be present in modern-day cattle feeds.

RCB's Comments/Conclusions:

This data gap is not yet resolved.

Rice Straw:

"Data are required depicting combined residues for benomyl and MBC in/on rice straw as the result of two foliar applications (the first made at booting; the second at heading) using the 50% WP and 10% SC/L formulations at 1.0 lb a.i./A. Both ground and aerial application data must be represented using a 21-day preharvest interval (PHI). Tests must be conducted in AR, LA, MS, or TX."

Du Pont's Response:

Du Pont will conduct the studies using the 50% formulation. Du Pont does not intent to conduct the studies using the 10% formulation as it does not manufacture this formulation.

RCB's Comments/Conclusions:

Du Pont intends to supply the data for the 50% formulation; no submission date is given. In regard to the 10% SC/L formulation, this may a misquote in the guidance package from the Residue Chemistry Chapter for the Registration Standard for Benomyl. The 10% SC/L formulation should read 75% FlC formulation. Du Pont will only be required to provide bridging residue data for the 75% FlC formulation it data are provided using the 50% WP formulation. This data gap is still outstanding.

Avocados:

"Residue data are required reflecting residues in/on avocados harvested 14 days following the last of 15 applications of the 75% FlC formulation at 1.25 lb a.i./A. Both ground and aerial application data must be represented. Tests must be conducted in FL."

Du Pont's Response:

Du Pont has requested that the label be revised to restrict the number of applications to 2 to 5 per crop.

RCB's Comments/Conclusions:

The use is restricted to the state of FL. The number of applications is limited to 7 per crop and a PHI of 14 days. The residue data are adequate to support the established tolerance for use in FL only. RCB can accept this limit on number of applications per crop providing the use is restricted to FL. If the intent of the petitioner is

to expand the use to CA, additional residue data will be necessary as CA produces 85% of the total US annual crop. Data will not be translated for CA use. This data gap could be resolved, provided that Du Pont submits a revised label for Agency approval which limits the use to the state of FL only and limits the number of applications to 7 per crop with a PHI of 14 days.

Papayas:

"Residue data are required reflecting combined residues of benomyl and MBC in/on papayas harvested 14 days after the last of 7 applications (applied at three week intervals) of the 50% WP formulation at 0.5 lb a.i./A. Both ground and aerial application data must be represented. Tests must be conducted in HI."

Du Pont's Response:

Papayas belong to the minor crop listing. Du Pont has requested that the EPA and IR-4 take up the question of generating the additional residue data needed to support the established tolerance.

RCB's Comments/Conclusions:

Papayas are listed as a minor crop. In this regard, papayas can be automatically considered for a tolerance with a geographical registration. RCB considers the residue data (PP#6E1842) sufficient to establish a tolerance with a geographical registration for papayas in FL only. Residue data collected from tests run in FL cannot be translocated to support use of benomyl on papayas grown in HI. Additional data will be required for extended use in HI. This data gap is still outstanding.

Note to PM: IR-4 should be notified, probably through the Minor Use Office, and asked if they wish to support the use in HI. If IR-4 does not wish to support this use in HI, the Agency should administratively change the existing tolerance to one with a geographical registration.

Pineapple:

"Certain residue data are required on pineapples:

a. Data reflecting combined residues of benomyl and MBC in bran prepared from pineapples bearing measurable, weathered residues.

b. Data reflecting combined residues of benomyl and MBC in/on forage grown from seed pieces dipped in 0.625 lb a.i./100 gallons benomyl prepared with 50% WP or 75% F1C formulations. A tolerance must be proposed, or alternatively, a feeding and grazing restriction may be proposed."

Du Pont's Response:

a. Du Pont will supply the data for the pineapple bran.

b. Du Pont has requested that a feeding and grazing restriction be placed on the end-use label.

RCB's Comments/Conclusions:

a. Du Pont intends to supply the data for pineapple bran; no submission date is given.

b. On reconsideration, the Agency has decided that the addition of a restriction against feeding and grazing on benomyl end-use labels will not be practical for pineapple seed pieces. The requirement for residue data reflecting analyses for benomyl in/on pineapple seed pieces is necessary.

This data gap is still outstanding.

In summary, RCB considers the data gaps for carrots, celery, broccoli, cabbage, cauliflower, bean vine forage, bell peppers, and sweet corn resolved. RCB considers data gaps still outstanding for dandelions, spinach, collards, kale, mustard greens, soybeans, tomatoes, citrus, plums, grapes, strawberries, rice, cereal grains group, rice straw, avocados, papayas, and pineapples.

cc: R.F.; Circu; S.F.; PMSD/ISB; J. Stokes; RD; Reg. Std F.; PM-21
RDI: RWCook:5/29/87:PVErrico:6/22/87:RDSchmitt:6/23/87
TS-769:RCB:JBStokes:js:Rm 805:CM#2:6/23/87