

US EPA ARCHIVE DOCUMENT

8-5-93  
4



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

AUG 5 1993

OFFICE OF  
PREVENTION, PESTICIDES AND  
TOXIC SUBSTANCES

**MEMORANDUM**

**SUBJECT:** Section 18 - Specific Exemption Requests from Arizona for the Use of Imidacloprid on Broccoli, Cauliflower, Cabbage, Head Lettuce, and Leaf Lettuce; and for the Use of Bifenthrin on Broccoli, Cauliflower, and Head Lettuce, to Control the Sweet Potato Whitefly -- ACTION MEMORANDUM -- 93-AZ-05, -06, -07, & -09

**FROM:** Lawrence E. Culleen, Acting Director  
Registration Division *Lawrence E. Culleen*

**TO:** Douglas D. Campt, Director  
Office of Pesticide Programs

**I. APPLICANT'S REQUEST**

**APPLICANT:** Arizona Department of Agriculture

**CHEMICALS:** Imidacloprid (unregistered chemical)  
Bifenthrin

**PRODUCTS:** Admire®, Unregistered Product, Manufactured by Miles Inc.  
Capture® 2 EC, EPA Reg. No. 279-3069, manufactured by FMC Corporation

**SITES:** Imidacloprid: Broccoli, Cauliflower, Cabbage, Head Lettuce, and Leaf Lettuce

Bifenthrin: Broccoli, Cauliflower, and Head Lettuce

**PEST:** Sweet Potato Whitefly (*Bemisia tabaci*)

**USE PATTERN:** Imidacloprid: 2.5 - 5 dry oz. a.i. (10 - 20 fl. oz. product) per acre; 1 application per crop season (2 crop seasons possible per calendar year); no more than a total of 32 fl. oz. product to be applied per calendar year; applications to be made by one of the following 3 methods: 1) by banding before planting, 2) by in-furrow spray at planting, or 3) by drenching after planting; not to be applied to soil within 21 days of harvest.

Bifenthrin: 0.08 - 0.1 lb. a.i. (5.2 - 6.4 fl. oz. product) per acre, by ground or air; up to 4 applications on head lettuce (max. of 0.4 lb. a.i. per acre), and up to 5 applications on broccoli and cauliflower (max. of 0.5 lb. a.i. per acre); ground applications in a minimum finished spray volume of 20 gal. per acre, air applications in a minimum finished spray volume of 10 gal. per acre; no application within 25 ft. by ground, or within 75 ft. by air, of lakes, reservoirs, rivers, permanent streams or natural ponds, estuaries, and commercial fish farms; no application within 200 yards of aquatic endangered species habitat (desert pupfish, woundfin, and Gila topminnow); 20-day PHI.

<b>ACREAGE:</b>	<u>Broccoli:</u>	7,000 acres (Imidacloprid and Bifenthrin)
	<u>Cauliflower:</u>	6,100 acres (Imidacloprid and Bifenthrin)
	<u>Cabbage:</u>	3,500 acres (Imidacloprid only)
	<u>Head Lettuce:</u>	50,000 acres (Imidacloprid and Bifenthrin)
	<u>Leaf Lettuce:</u>	5,500 acres (Imidacloprid only)
	<u>Totals:</u>	
	<b>Imidacloprid:</b>	72,100 acres
	<b>Bifenthrin:</b>	63,100 acres

**USE SEASON:** August 10 - May 15, 1994

**EMERGENCY and ALTERNATIVE CONTROLS:** A new strain of sweet potato whitefly (SPWF), referred to as the poinsettia, or B strain, was initially found in Arizona in 1988, and since then has steadily spread to new host plants and grown in population size each successive summer and fall, causing severe economic damage to various commodities nationwide. The SPWF causes damage by piercing and sucking nutrients from the foliage, and indirect damage as a vector of virus. Moreover, it causes quality reduction on crops because of honeydew exudations and subsequent sooty mold growths on the honeydew. When early crops of seedling vegetables emerge from the soil, they are immediately hit by large numbers of adult SPWF. While SPWF feeding does not kill the plants, it essentially stops further development. This damaging behavior continues until well into the fall when lower temperatures and rainfall combine to reduce the SPWF populations.

The Applicant claims that, of the available alternatives, only endosulfan, methamidophos (not available on head lettuce), and acephate (not available on broccoli) can reduce SPWF populations, but do not provide adequate control when the SPWF becomes more numerous.

Cultural practices such as crop rotations and timing of planting and harvesting have become of limited value, as it is important to plant early vegetables since these are the crops that have the greatest profit associated with them. Additionally, as the SPWF continues to expand its range of hosts, the value of cultural controls becomes further compromised.

The Applicant is requesting the use of two different chemicals on several of the crops. (*Bifenthrin was not requested for use on leaf lettuce and cabbage, because the Applicant felt that the residue data available would not support these uses.*) The rationale for requesting use of two chemicals involves the timing during the crop cycle that each of the chemicals can be effectively used. Imidacloprid would be applied only once, at or near planting of the crop. Imidacloprid is a systemic, and would be taken up by the germinating seedling, providing protection for the seedling as it emerges through the soil, during this vulnerable stage of development. The Applicant states that bifenthrin would not be appropriate at this stage, because it is not a systemic, and is used as a foliar spray. At the seedling stage, there is limited leaf area, and foliar sprays at this time would serve no useful purpose. However, the single soil application of imidacloprid will not adequately protect the crop throughout the full season, and imidacloprid cannot be applied also as a foliar spray, later in the season, because the Registrant will not support such use under §18. Since the SPWF is thought to develop resistance to pesticides rather quickly, the Registrant does not want imidacloprid to be used more than once, in order to forestall resistance development. Therefore, the Applicant is requesting use of bifenthrin as a foliar spray, to protect the plants later in the crop season. The Applicant states that bifenthrin provides greater control of the SPWF than the registered alternatives.

#### ECONOMICS:

The Applicant estimates the following approximate dollar losses per acre could occur, 1) from the SPWF, using the best available pest control methods and materials, and 2) with use of the requested material(s) under §18:

<u>1) Without §18</u>	<u>2) With §18</u>
Broccoli . . . . \$507	Broccoli . . . . \$169
Cauliflower . . . 648	Cauliflower . . . 216
Cabbage . . . . . 525	Cabbage . . . . . 175
Head Lettuce . . 716	Head Lettuce . . 239
Leaf Lettuce . . 743	Leaf Lettuce . . 248

## **II. BACKGROUND**

This is the second year for a request for bifenthrin on head lettuce, broccoli, and cauliflower for control of the SPWF in Arizona. Arizona and California also requested these uses last year (1992) under §18 (California also requested, and was granted, §18 use of bifenthrin on cabbage, leaf lettuce, and rapini.) California currently has requests pending for §18 use of bifenthrin on broccoli, cauliflower, cabbage, and rapini. Bifenthrin (as well as other materials such as amitraz and fenprothrin) have been requested for use on other crops (cucurbits, cotton, tomatoes, etc.) for control of this pest.

This is the first time that the use of imidacloprid on these crops has been requested under §18. Arizona requested use of imidacloprid on cotton for SPWF control earlier this year (1993). That request was denied on July 27, 1993, based upon the conclusion that imidacloprid did not appear to be any more effective against the SPWF than the registered alternatives. The cotton request was different from this one in that the Applicant was proposing that imidacloprid be used as a foliar spray, throughout the cotton season, and different pesticides are available for use on cotton which are not registered on these vegetable crops.

### **PROGRESS TOWARD REGISTRATION:**

Bifenthrin: On August 5, 1988, the Agency issued a conditional registration for use of bifenthrin on cotton with a final expiration date of November 15, 1992. In order to evaluate the effects of bifenthrin on fish and aquatic organisms and its fate in the environment, several data requirements must be fulfilled during the period of conditional registration. Such requirements include an aquatic field test which has been submitted and reviewed, and a repeat confined crop rotation study in wheat submitted in December of 1991.

In November 1990, EPA agreed to implement interim exposure reduction measures for pyrethroid use on cotton. The interim risk reduction measures included a number of label changes, including a 100-yard aquatic buffer zone to protect endangered species, and a program to educate growers, applicators, consultants, and businesses handling pyrethroids on a data development program to evaluate the effectiveness of the risk reduction measures. The data and other information required by the joint agreement between EPA and the industry's pyrethroid work group has been submitted to the Agency, and is under review. The Agency extended the expiration date for the conditional registration of bifenthrin, and several other pyrethroids, on cotton, to November 15, 1993, to allow Agency review of all relevant data (including mesocosm/pond studies). When reviews are completed, the Agency will make the appropriate regulatory decision for the cotton use of synthetic pyrethroids.

The Registrant, FMC Corp., indicates that residue trials on cauliflower, broccoli, and head lettuce have been completed and analyzed; cabbage and leaf lettuce trials are also complete, but analysis and write-up is not yet completed. FMC indicated that these are considered to be minor uses, and as such, registration will be pursued through IR-4. FMC indicates that IR-4 is expected to submit tolerance petitions for bifenthrin on cole crops and head and leaf lettuce by the end of 1993. Registration of this use will also depend upon the Agency's policy decision concerning the registration of a number of synthetic pyrethroids for uses that pose high risks to aquatic organisms.

Imidacloprid: The Registrant, Miles, Inc., has submitted a §3 application to the Agency for use on cotton, which is currently pending. Tolerance petitions (PP#s 3F4169 and 3H5655), for cotton, apple, and potato RACs and processed commodities are currently pending at the Agency, undergoing science review. The Registrant has completed residue testing, and expects to submit tolerance petitions for, cole crops, and head and leaf lettuce, in the near future.

Section 18 Delaney Policy: Imidacloprid is classified as a Group E carcinogen (evidence of non-carcinogenicity for humans), and thus the Delaney clause would not preclude registration of this use. Although bifenthrin is classified as a Group C (unquantified) carcinogen, the Delaney clause would not preclude registration of this use, as there are no processed commodities involved.

**RE-REGISTRATION and SPECIAL REVIEW CONSIDERATIONS:** Bifenthrin was registered after November 1984, and therefore is not subject to re-registration. Bifenthrin is currently not the subject of any Special Review actions. Imidacloprid is currently unregistered, so there are no re-registration or special review concerns.

**FEDERAL REGISTER NOTICE:** Since the use of an unregistered chemical is proposed, publication in the Federal Register of a notice of receipt and solicitation for public comment is required by 40 CFR 166.24. This notice was prepared and electronically transmitted to the Federal Register Section (FRS) on 6/14/93. The typeset document was received by ERMUS, and forwarded for signature, on 6/30/93. Although this document was signed by the Division Director on 7/1/93, notice was just received from the FRS indicating that this document would be published on 7/28/93. The reason for this delay is not known. If the Agency issues this exemption, it must be granted by 8/10/93 in order for the materials to be applied at the correct time. If a 15-day period for comment is allowed, the exemption could not be issued until 8/13/93 (at best), by which time it would be too late to make use of the requested material. Therefore, as allowed by 40 CFR 166.24(c), I recommend that the comment period in this case be eliminated, because the time available to make a decision requires it. It should be noted that a notice of receipt was published in the Federal Register on 6/10/93 for Arizona's request for this same chemical on cotton, and no comments were received.

### III. EPA EVALUATION

**BIOLOGICAL and ECONOMIC ANALYSIS:** OPP's Biological and Economic Analysis Division reviewed these requests, and concluded that the situation described in Arizona appears urgent and non-routine, since this new biotype of SPWF is recently-occurring, and it has been demonstrated that this pest can cause extreme yield and quality losses. BEAD also stated that information submitted by Arizona, and the extreme damage observed in Arizona and California in 1991, support the conclusion that no registered alternative will adequately control the SPWF.

BEAD stated that information given with the request demonstrates that bifenthrin, imidacloprid, endosulfan, and acephate are the only insecticides which provided any control of the SPWF, with bifenthrin and imidacloprid being the most effective. When imidacloprid is applied at planting to provide systemic protection, this single application may provide protection for up to 30 - 40 days during the most susceptible stage of growth. Additionally, such an application may prevent early establishment of SPWF populations. However, BEAD states that this at-planting application of imidacloprid may not eliminate the need for foliar applications beyond the 30-40 days, and thus the additional use of bifenthrin would be justified.

Economically, fresh vegetable production in Arizona is very different from many other crops, and Arizona vegetable growers compete in a very volatile and competitive market. According to the Applicant, growers strive for profitable operation in at least one out of every 5 - 7 growing seasons. Given the variability this involves, it is difficult to estimate the likelihood of Arizona growers suffering a significant economic loss; even a substantial yield loss may not cause growers to fall outside of the historical range. Additionally, this variability makes it difficult to draw any definite conclusions regarding the long-term economic viability of the Arizona vegetable growers. However, BEAD concluded that, considering the damaging potential of the new strain of the SPWF, it is very likely that Arizona vegetable growers could suffer an economic emergency without the use of imidacloprid and bifenthrin.

#### **RESIDUE CHEMISTRY:**

##### Bifenthrin:

OPP's Re-registration Support Chemistry Branch (RSCB) reviewed last year's request for this use of bifenthrin, and concluded that, for the purposes of the §18 request only, residue of concern may be expressed as the parent compound, bifenthrin. RSCB estimated that residues of bifenthrin in or on head lettuce *without wrapper leaves* will not exceed 0.05 ppm; residues on head lettuce *with the wrapper leaves* will not exceed 2.0 ppm; residues in or on broccoli are not expected to exceed 0.1 ppm; and residues in or on cauliflower are not expected to exceed 0.05 ppm as a result of the proposed use pattern. Head lettuce, broccoli, and cauliflower are not considered major livestock feed

items; therefore, secondary residues of bifenthrin are not expected to occur in meat, milk, poultry, or eggs, as a result of the proposed use.

For the purposes of this §18 request, an adequate analytical method for enforcement purposes is available. A method has been submitted for publication in PAM Vol. II; additionally, PAM Vol. I reports that bifenthrin is completely recovered using PAM Vol. I, Method 212 for non-fatty foods. Analytical reference standards are available from the Pesticides and Industrial Chemicals Repository at RTP, NC.

**\*\* Note: Craven Laboratories was not involved in generating any of the data used to derive the above bifenthrin residue estimates.**

Imidacloprid:

OPP's Tolerance Support Chemistry Branch (TSCB) reviewed these proposed uses and concluded that the nature of the residue of imidacloprid in/on tomatoes, eggplants, apples, potato, and corn grain, forage, and silage is adequately understood. TSCB concluded that these data may be translated to these vegetable crops *for the purposes of this §18 use only*, since there are no imidacloprid metabolism studies available for the vegetable crops in question. TSCB estimates that residues of imidacloprid, expressed as the parent compound and its metabolites that contain the 6-chloropyridinyl moiety are not likely to exceed the following levels as a result of the proposed use:

broccoli . . . . .	1.0 ppm
cauliflower . . . . .	0.5 ppm
cabbage . . . . .	2.5 ppm
head lettuce . . . . .	2.5 ppm
leaf lettuce . . . . .	2.5 ppm
milk . . . . .	0.05 ppm
meat, fat, and meat by- products of cattle, goats, hogs, horses, and sheep . . .	0.2 ppm

\* Secondary residue estimates are given in association with feeding of products associated with cauliflower and broccoli. There are no animal feed commodities associated with cabbage, head lettuce, or leaf lettuce. There are no poultry feed items associated with any of these vegetables, and therefore secondary residues are not expected to occur in eggs and poultry tissues as a result of the proposed use.

Adequate analytical methods for enforcement purposes are tentatively available (pending validation) from TSCB (Bayer methods 0200 and 00191 [MRID #s 425561-18 and 425561-19]). Analytical reference standards are available only from the Registrant of imidacloprid, Miles, Inc.



**\*\* Note: Craven Laboratories was not involved in generating any of the data used to derive the above imidacloprid residue estimates.**

### **TOXICOLOGY and EXPOSURE ASSESSMENT:**

#### Bifenthrin:

The Agency's Toxicology Branch II (TB-II) reviewed these requests, and concluded that the toxicology database for bifenthrin is complete, and supports this §18 use. TB-II pointed out that the HED Peer Review Committee decided that quantification of the carcinogenic potential of bifenthrin is not warranted, and recommended risk assessment on the basis of a reference dose (RfD) approach. Consequently, there is considerably less concern for the carcinogenic potential of bifenthrin.

The current reference dose for bifenthrin is based on a 1-year dog feeding study with a NOEL of 1.5 mg/kg and a safety factor of 100 giving a reference dose of 0.015 mg/kg/day. Effect on percentage of RfD utilized is summarized below:

POPULATION SUBGROUP	PUBLISHED USES		PROPOSED §18 USE	
	TMRC mg/kg/day	% RfD	TMRC mg/kg/day	%RfD
U.S. Population	0.000444	3	0.000430	3
Non-nursing Infants	0.001523	10	0.000003	<1
Children (1-6 yrs.)	0.001045	7	0.000330	2

The exposure data indicate low Margins of Exposure (MOEs - i.e., lower than the acceptable 100), for mixer/loader/applicators for short-term exposure; however, the NOEL used to derive the NOEs was based on a developmental toxicity study where no developmental effects were seen in rats. In addition, given the protective clothing requirements, the actual MOEs are anticipated to be greater than calculated for these application scenarios. Therefore, TB-II recommended that the mixer/loader/applicators be required to wear long pants, long-sleeved shirt, gloves, and a face shield or goggles. If this requirement is imposed (and since the TMRC to dietary exposure will not exceed 100% of the RfD), TB-II has no objections to approval of this request.

#### Imidacloprid:

OPP's Toxicology Branch I (TB-I) reviewed this request, and concluded that the toxicology database is adequate to support this §18 use. There are currently no tolerances established for imidacloprid, as it is an unregistered chemical. The Agency-approved (Peer Review 4/22/93) reference dose (RfD) is set at 0.057 mg/kg/day, based

on the NOEL of 5.7 mg/kg/day from a 2-year rat study, and an uncertainty factor of 100.

The margins of exposure (MOEs) for acute exposure to workers, under all scenarios and assuming 100% dermal penetration (which is unlikely to occur), were all acceptable (> 100).

Imidacloprid is classified as a Group E carcinogen (evidence of non-carcinogenicity in humans), so there is no cancer risk associated with exposure.

Assuming 100% crop treated, and enforcement level residues in all commodities, dietary exposure is estimated as follows:

POPULATION SUBGROUP	TMRC mg/kg/day	%RfD
Overall U.S. Population	0.001830	3.2
Non-nursing Infants	0.003776	6.6
Children (1-6 yrs.)	0.003132	5.5

All dietary exposure estimate levels are well below levels of concern.

#### ECOLOGICAL EFFECTS:

##### Bifenthrin:

OPP's Ecological Effects Branch (EEB) reviewed the request for this use last year (1992) and concluded that bifenthrin is very highly toxic to aquatic organisms. According to a standard EEB risk assessment, residue levels of bifenthrin resulting from this use could exceed the regulatory risk criteria, for the presumption of unacceptable risk to both non-endangered and endangered aquatic species. This risk assessment, however, does not take into account possible effects from risk-mitigation measures, such as buffer zones. EEB does not endorse a buffer zone because at this time, there is insufficient information to support the assertion that risk will be sufficiently mitigated. However, EEB stated that if the exemption request is granted, the proposed buffer zone for aquatic endangered species habitat should be strongly enforced. AZ has agreed to enforce a 200-yard buffer zone around aquatic endangered species habitat. This year's request includes this 200-yard buffer zone restriction, and this restriction is incorporated into the attached correspondence to the Applicant.

The Applicant also intends to impose buffer zones of 25 feet for ground applications, and 75 feet for aerial applications, around lakes, reservoirs, rivers, permanent streams or natural ponds, estuaries, and commercial fish farms. These are

the same as to the buffer zones imposed on the EPA-approved label for use of bifenthrin on cotton. Cotton is also widely grown in Arizona. Therefore, this use should not present any more of a hazard to the environment than the federally-registered use on cotton.

#### Imidacloprid:

OPP's Ecological Effects Branch (EEB) reviewed the request, and stated that imidacloprid is considered moderately toxic to mammals, and slightly - highly toxic to birds, on an acute basis. EEB concluded that the expected environmental residues from the proposed use are not at a level that would be of concern for mammal dietary exposure. However, based on available information, regulatory Levels of Concern (LOCs) are exceeded for songbirds (representative sp., House Sparrow), on an acute basis, for the banded application method only. EEB states that if banding is dropped from the label (and application is limited to in-furrow or drenching), this risk will drop below the level of concern. ERMUS staff have consulted with AZ DoA personnel, and they have agreed to eliminate the banding method of application. This restriction is incorporated into the attached correspondence to the state. Reproductive effects are in question regarding waterfowl (representative sp., Mallard Duck); EEB states that further information, requested from the Registrant, will be necessary before this risk can be determined. Imidacloprid is considered to be very highly toxic to bees, both acutely and residually. The label statement regarding risk to bees (included in the proposed labeling) should be strongly adhered to, to mitigate this risk.

Imidacloprid is considered practically non-toxic to freshwater and estuarine fish species; slightly - very highly toxic to freshwater invertebrates; and very highly toxic to estuarine invertebrates. Based upon available data, EEB states that the LOCs are exceeded chronically for estuarine aquatic invertebrates (Mysid spp.); this is not of concern for this proposed use, since Arizona is a land-locked state, and does not contain estuarine or marine habitat.

Endangered or threatened species are not expected to be directly affected by this use, although the adverse effects to aquatic invertebrates may indirectly affect endangered fish and waterfowl that feed on these organisms.

#### **ENVIRONMENTAL FATE:**

#### Bifenthrin:

OPP's Environmental Fate and Groundwater Branch (EFGB) reviewed past requests for this use, and concluded that the environmental fate data for bifenthrin indicate that it is persistent and immobile in terrestrial ecosystems. Because bifenthrin has a high binding affinity for soil, it is possible that bifenthrin may bind to mobile surface water sediments, and could be transported during a rain to surface waters.

However, a chemically insignificant amount of bifenthrin would be soluble in the surface water. Furthermore, the buffer zones mentioned above should reduce possibilities of bifenthrin entering surface waters.

#### Imidacloprid:

OPP's Environmental Fate and Groundwater Branch (EFGB) reviewed these requests, and concluded that the imidacloprid database is sufficient to support this use under §18. EFGB did note, however, that there is concern for imidacloprid's potential to leach to ground water and/or be transported to surface waters, and stressed that care should be taken to protect waters during use, particularly in vulnerable areas. EFGB recommended that the following statement be included in the §18 labeling:

This chemical demonstrates the properties and characteristics associated with chemicals detected in ground water. The use of this chemical in areas where soils are permeable, particularly where the water table is shallow, may result in ground water contamination.

#### IV. RECOMMENDATION

I recommend that the requests from Arizona for the use of imidacloprid on broccoli, cauliflower, cabbage, head lettuce, and leaf lettuce; and for use of bifenthrin on broccoli, cauliflower, and head lettuce, for SPWF control be granted. This recommendation is based upon the following:

1. BEAD has concluded that Arizona growers are facing a non-routine situation, and the registered alternatives do not provide adequate control of the SPWF. BEAD has also concluded that the use of two chemicals is justified, since the one application of imidacloprid at planting will not protect the crop throughout the season, and application of bifenthrin as a foliar spray would be of no use at the seedling stage when there is limited leaf area. BEAD concluded that, considering the damaging potential of the new strain of the SPWF, it is very likely that Arizona vegetable growers could suffer an economic emergency without the use of imidacloprid and bifenthrin.
2. The toxicological databases for bifenthrin and imidacloprid are adequate to support these uses. These uses <sup>are</sup> not expected to result in unacceptable risk to human health, and dietary contribution estimates for all population subgroups are well within acceptable limits. The uses proposed are not expected to result in unacceptable risk through occupational exposure.

3. Bifenthrin: Residues of concern may be expressed as the parent compound, bifenthrin. RSCB estimates that residues of bifenthrin in or on head lettuce *without wrapper leaves* will not exceed 0.05 ppm; residues on head lettuce *with the wrapper leaves* will not exceed 2.0 ppm; residues in or on broccoli are not expected to exceed 0.1 ppm; and residues in or on cauliflower are not expected to exceed 0.05 ppm as a result of the proposed use pattern. Head lettuce, broccoli, and cauliflower are not considered major livestock feed items; therefore, secondary residues of bifenthrin are not expected to occur in meat, milk, poultry, or eggs, as a result of the proposed use.

Imidacloprid: Residues of imidacloprid, expressed as the parent compound and its metabolites that contain the 6-chloropyridinyl moiety are not likely to exceed the following levels as a result of the proposed use:

broccoli . . . . .	1.0 ppm
cauliflower . . . . .	0.5 ppm
cabbage . . . . .	2.5 ppm
head lettuce . . . . .	2.5 ppm
leaf lettuce . . . . .	2.5 ppm
milk . . . . .	0.05 ppm
meat, fat, and meat by-products of cattle, goats, hogs, horses, and sheep . . .	0.2 ppm

\* Secondary residue estimates are given in association with feeding of products associated with cauliflower and broccoli. There are no animal feed commodities associated with cabbage, head lettuce, or leaf lettuce. There are no poultry feed items associated with any of these vegetables, and therefore secondary residues are not expected to occur in eggs and poultry tissues as a result of the proposed use.

4. Bifenthrin is highly toxic to aquatic organisms, and residues resulting from this use could exceed levels of concern for aquatic endangered species. However, the Applicant intends to impose a 200-yard buffer zone around endangered species habitat, which should help to mitigate this risk. The Applicant also intends to impose buffer zones of 25 feet for ground applications, and 75 feet for aerial applications, around lakes, reservoirs, rivers, permanent streams or natural ponds, estuaries, and commercial fish farms. These are the same as the buffer zones imposed on the EPA-approved label for use of bifenthrin on cotton. Cotton is also widely grown in Arizona. Therefore, this use should not present any more of a hazard to the environment than the federally-registered use on cotton.

Imidacloprid: Levels of concern for songbirds are exceeded on an acute basis from the proposed use. However, elimination of application by banding will reduce this risk below levels of concern, and the Applicant has agreed to so-limit this use.

Endangered or threatened species are not expected to be directly impacted from either use.

5. There is progress toward registration of these uses. This is the second time for a request for this use of bifenthrin, and the first time for imidacloprid.

Bifenthrin: The Registrant of bifenthrin, FMC Corp., indicates that data collection in support of this use is nearly complete. FMC indicated that since these are considered to be minor uses, registration will be pursued through IR-4, and IR-4 is expected to submit tolerance petitions for bifenthrin on cole crops and head and leaf lettuce by the end of 1993. Registration of this use will also depend upon the Agency's policy decision concerning the registration of a number of synthetic pyrethroids for uses that pose high risks to aquatic organisms.

Imidacloprid: The Registrant, Miles, Inc., has completed residue testing, and expects to submit tolerance petitions for, cole crops, and head and leaf lettuce, in the near future.

Neither of these uses is affected by the Section 18 Delaney Policy.

Approve: \_\_\_\_\_

Disapprove: \_\_\_\_\_

Date: \_\_\_\_\_

8/5/92