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

FILE COPY

MAY 18 1984

OFFICE OF
PESTICIDES AND TOXIC SUBSTANCES

MEMORANDUM

PP#4F3046/FAP#4H5427: Baythroid on cotton, peanuts, and soybeans. Evaluation of analytical methods and residue data. Accession numbers: 072363 and 072364

FROM: Karl H. Arne, Chemist
Residue Chemistry Branch
Hazard Evaluation Division (TS-769)

THRU: Charles L. Trichilo, Chief
Residue Chemistry Branch
Hazard Evaluation Division (TS-769)

TO: Tim Gardner, PM Team No. 17
Registration Division (TS-767)
and
Toxicology Branch
Hazard Evaluation Division (TS-769)

The Agricultural Chemicals Division of Mobay Chemical Corporation proposes tolerances for residues of the synthetic pyrethroid Baythroid (aka cyfluthrin, FCR 1272, cyano(4-fluoro-3-phenoxyphenyl)methyl 3-(2,2-dichloroethenyl)-2,2-dimethyl-cyclopropanecarboxylate) as follows:

Cottonseed	1	ppm	
Cotton, green forage	16	ppm	
Peanut, meats	0.02	ppm	
Peanut, shells	0.3	ppm	
Peanut, dry vines	16	ppm	
Soybean, green vines	9	ppm	
Soybean, threshed beans	0.05	ppm	
Soybean, dry vines	0.7	ppm	
Meat, fat, and meat byproducts of cattle, goats, hogs, horses, and sheep	1.50	ppm	
Meat, fat, and meat byproducts of poultry	0.01	ppm	
Milk	0.15	ppm	
Eggs	0.01	ppm	
Cottonseed, refined, deodorized oil	2.0	ppm	(FAT)
Soybean, refined, deodorized oil	0.09	ppm	(FAT)
Cottonseed, hulls	2.5	ppm	(FAT)
Soybean, hulls	0.30	ppm	(FAT)

This petition is the first request for permanent tolerances for Baythroid. With PP#4G2976/FAP#4H5416 (see memo of 4/17/84, R. Loranger) we have recommended for the following temporary tolerances:

Cottonseed	1.0	ppm	
Peanuts	0.02	ppm	
Peanut hay	20	ppm	
Soybeans	0.05	ppm	
Soybean forage	10	ppm	
Soybean straw	0.7	ppm	
Soybean hay	40	ppm	
Milk	0.1	ppm	
Eggs	0.01		
Meat, fat, and meat byproducts of poultry	0.01	ppm	
Meat and meat byproducts of cattle, goats, hogs, horses, and sheep	0.05	ppm	
Fat of cattle, goats, hogs, horses, and sheep	1.0	ppm	
Cottonseed, refined, deodorized oil	2.0	ppm	(FAT)
Soybean, refined, deodorized oil	0.1	ppm	(FAT)
Cottonseed, hulls	2.0	ppm	(FAT)
Soybean, hulls	0.1	ppm	(FAT)

For these temporary tolerances, parent only is to be regulated.

CONCLUSIONS

1a. [redacted]

1b. [redacted]

2a. For the purposes of this petition, the nature of the residue in plants is adequately understood. The residue of concern consists of parent, 3-(2,2-dichloroethenyl)-2,2-dimethyl-cyclopropanecarboxylic acid (DCVA), 4-fluoro-2-phenoxybenz-aldehyde (FPBald) and the corresponding acid (FPBacid) and alcohol (FPBalc).

2b. The nature of the residue in animals is not adequately understood. The following metabolites have been identified (TLC and, in some cases, HPLC) in the tissues of cattle or poultry that had been dosed with ^{14}C phenoxy labeled Baythroid: FPBacid, FPBald, 4'-OH FPBacid, and "acid" Baythroid (parent in which the cyano group has been hydrolyzed to the acid). The first three of these are expected of pyrethroids such as Baythroid; but "acid" Baythroid is a novel metabolite for this type of compound, and the data presented do not provide airtight support for its identity. The HPLC chromatogram

submitted shows the correct retention time for this compound, but the peak is very broad; reproductions of TLC's were not submitted. Also, the petitioner has recently claimed that "acid" Baythroid was not detected in the livers of cattle that had been dosed at levels of up to 50 ppm in the feed for a cold feeding study (see PP#3G2976, memo of conference, L. Cheng and R. Loranger, 4/5/84). We therefore request that the identity of "acid" Baythroid be confirmed, preferably by mass spectroscopy.

The petitioner should be informed that we consider DCVA to be in need of regulation for animal tissues tolerances.

3a. The petitioner has submitted methods that determine parent only in plants, animal tissues, milk, and eggs. These methods appear to be suitable for enforcement, and method trials will be requested shortly. However, see conclusions 3b and 3c.

3b. An interference study submitted with this petition shows that other halogen containing pesticides that are registered on soybeans, peanuts, or cotton will not interfere with the determination of Baythroid if the above method is used. This study did not include the pyrethroids cypermethrin or permethrin, for which tolerances are pending or established on soybeans and cotton. The petitioner should provide evidence that Baythroid can be distinguished form cypermethrin and permethrin by the submitted method, or alter the method so that it does.

3c. The storage stability study submitted with this petition does not satisfy the usual requirements of such studies. Rather than determining the absolute amount of Baythroid on treated crops that have been stored, the petitioner has determined, over a period of time, the per cent of activity that is identified as parent in plants that had been treated with labeled Baythroid. We require a storage stability study in which samples of treated crops are stored and periodically subjected to the analytical method and for which the amount of pesticide is reported in ppm. Storage stability studies will be needed for all metabolites of concern.

3d. For plants, methods will be needed that determine 4-fluoro-2-phenoxybenzaldehyde (FPBald) and the corresponding acid (FPB acid) and alcohol (FPBalc). We suggest that these methods include an oxidation step so that all these metabolites can be determined as parent and a hydrolysis step to free conjugated metabolites. Validation data, including chromatograms, should be submitted. Also, the petitioner should demonstrate that the method(s) will determine weathered residues.

3e. For animal tissues, milk, and eggs, methods will be needed that determine FPB acid and alcohol, and 4'-OH FPB acid. A method may also be needed for "acid" Baythroid, depending on the outcome of the further studies that we have requested concerning this compound (see conclusion 1b).

3f. To be consistent with the way in which other pyrethroids are determined, the petitioner should report parent and metabolites as a simple sum. The metabolites should not be calculated as parent.

3g. Enforcement methods are available for DCVA for both plants and animals. However, we require validation data for the method that the petitioner uses to determine DCVA.

4a. Before we can make a conclusion as to appropriate tolerances for the subject crops and their processed byproducts, we require residue data for DCVA, FPBald, FPBacid, and FPBalc. Specific requirements for each crop are outlined in the following conconclusions.

4b. For cotton, in addition to analyzing for the metabolites of concern, more extensive data for forage will be needed. Alternatively, the use of cotton forage as a feed item could be prohibited by a label restriction. Also, a cottonseed processing study in which all metabolites of concern are determined will be needed.

4c. For soybeans, residue data are needed for beans, forage, and hay, although the requirement for data for the latter two items would be removed if a label restriction prohibiting their use as a feed item were included. If significant residues are found in soybeans, a processing study will be needed.

4d. For peanuts, residue data are needed for nutmeats, vines, hay, and hulls. A label restriction prohibiting the use of vines and hay as animal feed items would remove the requirement for residue data for these items. If residues are detected in peanuts, a processing study will be needed.

4d. No conclusions regarding secondary residues in meat, milk, poultry, and eggs can be made until the question we raised about "acid" Baythroid (conclusion 3b) is resolved and feeding studies (cattle and poultry) in which the residues of concern are determined have been conducted. (A poultry feeding study will be needed only if the dietary burden of Baythroid and metabolites is >0.1 ppm).

5. An International Residue Limit Statu sheet is attached. No Codex, Mexican, or Canadian tolerances are established for Baythroid.

Recommendation

We recommend against the proposed tolerances. For further consideration we require the following:

1. [redacted]

2. Unidentified impurities that comprise greater than 0.1% of the technical material should be identified.

3. The petitioner should confirm the identity, preferably by mass spectroscopy, of the metabolite "acid" Baythroid.

4. The petitioner should demonstrate that the proposed method for parent will distinguish Baythroid from cypermethrin and permethrin. Also, validation data at the proposed tolerance level are needed for eggs (0.01 ppm) and peanuts (0.02 ppm).

5. For crops, methods are needed that determine DCVA, 4-fluoro-3-phenoxybenzaldehyde (FPBald), 4-fluoro-3-phenoxybenzoic acid (FPBacid) and 4-fluoro-3-phenoxybenzyl alcohol (FPBalc). Some validation data should be at the method sensitivity, and an interference study will be needed to show that the method(s) for the fluorophenoxybenzyl derivatives can distinguish the corresponding unfluorinated compounds, which are regulated with other pyrethroids. We suggest that an oxidative step be included in the method for these compounds so that they can all be determined as the acid. Also, a hydrolysis step should be included to free bound metabolites.

6. For animal tissues, methods will be needed that determine DCVA, FPBalc, FPBacid, and 4'-OH FPBacid. As for the crop method, some validation data should be at the method sensitivity, and an interference study will be needed to show that the corresponding unfluorinated compounds, regulated with other pyrethroids, are distinguishable.

7. Storage stability studies are needed in which the amount of Baythroid is given in ppm rather than as a per cent of activity from plants treated with radiolabel material. The latter type of study was submitted with this petition; since the absolute amount of Baythroid wasn't given, we can make no conclusion as to the stability.

8. Residue data in which DCVA, FPBald, FPBacid, and FPBalc are determined will be needed for the following.

    cottonseed
    cotton forage*
    peanuts
    peanut vines*
    peanut hay*
    peanut hulls*
    soybeans
    soybean forage*
    soybean hay*
    soybean straw*

The items marked with an asterisk (*) are in the control of the grower, and if the petitioner would prohibit their use as feed items by label restrictions, no residue data will be

needed. If a tolerance is desired for cotton forage, additional residue data will also be needed for parent (only one study is available).

9. To be consistent with the way in which other pyrethroids are determined, the petitioner should report parent and metabolites as a simple sum. The metabolites should not be calculated as parent.

10. Processing studies in which DCVA, parent, FPBald, FPBalc, and FPBacid are determined, will be needed for cottonseed. These studies will also be needed for soybeans and peanuts if significant residues are uncovered.

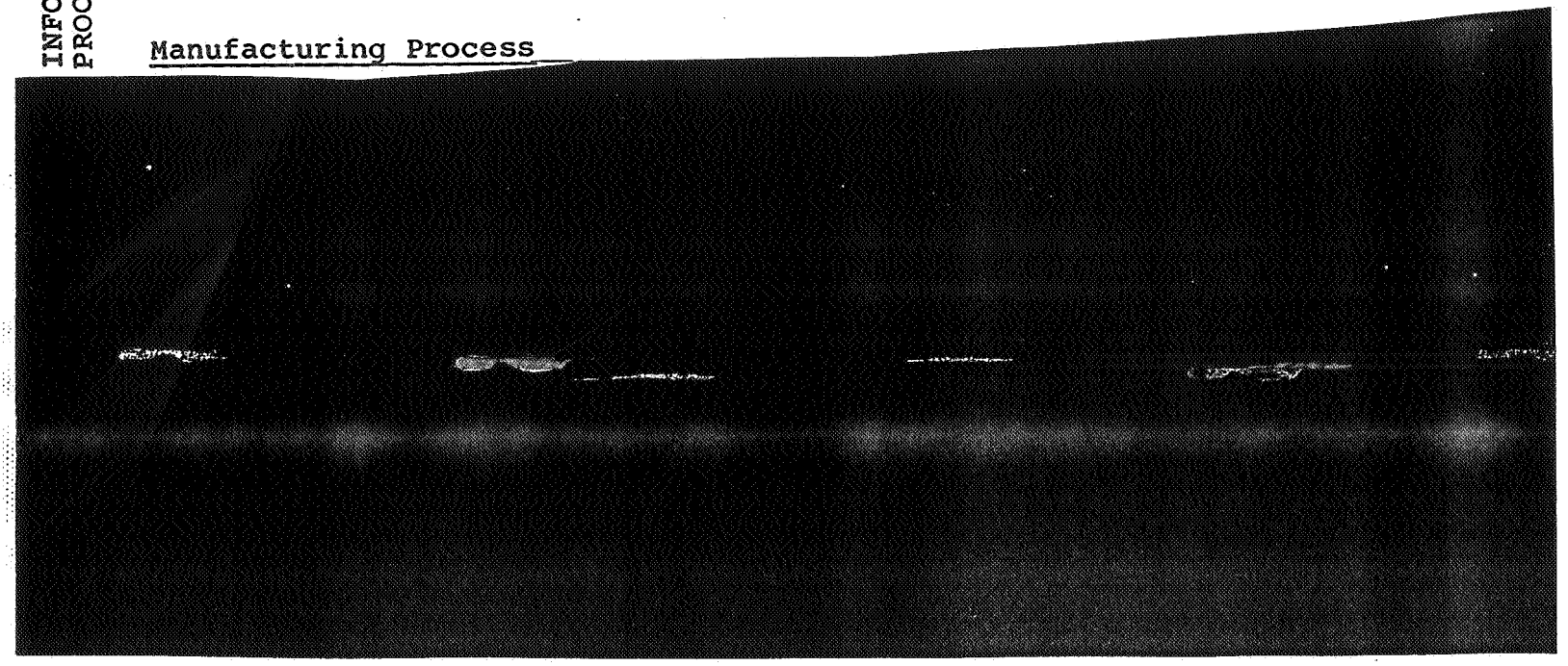
11. Feeding studies (cattle and poultry) in which the residues of concern (parent, DCVA, 3-FPBalc, 3-FPBacid, 4'-OH FPB acid and perhaps "acid" Baythroid) are determined are needed. (A poultry feeding study will be needed only if the dietary burden of Baythroid and metabolites is >0.1 ppm).

The petitioner should be informed that a favorable recommendation is also contingent on the completion of successful method trials and that enforcement methodology, developed for other pyrethroids, is available for DCVA. We do require, however, a description of the method they use to determine DCVA along with validation data. Finally, to be consistent with established tolerances on the subject commodities, the following terms should be used for the tolerance expressions:

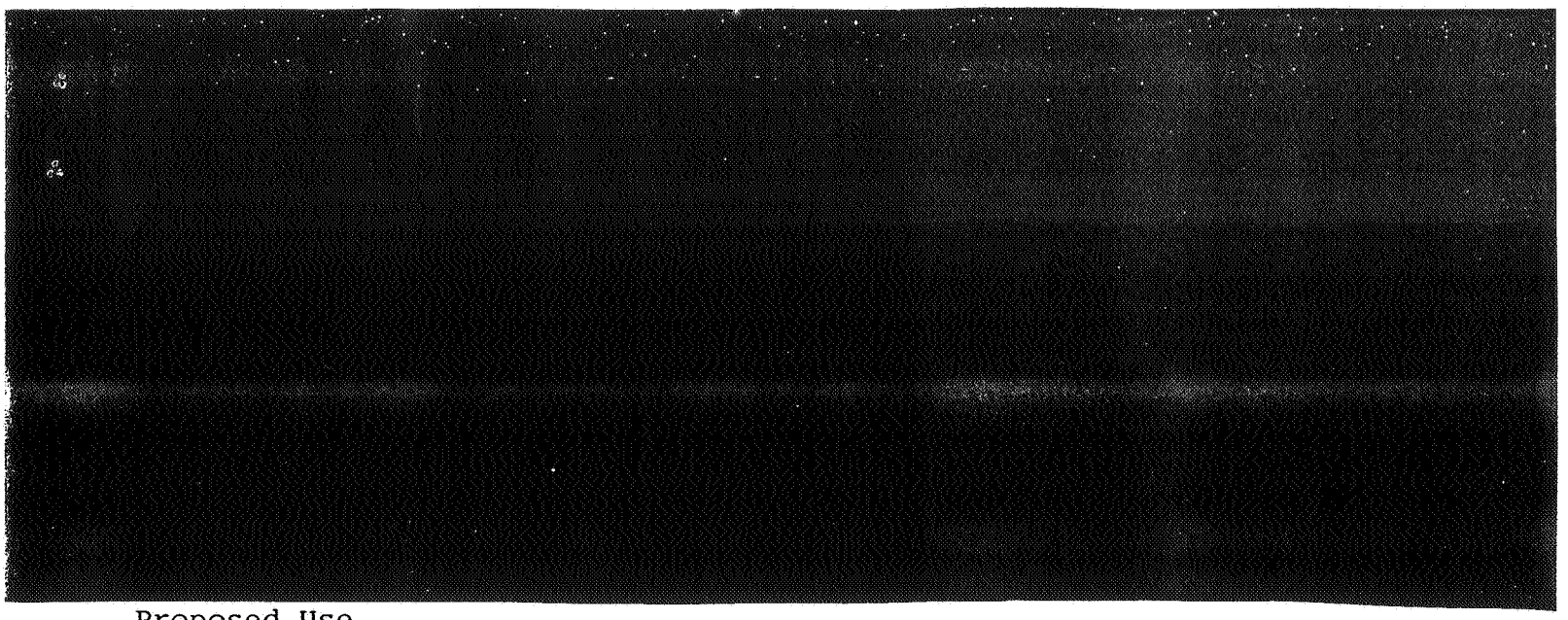
soybeans	peanuts	cottonseed
soybean hay	peanut vines	cotton forage
soybean forage	peanut hay	cottonseed oil
soybean straw	peanut hulls	cottonseed hulls
soybean oil		
soybean hulls		

DETAILED CONSIDERATIONS

Manufacturing Process



INFORMATION WHICH MAY REVEAL THE MANUFACTURING PROCESS IS NOT INCLUDED



Proposed Use

Cotton

For control of fall armyworms, thrips, and soybean loopers, Baythroid 2 is to be applied at the rate of 0.05 to 0.1 lb a.i./A. For control of boll weevils, cotton bollworms, tobacco budworms, beet armyworms, cabbage loopers, cotton aphids, lygus bugs and flea beetles, the rate is 0.025 to 0.05 lb a.i./A. For control of p.nk bollworms, leafworms, and cotton leafperforators, the rate is 0.0125 to 0.025 lb a.i./A. No more than 0.9 lb a.i./A/season are to be applied. There is no PHI.

Peanuts

For control of fall armyworms, soybean loopers, and thrips Baythroid 2 is to be applied at the rate of 0.05 lb a.i./A. For control of beet armyworms, cabbage loopers, lesser cornstalk borers, and Southern corn rootworms, the rate is 0.025-0.05 lb a.i./A. For control ofgranulate cutworms, rednecked peanut worms, corn earworms, velvetbean caterpillars and potato leafhoppers, the rate is 0.0125 to 0.05 lb a.i./A. No more than 0.18 lb. a.i./A/season are so be applied. There is no PHI or feeding restrictions.

Soybeans

For control of corn earworms, green cloverworms, velvetbean caterpillars, and Southern green stinkbugs, Baythroid 2 is to be applied at the rate of 0.0125 to 0.05 lb a.i./A. For control of Mexican bean beetles, three cornered alfalfa hoppers, and beet armyworms, the rate is 0.025 to 0.05 lb a.i./A. No more than 0.9 lb a.i./a/season are to be applied. There is a PHI of 31 days for harvesting of soybeans or feeding the dry vines, and 15 days must pass before green forage can be fed to livestock.

Nature of the Residue

Radiolabel plant metabolism studies on cotton and soybeans were submitted with PP#3G2976 and are discussed in our review of that petition (memo of 2/23/84, R. Loranger). Summaries follow.

Cotton

Baythroid, labeled in the phenoxy ring with ^{14}C, was applied to young and mature plants at the rate of 40 grams a.i./A. Only the leaves of the young plants were sprayed; one-half of these plants were placed in a greenhouse, the remainder stayed outside. The mature plants were also separated into two groups: in one group the bolls were removed and the leaves were sprayed 85 days before harvest; in the second group only the bolls were sprayed, 53 days before harvest.

After harvest the plant samples were chopped, then extracted with 4:1 methanol/water. After filtration and radioassay of the filtrate, the water and methanol were removed. The residue was dissolved in methanol and subjected to TLC. Autoradiography detected spots and the R_f values were compared to those of standards for known and possible metabolites.

The more polar activity from the immature plant experiment was subjected to acid hydroilysis (6N HCl, reflux for 1 hour). This mixture was partitioned against chloroform/acetone and then pure chloroform. The combined extracts were subjected to reverse-phase TLC.

For the immature plants (greenhouse) the per cent of activity identified as parent declined from 96% seven days after application to 64% on day 53. The parent degraded faster on the outdoor plants; it made up 88% of the activity seven days after application and 61% of the activity on day 37.

The following metabolites were uncovered in the final leaf samples (greenhouse and outdoor) from the immature plant experiment.

Metabolite	Per cent of Total activity
FPBald	6-7
FPBalc	10
FPBacid	5
FPBacid, methyl ester	1
4'-OH FPBacid	1
Other organosoluble	10-11

Samples from mature leaves and bolls showed similar metabolism.

A translocation experiment showed that little activity moved from the area of application to new growth.

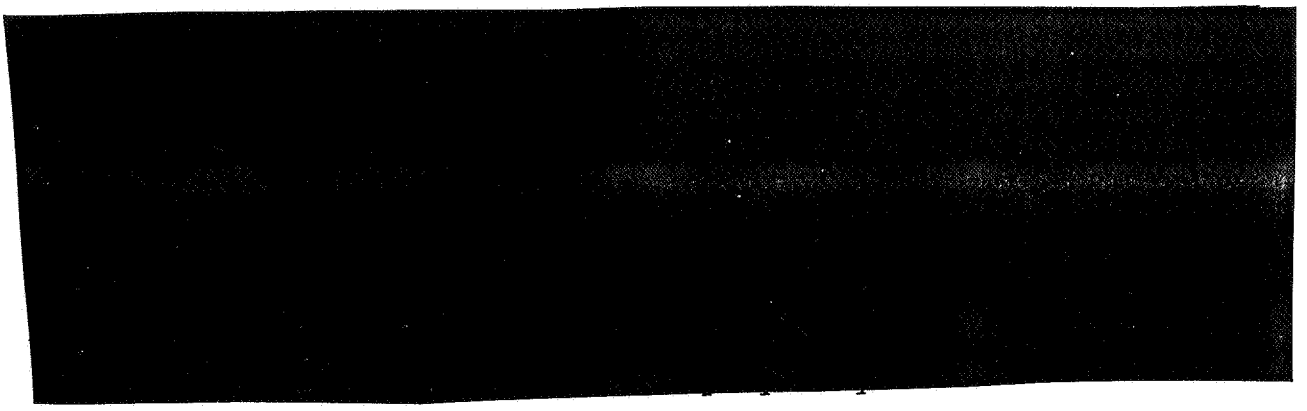
Soybeans

[redacted]

DETAILED DATA ON A PROPOSED USE IS NOT INCLUDED

May 18, 1984, memorandum on Baythroid, PP#4F3046/FAP#4H5427

Page 9 contains detailed registration data on a proposed use. This page is not included.



Based on these studies we conclude that, for the purposes of this petition, the nature of the residue in plants is adequately understood. The residue of concern consists of parent, 3-(2,2-dichloroethenyl)-2,2-dimethylcyclopropanecarboxylic acid (DCVA), 4-fluoro-2-phenoxybenzaldehyde (FPBald) and the corresponding acid (FPBacid) and alcohol (FPBalc).

Animal metabolism

Metabolism studies have been conducted on dairy cows, laying hens, and rats; these studies are discussed in our review of PP#4G2976 (memo of 2/23/84, R. Loranger). Summaries follow:

Cow

A dairy cow was fed 247 mg (0.5 mg/kg) phenoxy ^{14}C labeled Baythroid in the diet for five days; this is equivalent to about 33 ppm for a maintainence diet. Milk was collected twice daily, and the cows were sacrificed the morning of the final dose.

The maximum activity found in milk was 0.079 ppm Baythroid equivalents. Of this 98% was organoextractable; this residue was identified as parent.

Nearly all (93-100%) of the activity in tissues was extracted by organic solvents. The amount, in Baythroid equivalents, and identity of the residue in various tissues is shown in the following table.

Tissue	Residue (ppm)	Composition
muscle	0.021-0.028	all parent
fat	0.12-0.23	all parent
heart	0.04	71% parent, 29% FPBald
liver	0.19	56% parent, 43% FPBald
kidney	0.62	85% "acid" baythroid, 14% FPBald

We are not convinced that the major metabolite uncovered in liver is "acid" Baythroid. The only evidence submitted in support of the identification of this material as "acid" Baythroid is an HPLC chromatogram; the peak is at the correct retention time

for "acid" Baythroid, but it is quite broad; it is possible that this peak represents a metabolite that wasn't predicted. In addition, the petitioners have stated in a recent conference (see PP#3G2976, 4/5/84 memo of conference, L. Cheng and R. Loranger) that "acid" Baythroid was not found in the liver of cattle that had been fed Baythroid at levels up to 50 ppm. We therefore request that the petitioner positively identify this material, preferably by GC/MS.

Poultry

Five laying hens were dosed five consecutive days with ^{14}C Baythroid equivalent to 5mg/kg body weight (about 6.6 mg daily) by gelatin capsules. Eggs were collected daily starting at 24 hours after the first dose, and the hens were sacrificed two hours after the final dose.

Residues in eggs were <0.01 ppm after the first dose and gradually increased to as high as 0.13 ppm for the last collection. The residue level in eggs did not appear to plateau.

Total activity in tissues was kidney, 4.7 ppm; liver 3.0 ppm; heart, 0.4 ppm; skin, 0.4 ppm; fat, 0.1-0.2 ppm; muscle, 0.2-0.3, and gizzard, 1.6 ppm. This activity was characterized (by TLC) as follows:

	Percent of Total Activity								
Component	liver	kidney	gizzard	breast	skin	legs	heart	fat	eggs
Baythroid	12	9	40	39	28	21	16	75	56
FPBacid	12	11	13	15	19	21	26	3	4
4'-OH FPBacid	10	12	11	11	13	20	19	0	7
"acid" Baythroid	1	1	0	0	0	0	0	2	6
Unkown I	6	12	7	0	0	0	0	0	0
Unkown II	4	1	0	0	0	0	0	0	0
TLC origin	15	15	15	19	19	20	20	3	2

The unextractable residue was refluxed with 6 N HCl for 2 hours, but this released only a small amount of activity, no more than 5% of the total activity for any tissue. The released activity was identified as FPBacid and 4'-OH FPBacid.

Enzymatic hydrolysis was attempted on that portion of the residue that remained near the origin, but very little activity was released, and no characterization was posssible.

Rat

For the rat metabolism study only excreta were examined for metabolites. FPBacid and 4'-OH FPBacid were identified in urine and these same metabolites plus parent were found in feces.

The nature of the residue in animals is not adequately understood. As discussed under the cow metabolism study, the petitioner

should positively identify, preferably by mass spectroscopy, the material that is now claimed to be "acid" Baythroid.

Analytical methods

The methods used to collect residue data for this petitioner are discussed in our review of PP#4G2976 (memo of 2/23/84, R. Loranger). These methods determine parent compouned only for crops, animal tissues, milk, and eggs.

Briefly, for crops the sample is ground with dry ice, then extracted with 4:1 methanol/water. After filtration, the organic solvent is removed by acetonitrile azeotrope. The remaining aqueous phase is partitioned against 1:2 acetone/chloroform in the presence of a small amount of formic acid. The organic layer is evaporated and the residue is dissolved in hexane, then partitioned into acetonitrile. The acetonitrile is evaporated, and the residue is dissolved in hexane for column chromatography (florisil). Baythroid is then determined by GC using either an EC, Coulson (chloride cell), or Hall (halogen mode) detector. Recoveries for soybeans, cottonseed, peanuts and their byproducts fortified at 0.05 to 1 ppm are reported in our review of PP#4G2976. These values appear adequate; none are below 70% or above 100%. Apparent residues were detected in some control samples, but at insignificant levels compared to the proposed tolerances.

An interference study submitted with this petition shows that other halogen containing pesticides that are registered on soybeans, peanuts, or cotton will not interfere with the determination of Baythroid if the above method is used. This study did not include the pyrethroids permethrin and cypermethrin, which are very similiar to Baythroid and for which tolerances are pending or established on soybeans and cotton. The petitioner should provide evidence that Baythroid can be distinguished from permethrin and cypermethrin by the submitted method or revise the method so that it can.

The storage stability study submitted with this petition does not satisfy the usual requirements of such studies. Rather than determining the absolute amount of pesticide on treated crops that have been stored, the petitioner has determined the per cent of activity that is identified as parent in plants at various intervals after they had been treated with labeled Baythroid. We require a storage stability study in which samples of treated crops are stored and periodically subjected to the analytical method. Storage stability studies will be needed for all metabolites of concern.

Provided these questions concerning storage stability and and interference are resolved, and that a method trial is successful, the submitted method will be suitable for enforcement of tolerances in terms of the parent compound. A method trial will be requested shortly. However, for plants, methods will be needed that determine 4-fluoro-2phenoxybenzaldehyde (FPBald) and the corresponding acid (FPB acid) and alcohol (FPBalc). We suggest that these methods include an oxidation step so that all these

metabolites can be determined as parent. Validation data, including chromatograms, should be submitted. Also, the petitioner should demonstrate that the method(s) will determine weathered residues.

Additional residue data are needed in which residues of DCVA are determined (see Residue Data, below); the petitioner will need to submit the method used for these analyses along with validation data. Enforcement methods are not needed for DCVA; these have been developed and successfull tried out in conjunction with other pyrethroids.

For the meat, milk, and egg methods, Baythroid is removed from the sample by extraction into an organic solvent and partitioned with various solvents to remove polar and non-polar interferences. The sample is further cleaned up on a silica gel column or a florisil sep-pak. The extraction and partitioning solvents vary with the substrate. Determination is by GLC using an electron capture detector. Recovery from tissues and eggs fortified at 0.05 ppm and for milk fortified at 0.02 ppm is adequate. Control values were consistently <0.01 ppm for these substrates. The tolerance proposed for eggs is 0.01 ppm and the recovery data are at 0.05; the petitioner should either submit validation data at 0.01 ppm or revise the tolerance for eggs to 0.05 ppm. This method appears to be suitable for enforcement and a method tryout will be requested shortly.

However, for animal tissues, milk, and eggs, additional methods that determine FPB acid and alcohol, and 4'-OH FPB acid are required. A method may also be needed for "acid" Baythroid, depending on the outcome of the further studies that we have requested concerning this compound (see conclusion 1b).

Residue Data

The residue data submitted with this petition include analyses only for parent compound. Most of these studies were also submitted with PP#4G2976 and are discussed in our 2/23/84 review (R. Loranger). Additional residue data for all subject crops, in which DCVA, FPBalc, FPBald, FPBacid are determined, will be needed before we can make a conclusion as to the expected residues. The submitted studies are summarized below.

Cottonseed

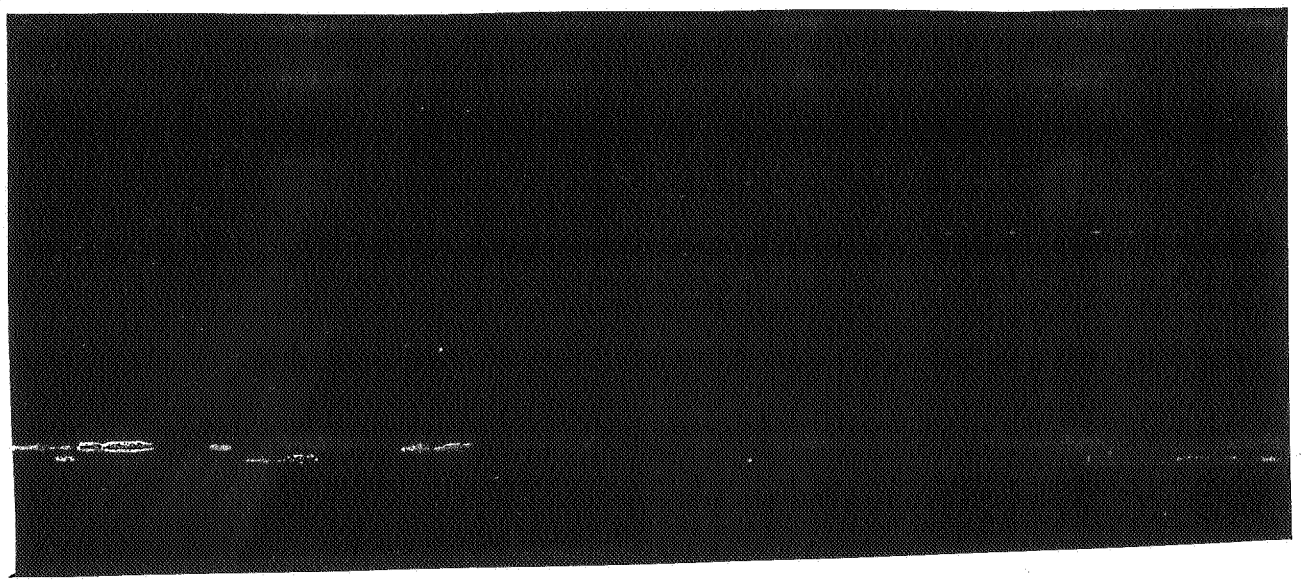
Residue experiments were conducted in California, South Carolina, Mississippi, Georgia, Texas, Oklahoma, and Arkansas. Reports of these experiments, except for the Arkansas study, were submitted with PP#4G2976 and are discussed in our review (memo of 2/23/84, R. Loranger). Most studies approximate the proposed use (nine applications of up to 40 grams a.i./A), and both conventional (2.5-10 gallons/A) and ULV (2-4 pints/A) sprays are represented. Residues of Baythroid (parent only) in cottonseed at the proposed 0 day PHI were 0.04-0.55 ppm as a result of the conventional sprays and <0.01-0.03 as a result of the ULV sprays. Forage samples were not

examined for residues.

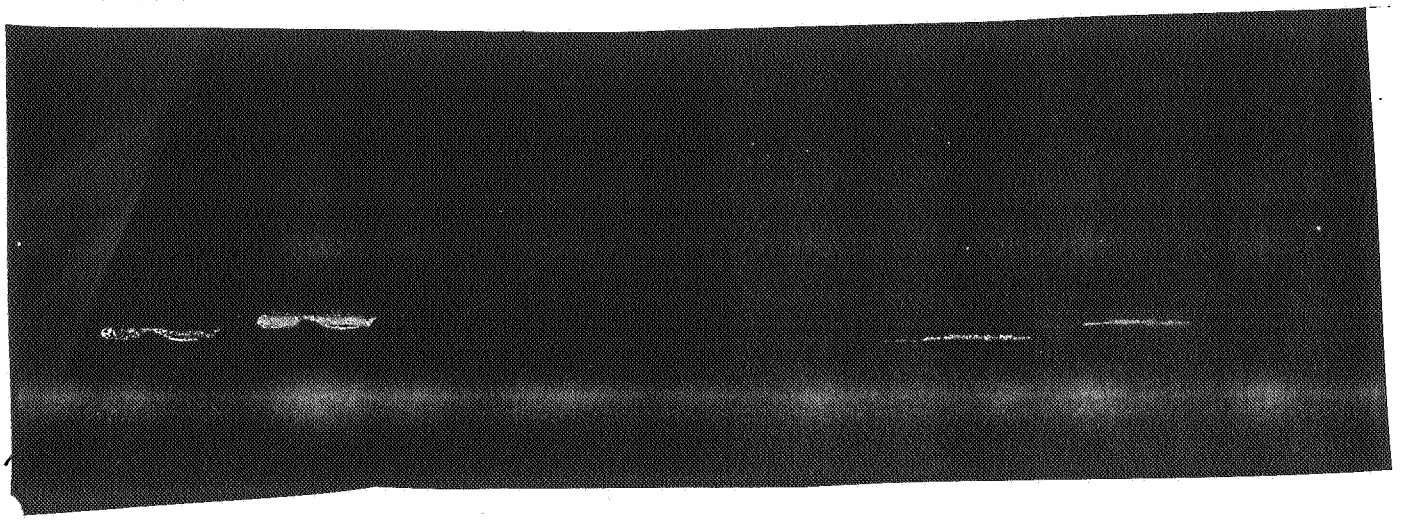
For the Arkansas study, the proposed use resulted in no detectable residues (parent only, <0.01 ppm) in cottonseed and at residues of 15.2 ppm in forage at 0 days. More data in which parent, as well as metabolites, are determined are needed. Alternatively, the petitioner could impose a label restriction that prohibited the use of cotton forage as animal feed.

Cottonseeds carrying residues of 0.13 ppm Baythroid were processed into meal (0.01 ppm), hulls (0.25 ppm; 1.9x), crude oil (0.25 ppm; 1.9x), refined oil (0.15 ppm; 1.2x), and deordorized refined oil (0.18 ppm; 1.4x). Because only parent was determined this study is not adequate. The petitioner should conduct a processing study in which parent, DCVA, FPBald, FPBacid, and FPB alcohol are determined.

Peanuts



Soybeans



Meat, Milk, Poultry, and Eggs

Dairy cow and poultry feeding studies are discussed in our 2/23/84 review of PP#4G2976. For these studies parent only was determined.

Feeding studies (cattle and poultry) in which the residues of concern (parent, DCVA, 3-FPBalc, 3-FPBacid, 4'-OH FPB acid and perhaps "acid" Baythroid) are determined are needed. (A poultry feeding study will be needed only if the dietary burden of Baythroid and metabolites is >0.1 ppm).

Other considerations

No Mexican, Canadian, or Codex tolerances are established for Baythroid. An International Residue Limit Sheet is attached.

TS-769:KHA:CM-2:Rm810:557-7377:3/27/84
CC:RF,Circ.,KHA,EEB,EAB,FDA,TOX,Thompson,PP#4F3046/FAP4H5427
RDI: JHO, 5/15/84 ; RDS, 5/15/84

INTERNATIONAL RESIDUE LIMIT STATUS

CHEMICAL Cyfluthrin (Baythroid) PETITION NO 4F3046/4H5427

CCPR NO. _____

J. Jones 4/24/84

Codex Status

[ ] No Codex Proposal
Step 6 or above

Proposed U. S. Tolerances

Residue (if Step 9): _____

Residue: Parent (cyano(4-fluoro-3-phenoxyphenyl)methyl 3-(2,2-dichloroethenyl)-2,2-dimethylcyclopropane carboxylate

Crop(s)	Limit (mg/kg)

Crop(s)	Tol. (ppm)
Cottonseed	1.0
Cotton, green forage	16.0
Peanut, meats	0.02
Peanut, shells	0.30
Peanut, dry vines	16.0
Soybean, green forage	9.00
Soybean, threshed beans	0.05
Soybean, dry vines	0.70

CANADIAN LIMIT

Residue: _____

Crop	Limit (ppm)
None	

MEXICAN TOLERANCIA

Residue: _____

Crop	Tolerancia (ppm)
None	

Notes:

INTERNATIONAL RESIDUE LIMIT STATUS

CHEMICAL Lambda-cyhalothrin (Karate) PETITION NO 4F3046/4H5427

CCPR NO. _____

Codex Status

☑ No Codex Proposal Step 6 or above

Residue (if Step 9): _____

Crop(s) Limit (mg/kg)

Proposed U. S. Tolerances

Residue: Parent (cyano(4-fluoro-3-phenoxyphenyl)methyl 3-(2,2-dichloroethenyl)-2,2-dimethylcyclopropane carboxylate

Crop(s)	Tol. (ppm)
Cottonseed, hulls	2.50
Soybean, hulls	0.30
Cottonseed, refined, deodorized oil	2.00
Soybean, refined, deodorized oil	0.09

CANADIAN LIMIT

Residue: _____

Crop	Limit (ppm)
None	

MEXICAN TOLERANCIA

Residue: _____

Crop	Tolerancia (ppm)
None	

Notes:

INTERNATIONAL RESIDUE LIMIT STATUS

CHEMICAL Cyfluthrin (Baythroid) PETITION NO 4F3046/4H5427

CCPR NO. _____

Codex Status

[V] No Codex Proposal Step 6 or above

Proposed U. S. Tolerances

Residue (if Step 9): _____

Residue: Parent (cyano(4-fluoro-3-phenoxyphenyl)methyl 3-(2,2-dichloroethenyl)-2,2-dimethylcyclopropane carboxylate

Crop(s)	Limit (mg/kg)

Crop(s)	Tol. (ppm)
Meat, fat and meat by-products of cattle, goats, hogs, horses and sheep	1.50
Meat, fat and meat by-products of poultry	0.01
Milk	0.15
Eggs	0.01

CANADIAN LIMIT

Residue: _____

_____

MEXICAN TOLERANCIA

Residue: _____

_____

Crop	Limit (ppm)
None	

Crop	Tolerancia (ppm)
None	

Notes: