



**US Environmental Protection Agency  
Office of Pesticide Programs**

**Flumioxazin Petition for the Extension  
of the Exclusive Use Data**

**April 15, 2008**

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**Flumioxazin Technical, EPA Reg. No. 59639-97  
Extension of the Period of Exclusive Data Use For the  
Active Ingredient Flumioxazin**

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Dear Mr. Kenny:

Valent U.S.A. Corporation is pleased to submit a petition to extend the period of exclusive data use for the pesticide flumioxazin. The ten-year exclusivity statute is established under FIFRA Section 3(c)(1)(F)(i). The extension is determined by the number of minor uses added within the first seven years of the exclusive use period to the first registration of the active ingredient, with one additional year of exclusivity granted for every three minor use registrations, up to a maximum of three years. The first registration granted for flumioxazin is Flumioxazin Technical, EPA Reg. No. 59639-97. As explained in the remainder of this letter, we believe flumioxazin qualifies for an additional three years of exclusive use data protection.

Flumioxazin has been registered on a total of twenty (20) minor uses during the period of April 12, 2001 and April 12, 2008 and all of these uses are eligible for extending the period of data exclusivity for flumioxazin. Twelve (12) of these minor uses were developed by IR-4 and eleven (11) of these were categorized by IR-4 as Priority A projects. Because of the rigorous selection and prioritization process employed by IR-4 to select projects, and because the criteria for selection of projects at IR-4 closely matches the qualifying criteria spelled out in FIFRA, we believe that the minor uses developed by IR-4 meet the FIFRA criteria. There is also ample independent support for this conclusion in the form of 1) Pest Management Strategic Plans (PMSP's); 2) state actions (emergency/crisis exemptions); and 3) independent research by university extension services and commodity groups. Therefore, Valent U.S.A. respectfully requests extension of the exclusivity period for an additional three years as established under FIFRA Section 3(c)(1)(F)(ii).

Granting a three-year extension to the period of exclusive data use for flumioxazin will change the ten-year period described in FIFRA to thirteen years, extending the expiration date from April 12, 2011 to April 12, 2014. In accordance with FIFRA Section 3(c)(1)(F)(i) this period of exclusive use pertains to all data submitted to support the application for the original registration of the pesticide and to all data submitted to support applications for amendments adding new uses to the registration.

**Current Flumioxazin Registrations**

The first U.S. registration of flumioxazin was granted to Flumioxazin Technical, EPA Reg. No. 59639-97 on April 12. Flumioxazin Technical is the active ingredient contained in the end-use products shown in the following table:

**Table 1**  
**Registered End-Use Products**  
**Containing Flumioxazin as the Active Ingredient**

<b>Registered Name</b>	<b>EPA Reg. No.</b>
Valor Herbicide	59639-99
Valor WP Herbicide	59639-98
Chateau WDG Herbicide	59639-119
Gangster Herbicide	59639-131
Valor XLT Soybean Herbicide	59639-117
BroadStar Herbicide	59639-128
SureGuard Herbicide	59639-120

In support of the registration actions associated with these end use products, the Flumioxazin Technical registration was amended on July 18, 2004, August 25, 2004, May 15, 2006, September 10, 2007, and March 20, 2008 to add numerous minor uses. See Attachment 1 for the last EPA approved Flumioxazin Technical label.

Flumioxazin is a herbicide of the N-phenylphthalimide class (Group 14) that is used for pre- and post-emergence control of susceptible weeds in a variety of fruit, vegetable, and other field crops. Its mode of action is as an inhibitor of protoporphyrinogen oxidase (PPO); it is active against many economically important grasses, broadleaf weeds, and sedges such as:

Annual Morningglories	Fleabane	Pigweeds
Annual Nightshades	Groundsel	Prickly Lettuce
Annual Sowthistle	Henbit	Puncturevine
Chickweeds	Kochia	Purslane
Cutleaf Eveningprimrose	Lambsquarters	Russian Thistle
Dandelion	Malva (Cheeseweed)	Shepherd's-Purse
Filarees	Marestail/Horseweed	Spurge

Flumioxazin delivers both the rapid burndown and long-term residual weed control with no risk of carryover to rotational crops. Flumioxazin has many favorable attributes, including:

- Consistent control of troublesome weeds - flumioxazin offers consistent control of the most troublesome and yield reducing weeds that other pre-emergence herbicides fail to control.
- Flexible application timing – for most crops, flumioxazin can be applied prior to planting as either part of a burndown program or as a pre-emergence application.
- Exceptional rotational options – flumioxazin offers growers the option to rotate to crops such as corn, soybeans, wheat, barley, sorghum, cotton or rice the season following a flumioxazin application.
- Reliable control of resistant weeds – flumioxazin offers reliable control of ALS and triazine resistant weeds, such as waterhemp, lambsquarters, kochia and pigweeds, and glyphosate resistant weeds such as marestail and hairy fleabane, all of which are becoming increasingly prevalent in parts of the U.S.

- Environmentally friendly - flumioxazin's low water solubility, rapid degradation and low use rates ensures minimal impact on the environment and little risk of groundwater contamination.

#### **Criteria Used to Determine the Number of Minor Use Registrations for Flumioxazin**

In determining the total number of minor use registrations to be applied toward the flumioxazin exclusivity extension, the following criteria are used:

- a. FIFRA states that a minor use registration may be counted for each minor use "registered ... within 7 years of the commencement of the exclusive use period...". The time period for flumioxazin was determined relative to the first registration of Flumioxazin Technical, April 12, 2001. Therefore, minor uses registered on or before April 12, 2008 may be applied toward the flumioxazin exclusivity extension.
- b. FIFRA states that "The registration of a pesticide for a minor use on a crop grouping ... shall be considered one minor use for each representative crop for which data are provided in the crop grouping". Each crop grouping contains many minor uses that are represented by all the representative crop data, but this clause limits the number of minor crops that may be counted to equal the number of representative crops within the crop group for which data are provided. There is no requirement that the representative crops themselves be minor in order to be considered in the minor use count.
- c. There is no restriction in FIFRA that a registered minor use be a food use, nor that a tolerance be established in order to be counted towards the exclusive use extension. It is Valent's understanding that EPA-OPP has designated indoor (greenhouse) ornamentals as a minor use.

#### **Summary of Minor Use Registrations for Flumioxazin**

The following table illustrates the number of minor uses that have been added to the Flumioxazin Technical label during the period April 12, 2001 to April 12, 2008. Also shown is the criteria (a, b, or c from above) by which these uses qualify for extending the period of exclusivity.



**Table 2**  
**Flumioxazin Minor Use Registrations**

<b>Number of Minor Uses</b>	<b>Criteria</b>	<b>Date Label Approved</b>	<b>Crop / Rationale</b>
1	a, c	8/25/2004	Container and field grown ornamentals-non-food use
1	a	8/25/2004	Mint
1	a	8/25/2004	Onion (Dry bulb)
1	a, b	8/25/2004	Corm and Tuberos Vegetables, Crop Sub Group 1C. One representative crop (potato). Minor uses include sweet potato.
1	a	8/25/2004	Pistachio
2	a, b	5/15/2006	Pome fruit, Crop Group 11. Two representative crops. Minor uses include pear and quince.
3	a, b	5/15/2006	Stone fruit, Crop Group 12. Three representative crops. Minor uses include cherry, peach and plum.
1	a	5/15/2006	Strawberry
1	a	9/10/2007	Garlic
1	a	3/20/2008	Asparagus
1	a, b	3/20/2008	Bushberry, Crop Subgroup 13B. Minor use is blueberry
2	a, b	3/20/2008	Fruiting Vegetables, Crop Group 8. Minor uses include peppers and eggplant
1	a, b	3/20/2008	Melon, Crop Subgroup 9A. Minor uses include muskmelon
1	a	3/20/2008	Okra
2	a, b	3/20/2008	Tree Nuts, Crop Group 14. Minor uses include walnuts and filberts
<b>20</b>	<b>Total Minor uses approved between April 12, 2001 and April 12, 2008</b>		

Based on the information shown in Table 1, a total of 20 minor uses were approved prior to April 12, 2008. It is clear that an adequate number of minor uses have been approved to support a 3-year extension of the exclusive use period for flumioxazin.

#### **Additional Criteria**

In addition to minor use registrations, FIFRA Section 3(C)(1)(F)(ii) lists four additional criteria listed below. EPA must determine that **at least one** of the following conditions is met before EPA will grant an extension of the exclusive use period:

1. There are too few effective alternative registered pesticides available for the use or
2. Alternatives pose greater risks or
3. The minor use pesticide plays or will play a significant role in managing pest resistance or
4. The pesticide is important to an integrated pest management program

We believe that all of the minor uses listed in Table 2 meet at least one of the additional criteria listed above. But, for the purposes of this petition, we have decided to focus on only those uses that were developed by IR-4. IR-4 selects projects based on criteria very similar to the four FIFRA criteria listed above. Each project also undergoes a rigorous prioritization process to be sure that IR-4 works on only the most important projects. This prioritization process takes place at IR-4's annual Food Use Workshop that is attended by over 200 minor use pest management experts from throughout the United States. At this workshop, participants identify a small number of high priority minor use projects (Priority A uses) that are worthy of IR-4 attention. For herbicides, there is a limit of only 12 Priority A projects per year. The factors used to select the Priority A projects include: 1) availability and efficacy of alternative products; 2) the potential pest damage from the target pest; 3) the performance of the product in managing the target pest; and 4) the compatibility of the proposed product in new and existing integrated Pest management Programs. For more details on the IR-4 project selection and prioritization process, see Attachment 2, which is a letter from Dr. Jerry Baron, Executive Director of the IR-4 Project. The following table lists the flumioxazin uses that were developed by IR-4 and the priority assigned to the project by IR-4's prioritization process:

**Table 3**  
**Flumioxazin Minor Uses Developed by IR-4**

<b>Number of Minor Uses</b>	<b>Crop or Crop Group</b>	<b>IR-4 Priority</b>
1	Mint	A
1	Onion	A
1	Corn and Tuberous Vegetables Crop Subgroup 1C	B
1	Strawberry	A
1	Garlic	A
1	Asparagus	A
1	Bushberry, Crop Subgroup 13B.	A
2	Fruiting Vegetables, Crop Group 8.	A
1	Melons, Crop Subgroup 9A.	A
1	Okra	A
1	Tree Nuts, Crop Group 14*	A
<b>12</b>	<b>Total Minor Uses Developed by IR-4</b>	

\*Tree nuts qualify for 2 minor uses since there are 2 representative crops (almonds and pecans) for this crop group. However, only the pecan data was developed by IR-4, so we have counted only one minor use.

Table 3 shows that, of the 20 minor uses registered before April 12, 2008, 12 have been developed by IR-4. Because the factors used to select projects at the IR-4 Food Use Workshop are very similar to the criteria listed in FIFRA Section 3(C)(1)(F)(ii), we believe that these 12 minor uses meet the FIFRA criteria. Further support of this conclusion comes from the fact that, as shown in Table 3, of the 12 minor uses that were developed by IR-4, eleven (11) were designated as Priority A projects. See Attachment 3, which is a download of an IR-4 database search for flumioxazin projects. This document shows the priority assigned to each project.



### **Additional Support**

All of the minor uses developed by IR-4 for flumioxazin have been or will be critical tools for weed control in these crops. Supporting this conclusion are the recommendations appearing in Pest Management Strategic Plans (PMSP's) that have been prepared for many of the crops listed in Table 3. PMSP's are published by USDA and offer a wealth of information regarding crops and strategies for controlling pests and diseases. These documents are prepared with information obtained through USDA's Agricultural Research Service (ARS).

#### **Recommendations Appearing in PMSP's**

##### Mint (2002, ID, OR, MT, WA)

This PMSP states (Page 27) that one critical need for management of weeds in mint is to support the registration of **Valor** (flumioxazin). It also shows (Page 38) that **Valor** exhibits excellent pre-emergent control of annual broadleaf weeds.

##### Dry Bulb Onion (2004, CO, ID, OR, UT, and WA)

This PMSP states (Page 5) that one critical need in dry bulb storage onion pest management is to "encourage EPA to expedite the registration of current pesticide petitions for...flumioxazin (**Valor**)... for weed control." It also shows (Page 69) that **Valor** exhibits good to excellent pre-emergent control of the following annual broadleaf weeds: Buffalo bur, Common purslane, Common waterhemp, Kochia, Lambsquarters, Mallow, common, Mallow, Venice, Nightshade, black, Nightshade, Hairy, Pigweed, prostrate, and Pigweed, redroot.

##### Strawberries (2003, CA)

This PMSP states that one of the work group's recommendations for weed management in CA strawberries is to register flumioxazin for directed, in-furrow herbicide use for control of weeds (Page 24). It also shows (Page 49) that **Valor** exhibits good to excellent control of the following weeds: Bluegrass, California Burr Clover, Chickweed, and Little Mallow.

##### Garlic (2007, CA)

This PMSP states (Page 18) that "flumioxazin (**Chateau**) [has] shown good to excellent control of a broad spectrum of weeds in garlic". It also identifies the following work group recommendation for weed management during planting to early vegetative development: "determine if **Chateau** can replace Dacthal® or Prowl® in terms of weed control and crop safety preemergence to weeds and crop".

##### Eggplant (2004, FL)

This PMSP states (Page 10) that one of the items on the "To Do List" is to "continue processing ongoing registrant/IR-4 registration requests [for] ...flumioxazin...".

##### Peppers (2004, CA)

This PMSP identifies (Page 11) the following work group recommendation for weed management during bed preparation for garlic: "Evaluate new fallow bed materials (...**Chateau**/flumioxazin...)."

##### Hazelnuts (2006, OR, WA)

This PMSP states (Page 32) that flumioxazin (**Chateau**) is "very effective but expensive" for chemical weed control.

All of the PMSP's referenced above can be found on USDA's website at the following address: [www.ipmcenters.org/pmsp](http://www.ipmcenters.org/pmsp). The recommendations within the PMSP's referenced above support the conclusion that flumioxazin is an important new tool for controlling weeds in the targeted minor use crops. Since, in most cases the PMSP recommends continuing support of the registration of flumioxazin, it also suggests that suitable alternative products are not available.

### **State Actions-Emergency Exemptions for Use of Valor on Sweet Potatoes**

In 2003 and 2004, the Louisiana Department of Agriculture and Forestry declared a Crisis Exemption for the use of flumioxazin on sweet potatoes to control weeds. In 2004, EPA authorized the Emergency Exemption for the use of flumioxazin on sweet potatoes in the state of Mississippi to control annual broadleaf weeds (Ref. 1,2). The following text is an excerpt from Mississippi's application for the Emergency Exemption:

"Currently, only two herbicides are labeled for preemergence weed control in sweet potato. These are Dacthal W-75 (DCPA, dimethyl tetrachloroterephthalate) and Command 3 ME (clomazone). Dacthal W-75 controls primarily grasses and very few broadleaf weeds. Application rates to sweet potato can be as high as 10 pounds of product per acre...While the labeling of Command was a milestone in sweet potato weed control, the continued use of and sole reliance on this product has caused a shift in the weed spectrum present in Mississippi sweet potato fields. Since Command herbicide provides little to no control of sedges, pigweeds and other broadleaf weeds, these are allowed to flourish and become more problematic each year...Once established, pigweeds can quickly outcompete sweet potato and cause yield loss. Pigweeds also produce an extremely large root and stem by the end of the growing season that can interfere with mechanical harvesters and reduce yields.

"In Louisiana State University and Mississippi State University evaluations, **Valor** has been shown to provide good to excellent control of ivyleaf and entireleaf morningglory (*Ipomoea hederacea*), hemp sesbania (*Sesbania exaltata*), sicklepod (*Senna obtusifolia*), smellmelon, horse purslane (*Trianthema portulacastrum*) and hophornbeam copperleaf. Valor has also shown to cause minimal injury to sweet potato when applied as proposed. Yield data from two locations indicates no yield loss when applied pre-transplant up to 3 oz/A" (Ref. 3).

These actions by the states of Louisiana and Mississippi and by EPA provide strong evidence that flumioxazin met a critical need in sweet potato production that could not be met by any other available product. Clearly, this minor use met FIFRA Criteria #1.

### **Published Research Findings on Flumioxazin Minor Uses**

#### **Asparagus**

In a preemergence weed control trial in newly planted one-year-old asparagus crowns, "Best control of the major weeds present at the two rating dates – Jimson weed and wild radish – occurred with **Valor** (flumioxazin) at both rates tested" (Ref. 4).

"During 2000, three weed management trials (one preemergence and one postemergence study) on newly planted asparagus crowns plus one postemergence test on fern stage, post cutting season, established beds were established in the San Joaquin-Sacramento Delta, where 70% of California's asparagus is produced. In the preemergence test, best control of annual sowthistle (*Sonchus oleraceus*), stinging nettle (*Urtica dioica*), shepherdspurse (*Capsella bursa-pastoris*), annual bluegrass (*Poa annua*), panicled willow herb (*Epilobium paniculatum*), chickweed (*Stellaria media*) and redmaids (*Calandrinia ciliata*) occurred with Valor (flumioxazin) at 0.42Kg/ha..." (Ref. 5).



Alan Schreiber, Executive Director of the Washington Asparagus Commission, has stated, "Recent research by Dr. Bernie Zandstra, University of Michigan, has shown that repeated applications of Karmex, particularly in combination with Sencor, results in asparagus crop damage over time. Karmex in combination with Sencor is the most widely used herbicide program in Washington asparagus. Growers are looking for an alternative broadleaf material that can be used in combination with Sencor. Additionally, this combination is not particularly effective against common groundsel. We have found that **Chateau** in combination with Sencor is very safe on asparagus and has activity against key broadleaf weeds, including groundsel" (Ref. 6).

#### Blueberry

A study conducted by the University of Kentucky showed that "weed control evaluations in mid-April or 4 months after application showed that flumioxazin-treated plots had no weeds present and no weeds germinating..."It appears that flumioxazin weed control benefit was exhausted by 6 months after application, compared to 4 months for all other herbicides. Fall application of flumioxazin can eliminate the need for early spring weed control. This time saved can be spent on other important activities such as pruning and disease and insect control" (Ref. 7). This study provides independent evidence that flumioxazin use on blueberries provides a benefit that other herbicides cannot.

#### Juneberry

"Few weed management options are available for juneberry, which has limited the potential for this new crop. Field trials were initiated at three locations in North Dakota to evaluate efficacy and crop safety associated with chemical and physical weed control treatments applied just before or immediately after transplanting. All treatments except norflurazon and trifluralin provided at least 85% control of redroot pigweed, common lambsquarters, common purslane, and yellow foxtail for the duration of the trial at Absaraka, ND, during 2001... All physical treatments-azafenidin at 0.34 and 0.5 kg/ha, flumioxazin at 0.29 kg/ha, and oryzalin at 4.5 kg/ha provided at least 85% control of all weed species at Carrington and Absaraka, ND, during 2002" (Ref. 8).

#### Melon

"Weed control in melons is difficult due to the limited availability or (sic) registered herbicides. Possible 'new' herbicides for melons include...flumioxazin (**Chateau**)...In general, cantaloupe was tolerant of ...**Chateau**..." (Ref. 9).

#### Melon and Fruiting Vegetable Row Middles

Please see Attachment 4 for letters of support from Stanley Culpepper, Extension Agronomist, University of Georgia and Michael J. Aerts, Environmental and Pest Management Division, Florida Fruit and Vegetable Association.

#### Mint

"Weeds present in peppermint and spearmint reduce mint oil yield and quality. Flumioxazin combinations with clomazone and pendimethalin applied to dormant peppermint controlled prickly lettuce and flixweed without significant injury to the crop. Low rates of flumioxazin and sulfentrazone applied immediately after the first cutting of hay and prior to mint regrowth, controlled redroot pigweed with minimal peppermint injury" (Ref. 10).

#### Onion and Garlic

"Flumioxazin will control most broadleaf weeds, postemergence, and provides a greatly needed improvement for weed control programs in onions. Goal has a useful niche in onion production, but is weak on some problem weeds such as mustards" (Ref. 11).

“Research in vegetables at the West Side Research and Education Center suggests fine-tuning of rates and application methods can improve herbicide performance under San Joaquin Valley conditions, says Kurt Hembree, Fresno County farm advisor. Hembree, discussing his findings during a recent field day at the center near Five Points, said the herbicide **Chateau** worked well in experiments as a pre-emergence, postplant material through chemigation for annual weeds in onions and garlic on loamy soils common to the west side of the valley. ‘Rather than spraying with the rates of 2 to 12 ounces per acre of **Chateau** typical in other crops,’ Hembree said, ‘we used rates of only one-fourth- and one-eighth-ounce per acre. Of course, that would be difficult for a grower or an applicator to precisely mix for a sprayer, so we decided to chemigate with two applications. It worked well on the spectrum of winter and summer weeds’.

“He said he is working on the method with the manufacturer, Valent, and an advantage would be to package the product in small amounts so it could be easily and accurately used in a sprayer or sprinkler system. However, he cautioned, the rates are critical on sandy-textured soils. Similar studies on such soils in Southern California desert areas showed the one-eighth-ounce rate was quite successful and had good selectivity, but the one-fourth-ounce rate killed both the weeds and the crop.

“Turning to **Chateau** and garlic, he said the herbicide, when tank-mixed with Prowl, performed quite well in summer weed control in trials off the station this year. ‘We need a pre-emergence, postplant treatment with **Chateau** for garlic, but the problem has been the existing registration groups onions and garlic together. To get the registration, it had to be for a postemergence application. It could be a year or two before a new, separate registration for garlic can be approved.’” (Ref. 12). [Authors note: Chateau has been now been approved for pre-emergence applications to garlic].

### Peppers

“Winter-growing weeds such as burr clover, malva and sowthistle are known to rob pepper plants of moisture and nutrients. They are also hosts for viruses that attack the crop, so winter weed control to break the viruses' life-cycles might be worth considering. Monterey County farm advisor Richard Smith says it's not a documented fact, but he suspects the weeds supply much of the fresh tissue viruses need to survive until they are transmitted to a new pepper crop. Other crops and ornamentals are also hosts of tomato spotted wilt and other viruses, he told a recent gathering of pepper growers and PCAs at Gilroy.

“He said if he were a grower, he would give attention to controlling winter weed hosts of viruses, even without proof it works, to do everything possible to manage virus problems. ‘Last year was so devastating with viruses, we have to do as much as we can to reduce the amount of inoculum out there.’ The problem may be bigger than anyone knows, he added, and perhaps even fava bean cover crops are symptomless carriers of viruses. General weed control is essential in peppers, since they are poor competitors and must face multiple waves of weed emergence during their long growing season... Smith also investigated the new Valent USA flumioxazin materials, **Chateau** and **BroadStar**, in the trials. The liquid **Chateau** at all rates, he said, gave excellent weed control but was too toxic on peppers as a preplant application. However, the granular BroadStar gave excellent weed control and acceptable safety when applied over-the-top, post transplant” (Ref. 13).



### Strawberry

There are two use patterns for strawberries. The first is for application to row middles (furrows). **Chateau** is applied after planting in the fall for control of winter annual broadleaf weeds and grasses. Major weeds controlled are clovers, nettles, pigweed, mustards, shepherds-purse, filaree, purslane and wild radish. **Chateau** replaces Goal and Devrinol. Residual control is much longer and reaches into the spring and summer months. Crop safety is excellent. The other use pattern is 30 days pre-plant. This use allows for the replacement of Goal, which has clover control issues.

“Methyl bromide has been the foundation of chemical weed control in strawberry (*Fragaria xananassa*) in California for over 40 years. The impending phaseout of methyl bromide may leave strawberry producers dependent on less efficacious alternative fumigants for weed control. The use of herbicides to supplement fumigants is a potential weed control strategy for strawberry. A 2-year field study was conducted in California to evaluate 10 herbicides as possible supplements for methyl bromide alternative fumigants. Herbicides were applied immediately after transplanting (immediate post-transplant), and 3 weeks after transplanting (delayed post-transplant). Napropamide applied immediate post-transplant was included as a commercial standard. Immediate post-transplant treatments that were safe in strawberry include carfentrazone at 0.075 and 0.15 lb/acre (0.084 and 0.168 kg/ha), flumioxazin at 0.063 lb/acre (0.071 kg/ha) and sulfentrazone at 0.175 and 0.25 lb/acre (0.196 and 0.28 kg/ha)... Among the selective herbicides applied immediate post-transplant, flumioxazin and napropamide provided the most consistent control of bur clover (*Medicago polymorpha*) and shepherd’s purse (*Capsella bursa-pastoris*)” (Ref. 14).

### **Resistance Management**

Flumioxazin is playing a key role in managing the spread of glyphosate-resistant weeds in many minor crops. The following article from the Western Farm Press describes the issue very thoroughly.

“Herbicide resistance was a fact of life long before the latest round of findings that certain weeds are resistant to glyphosate, one of the most widely used and safest herbicides ever introduced into world agriculture.

“There are 315 weed biotypes validated as resistant worldwide to one or more of the 19 major classes of herbicides, according to the international Herbicide Resistance Action Committee (HRAC). Thirteen biotypes have been identified as resistant to glyphosate, which is ranked No. 6 in the ranking of herbicides which no longer control certain weeds due to resistance.

“The fact is, 95 weeds are resistant to ALS inhibitors.

“Nevertheless, the growing trend of glyphosate-resistant weeds is of concern to California Pest Control Advisors (PCAs) like Dale DeShane, a PCA with Supervised Control Service Inc. in Bakersfield, Calif.

“Two of the more nettlesome glyphosate-resistant weeds are marestail and hairy fleabane. The entire weed spectrum has shifted, due largely to the onset of resistance in many areas, added DeShane.

“Glyphosate-resistant marestail, also known as horseweed, was first identified in California in 2005 near Parlier. An irrigation district had been using glyphosate to control weeds in an area where other herbicides had been restricted due to groundwater contamination concerns. Regulations imposed by the California Department of Pesticide Regulation (DPR) in 2004 restricted the use of simazine, diuron, norflurazon and other compounds on approximately 2.4 million acres. As a result, the irrigation district had turned to glyphosate for control, and eventually marestail developed resistance as a result of repeated use of the compound. Since that time, glyphosate-resistant marestail has spread throughout California.

“Marestail and hairy fleabane produce large numbers of seeds that are easily dispersed by wind and can travel long distances just on a breeze. A few escaped weeds can result in a much wider infestation of new weeds in a very short period of time.

“As a result, marestail and hairy fleabane have become major weed pests for tree and vine growers, particularly in the southern San Joaquin Valley. It is spreading northward, largely from roadsides, irrigation ditches and other areas adjacent to orchards and fields treated repeatedly with glyphosate. These seed banks in close proximity to commercial agriculture have contributed to the rapid spread of both weed species. Researchers also attribute the increased infestation to several additional factors, including reduced weed control inputs in some orchards and vineyards, reduced use of pre-emergence herbicides, particularly in groundwater protection areas and improper timing of post-emergence herbicides.

“Like many other PCAs, DeShane has switched tactics and herbicides to deal with the problem. He has reverted back to a preventative approach. One of his standard recommendations in areas with resistant marestail and hairy fleabane is to use a relatively new pre-emergence **Chateau** herbicide in a tank mix with Roundup and Prowl H<sub>2</sub>O.

“‘That is a Cadillac treatment in almonds and pistachios, and it has worked very well,’ he says. ‘In almonds we usually apply it in January. We use a 12-ounce rate of **Chateau** in a berm spray, and it cleans it up nicely. In the past, we’ve tried Gramoxone and Goal to get by a little less expensively, but that combination just didn’t seem to give the kind of control we needed.’

“**Chateau’s** long residual activity means one application is usually sufficient for year-long control in almonds, according to DeShane. In pistachios, he splits the treatment, applying the first one in late fall and coming back in January to finish the job.

“‘In almonds, the leaves come off early so it’s a little easier program than pistachios that tend to hang onto their leaves longer,’ he says. ‘Some guys are using Shark and Goal, while others are using Rely. A lot are using **Chateau** across a variety of crops. It’s nice to have options. The last thing we want to do is create another weed resistance problem out here.’

“That could be a very real threat if any one herbicide is leaned on too heavily, according to Kurt Hembree, Fresno County University of California Cooperative Extension weed control farm advisor.

“‘The use of post-emergence herbicides in trees and vines increased greatly over the past 10 years. About 80 percent of that was directly related to the increased use of glyphosate. Undoubtedly, that is now why we’re having problems.’

“The same scenario could play out again if growers and PCAs aren’t careful, according to Hembree. ‘There aren’t that many new chemistries on the horizon when it comes to herbicides,’ he says. ‘We need to be very careful to protect the ones we have by rotating classes of chemistry whenever possible, timing them properly and generally practicing good resistance management strategies.’

“DeShane agrees with that assessment. ‘I think we were spoiled for a long time with how easy it was to clean up a field or an orchard with glyphosate,’ he says. ‘It took a lot of years for the problem to develop, but we’ve definitely got it now. We sure don’t want to see the same thing happen with these other herbicides’” (Ref. 15).

While this article focused on tree and vine crops, marestail and hairy fleabane are also commercially important weeds in asparagus and strawberries.



### Conclusions

Flumioxazin has been registered on a total of twenty (20) minor uses during the period of April 12, 2001 and April 12, 2008 and all of these uses are eligible for extending the period of data exclusivity for flumioxazin. Twelve (12) of these minor uses were developed by IR-4 and eleven (11) of these were categorized by IR-4 as Priority A projects. Because of the rigorous selection and prioritization process employed by IR-4 to select projects, and because the criteria for selection of projects at IR-4 closely matches the qualifying criteria spelled out in FIFRA, we believe that the minor uses developed by IR-4 meet the FIFRA criteria. Supporting this conclusion are actions taken by the states of Mississippi and Louisiana and by EPA to established emergency/crisis exemptions for the use of flumioxazin on sweet potatoes.

Furthermore, recommendations contained in PMSP's for seven (7) of these minor uses and extensive independent research by university extension services and minor use commodity groups demonstrates that flumioxazin addresses critical weed control and resistance management needs that are not effectively met by other products. Taking all of these arguments and support into consideration, we believe that flumioxazin qualifies for a three (3) year extension of the exclusive use period and therefore we respectfully request that the 10-year exclusive use period for flumioxazin data be extended to 13-years.

Thank you for your consideration this request. We look forward to a positive decision in the near future. If you have any questions, please contact Mr. Eric Maurer located in Valent's Washington, D.C. office at (202) 872-4682.

Sincerely,

James Pensyl  
Project Manager  
Registration and Regulatory Affairs

Cc: Ms. Lois Rossi, USEPA/OPP/RD  
Ms. Michele Knorr, USEPA/OGC  
Ms. Pat Cimino, USEPA/BEAD

**References**

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**Attachment 1**

**Flumioxazin Stamped Approved Label**



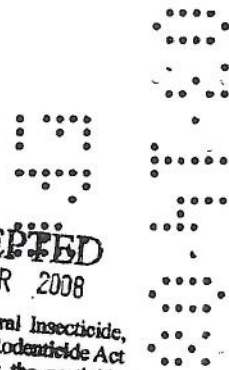
# Flumioxazin Technical (HERBICIDE)

THIS HERBICIDE FOR FORMULATING USE ONLY.

Active Ingredient

*Flumioxazin .....	97.9%
Other Ingredients .....	2.1%
Total .....	100.0%

\*(2-[7-fluoro-3,4-dihydro-3-oxo-4-(2-propynyl)-2H-1,4-benzoxazin-6-yl]-4,5,6,7-tetrahydro-1H-isoindole-1,3(2H)-dione)



ACCEPTED  
20 MAR 2008

Under the Federal Insecticide,  
Fungicide, and Rodenticide Act  
as amended, for the pesticide  
registered under EPA Reg. No.

59639-97

KEEP OUT OF REACH OF CHILDREN

CAUTION

See next page for additional Precautionary Statements

NET CONTENTS \_\_\_\_\_



**PRECAUTIONARY STATEMENTS**  
**HAZARDS TO HUMANS & DOMESTIC ANIMALS**  
**CAUTION**

Harmful if inhaled or absorbed through the skin. Causes moderate eye irritation. Avoid breathing dust. Avoid contact with skin, eyes or clothing.

**FIRST AID**

- |                                |   |
|--------------------------------|---|
| <b>If inhaled:</b>             | <ul style="list-style-type: none"><li>• Move person to fresh air.</li><li>• If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible.</li><li>• Call a poison control center or doctor for further treatment advice.</li></ul>   |
| <b>If on skin or clothing:</b> | <ul style="list-style-type: none"><li>• Take off contaminated clothing.</li><li>• Rinse skin immediately with plenty of water for 15-20 minutes.</li><li>• Call a poison control center or doctor for treatment advice.</li></ul>   |
| <b>If in eyes:</b>             | <ul style="list-style-type: none"><li>• Hold eye open and rinse slowly and gently with water for 15-20 minutes.</li><li>• Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye.</li><li>• Call a poison control center or doctor for treatment advice.</li></ul>   |
| <b>If swallowed:</b>           | <ul style="list-style-type: none"><li>• Call a poison control center or doctor immediately for treatment advice.</li><li>• Have person sip a glass of water if able to swallow.</li><li>• Do not induce vomiting unless told to do so by a poison control center or doctor.</li><li>• Do not give anything by mouth to an unconscious person.</li></ul> |

**HOT LINE NUMBER**

Have the product container or label with you when calling a poison control center or doctor or going for treatment. You may also contact **800-892-0099** for emergency medical treatment information.

**ENVIRONMENTAL HAZARDS:**

This product is toxic to non-target plants and aquatic invertebrates. Do not discharge effluent containing this product into lakes, streams, ponds, estuaries, oceans or other waters unless in accordance with the requirements of a National Pollutant Discharge Elimination System (NPDES) permit and the permitting authority has been notified in writing to discharge. Do not discharge effluent containing this product to sewer systems without previously notifying the sewage treatment plant authority. For guidance, contact your State Board or Regional Office of the Environmental Protection Agency.

## INSTRUCTIONS FOR FORMULATION

It is a violation of Federal law to use this product in a manner inconsistent with its labeling.

## READ ENTIRE LABEL. USE STRICTLY IN ACCORDANCE WITH PRECAUTIONARY STATEMENTS AND DIRECTIONS, AND WITH APPLICABLE STATE AND FEDERAL REGULATIONS.

### DISCLAIMER, RISKS OF USING THIS PRODUCT, LIMITED WARRANTY AND LIMITATION OF LIABILITY

**IMPORTANT:** Read the entire Label including this Disclaimer, Risks of Using this Product, Limited Warranty, and Limitation of Liability before using this product. If the terms are not acceptable THEN DO NOT USE THE PRODUCT; rather, return the unopened product within 15 days of purchase for a refund of the purchase price.

#### RISKS OF USING THIS PRODUCT

The Buyer and User (referred to collectively herein as "Buyer") of this product should be aware that there are inherent unintended risks associated with the use of this product which are impossible to eliminate. These risks include, but are not limited to, injury to plants and crops to which this product is applied, lack of control of the target pests or weeds, resistance of the target pest or weeds to this product, injury caused by drift, and injury to rotational crops caused by carryover in the soil. Such risks of crop injury, non-performance, resistance or other unintended consequences are unavoidable and may result because of such factors as weather, soil conditions, disease, moisture conditions, irrigation practices, condition of the crop at the time of application, presence of other materials either applied in the tank mix with this product or prior to application of this product, cultural practices or the manner of use or application, (or a combination of such factors) all of which are factors beyond the control of Valent. The Buyer should be aware that these inherent unintended risks may reduce the harvested yield of the crop in all or a portion of the treated acreage, or otherwise affect the crop such that additional care, treatment and expense are required to take the crop to harvest. If the Buyer chooses not to accept these risks, THEN THIS PRODUCT SHOULD NOT BE APPLIED. By applying this product Buyer acknowledges and accepts these inherent unintended risks AND TO THE FULLEST EXTENT ALLOWED BY LAW, AGREES THAT ALL SUCH RISKS ASSOCIATED WITH THE APPLICATION AND USE ARE ASSUMED BY THE BUYER.

Valent shall not be responsible for losses or damages (including, but not limited to, loss of yield, increased expenses of farming the crop or such incidental, consequential or special damages that may be claimed) resulting from use of this product in any manner not set forth on the label. Buyer assumes all risks associated with the use of this product in any manner or under conditions not specifically directed or approved on the label.

#### LIMITED WARRANTY

Valent warrants only that this product conforms to the chemical description on the label and is reasonably fit for the purposes stated in the label, under average use conditions, when used strictly in accordance with the label and subject to the Risks of Using This Product as described above. To the extent consistent with applicable law AND AS SET FORTH ABOVE, VALENT MAKES NO OTHER WARRANTIES, EITHER EXPRESSED OR IMPLIED. No agent or representative of Valent or Seller is authorized to make or create any other express or implied warranty.

#### LIMITATION OF LIABILITY

To the fullest extent allowed by law, Valent or Seller is not liable for any incidental, consequential, indirect or special damages resulting from the use or handling of this product. The limitation includes, but is not limited to, loss of yield on all or any portion of the treated acreage, increased care, treatment or other expenses required to take the crop to harvest, increased finance charges or altered finance ratings, emotional or mental distress and/or exemplary damages. TO THE FULLEST EXTENT ALLOWED BY LAW, THE EXCLUSIVE REMEDY OF THE BUYER, AND THE EXCLUSIVE MAXIMUM LIABILITY OF VALENT OR SELLER FOR ANY AND ALL CLAIMS, LOSSES, INJURIES OR DAMAGES (INCLUDING CLAIMS BASED ON BREACH OF WARRANTY, CONTRACT, NEGLIGENCE, TORT, STRICT LIABILITY OR OTHERWISE) RESULTING FROM THE USE OR HANDLING OF THIS PRODUCT SHALL BE THE RETURN OF THE PURCHASE PRICE OF THIS PRODUCT OR, AT THE ELECTION OF VALENT OR SELLER, THE REPLACEMENT OF THE PRODUCT.

#### PROMPT NOTICE OF CLAIM

To the extent consistent with applicable law allowing such requirements Valent must be prompt provided notice as soon as Buyer has reason to believe it may have a claim, but in no event later than twenty-one days from date of planting, or twenty-one days from the date of application, whichever is latter, so that an immediate inspection of the affected property and growing crops can be made.

To the extent consistent with applicable law if Buyer does not notify Valent of any claims, in such period, it shall be barred from obtaining any remedy.

#### NO AMENDMENTS

Valent and Seller offer this product, and Buyer accepts it, subject to the foregoing Disclaimer, Risks of Using This Product, Limited Warranty and Limitation of Liability, which may not be modified by any oral or written agreement.



**FOR FORMULATION OF FLUMIOXAZIN CONTAINING HERBICIDE PRODUCTS ONLY.**

This product is intended only for use in the formulation of flumioxazin herbicide containing products. Products formulated with Flumioxazin Technical will require registration with the Environmental Protection Agency.

**DIRECTIONS FOR USE**

**Only For Formulation Into Herbicide Products Intended For The Following Uses:**

**Terrestrial Food Uses On**

**Individual Crop Uses:** Alfalfa, Asparagus, Cotton, Dry Beans, Garlic, Grapes, Mint, Onion (dry bulb), Peanut, Shallot (dry bulb), Soybean, Strawberry and Sugarcane.

**Crop Group Uses:**

**Tuberous and Corm Vegetables (Subgroup No. 1C):** arracacha, arrowroot, Chinese artichoke, Jerusalem artichoke, edible burdock, edible canna, bitter and sweet cassava, chayote (root), chufa, dasheen (taro), ginger, leren, potato, sweet potato, tanier, turmeric, bean yam and true yam.

**Fruiting Vegetables, including okra (except cucurbits) (Crop Group 8):** eggplant; groundcherry (*Physalis* spp.); Pepino; pepper (includes bell pepper, chili pepper, cooking pepper, pimento, sweet pepper); tomatillo; tomato

**Melons (Crop Group 9A):** cantaloupe, citron melon; muskmelon; watermelon

**Pome Fruit (Crop Group No. 11):** apple, crabapple, loquat, mayhew, pear, oriental pear and quince

**Stone Fruit (Crop Group No. 12):** apricot, sweet cherry, tart cherry, nectarine, peach, plum, chickasaw plum, damson plum, Japanese plum, plumcot and fresh prune.

**Bushberries (Subgroup Group No. 13B):** aronia berry; blueberry, highbush; blueberry, lowbush; buffalo currant; Chilean guava; currant, black; currant, red; elderberry; European, barberry; gooseberry; cranberry, highbush; honeysuckle, edible; huckleberry; jostaberry; Juneberry; lingonberry; native currant; salal; sea buckthorn; cultivars, varieties, and/or hybrids of these

**Nut Trees including Pistachio (Crop Group 14):** almond; beech nut; Brazil nut; butternut; cashew; chestnut; chinquapin; filbert (hazelnut); hickory nut; macadamia nut; pecan; walnut, black and English

**Terrestrial Non-Food Uses On:**

**Conifers and Deciduous Trees and Ornamental Plants Including:** Fallowland, Flowering Plants, Foliage Plants, Ground Covers, Non-Bearing Fruit Trees, Ornamentals, Ornamental Trees, Shrubs and to maintain bare ground non-crop areas of farms and Vineyards.

- **Uses for which USEPA has accepted the required data and/or citations of data that the formulator has submitted in support of registration; and**
- **Uses for experimental purposes that are in compliance with USEPA requirements.**

## **STORAGE AND DISPOSAL**

Do not contaminate water, food or feed by storage, disposal or cleaning of equipment.

### **PESTICIDE STORAGE**

Keep pesticide in original container.

Store in a cool, dry, secure place.

Do not put formulation or dilute spray solution into food or drink containers.

Not for use or storage in or around the home.

Do not contaminate food or foodstuffs.

Do not store or transport near feed or food.

For help with any spill, leak, fire or exposure involving this material, call day or night (800) 892-0099.

### **PESTICIDE DISPOSAL**

Wastes resulting from the use of this product maybe disposed of on site or at an approved waste disposal facility.

### **CONTAINER DISPOSAL**

Triple rinse (or equivalent). Do not reuse container. Offer for recycling or reconditioning or puncture and dispose of in a sanitary landfill or dispose of by other procedures allowed by State and local authorities.

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Manufactured for:  
Valent U.S.A. Corporation  
P. O. Box 8025  
Walnut Creek, CA 94596-8025  
[www.valent.com](http://www.valent.com)

EPA Reg. No. 59639-97  
EPA Est. No.

059639-00097.20080312.FLN.doc.



**Attachment 2**

**Letter from Dr. Jerry Baron, Executive Director of the IR-4 Project**



IR-4 Headquarters  
Rutgers, The State University of New Jersey  
500 College Road East, Suite 201W  
Princeton, NJ 08540  
732.932.9575 fax 609.514.2612  
[www.ir4.rutgers.edu](http://www.ir4.rutgers.edu)

March 24, 2008

Mr. Eric Maurer  
Valent USA  
1101 14<sup>th</sup> Street, NW  
Suite 1050  
Washington, DC

Subject: Extension of Exclusive Use Period for Flumioxazin

Dear Eric,

The purpose of this letter is to formally state the support of the IR-4 Project in the petition to extend the period of exclusive use of data protection for the important weed management product for specialty crops, flumioxazin. IR-4 has received 126 specific requests for assistance from growers, commodity groups, state/federal researchers and extension personnel for IR-4 to facilitate the registration of flumioxazin on specialty food crops. IR-4 also received numerous requests for assistance to facilitate registration for flumioxazin on ornamental crops.

As you know, the IR-4 Project was established in 1963 by the State Agricultural Experiment Stations to provide a mechanism to develop the data required by the regulatory authorities to support the registration on high value, low acreage crops. Over the past 45 years, the IR-4 Project has developed a formalized scheme to prioritize potential pest management solutions to pest management voids on specialty crops. Annually, IR-4 conducts a Food Use Workshop that is attended by over 200 minor use pest management experts from throughout the United States. At this workshop, the participants are allowed to identify a very small number of high priority minor projects that are worthy of attention with the IR-4 Project's limited resources. The Weed Management group is limited to only 12 high priority projects (called Priority A uses) out of the 250 potentially active projects. This is a very selective and competitive process. During this exercise, the participants include many factors in selecting their Priority A Projects. The directions specifically say "Consideration of priorities should include the availability and efficacy of alternative pest management products, the potential pest damage from the target pest, the performance of the proposed product in managing the target pest and the compatibility of the proposed product in new and existing Integrated Pest Management Programs." A copy of the directions for participants at the IR-4 Food Use Workshop is included below.

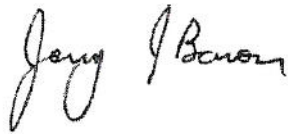
*Major funding for IR-4 is provided by Special Research Grants and Hatch Act Funds from USDA-CSREES, in cooperation with the State Agricultural Experiment Stations, and USDA-ARS.*

The need for flumioxazin on these specialty crops was clearly articulated at IR-4 Food and Ornamental Workshops by specialty crop stakeholders for projects with limited interest by Valent USA. This product was a newer class of chemistry that was managed many hard to control weeds while being safe on the crop. Based on consensus decision of the 150 plus participants at annual IR-4 Food Use Workshops, IR-4 has been conducting research with this active ingredient since 2001, and has conducted Magnitude of the Residue Studies which have supported the registration on Corm and Tuberous Vegetable Subgroup 1-C to cover sweet potato, bulb onion & garlic, Fruiting Vegetables Crop Group 8 (includes tomato, pepper, eggplant, okra), Melon Subgroup 9-A (cantaloupe, Honeydew, watermelon, ect), Bushberry Subgroup 13-B (blueberry, ect.), strawberry, Tree nut group 14, asparagus and mint. Though it is not relevant to this application, IR-4 has several other projects in the pipeline that we expect to submit shortly.

IR-4 appreciates the opportunity to work with products like flumioxazin and we are certain that our efforts will provide growers of certain specialty crops with a much needed weed management tool.

Please let me know if you need additional information or if I can answer any additional questions.

Sincerely yours,

A handwritten signature in cursive script that reads "Jerry J. Baron".

Jerry J. Baron, Ph.D  
Executive Director  
The IR-4 Project

Cc: Jeff Smith





IR-4 Headquarters  
Rutgers, The State University of New Jersey  
500 College Rd., East  
Suite 201 W  
Princeton, NJ 08540  
732.932.9575 fax 732.932.8481  
[www.ir4.rutgers.edu](http://www.ir4.rutgers.edu)

August 1, 2006

Memo To: IR-4 Food Use Workshop Participants  
From: Jerry Baron and Van Starnner  
Subject: Review materials and instructions for Food Use Workshop

Attached, please find the resource materials that will be the basis of discussion at the upcoming IR-4 Food Use Workshop (FUW) at the Radisson Hotel, City Centre in Indianapolis, IN. The review sessions are September 12 for insect management, September 13 for plant disease and nematode management and Sept 14 for weed management. Additionally, IR-4 is also sponsoring a symposium on pest management challenges for greenhouse grown food crop on Monday, September 11. All registered Food Use Workshop participants are welcome to attend this symposium (agenda attached). The primary objective of this workshop is to have the participants identify the most important research projects for IR-4's 2007 research program. **The process at this year's Food Use Workshop will be different from past years and will require your input prior to the Workshop. PLEASE READ THESE DETAILED INSTRUCTIONS CAREFULLY NOW.**

#### Getting Ready for the Workshop

In order for the workshop to be successful, we ask that review the potential project list prior to the meeting. The attached workbook contains all potential projects IR-4 has received as of **August 1, 2006**. If you know that a specific pest control products is needed on a crop, please feel free to submit a new Project Clearance Request by **September 1, 2006**. Any request received after that day may not get full consideration for research funding in 2007. Requests can be submitted via the IR-4 website (<http://ir4.rutgers.edu/FoodUse/FOODRequestForm.htm>). Please share the workbook with others who cannot make the meeting, get their opinions of importance of projects.

As noted above, we are implementing some process changes at the Food Use Workshop to allow the participants at the FUW to spend the majority of the time reviewing potential projects that are worthy of IR-4 activity. For this new process to succeed, we ask that you **review the potential project list early and identify the most important projects.** We are looking for you to name those potential projects that fill a critical pest management void. These are the projects that have potential to be the Priority A and Priority B projects for 2007. Anyone, except employees of agriculture chemical companies, can submit projects to the high priority (nomination) list.

The next step is to **transfer your list of the most important projects (nominations) to IR-4.** The IR-4 Regional Offices have established procedures to gather this information.

*Major funding for IR-4 is provided by Special Research Grants and Hatch Act Funds from USDA-CSREES, in cooperation with the State Agricultural Experiment Stations, and USDA-ARS.*



For example, the Southern Region and the North Central regions have a series of meetings, including the Southern Vegetable Workers Conference and the North Central IR-4 Regional Liaison Meeting, to gain this information. The Northeast region will finalize priorities with emails and conference calls. The Western Region has the Priority Setting Tool <http://wrir4.ucdavis.edu/fuw/> that captures this information. Phone calls and emails to the IR-4 Regional Field Coordinator are acceptable and encouraged mechanisms to nominate the most important potential IR-4 projects.

If you miss a milestone meeting/conference call you can use an on-line system to nominate your most important projects (available after August 15, 2006 off the IR-4 website <http://ir4.rutgers.edu/>). **The deadline for submitting nominations through your IR-4 Regional Field Coordinator or via the on-line system is September 6, 2006.** If you submitted your nominations through the IR-4 Regional Field Coordinator there is no need to resubmit the nomination through the on-line system. People who cannot attend the IR-4 Food Use Workshop are welcome to submit nominations.

#### At the Workshop

Please bring you IR-4 Food Use Workshop Reference Materials; you will need this for detailed information. At the start of the meeting you will receive a comprehensive list of nominated projects. These nominated projects will be the only projects reviewed, discussed and classified as Priority A, Priority B or Priority C by the workshop participants. Projects classified as "RESEARCHABLE" have been approved for IR-4 activity by the cooperating registrant. Some projects are classified as "UNDER EVALUATION". For these, IR-4 has not received formal approval to start research work. Many representatives of the companies attend the Food Use Workshop and some are empowered to approve these projects. There are also some projects on the list that are classified as "POTENTIAL" Here, the company has requested supporting crop safety and/or efficacy data prior to providing formal approval to start residue studies. IR-4 does not normally fund this supporting crop safety/efficacy data.

**Each discipline at the Food Use Workshop will be allowed to assign 12 "A" and 36 "B" Priorities.** Consideration of priorities should include the availability and efficacy of alternative pest management products, the potential pest damage from the target pest, the performance of the proposed product in managing the target pest and the compatibility of the proposed product in new and existing Integrated Pest Management Programs.

Any project on the IR-4 researchable project list that was not nominated will be classified as a Priority D project. In association with a recent IR-4 Commodity Liaison Committee recommendation, those project remaining three years as Priority D will be reclassified as "Request Withdrawn" and will no longer be considered for IR-4 activity unless a new Project Clearance Request is submitted.

#### After the Workshop

If a potential project that is important to you did not receive the coveted "A" priority at the Food Use Workshop, there are still alternative mechanisms to get the project on IR-4's 2007 research agenda. Once again, IR-4 is inviting stakeholders to submit brief upgrade proposals for consideration through the Upgrade Proposal Process. **The proposals must be received by Van Starner at IR-4 HQ by close of office on October 25, 2006, no exceptions. Your IR-4 Regional Field Coordinator should also receive a**

**copy.** E-mail submissions to IR-4 HQ ([starnar@aesop.rutgers.edu](mailto:starnar@aesop.rutgers.edu)) and your IR-4 Regional Field Coordinator are strongly encouraged. Only fully completed, concise proposals will be accepted are limited in length to 1000 words. Proposals must identify the submitter (name, affiliation, contact points), the chemical, crop and target pest combination, the IR-4 PR number, the proposed use pattern, (application rates and timing, use limitations including maximum number of applications, shortest last treatment to harvest interval), and a clear concise justification on why is the use needed. This justification statement should include a brief description of pest damage and type of economic loss, a listing of registered products and why they are inadequate, a summary of efficacy/crop safety results, and acreage affected by the pests. Supporting efficacy data/crop safety data must be submitted or already on file with IR-4.

The IR-4 Regional Field Coordinators and HQ will review the proposals and select the **top 16 for upgrading to Priority A**. Additionally, the IR-4 Regional Field Coordinators will be a small number<sup>1</sup> of "Upgrades". The intent of these Regional Upgrades are for use to upgrade projects on crops grown predominately within a specific geographic region or to upgrade a project to manage a pest with a limited geographical range on a crop that is grown in multiple geographical regions. They are not intended to replace national priorities that should have national agreement and consensus via the Food Use Workshop or Upgrade Proposal Process.

Have additional questions, contact:

**Northeast Region** - Ms. Edith Lurvey, Department of Food Science, Cornell University/NJSAES, 630 W. North Street, Geneva, NY 14456, Phone 315 787-2308 [ell10@nysaes.cornell.edu](mailto:ell10@nysaes.cornell.edu)

**North Central Region** – Dr. Satoru Miyazaki, 3900 Collins Rd, Suite 1031B, Lansing, MI 48910-8396, Phone 517 336-4611 [ncrir4@msu.edu](mailto:ncrir4@msu.edu).

**Southern Region** – Dr. Charles Meister, Food & Env. Tox. Lab., IFAS, PO Box 110720, Gainesville, FL 32611-0720, Phone 353 392-2399 [cmeister@ufl.edu](mailto:cmeister@ufl.edu).

**Western Region** – Ms. Rebecca Sisco, Univ. of California-Davis, 4218 Meyer Hall, One Shields Ave., Davis, CA, 95616, Phone 530 752-7634, [rsisco@ucdavis.edu](mailto:rsisco@ucdavis.edu)

**IR-4 Headquarters** – Dr. Van Starnar, IR-4 Project HQ, 500 College Rd, East, Suite 201 W, Princeton, NJ 08540, Phone 732-932-9575 x 4621, [starnar@aesop.rutgers.edu](mailto:starnar@aesop.rutgers.edu)

---

<sup>1</sup> The Western and Southern Regions will be allocated five upgrades and the North Central and North East will be allocated three

**Attachment 3**

**Download of an IR-4 Database Search of Flumioxazin Projects**











## Providing Safe and Effective Pest Management Solutions for Specialty Crop Growers

### General Search of Food Request Database

Found 48 records [Click on the the PR# to see more details]

View full detail report on all records below

Prnum (Priority)  = Protocol	Pesticide (MFG)	Commodity (Crop Group)	Project Status	Performance Data Available
08485	FLUMIOXAZIN (VALENT)	APPLE (11 = POME GROUP)	MFG OBJECTIVE	YES
09815  A	FLUMIOXAZIN (VALENT)	ARTICHOKE (99 = MISCELLANEOUS COMMODITY)	COMPLETE WITH ON- GOING TRIALS	NO
08059  A	FLUMIOXAZIN (VALENT)	ASPARAGUS (99 = MISCELLANEOUS COMMODITY)	TOLERANCE ESTABLISHED	YES
08058  B	FLUMIOXAZIN (VALENT)	BEAN (DRY) (06C = PEA/BEAN DRIED SHELLLED EXCEPT SOYBEAN SUBGROUP)	NOTICE OF FILING ISSUED OR PROPOSAL	YES
09043  A	FLUMIOXAZIN (VALENT)	BEAN (DRY) (06C = PEA/BEAN DRIED SHELLLED EXCEPT SOYBEAN SUBGROUP)	TOLERANCE ESTABLISHED	NO
08983	FLUMIOXAZIN (VALENT)	BEAN (SNAP) (06A = EDIBLE PODDED LEGUME SUBGROUP)	MFG WILL NOT SUPPORT	NO
08331  A	FLUMIOXAZIN (VALENT)	BLUEBERRY (13B = BUSHBERRY SUBGROUP)	TOLERANCE ESTABLISHED	YES
09519  A	FLUMIOXAZIN (VALENT)	CABBAGE (05A = HEAD/STEM BRASSICA SUBGROUP)	COMPLETE WITH ON- GOING TRIALS	YES
09700 B	FLUMIOXAZIN (VALENT)	CANE BERRY (BLACKBERRY) (13A = CANE BERRY SUBGROUP)	RESEARCHABLE	YES
08316  A	FLUMIOXAZIN (VALENT)	CANTALOUPE (09A = MELON SUBGROUP)	TOLERANCE ESTABLISHED	NO
09921	FLUMIOXAZIN (VALENT)	CANTALOUPE (09A = MELON SUBGROUP)	MFG WILL NOT SUPPORT	YES
XXXXX	FLUMIOXAZIN (VALENT)	CARROT (01AB = ROOT SUBGROUP)	DATA MINING PROJECT - NO PCR	YES

XXXXX	FLUMIOXAZIN (VALENT)	CAULIFLOWER (05A = HEAD/STEM BRASSICA SUBGROUP)	DATA MINING PROJECT - NO PCR	YES
08646 A	FLUMIOXAZIN (VALENT)	CELERY (04B = LEAF PETIOLES SUBGROUP)	FINAL REPORT COMPLETED & READY FOR SUBMISSION	YES
XXXXX	FLUMIOXAZIN (VALENT)	CHIVES (19A = HERB SUBGROUP)	DATA MINING PROJECT - NO PCR	YES
XXXXX	FLUMIOXAZIN (VALENT)	COLLARD (05B = LEAFY BRASSICA GREENS SUBGROUP)	DATA MINING PROJECT - NO PCR	YES
XXXXX	FLUMIOXAZIN (VALENT)	CORN (SWEET) (15-16 = GRAIN GROUP)	DATA MINING PROJECT - NO PCR	YES
08317 A	FLUMIOXAZIN (VALENT)	CUCUMBER (09B = SQUASH/CUCUMBER SUBGROUP)	FINAL REPORT COMPLETED & READY FOR SUBMISSION	NO
08055 A	FLUMIOXAZIN (VALENT)	GARLIC (03 = BULB GROUP)	NOTICE OF FILING ISSUED OR PROPOSAL	NO
08588	FLUMIOXAZIN (VALENT)	GRAPE (13C = OTHER BERRIES)	USE REGISTERED	YES
XXXXX	FLUMIOXAZIN (VALENT)	GREENS (MUSTARD) (05B = LEAFY BRASSICA GREENS SUBGROUP)	DATA MINING PROJECT - NO PCR	YES
09371 A	FLUMIOXAZIN (VALENT)	HOPS (99 = MISCELLANEOUS COMMODITY)	FINAL REPORT COMPLETED & READY FOR SUBMISSION	NO
XXXXX	FLUMIOXAZIN (VALENT)	KALE (05B = LEAFY BRASSICA GREENS SUBGROUP)	DATA MINING PROJECT - NO PCR	YES
08075 A	FLUMIOXAZIN (VALENT)	MINT (99 = MISCELLANEOUS COMMODITY)	USE REGISTERED	NO
08670 A	FLUMIOXAZIN (VALENT)	OLIVE (99 = MISCELLANEOUS COMMODITY)	COMPLETE WITH ON-GOING TRIALS	YES
07389 A	FLUMIOXAZIN (VALENT)	ONION (DRY BULB) (03 = BULB GROUP)	USE REGISTERED	YES
09570	FLUMIOXAZIN (VALENT)	ONION (GREEN) (03 = BULB GROUP)	MFG WILL NOT SUPPORT	YES
10013 C	FLUMIOXAZIN (VALENT)	PAW PAW (99 = MISCELLANEOUS COMMODITY)	RESEARCHABLE	NO
XXXXX	FLUMIOXAZIN (VALENT)	PEA (06C = PEA/BEAN DRIED SHELLED EXCEPT SOYBEAN SUBGROUP)	DATA MINING PROJECT - NO PCR	YES
06497	FLUMIOXAZIN (VALENT)	PEACH (12 = STONE GROUP)	MFG OBJECTIVE	YES
09346 A	FLUMIOXAZIN (VALENT)	PEACH (12 = STONE GROUP)	ALL DATA RECEIVED AT HQ	NO
08818 A	FLUMIOXAZIN (VALENT)	PECAN (14 = NUT GROUP)	TOLERANCE ESTABLISHED	NO
06321 A	FLUMIOXAZIN (VALENT)	PEPPER (BELL & NON-BELL) (08 = FRUITING GROUP)	TOLERANCE ESTABLISHED	YES
06669	FLUMIOXAZIN (VALENT)	PISTACHIO (14 = NUT GROUP)	USE REGISTERED	NO
08671 A	FLUMIOXAZIN (VALENT)	POMEGRANATE (99 = MISCELLANEOUS COMMODITY)	COMPLETE WITH ON-GOING TRIALS	YES



07964 B	FLUMIOXAZIN (VALENT)	POTATO (01CD = TUBEROUS/CORM SUBGROUP)	USE REGISTERED	YES
08647 A	FLUMIOXAZIN (VALENT)	PRICKLY PEAR CACTUS (99 = MISCELLANEOUS COMMODITY)	ALL DATA RECEIVED AT HQ	YES
XXXXX	FLUMIOXAZIN (VALENT)	SPINACH (04A = LEAFY GREENS SUBGROUP)	DATA MINING PROJECT - NO PCR	YES
08318 A	FLUMIOXAZIN (VALENT)	SQUASH (09B = SQUASH/CUCUMBER SUBGROUP)	FINAL REPORT COMPLETED & READY FOR SUBMISSION	YES
09011	FLUMIOXAZIN (VALENT)	STRAWBERRY (13C = OTHER BERRIES)	USE REGISTERED	YES
08063 A	FLUMIOXAZIN (VALENT)	STRAWBERRY (ANNUAL) (13C = OTHER BERRIES)	USE REGISTERED	NO
08323 B	FLUMIOXAZIN (VALENT)	STRAWBERRY (PERENNIAL) (13C = OTHER BERRIES)	USE REGISTERED	NO
07373	FLUMIOXAZIN (VALENT)	SUNFLOWER (99 = MISCELLANEOUS COMMODITY)	MFG WILL NOT SUPPORT	NO
08710 B	FLUMIOXAZIN (VALENT)	SWEETPOTATO (01CD = TUBEROUS/CORM SUBGROUP)	USE REGISTERED	YES
08320 A	FLUMIOXAZIN (VALENT)	TOMATO (08 = FRUITING GROUP)	TOLERANCE ESTABLISHED	YES
XXXXX	FLUMIOXAZIN (VALENT)	TURNIP (ROOTS & TOPS) (01AB = ROOT SUBGROUP)	DATA MINING PROJECT - NO PCR	YES
XXXXX	FLUMIOXAZIN (VALENT)	VEGETABLES (BRASSICA) (05 = BRASSICA LEAFY GROUP)	DATA MINING PROJECT - NO PCR	YES
08668	FLUMIOXAZIN (VALENT)	WALNUT (14 = NUT GROUP)	TOLERANCE ESTABLISHED	NO

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**Attachment 4**

**Additional Support Letters from  
The University of Georgia Extension Service and  
The Florida Fruit and Vegetable Growers Association**



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# The University of Georgia

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College of Agricultural and Environmental Sciences  
TIFTON CAMPUS

March 17, 2008

Dear Jeff,

On behalf of the Georgia fruiting vegetable and melon producers, I would like to support the development of a Section 24 C label for the use of Chateau (flumioxazin) applied to row middles between raised mulch beds. We have been working with this herbicide in these production scenarios for at least five years and have complete confidence that this will be one of the, if not the, most valuable row middle weed control tools available to vegetable growers. As long as we write the label based on the research that we have developed in cooperation with Valent, I am extremely excited about the positive impacts that this label will have on Georgia's vegetable industry.

Thanks for your continued support,

Stanley Culpepper  
University of Georgia  
Extension Agronomist - Weed Science



April 14, 2008

To Whom It May Concern:

On behalf of our vegetable producer members, the Florida Fruit and Vegetable Association is providing this communiqué in support of the new registration for Valent U.S.A. Corporation's CHATEAU<sup>®</sup> Herbicide (flumioxazin). Access to flumioxazin in its current fashion will: 1) allow for enhanced, extended management of problematic weed species that perpetually materialize in row middle areas, and 2) help to alleviate encountered control difficulties that are being noted following application of other currently registered herbicide materials. Our members produce more than 1,470,700,000 pounds of tomatoes, 446,544,000 pounds of bell peppers, 268,833,600 pounds of strawberries, 820,077,000 pounds of watermelons and 820,770,000 pounds of potatoes annually on nearly 100,000 land acres, and adequate weed management is a vital, essential mandate for each of these industries in order to remain economically viable. Florida vegetable growers have been anxiously anticipating availability of flumioxazin to aid in residual row middle weed management, and now that tolerances are in place for this chemical it is critical that the manufacturer maintain these registrations.

Flumioxazin is an important weed management tool for our growers and having it available positively impacts the ability to successfully produce these crops. Fruiting vegetable, strawberry and potato production is dependent on exceptional pre-emergent weed management for the following reasons:

1. These crops experience yield losses because of weed's competition for nutrients, water and light;
2. Weeds often serve as an alternate host for silverleaf whiteflies (SLWF), pepper weevils, aphids, thrips and leafminers, insect pests that also can vector virus diseases such as Tomato Yellow Leaf Curl Virus and tomato mottle virus;
3. Weeds interfere with the application of fungicides and insecticides by intercepting the spray before it reaches the intended target site;

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CHATEAU Herbicide

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4. Weeds blooming during cropping season bloom periods cause complete disruption of bee flight patterns to the desirable crop plant's blossoms;
5. The harvest of these crops may be impeded by weeds that obscure or prevent accessibility to the cropping plants; and,
6. The inability to manage weeds adequately in one year allows the development of many millions of seeds that creates a severe weed problem to battle for at least the next 10 years.

The availability of flumioxazin assists producers in being more efficient and profitable, and permits the workforce crews to focus on important production functions other than weed removal. Flumioxazin manages weeds such as lambsquarters, the nightshades, palmer amaranth, the pigweeds, wild mustard and wild radish in pre-emergent, residual fashion. Once activated, flumioxazin serves as a weed control barrier typically lasting 4 – 6 weeks or more. The flumioxazin registration improves pre-emergent, residual weed management for vegetable producers and encourages sustained production because it helps to eliminate the uncertainty of weed control and increases the number and availability of workers that need to be involved in other aspects of the already labor-intensive business of vegetable production.

Pre-emergent, residual weed management in vegetable row middles in Florida is extremely difficult because of the low efficacy of all available techniques applied on this unique high sand content type of soil. The results of these other techniques are highly dependent on weed spectrum, other cultural practices and environmental conditions for adequate management. For example, specific herbicidal materials provide control of certain weed species, provided that moisture is adequate and weeds are small. If either of these factors is not at optimal levels, weed management could be lost and crop phytotoxicity could result. Growers currently utilize several control methods, some of which are considered cultural control (hand hoeing, flooding in the off season, rotation with other crops, mechanical cultivation) and chemical control, which depends upon pre-emergent and burn down herbicides. While these alternative herbicidal products may be labeled for vegetable crops, they: 1) may exhibit overall poor efficacy, 2) may not have acceptable pre-emergent activity, 3) have crop phytotoxicity concerns, and/or 4) may not control particular weed species very well. Only under optimum environmental conditions and low weed pressure for specific weeds were growers afforded adequate weed control with previously existing alternative herbicidal products.

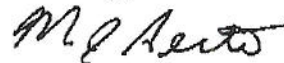
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Weeds growing in row middles are a serious problem that represents several unique challenges for Florida vegetable producers. Alternative registered herbicides alone are not providing desired pre-emergent, extended residual control. Flumioxazin has proven to be an effective herbicide in vegetable production under Florida conditions and growers are eager for its continued availability. Please feel free to contact me at your convenience should there be any concerns or questions about the importance of this registration to Florida growers.

Sincerely,



Michael J. Aerts

Environmental and Pest Management Division