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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

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HEALTH EFFECTS DIVISION  
SCIENTIFIC DATA REVIEWS  
EPA SERIES 361

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OFFICE OF  
PREVENTION, PESTICIDES AND  
TOXIC SUBSTANCES

MEMORANDUM

SUBJECT: Time-Limited Extensions of Tolerance for Residues of  
**Sethoxydim in/on Asparagus, Cranberries, Endive, Carrots,  
and Mint.**

DP Barcodes: D230569/D230581/D230580/D230582/D230578  
Caswell No.: 072A PC No.: 121001  
40 CFR No: 180.412 Class: Herbicide

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INTRODUCTION

IR-4, with support from the BASF Corporation, is requesting extensions of time-limited tolerances for the combined residues of the herbicide 2-[1-(ethoxyimino)butyl]-5-[2-(ethylthio)propyl]-3-hydroxy-2-cyclohexen-1-one (sethoxydim) and its metabolites in or on asparagus, carrots, cranberries, endive, and mint (petitions 3E4162, 2E4092, 0E3909, 2E4065, and 2E4052). IR-4 proposes amending existing tolerances to an extended expiration date of 12/31/98. The above tolerances were established as time-limited due to outstanding toxicology data requirements. At this time, the required chronic feeding/carcinogenicity study in rats has been received by the Agency, but has not been reviewed. However, based on the mouse study and preliminary evaluation of the study in rats, no carcinogenic effects are reported for sethoxydim (personal communication with J. Whalan/HED Toxicology).



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This memo estimates and characterizes the human health risk(s) due to current and proposed uses of sethoxydim with particular regard to the criteria set forth in the Food Quality Protection Act (FQPA).

#### RECOMMENDATION

HED has evaluated the data submitted in support of current sethoxydim uses and the request for extension of the above tolerances. At this time, HED has no objection to the issuance of these time-limited extensions for the subject uses of sethoxydim.

New data (other than the rat carcinogenicity study named above) has not been submitted. No additional toxicological concerns for sethoxydim exposure to infants and children have been identified. Possible additive or aggregate routes of exposure (diet and water) have been considered and the estimated acute or chronic exposure to sethoxydim does not exceed a level considered to be significant by the Agency for any population group. Due to lack of reliable data, risk from residential exposure could not be assessed at this time.

HED recommends that the time-limited tolerances for sethoxydim on mint be revised to "peppermint tops (stems and leaves) - 10 ppm" and "spearmint tops (stems and leaves) - 10 ppm."

#### Risk Characterization

**Dietary Risk:** Acute and chronic dietary risks were calculated. The estimated acute dietary risk resulted in an MOE = 1200 for the population of concern (females, 13+ years old). The assumptions in this assessment were (1) all tolerance level residues, (2) 100% crop treated, (3) no mixing of commodities, and (4) all foods consumed in a day by a person had tolerance level residues. These assumptions are extremely conservative; risk assessment using more realistic assumptions would result in an estimated MOE significantly greater than 1200. The chronic dietary risk assessment used similar conservative assumption resulting in risk estimates as high as 72% of the reference dose. Actual risks using more realistic assumptions would likely result in risk estimates an order of magnitude or more lower.

**Non-occupational (residential) Risks:** No chronic residential exposure scenario exists; therefore, there is no chronic residential risk. Although reliable data to perform an acute residential risk assessment is not available, acute risks from residential uses are expected to be small based on the low acute toxicity of this pesticide (no toxic effects seen in the 21-day rabbit dermal toxicity at dose levels up to 400 mg/kg.day). However, because there is a potential for exposure resulting from residential uses of sethoxydim, 5% of the acute risk cup is reserved for residential uses.

**Water:** Chronic water risks are conservatively estimated to be  $\leq 1\%$  RfD for adults and  $\leq 5\%$  RfD for children. MOEs for acute risk are estimated to be  $>10,000$ .

**Aggregate Exposure/Risk:** Based on the risk estimates above, aggregate chronic risks are expected to be significantly less than ca. 80% of the RfD for all population subgroups. MOEs for acute aggregate risk are expected to be significantly greater than 1000. Since there is no special sensitivity for children, there is no risk concern considering aggregate exposure to sethoxydim.

## CONCLUSIONS

### Hazard Assessment

1. Occupational/Residential Exposure Endpoint Selection
  - a) Short- and Intermediate-Term Risk. The Toxicology Endpoint Selection Committee (TESC, document dated 12-10-96) concludes this risk assessment is not required, based on the lack of any observable effects in a 21-day dermal toxicity study at the limit dose and the observation of no adverse effects in a developmental toxicity study in rabbits at the highest dose tested (400 mg/kg/day).
  - c) Chronic Risk. The TESC concluded occupational/residential sethoxydim exposure will not be chronic and risk estimates (margins of exposure) are not required for these routes.
  - d) Cancer Risk. Sethoxydim has not been classified by the Cancer Peer Review Committee or the RfD Committee. However, no positive tumor findings have been reported at this time in the evaluation of the carcinogenic mouse study or the preliminary evaluation of the rat study.
2. Dietary Endpoint Selection
  - a) Acute (One-Day) Risk. For acute dietary risk assessment, the TESC recommended use of the developmental NOEL of 180 mg/kg/day from the rat developmental study (MRID No. 43092902). At the LOEL of 650 mg/kg/day, there were decreased fetal weights, filamentous tail, lack of tail, and delayed ossification. Acute risk estimates, expressed as a margin of exposure (MOE), are based on the one-day dietary exposure estimates for the child-bearing DRES population sub-group; U.S. females aged 13+ years.

- b) Chronic Risk (Percent RfD). The reference dose (RfD) is calculated at 0.09 mg/kg of body weight/day based on the NOEL of 8.86 mg/kg/day from the 1-year feeding study in dogs (MRID No. 00152669) and an uncertainty factor of 100. This study demonstrated equivocal anemia in male dogs at the 17.5 mg/kg/day dose level.
- c) Cancer Risk. Sethoxydim has not been classified by the Cancer Peer Review Committee or the RfD Committee. (No positive tumor findings have been reported at this time in the evaluations of the rat or mouse carcinogenicity studies).
- d) Potential Risks to Infants and Children

Evaluation of potential risk to infants and children due to the use of sethoxydim is based, in part, on the following studies.

1) Developmental Studies

Rat - In the rat developmental toxicity study (MRID # 43092902), the maternal (systemic) NOEL is 180 mg/kg/day, based on irregular gait, decreased activity, excessive salivation and anogenital staining at 650 mg/kg/day. The developmental (pup) NOEL is 180 mg/kg/day, based on decreased fetal weights, filamentous tail, lack of tail, and delayed ossification at 650 mg/kg/day.

Rabbit - In the rabbit developmental toxicity study (MRID # 43092901), the maternal (systemic) NOEL is 320 mg/kg/day, based on a 37% reduction in body weight gain without significant differences in group mean body weights, and food consumption at 400 mg/kg/day. The developmental (pup) NOEL is  $\geq$  400 mg/kg/day (highest dose tested).

## 2) Reproduction Studies

Rat - In a 2-generation reproduction study in the rat (MRID nos. 41510606, 43366401) the maternal/reproductive NOEL is approximately 150 mg/kg/day, the highest dose tested. This study did not fully meet the requirements of achieving toxicity as defined by the Pesticide Assessment Guidelines (Subdivision F); however, HED considered this study usable for regulatory purposes and established a freestanding NOEL of  $\approx$  150 mg/kg/day (LOEL not established). There were no indications of toxicity, dose-related effects on fertility or difficult deliveries in either parental generation.

### Adequacy of Developmental/Reproductive Data:

The Agency considers the data summarized above to be adequate (by current guidelines) for the assessment of the potential for sethoxydim to cause adverse developmental or reproductive effects.

## Occupational Exposure/Risk

According to the Toxicology Endpoint Selection (TES) Committee document dated 12/10/96, toxicological endpoints and risk assessment are not required for short term, intermediate term, or chronic occupational exposure to sethoxydim.

## Aggregate Exposure/Risk

### A. Dietary Exposure

1. The nature of the residue in plants and animals is adequately understood. The residues of concern are sethoxydim and its metabolites containing the 2-cyclohexene-1-one moiety calculated as sethoxydim as specified in 40 CFR 180.412 (M. Rodriguez, 8/7/92, PP#2E4092, CBTS# 9394, DP Barcode D174374).

2. Adequate enforcement methodology, Method 30G, is available in PAM, Vol II to enforce the tolerance expression. Method 30G is a capillary gas chromatography method which uses flame photometric detection in the sulfur mode and determines total residues of sethoxydim and its metabolites containing the 2-cyclohexene-1-one moiety (M. Rodriguez, 8/7/92, PP#2E4092, CBTS# 9394, DP Barcode D174374).

3. Residues of sethoxydim are not expected to exceed 4.0 ppm in/on asparagus, 10 ppm in/on mint or its processed byproduct, mint oil, 2.0 ppm in/on cranberry, 2.0 ppm in/on endive, and 1.0 ppm in/on carrots as a result of this use (See Magnitude of the Residue-Crop Field Trials, Appendix I).

4. The use of sethoxydim in/on carrot culls is the only animal feed item associated with these uses. This use is considered to be a 180.6 (a) (2), Category 3 situation with respect to meat and milk. Secondary residues in animal commodities are not expected to exceed existing tolerances as a result of this use (M. Rodriguez, 8/7/92, PP#2E4092, CBTS# 9394, DP Barcode D174374).

5. International Harmonization. There are no Codex, Canadian, or Mexican tolerances for sethoxydim in/on asparagus, endive, carrots, cranberry, or mint. Therefore, there are no questions with respect to compatibility of U.S. tolerances with Codex MRLs.

6. Acute Dietary Risk. To estimate the acute dietary risk of adverse developmental effects, the one-day dietary exposure estimate for U.S. women (aged 13+ years) is compared to the endpoint of 180 mg/kg/day designated by the TES Committee. All current and subject sethoxydim uses were combined in the analysis and the residues assumed to be at tolerance level. Based on these assumptions, the maximum exposure demonstrated by the DRES database is 0.15 mg/kg/day, with risk expressed as a MOE of 1,200.

7. Chronic Dietary Risk. The following DRES chronic dietary exposure estimates are a Theoretical Maximum Residue Contribution (TMRC). TMRC assumes residues on foods are at tolerance levels and that 100 percent of each crop is treated. TMRC exposure estimates for the overall U.S. population and various population sub-groups were then compared to the sethoxydim RfD with risk expressed as a percent of the RfD.

Based on the above assumptions and including all established tolerances for sethoxydim, DRES estimates chronic exposure to sethoxydim to be 36% of the RfD for the overall U.S. population. The estimated most highly exposed DRES sub-group is children (1-6 years old) at 72% RfD. Non-nursing infants are estimated to be exposed at a level of 61% of the RfD (see Appendix III, DRES summaries).

8. Incremental Dietary Risk. The estimated incremental dietary risk from these time-limited uses is less than 1% of the RfD for the overall U.S. population and children (1-6 yrs), and 2% of the RfD for non-nursing infants.

#### B. Exposure from Water

Sethoxydim residues can migrate to ground water and surface water as evinced from the monitoring study data available to date and presented here. However, based on the available monitoring data for drinking water sources monitored for sethoxydim residues, HED does not, at this time, have a concern regarding the impacts of sethoxydim residues on drinking water with respect to human health. Even at the high levels detected in ground water in research

studies, sethoxydim residues do not pose a human health risk. However, data are unavailable to assess the environmental fate (persistence and mobility) of sethoxydim's degradates.

Sethoxydim is a cyclohexenone herbicide used in the control of annual and perennial grasses in broadleaf crops, i.e., cotton, soybeans, potatoes, sugarbeets, and vegetables. This use pattern may impact ground water and surface water, and ultimately drinking water. Therefore, an assessment of the risks posed to human health from the potential impact of the use of sethoxydim on drinking water is required. Data are available to assess the environmental fate of sethoxydim. However, complete data are lacking for the degradates of concern (see Appendix II for additional information regarding groundwater

Ground water monitoring data for sethoxydim are very limited. The data used by HED to estimate exposure in this document are from one study conducted in SE Missouri involving 40 rural domestic drinking water wells and 25 public supply drinking water wells. All of the available monitoring data for sources of drinking water in potential sethoxydim sites in this assessment show non-detectable residues of sethoxydim. Therefore, to estimate sethoxydim exposure for the purposes of exposure and risk assessment, HED has used a value equal to one-half of the limit of detection for the analytical methods used to determine sethoxydim residues in the drinking water samples. Samples from the rural domestic drinking water wells and the public supply drinking water wells were analyzed with different analytical methods with different limits of detection (0.2 ppb and 2 ppb, respectively). The following estimates will assume exposure to be at 1 ppb based on 1/2 of the higher limit of detection (2 ppb). HED has also estimated the exposure and risk associated with the highest sethoxydim residues detected in ground water.

Exposure estimates are based on the following assumptions:

- 1) Water consumption is defined as all water obtained from the household tap that is consumed either directly as a beverage or used to prepare foods (such as mixing water with a can of soup) and beverages (such as diluting frozen juice concentrate); 2) For the adult exposure calculation, the average adult body weight is assumed to be 70 kg, and it is assumed that the average adult consumes 2 liters of water (L)/day; 3) For the children's exposure, the average body weight is assumed to be 10 kg and the average water consumption is assumed to be 1 liter per day; and 4) That water from the same source containing the same contaminant level (the maximum monitored concentration available from the sources cited) is consumed throughout a 70-year lifetime (this worst-case assumption is made although most members of the U.S. population move at some time during their lifetime and do not live in the same area or drink from the same water source for a 70-year lifetime).

Exposure estimates are calculated using the following formulas:

Adults: Exposure = (chemical concentration in ug/L in consumed water) \* (10<sup>-3</sup> mg/ug) ÷ (70 kg body weight) \* (2 L water consumed/day).

Children: Exposure = (chemical concentration in ug/L in consumed water) \* (10<sup>-3</sup> mg/ug) ÷ (10 kg body weight) \* (1 L water consumed/day)

Adult Exposure: Groundwater

Sethoxydim Exposure (public supply wells) = (1 ug/L) \* (10<sup>-3</sup> mg/ug) ÷ (70 kg body weight) \* (2L/day) = 2.85 x 10<sup>-5</sup> mg/kg/day.

Sethoxydim Exposure (highest concentration detected in ground water) = (42 ug/L) \* (10<sup>-3</sup> mg/ug) ÷ (70 kg body weight) \* (2L/day) = 1.2 x 10<sup>-3</sup> mg/kg/day

Children's Exposure: Groundwater

Sethoxydim Exposure (public supply wells) = (1 ug/L) \* (10<sup>-3</sup> mg/ug) ÷ (10 kg body weight) \* (1L/day) = 1 x 10<sup>-4</sup> mg/kg/day.

Sethoxydim Exposure (highest concentration detected in ground water) = (42 ug/L) \* (10<sup>-3</sup> mg/ug) ÷ (10 kg body weight) \* (1L/day) = 4.2 x 10<sup>-3</sup> mg/kg/day

Estimated Risk: Ground Water

HED calculates a margin of exposure to estimate the risk for drinking water using the following formula:

Margin of Exposure (MOE) = NOEL (mg/kg/day) ÷ Exposure (mg/kg/day)

The acute dietary endpoint, 180 mg/kg/day, is used to calculate the acute risk and is based on the developmental NOEL of 180 mg/kg/day from the rat developmental study.

Based on the above exposure estimates, the Margin of Exposure estimates for pregnant women (and children) are greater than 10,000.

As above, chronic risk for sethoxdim in water is calculated by comparing chronic water exposure estimates to the RfD.

Adults: 2.85 x 10<sup>-5</sup> mg/kg/day = < 1 % RfD

1.20 x 10<sup>-3</sup> mg/kg/day = 1 % RfD

Children: 1.00 x 10<sup>-4</sup> mg/kg/day = < 1 % RfD

4.20 x 10<sup>-3</sup> mg/kg/day = 5 % RfD



### Exposure Estimates: Surface Water

Very limited monitoring data were available for this exposure estimate. The data available represent surface water sites that are not public water supplies, but that may ultimately feed public water supplies. The highest concentration of sethoxydim residues detected in a surface water sample was 0.87 ug/L. All other samples had non-detectable residues of sethoxydim. The same calculations as above for ground water were used to estimate the exposure to sethoxydim residues in surface water, and the associated risk < 1% RfD).

### Non-occupational Exposure

Sethoxydim is registered for residential use around ornamental plants. However, no acceptable, reliable data to assess the potential risks from such exposure are available at this time. HED reserved 5 % of the RfD to account for this possible exposure.

### Total Aggregate Exposure

Based on the available data and worst-case assumptions used for dietary/water/residential exposure and risk estimates, the population group estimated to be the most highly exposed to sethoxydim (and perhaps the most sensitive to adverse effects) is children, with a risk estimate from combined sources of approximately 82% of the RfD (specifically, food: 72%, water: 5%, lawn: 5%).

### **Determination of Safety for Infants and Children**

The toxicological database for evaluating pre- and postnatal toxicity for sethoxydim is complete. Available data indicate that no developmental toxicity was observed in the rabbit study at the highest dose tested (400 mg/kg/day). Maternal toxicity was observed in the rabbit at the highest dose tested and consisted of significant reductions in body weight gain and food consumption. In the rat developmental study developmental toxicity was observed in the presence of significant maternal toxicity at a high dose level (650 mg/kg/day). There was no parental or reproductive toxicity observed in a multigeneration reproduction study at doses up to 150 mg/kg/day (highest dose tested). These data taken together suggest minimal concern for developmental or reproductive toxicity and do not indicate any increased pre- or postnatal sensitivity; and no additional uncertainty factor for increased sensitivity in infants and children is appropriate.

### **Cumulative Effects**

Sethoxydim is structurally similar to other members of the cyclohexenone class of herbicides (i.e., clethodim and cycloxydim).

Further, other pesticides may have common toxicity endpoints with sethoxydim.

However, the Agency has not made a determination whether sethoxydim and any other pesticide have a common mode of toxicity and require cumulative risk assessment. For the purposes of this tolerance and registration application, the Agency has considered only risks from sethoxydim. If required, cumulative risks will be assessed as part of Reregistration and tolerance reassessment, and when methodologies for determining common mode of toxicity and for performing cumulative risk assessment are finalized.

cc: RCAB files

cc: PP#3E4162, 2E4092, 0E3909, 2E4065, and 2E4052, Griffin

RDI: Team (12/20/96), M.S. Metzger (//96)

Richard Griffin:CM#2:(703)305-5715:7509C:RCAB

## APPENDIX I:

Magnitude of the Residue-Crop Field Trials

The following summary of residue field trial data are reproduced from previous CBTS reviews as noted below. No new residue data were presented with this revised petition.

**ASPARAGUS (D. Davis, 12/7/92, PP#3E4162, CBTS# 10706, DP Barcode D183351)**

Eight crop field trials in five states (CA, WA, MI, IL, NJ) were conducted to provide residue chemistry data to support registration of sethoxydim for use on asparagus. Six varieties of asparagus were planted at the eight sites which represent 95% of the asparagus production in the US. Each site received an initial treatment with Poast® herbicide and crop oil concentrate at a rate of 2.5 pints/A (0.5 lb ai/A) and 1 qt/A respectively. One day after treatment, each site was harvested. A second application of Poast® and crop oil concentrate at 2.5 pints/A (0.5 lb ai/A) and 1 qt/A, respectively was applied 14-18 days following the first treatment. Again, the day following the application, asparagus spears were harvested.

Residues of sethoxydim in/on asparagus ranged from <0.1 ppm to 2.14 ppm.

**MINT (W. Wassell, 2/11/92, PP#2E4052, CBTS# 9078, DP Barcode D172349)**

Nine crop field trials were conducted during 1988 in six states (Indiana(2), Michigan, Oregon(2), Utah, Washington(2), and Wisconsin) to provide residue chemistry data to support the registration of sethoxydim for use on mint. Four field trials utilized spearmint and five utilized peppermint. In all trials, two applications of Poast® herbicide plus crop oil concentrate were made using ground equipment at rates of 0.5 lbs ai/A plus 1 quart/A, respectively. Retreatment intervals of 14 to 18 days were observed and all second applications were made 20 days prior to cutting of the mint. Whole green plant samples were collected on the day of cutting. Plants were allowed to air dry for one to four days and then collected as mint hay samples. In one field trial (Washington) mint hay samples were not collected since mint in this area is normally processed the same day as cutting.

Residues of sethoxydim in/on mint ranged from 2.5 ppm to 25.9 ppm.

**CARROTS (M. Rodriguez, 8/7/92, PP#2E4092, CBTS# 9394, DP Barcode D174374)**

Field studies were conducted in California, Texas, Michigan, Washington, New York, Florida, Wisconsin and New Jersey in order to obtain sethoxydim treated carrot samples for residue analysis.

In all the studies, two applications of 0.5 pounds of the active ingredient sethoxydim per Acre were applied to growing carrots with the first application being made approximately 2 to 3 weeks after carrot leaf emergence. The second application was made within 21 to 28 days of harvest. All sprays included crop oil concentrate. In the Florida study, the two fields were planted in collards, then to sweet corn, and then flooded to planting carrots.

The results of the residue analysis indicate that the maximum residue recovered in treated carrots was 0.72 ppm (PHI - 25 days).

**ENDIVE (M. Peters, 6/24/92, PP#2E4065, CBTS # 9130, DP Barcode 172550.**

Crop field trials of leaf lettuce and spinach were conducted in 16 states (AZ, AR, CA, CO, FL, MA, MI, MN, MS, NJ, NY, OK, OR, TN, TX, WA) and for endive in Florida to provide residue chemistry data in support of the registration of sethoxydim for use on these crops. For the endive trial, a single application of Poast® herbicide was made using ground equipment at a rate of 0.3 lb ai/A, 29-30 days before harvest. Leaf lettuce and spinach crops received a single or double application at a rate of 0.3 lbs ai/A. The preharvest interval varied with respect to the field trial.

Residues ranged from <0.05 ppm to 0.17 ppm in/on endive at a PHI of 29-30 days and an application rate of 0.3 lbs ai/A (1/2X). Residues were <0.05 ppm - 1.47 in/on leaf lettuce and spinach at PHIs of 13 days or greater (1X).

**CRANBERRY (M. J. Nelson, 2/14/91, PP#0E3909, DEB No. 7095)**

Five field trials were conducted in Wisconsin (2), Massachusetts, and Washington(2). One to three application at 0.5 to 2.0 lbs ai/A were applied to cranberries. PHIs of 31 to 110 days were utilized.

Residues ranged from 0.57 ppm to 2.20 ppm (1 sample) at the 1X rate. (1.0 lb ai/A, 60 day PHI).

**APPENDIX II.**Environmental Fate Profile

Sethoxydim is a non-persistent, but highly mobile compound in soil and water environments. It degrades to four compounds containing the 2-cyclohexenone-1-one moiety. Of these four degradates, 2-(1-ethoxyiminobutyl)-5-[2-ethylsulfinyl]propyl]-3-hydroxycyclohex-2-enone (M-SO) is the major degrade seen in the majority of environmental fate studies reviewed.

The HED Metabolism Committee has determined that the residues of concern for sethoxydim include the parent and all compounds containing the 2-cyclohexenone-1-one moiety. An environmental fate profile for sethoxydim is given below:

Solubility:	4.7 x 10 <sup>3</sup> ppm
Hydrolysis:	8.7 days (pH = 5)
	155 days (pH = 7)
	284 days (pH = 8.7)
Photolysis (water) t <sub>1/2</sub> :	5.3 days (pH = 8.7)
Photolysis (soil) t <sub>1/2</sub> :	1 hour
Soil t <sub>1/2</sub> (aerobic):	< 1 day
Aquatic t <sub>1/2</sub> (aerobic):	≤ 1 day
Mobility:	Kd = < 1 ml/gm (highly mobile)

Monitoring Data: Ground Water

The EFGWB One-Liner database, the "Pesticides in Ground Water Database", and miscellaneous data were searched for monitoring data on sethoxydim residues. Information on sethoxydim residues in ground water is very limited. In SE Missouri, 40 rural domestic wells, 25 public drinking water supply wells, and 5 surface water sites were monitored (see below). The wells and surface water sites were chosen from an area noted for its cotton, rice, corn, wheat, sorghum, and soybean crops. Although sethoxydim is registered for use on several of these crops, i.e., corn, cotton and soybeans, there was no specific attempt to associate the sampling sites with sethoxydim used in the area. The rural wells were sampled twice, once in June 1986 and once in November 1986. The rural wells sampled derived their water from the Mississippi River Valley Alluvial Aquifer and were 17 to 100 feet in depth. No residues of sethoxydim were detected in any of the samples. The limit of detection used in the analytical method to determine sethoxydim residues in ground water sampled from rural wells was 0.2 ppb. The 25 public supply wells were sampled once, only in November 1986, derived their water from the same and deeper aquifers as the rural wells, and were 90 to 1650 feet in depth. No sethoxydim residues were detected in any of the samples taken. The limit of detection used in the analytical method to determine

sethoxydim residues in ground water sampled from public wells was 2 ppb.

A monitoring study conducted in Westmoreland County, Virginia in the Nomini Creek Watershed included surface water and ground water sampling sites. Eight wells (not drinking water wells) were installed and monitored monthly from June 1986 to December 1990. Residues of sethoxydim were detected in ground water and surface water in samples taken from July 1986 to March 1987. Sethoxydim was detected in three separate wells. Concentrations were reported as 2.1, 4.0, and 42 ppb in the wells, respectively. The use of sethoxydim within the watershed was confirmed through soil sampling conducted in March and November of 1986. These wells may not have been representative of drinking water in the area.

#### Monitoring Data: Surface Water

The 5 surface water sites in SE Missouri were determined to be representative of ditches and streams that drain the five major basins from this area. Five samples were taken in June 1986. No residues of sethoxydim were detected in the samples analyzed. The limit of detection for the analytical method used to determine sethoxydim residues was 5 ppb.

In Virginia, surface water samples collected had nondetectable residues of sethoxydim, with the exception of one sample containing 0.87 ppb of sethoxydim residues.

#### HEALTH CRITERIA

There are no published health criteria for sethoxydim.

#### APPENDIX III. (ATTACHED)

- DRES Tolerance Summary
- Dietary Exposure/Risk Estimates
- Summary Incremental Risk
- Residue Summary for Acute Risk

CHEMICAL INFORMATION FOR CASHELL NUMBER 072A DATE: 12/11/96 PAGE: 1

CHEMICAL	STUDY TYPE	EFFECTS	REFERENCE DOSES	DATA GAPS/COMMENTS	STATUS
Sethoxydim (Poast) Caswell #072A CAS No. 74051-80-2 A.I. CODE: 121001 CFR No. 180.412 185.2800	1yr feeding- dog NOEL= 8.8600 mg/kg 300.00 ppm LEL= 17.5000 mg/kg 600.00 ppm ONCO: Negative- 2 species	Mild anemia in males (Actual dose tested)  No evidence of carcinog- enicity in rats or mice.	ADI UF -->100 OPP Rfd= 0.0900000 EPA Rfd= 0.0900000	Carcinogenicity- rat (Current rat study has unresolved MTD issue)	EPA verified 09/02/86 HED reassess 10/24/86 EPA verified 10/28/86 HED reassess 05/10/89 EPA verified 06/15/89 On IRIS.

FOOD CODE	FOOD NAME	PETITION NUMBER	TOLERANCE (PPM)		
			NEW	PENDING	PUBLISHED
01006AA	RASPBERRIES	6F3383			5.0000
01009AA	BLUEBERRIES	8F3606			4.0000
01010AA	CRANBERRIES	0E3909	2.0000		
01010JA	CRANBERRIES-JUICE	0E3909	2.0000		
01014AA	GRAPES-FRESH	8F3660			0.2000
01014DA	GRAPES-RAISINS	8F3660			1.0000 H
01014JA	GRAPES-JUICE	8F3660			0.2000
01016AA	STRAWBERRIES	0F3831			10.0000
02001AA	CITRUS CITRON	8F3606			0.5000
02002AA	GRAPEFRUIT-UNSPECIFIED	8F3606			0.5000
02002AB	GRAPEFRUIT-PULP	8F3606			0.5000
02002JA	GRAPEFRUIT-JUICE	8F3606			0.5000
02003AA	KUMQUATS	8F3606			0.5000
02004AA	LEMONS-UNSPECIFIED	8F3606			0.5000
02004AB	LEMONS-PULP	8F3606			0.5000
02004HA	LEMONS-PEEL	8F3606			0.5000
02004JA	LEMONS-JUICE	8F3606			0.5000
02005AA	LIMES-UNSPECIFIED	8F3606			0.5000
02005AB	LIMES-PULP	8F3606			0.5000
02005HA	LIMES-PEEL	8F3606			0.5000
02005JA	LIMES-JUICE	8F3606			0.5000
02006AA	ORANGES-UNSPECIFIED	8F3606			0.5000
02006AB	ORANGES-PULP	8F3606			0.5000
02006HA	ORANGES-PEEL	8F3606			0.5000
02006JA	ORANGES-JUICE	8F3606			0.5000
02007AA	TANGELOS	8F3606			0.5000
02008AA	TANGERINES	8F3606			0.5000
02008JA	TANGERINE-JUICE	8F3606			0.5000
03001AA	ALMONDS	0F3855			0.2000
03002AA	BRAZIL NUTS	0F3855			0.2000
03003AA	CASHEWS	0F3855			0.2000
03004AA	CHESTNUTS	0F3855			0.2000
03005AA	FILBERTS, HAZELNUTS	0F3855			0.2000
03006AA	HICKORY NUTS	0F3855			0.2000
03007AA	MACADAMIA NUTS (BUSH NUTS)	0F3855			0.2000
03008AA	PECANS	0F3855			0.2000
03009AA	WALNUTS	0F3855			0.2000
03010AA	BUTTER NUTS	0F3855			0.2000
03013AA	BEECHNUTS	0F3855			0.2000
04003AA	PEARS-FRESH	8F3629			0.2000

CHEMICAL INFORMATION FOR CASWELL NUMBER 072A DATE: 12/11/96 PAGE: 2

CHEMICAL	STUDY TYPE	EFFECTS	REFERENCE DOSES	DATA GAPS/COMMENTS	STATUS
Sethoxydim (Poast) Caswell #072A CAS No. 74051-80-2 A.I. CODE: 121001 CFR No. 180.412 185.2800	1yr feeding- dog NOEL= 8,8600 mg/kg 300.00 ppm LEL= 17,5000 mg/kg 600.00 ppm ONCO: Negative- 2 species	Mild anemia in males (Actual dose tested)  No evidence of carcinog- enicity in rats of mice.	ADI UF -->100 OPP Rfd= 0.090000 EPA Rfd= 0.090000	Carcinogenicity- rat (Current rat study has unresolved MTD issue)	EPA verified 09/02/86 HED reassess 10/24/86 EPA verified 10/28/86 HED reassess 05/10/89 EPA verified 06/15/89 On IRIS.

FOOD CODE	FOOD NAME	PETITION NUMBER	NEW	TOLERANCE (PPM)	PENDING	PUBLISHED
04003DA	PEARS-DRIED	8F3629		0.2000		
04004AA	QUINCES	8F3629		0.2000		
10002AA	CANTALOUPE-UNSPECIFIED	4F4413		4.0000		
10002AB	CANTALOUPE-PULP	4F4413		4.0000		
10003AA	CASABAS	4F4413		4.0000		
10004AA	CRENSHAW	4F4413		4.0000		
10005AA	HONEYDEW MELONS	4F4413		4.0000		
10007AA	PERSION MELONS	4F4413		4.0000		
10008AA	WATERMELON	4F4413		4.0000		
10010AA	CUCUMBERS	4F4413		4.0000		
10011AA	PUMPKIN	4F4413		4.0000		
10013AA	SQUASH-SUMMER	4F4413		4.0000		
10014AA	SQUASH-WINTER	4F4413		4.0000		
10017AA	BITTER MELON	4F4413		4.0000		
10020AA	TOMELGOURD	4F4413		4.0000		
11001AA	EGGPLANT	5F3284		4.0000		
11003AA	PEPPERS,SWEET,GARDEN	5F3284		4.0000		
11003AB	CHILI PEPPERS	5F3284		4.0000		
11003AO	PEPPERS-OTHER	5F3284		4.0000		
11004AA	PIMENTOS	5F3284		4.0000		
11005AA	TOMATOES-WHOLE	5F3284		4.0000		
11005JA	TOMATOES-JUICE	5F3284		24.0000	H	
11005RA	TOMATOES-PUREE	5F3284		24.0000	H	
11005TA	TOMATOES-PASTE	5F3284		24.0000	H	
11005UA	TOMATOES-CATSUP	5F3284		24.0000	H	
13002AA	CELERY	8F3577		1.0000		
13005AA	BROCCOLI	6F3452		5.0000		
13006AA	BRUSSEL SPROUTS	6F3452		5.0000		
13007AA	CABBAGE-GREEN AND RED	6F3452		5.0000		
13008AA	CAULIFLOWER	6F3452		5.0000		
13009AA	COLLARDS	6F3452		5.0000		
13010AA	CABBAGE-CHINESE/CELERY, INC. BOK CHOY	6F3452		5.0000		
13011AA	KALE	6F3452		5.0000		
13012AA	KOHLRABI	8F3577		2.0000		
13013AA	LETTUCE-LEAFY VARIETIES	2E4065		2.0000		
13015AA	ENDIVE,CURLEY AND ESCAROLE	8F3577		5.0000		
13016AA	FENNEL	7E3549		5.0000		
13018AA	ARTICHOKES-GLOBE	8F3577		2.0000		
13020AA	LETTUCE-UNSPECIFIED	8F3577		5.0000		
13021AA	MUSTARD GREENS	6F3452		5.0000		



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CHEMICAL	STUDY TYPE	EFFECTS	REFERENCE DOSES	DATA GAPS/COMMENTS	STATUS
Sethoxydim (Poast) Caswell #072A CAS No. 74051-80-2 A.I. CODE: 121001 CFR No. 180.412 185.2800	1yr feeding- dog NOEL= 8.8600 mg/kg 300.00 ppm LEL= 17.5000 mg/kg 600.00 ppm DNCO: Negative- 2 species	Mild anemia in males (Actual dose tested)  No evidence of carcinog- enicity in rats or mice.	ADI UF -->100 OPP Rfd= 0.090000 EPA Rfd= 0.090000	Carcinogenicity- rat (Current rat study has unresolved MTD issue)	EPA verified 09/02/86 HED reassess 10/24/86 EPA verified 10/28/86 HED reassess 05/10/89 EPA verified 06/15/89 On IRIS.

FOOD CODE	FOOD NAME	PETITION NUMBER	NEW	TOLERANCE (PPM)	PUBLISHED
13023AA	RHUBARB	9E3760		0.3000	
13024AA	SPINACH	8F3577		4.0000	
13045AA	LETTUCE- HEAD VARIETIES	8F3577		1.0000	
14003AA	CARROTS	2E4092	1.0000		
14007AA	GARLIC	8F3678		1.0000	
14010AA	LEEKS	8F3678		1.0000	
14011AA	ONIONS- DRY- BULB (CIPOLLINI)	8F3678		1.0000	
14011DA	ONIONS- DEHYDRATED OR DRIED	8F3678		1.0000	
14013AA	POTATOES(WHITE)-WHOLE	7F3529		4.0000	
14013AB	POTATOES(WHITE)-UNSPECIFIED	7F3529		4.0000	
14013AC	POTATOES(WHITE)-PEELED	7F3529		4.0000	
14013DA	POTATOES(WHITE)-DRY	7F3529		8.0000	H
14013HA	POTATOES(WHITE)-PEEL ONLY	7F3529		4.0000	
14017AA	SHALLOTS	8F3678		1.0000	
14018AA	SHEETPOTATOES (INCLUDING YAMS)	9E3789		4.0000	
15001AA	BEANS- DRY- GREAT NORTHERN	8F3640		20.0000	
15001AB	BEANS- DRY- KIDNEY	8F3640		20.0000	
15001AC	BEANS- DRY- LIMA	8F3640		20.0000	
15001AD	BEANS- DRY- NAVY (PEA)	8F3640		20.0000	
15001AE	BEANS- DRY- OTHER	8F3640		20.0000	
15001AF	BEANS- DRY- PINTO	8F3640		20.0000	
15002AA	BEANS- SUCCULENT- LIMA	8F3640		5.0000	
15003AA	BEANS- SUCCULENT- GREEN	8F3640		5.0000	
15003AB	BEANS- SUCCULENT- OTHER	8F3640		5.0000	
15003AC	BEANS- SUCCULENT- YELLOW, WAX	8F3640		5.0000	
15005AA	CORN, SWEET	9F3806		0.2000	
15006AA	PEANUTS- WHOLE	5F3234		25.0000	
15007AA	PEAS(GARDEN)- MATURE SEEDS, DRY	8F3640		40.0000	
15009AA	PEAS(GARDEN)- GREEN IMMATURE	8F3640		10.0000	
15011AA	LENTILES- WHOLE	8E3597		30.0000	
15011AB	LENTILES- SPLIT	8E3597		30.0000	
15013AA	MUNG BEANS (SPROUTS)	8F3640		5.0000	
15018AA	SUNFLOWER- SEEDS	5F3234		7.0000	
15022AA	BEANS- DRY- BROADBEANS(MATURE SEED)	8F3640		20.0000	
15022AB	BEANS- SUCCULENT- BROADBEANS(IMMAT. SEED)	8F3640		5.0000	
15023AA	BEANS- DRY- PIGEON BEANS	8F3640		20.0000	
15027AA	BEANS- UNSPECIFIED	8F3640		20.0000	
15029AA	SOYBEANS- SPROUTED SEEDS	2F2670		10.0000	
15030AA	BEANS- DRY- HYACINTH(MATURE SEEDS)	8F3640		20.0000	
15030AB	BEANS- SUCCULENT- HYACINTH(YOUNG PODS)	8F3640		5.0000	

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CHEMICAL	STUDY TYPE	EFFECTS	REFERENCE DOSES	DATA GAPS/COMMENTS	STATUS
Sethoxydim (Poast) Caswell #072A CAS No. 74051-80-2 A.1. CODE: 121001 CFR No. 180.412 185.2800	1yr feeding- dog NOEL= 8.8600 mg/kg 300.00 ppm LEL= 17.5000 mg/kg 600.00 ppm ONCO: Negative- 2 species	Mild anemia in males (Actual dose tested)  No evidence of carcinog- enicity in rats or mice.	ADI UF -->100 OPP Rfd= 0.090000 EPA Rfd= 0.090000	Carcinogenicity- rat (Current rat study has unresolved MTD issue)	EPA verified 09/02/86 HED reassess 10/24/86 EPA verified 10/28/86 HED reassess 05/10/89 EPA verified 06/15/89 On IRIS.

FOOD CODE	FOOD NAME	PETITION NUMBER	TOLERANCE (PPM)	
			NEW	PUBLISHED
15031AA	BEANS-DRY-BLACKEYE PEAS(COMPEAS)	8F3640		20.0000
15032AA	BEANS-DRY-GARBANZO(CHICK PEA)	8F3640		20.0000
16002AA	ASPARAGUS	3E4162	4.0000	
16004AA	ONIONS-GREEN	8F3678		1.0000
24002EA	CORN, GRAIN-ENDOSPERM	9F3806		0.5000
24002HA	CORN, GRAIN-BRAN	9F3806		0.5000
24002SA	CORN SUGAR	9F3806		0.5000
25002SA	BET SUGAR	3F2950		0.1000
270020A	CORN, GRAIN-OIL	4F4344		0.5000
270030A	COTTONSEED-OIL	2F2748		5.0000
27003WA	COTTONSEED-WEAL	2F2748		5.0000
27004AA	FLAX SEED	6E3411		5.0000
270070A	PEANUTS-OIL	5F3234		25.0000
270100A	SOYBEANS-OIL	2F2670		10.0000
270110A	SUNFLOWER-OIL	5F3234		7.0000
27017AA	RAPE SEED	2F4041		35.0000
28023AA	SOYBEANS-UNSPECIFIED	2F2670		10.0000
28023AB	SOYBEANS-MATURE, SEEDS DRY	2F2670		10.0000
28023WA	SOYBEANS-FLOUR, FULL FAT	2F2670		10.0000
28023WB	SOYBEANS-FLOUR, LOW FAT	2F2670		10.0000
28023WC	SOYBEANS-FLOUR, DEFATTED	2F2670		10.0000
28080AA	PEPPERMINT	2E4052	30.0000	
280800A	PEPPERMINT-OIL	2E4052	30.0000	
28081AA	SPEARMINT	2E4052	30.0000	
280810A	SPEARMINT-OIL	2E4052	30.0000	
43058AA	WINE AND SHERRY	8F3660		0.2000
50000DB	MILK-NON-FAT SOLIDS	2F2670		0.0500
50000FA	MILK-FAT SOLIDS	2F2670		0.0500
50000SA	MILK SUGAR (LACTOSE)	2F2670		0.0500
53001BA	BEEF-MEAT BYPRODUCTS	2F2670		0.2000
53001BB	BEEF(ORGAN MEATS)-OTHER	2F2670		0.2000
53001DA	BEEF-DRIED	2F2670		0.2000
53001FA	BEEF(BONELESS)-FAT (BEEF TALLOW)	2F2670		0.2000
53001KA	BEEF(ORGAN MEATS)-KIDNEY	2F2670		0.2000
53001LA	BEEF(ORGAN MEATS)-LIVER	2F2670		0.2000
53001MA	BEEF(BONELESS)-LEAN (W/O REMOVEABLE FAT)	2F2670		0.2000
53002BA	GOAT-MEAT BYPRODUCTS	2F2670		0.2000
53002BB	GOAT(ORGAN MEATS)-OTHER	2F2670		0.2000
53002FA	GOAT(BONELESS)-FAT	2F2670		0.2000
53002KA	GOAT(ORGAN MEATS)-KIDNEY	2F2670		0.2000

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<b>CHEMICAL</b> Sethoxydim (Poast) Caswell #072A CAS No. 74051-80-2 A.I. CODE: 121001 CFR No. 180.412 185.2800	<b>STUDY TYPE</b> 1yr feeding- dog NOEL= 8.8600 mg/kg 300.00 ppm LEL= 17.5000 mg/kg 600.00 ppm ONCO: Negative- 2 species	<b>EFFECTS</b> Mild anemia in males (Actual dose tested)  No evidence of carcinog- enicity in rats or mice.	<b>REFERENCE DOSES</b> ADI UF -->100 OPP RfD= 0.090000 EPA RfD= 0.090000	<b>DATA GAPS/COMMENTS</b> Carcinogenicity- rat (Current rat study has unresolved MTD issue)	<b>STATUS</b> EPA verified 09/02/86 HED reassess 10/24/86 EPA verified 10/28/86 HED reassess 05/10/89 EPA verified 06/15/89 On IRIS.

FOOD CODE	FOOD NAME	PETITION NUMBER	TOLERANCE (PPM)	
			NEW	PUBLISHED
53002LA	GOAT(ORGAN MEATS)-LIVER	2F2670		0.2000
53002MA	GOAT(BONELESS)-LEAN (W/O REMOVEABLE FAT)	2F2670		0.2000
53003AA	HORSE	2F2670		0.2000
53005BA	SHEEP-MEAT BYPRODUCTS	2F2670		0.2000
53005BB	SHEEP(ORGAN MEATS)-OTHER	2F2670		0.2000
53005FA	SHEEP(BONELESS)-FAT	2F2670		0.2000
53005KA	SHEEP(ORGAN MEATS)-KIDNEY	2F2670		0.2000
53005LA	SHEEP(ORGAN MEATS)-LIVER	2F2670		0.2000
53005MA	SHEEP(BONELESS)-LEAN (W/O REMOVEABLE FAT)	2F2670		0.2000
53006BA	PORK-MEAT BYPRODUCTS	2F2670		0.2000
53006BB	PORK(ORGAN MEATS)-OTHER	2F2670		0.2000
53006FA	PORK(BONELESS)-FAT (INCLUDING LARD)	2F2670		0.2000
53006KA	PORK(ORGAN MEATS)-KIDNEY	2F2670		0.2000
53006LA	PORK(ORGAN MEATS)-LIVER	2F2670		0.2000
53006MA	PORK(BONELESS)-LEAN (W/O REMOVEABLE FAT)	2F2670		0.2000
55008BA	TURKEY-BYPRODUCTS	8F3640		2.0000
55008LA	TURKEY-GIBLETS (LIVER)	8F3640		2.0000
55008MA	TURKEY-FLESH(W/O SKIN, W/O BONES)	2F2670		0.2000
55008MB	TURKEY-FLESH(+SKIN,W/O BONES)	2F2670		0.2000
55008MC	TURKEY-UNSPECIFIED	8F3640		2.0000
55013BA	POULTRY,OTHER-BYPRODUCTS	8F3640		2.0000
55013LA	POULTRY,OTHER-GIBLETS(LIVER)	8F3640		2.0000
55013MA	POULTRY,OTHER-FLESH (+SKIN,W/O BONES)	2F2670		0.2000
55014AA	EGGS-WHOLE	8F3640		2.0000
55014AB	EGGS-WHITE ONLY	8F3640		2.0000
55014AC	EGGS-YOLK ONLY	8F3640		2.0000
55015BA	CHICKEN-BYPRODUCTS	8F3640		2.0000
55015LA	CHICKEN-GIBLETS(LIVER)	8F3640		2.0000
55015M	CHICKEN-FLESH(+SKIN,W/O BONES)	2F2670		0.2000
55015MA	CHICKEN-FLESH(W/O SKIN,W/O BONES)	2F2670		0.2000

CHEMICAL INFORMATION		STUDY TYPE		EFFECTS		REFERENCE DOSES		DATA GAPS/COMMENTS		STATUS	
Sethoxydim (Poast) Caswell #072A CAS No. 74051-80-2 A.I. CODE: 121001 CFR No. 180.412 185.2800		1yr feeding- dog NOEL= 8.8600 mg/kg 300.00 ppm LEL= 17.5000 mg/kg 600.00 ppm ONCO: Negative- 2 species		Mild anemia in males (Actual dose tested)  No evidence of carcinogenicity in rats or mice.		ADI OPP RfD= 0.090000 EPA RfD= 0.090000		Carcinogenicity- rat (Current rat study has unresolved MTD issue)		EPA verified 09/02/86 HED reassess 10/24/86 EPA verified 10/28/86 HED reassess 05/10/89 EPA verified 06/15/89 On IRIS.	
POPULATION SUBGROUP		TOTAL TMRC (MG/KG BODY WEIGHT/DAY)		NEW TMRC**		NEW TMRC AS PERCENT OF RFD		DIFFERENCE AS PERCENT OF RFD		EFFECT OF ANTICIPATED RESIDUES	
		CURRENT TMRC*								ARC	
										%RFD	
U.S. POPULATION - 48 STATES		0.032424	0.032742	36.379544	0.352600						
U.S. POPULATION - SPRING SEASON		0.031816	0.032112	35.680503	0.329112						
U.S. POPULATION - SUMMER SEASON		0.032754	0.033021	36.689839	0.296029						
U.S. POPULATION - FALL SEASON		0.032752	0.033054	36.727203	0.336259						
U.S. POPULATION - WINTER SEASON		0.032305	0.032624	36.248493	0.353589						
NORTHEAST REGION		0.030557	0.030910	34.344991	0.392822						
NORTH CENTRAL REGION		0.032282	0.032570	36.189108	0.320190						
SOUTHERN REGION		0.033086	0.033304	37.004946	0.243123						
WESTERN REGION		0.033908	0.034271	38.079097	0.403600						
HISPANICS		0.038749	0.039007	43.341209	0.286336						
NON-HISPANIC WHITES		0.032075	0.032393	35.992484	0.353732						
NON-HISPANIC BLACKS		0.031547	0.031718	35.241936	0.189666						
NON-HISPANIC OTHERS		0.032432	0.032712	36.346310	0.310963						
NURSING INFANTS (< 1 YEAR OLD)		0.017795	0.018836	20.928928	1.156697						
NON-NURSING INFANTS (< 1 YEAR OLD)		0.053148	0.054656	60.728666	1.675140						
FEMALES (13+ YEARS, PREGNANT)		0.025453	0.025589	28.432610	0.151921						
FEMALES 13+ YEARS, NURSING		0.027474	0.027782	30.868470	0.341429						
CHILDREN (1-6 YEARS OLD)		0.065072	0.065611	72.901584	0.598932						
CHILDREN (7-12 YEARS OLD)		0.048482	0.048794	54.215918	0.347288						
MALES (13-19 YEARS OLD)		0.033172	0.033354	37.060271	0.202219						
FEMALES (13-19 YEARS OLD, NOT PREG. OR NURSING)		0.027701	0.027886	30.984779	0.206089						
MALES (20 YEARS AND OLDER)		0.026226	0.026465	29.405913	0.265610						
FEMALES (20 YEARS AND OLDER, NOT PREG. OR NURS)		0.024309	0.024581	27.312454	0.302851						

\*Current TMRC does not include new or pending tolerances.  
 \*\*New TMRC includes new, pending, and published tolerances.

TOLERANCE ASSESSMENT SUMMARY FOR Sethoxydim (Poast)  
CASWELL #072A

DATE: 12/11/96

## ANALYSIS FOR POPULATION SUB-GROUP: U.S. POPULATION - 48 STATES

EXISTING TOLERANCES (PUBLISHED ONLY)		
RESULT IN A TMRC OF:	0.032425	MG/KG/DAY
THE EXISTING TMRC IS EQUIVALENT TO:	36.027	% OF THE ADI.
PROPOSED NEW TOLERANCES (CURRENT PETITION ONLY)		
RESULT IN A TMRC OF:	0.000318	MG/KG/DAY
THESE NEW TOLERANCES WILL OCCUPY:	0.353	% OF THE ADI.
IF THE NEW TOLERANCES (CURRENT PETITION ONLY)		
ARE APPROVED THE RESULTANT TMRC WILL BE:	0.032742	MG/KG/DAY
THE NEW TMRC WILL OCCUPY	36.380	% OF THE ADI.

NO OTHER PENDING TOLERANCES ARE IN THE FILE

## ANALYSIS FOR POPULATION SUB-GROUP: NON-NURSING INFANTS (&lt; 1 YEAR OLD)

EXISTING TOLERANCES (PUBLISHED ONLY)		
RESULT IN A TMRC OF:	0.053149	MG/KG/DAY
THE EXISTING TMRC IS EQUIVALENT TO:	59.054	% OF THE ADI.
PROPOSED NEW TOLERANCES (CURRENT PETITION ONLY)		
RESULT IN A TMRC OF:	0.001508	MG/KG/DAY
THESE NEW TOLERANCES WILL OCCUPY:	1.675	% OF THE ADI.
IF THE NEW TOLERANCES (CURRENT PETITION ONLY)		
ARE APPROVED THE RESULTANT TMRC WILL BE:	0.054656	MG/KG/DAY
THE NEW TMRC WILL OCCUPY	60.729	% OF THE ADI.

NO OTHER PENDING TOLERANCES ARE IN THE FILE

## ANALYSIS FOR POPULATION SUB-GROUP: CHILDREN (1-6 YEARS OLD)

EXISTING TOLERANCES (PUBLISHED ONLY)		
RESULT IN A TMRC OF:	0.065073	MG/KG/DAY
THE EXISTING TMRC IS EQUIVALENT TO:	72.303	% OF THE ADI.
PROPOSED NEW TOLERANCES (CURRENT PETITION ONLY)		
RESULT IN A TMRC OF:	0.000540	MG/KG/DAY
THESE NEW TOLERANCES WILL OCCUPY:	0.599	% OF THE ADI.
IF THE NEW TOLERANCES (CURRENT PETITION ONLY)		
ARE APPROVED THE RESULTANT TMRC WILL BE:	0.065612	MG/KG/DAY
THE NEW TMRC WILL OCCUPY	72.902	% OF THE ADI.

NO OTHER PENDING TOLERANCES ARE IN THE FILE

# SETHOXYDIM / ACUTE

072A	01006AA10	5.0000	RASPBERRIES	072A	02006JA31	0.5000	
072A	01006AA15	5.0000	RASPBERRIES		ORANGES- JUICE		
072A	01006AA31	5.0000	RASPBERRIES	072A	02007AA10	0.5000	TANGELOS
072A	01006AA62	5.0000	RASPBERRIES	072A	02008AA10	0.5000	TANGERINES
072A	01006AA70	5.0000	RASPBERRIES	072A	02008JA15	0.5000	
072A	01009AA10	4.0000	BLUEBERRIES		TANGERINE- JUICE		
072A	01009AA21	4.0000	BLUEBERRIES	072A	03001AA10	0.2000	ALMONDS
072A	01009AA22	4.0000	BLUEBERRIES	072A	03001AA21	0.2000	ALMONDS
072A	01009AA62	4.0000	BLUEBERRIES	072A	03001AA22	0.2000	ALMONDS
072A	01010AA10	2.0000	CRANBERRIES	072A	03002AA10	0.2000	BRAZIL NUTS
072A	01010AA21	2.0000	CRANBERRIES	072A	03002AA21	0.2000	BRAZIL NUTS
072A	01010AA31	2.0000	CRANBERRIES	072A	03003AA10	0.2000	CASHEWS
072A	01010JA15	2.0000		072A	03003AA21	0.2000	CASHEWS
	CRANBERRY- JUICE			072A	03004AA21	0.2000	CHESTNUTS
072A	01010JA31	2.0000		072A	03005AA10	0.2000	FILBERTS
	CRANBERRY- JUICE			072A	03005AA21	0.2000	FILBERTS
072A	01014AA10	0.2000	GRAPES-FRESH	072A	03005AA22	0.2000	FILBERTS
072A	01014AA21	0.2000	GRAPES-FRESH	072A	03006AA10	0.2000	HICKORY NUTS
072A	01014AA31	0.2000	GRAPES-FRESH	072A	03007AA10	0.2000	MACADAMIA
072A	01014DA10				NUTS		
	1.0000CGRAPES-RAISINS			072A	03008AA10	0.2000	PECANS
072A	01014DA21			072A	03008AA21	0.2000	PECANS
	1.0000CGRAPES-RAISINS			072A	03008AA22	0.2000	PECANS
072A	01014DA22			072A	03008AA23	0.2000	PECANS
	1.0000CGRAPES-RAISINS			072A	03008AA62	0.2000	PECANS
072A	01014JA10	0.2000	GRAPES- JUICE	072A	03009AA10	0.2000	WALNUTS
072A	01014JA15	0.2000	GRAPES- JUICE	072A	03009AA21	0.2000	WALNUTS
072A	01014JA21	0.2000	GRAPES- JUICE	072A	03009AA22	0.2000	WALNUTS
072A	01016AA10	10.0000	STRAWBERRIES	072A	03010AA00	0.2000	BUTTER NUTS
072A	01016AA21	10.0000	STRAWBERRIES	072A	03013AA00	0.2000	BEECHNUTS
072A	01016AA70	10.0000	STRAWBERRIES	072A	04001AA10	0.2000	APPLES-FRESH
072A	02001AA22	0.5000	CITRUS	072A	04001AA21	0.2000	APPLES-FRESH
	CITRON			072A	04001AA31	0.2000	APPLES-FRESH
072A	02002AA00	0.5000		072A	04001AA62	0.2000	APPLES-FRESH
	GRAPEFRUIT-UNSP			072A	04001DA10	0.2000	APPLES-DRIED
072A	02002AB10	0.5000		072A	04001DA22	0.2000	APPLES-DRIED
	GRAPEFRUIT-PULP			072A	04001DA62	0.2000	APPLES-DRIED
072A	02002AB21	0.5000		072A	04001JA15	0.2000	APPLES- JUICE
	GRAPEFRUIT-PULP			072A	04001JA31	0.2000	APPLES- JUICE
072A	02002JA15	0.5000		072A	04002AA00	0.2000	CRABAPPLES
	GRAPEFRUIT- JUICE			072A	04003AA10	0.2000	PEARS-FRESH
072A	02002JA31	0.5000		072A	04003AA31	0.2000	PEARS-FRESH
	GRAPEFRUIT- JUICE			072A	04003AA51	0.2000	PEARS-FRESH
072A	02003AA10	0.5000	KUMQUATS	072A	04003AA62	0.2000	PEARS-FRESH
072A	02004AA10	0.5000		072A	04003DA10	0.2000	PEARS-DRIED
	LEMONS-UNSPEC			072A	04003DA21	0.2000	PEARS-DRIED
072A	02004AA22	0.5000		072A	04004AA00	0.2000	QUINCES
	LEMONS-UNSPEC			072A	10002AA00	4.0000	
072A	02004AB10	0.5000	LEMONS-PULP		CANTALOUPE-UNSP		
072A	02004AB31	0.5000	LEMONS-PULP	072A	10002AB10	4.0000	
072A	02004HA10	0.5000	LEMONS-PEEL		CANTALOUPE- PULP		
072A	02004HA21	0.5000	LEMONS-PEEL	072A	10002AB21	4.0000	
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072A	02004JA21	0.5000	LEMONS- JUICE	072A	10004AA00	4.0000	CRENSHAW
072A	02004JA31	0.5000	LEMONS- JUICE	072A	10005AA10	4.0000	HONEYDEW
072A	02005AA00	0.5000	LIMES-UNSPEC		MELONS		
072A	02005AB10	0.5000	LIMES-PULP	072A	10007AA00	4.0000	PERSON
072A	02005HA21	0.5000	LIMES-PEEL		MELONS		
072A	02005JA10	0.5000	LIMES- JUICE	072A	10008AA10	4.0000	WATERMELON
072A	02005JA15	0.5000	LIMES- JUICE	072A	10008AA21	4.0000	WATERMELON
072A	02005JA31	0.5000	LIMES- JUICE	072A	10010AA10	4.0000	CUCUMBERS
072A	02006AA00	0.5000		072A	10010AA11	4.0000	CUCUMBERS
	ORANGES-UNSPEC			072A	10010AA21	4.0000	CUCUMBERS
072A	02006AB10	0.5000	ORANGES-PULP	072A	10011AA21	4.0000	PUMPKIN
072A	02006AB21	0.5000	ORANGES-PULP	072A	10011AA22	4.0000	PUMPKIN
072A	02006HA21	0.5000	ORANGES-PEEL	072A	10011AA62	4.0000	PUMPKIN
072A	02006HA22	0.5000	ORANGES-PEEL	072A	10013AA10	4.0000	
072A	02006HA31	0.5000	ORANGES-PEEL		SQUASH-SUMMER		
072A	02006JA15	0.5000		072A	10013AA21	4.0000	
	ORANGES- JUICE				SQUASH-SUMMER		

072A 10014AA10 4.0000			
SQUASH-WINTER			
072A 10014AA21 4.0000			
SQUASH-WINTER			
072A 10014AA31 4.0000			
SQUASH-WINTER			
072A 10017AA21 4.0000 BITTER MELON			
072A 10020AA00 4.0000 TOWELGOURD			
072A 11001AA10 4.0000 EGGPLANT			
072A 11001AA21 4.0000 EGGPLANT			
072A 11001AA25 4.0000 EGGPLANT			
072A 11003AA10 4.0000			
PEPPERS, SWEET			
072A 11003AA21 4.0000			
PEPPERS, SWEET			
072A 11003AB00 4.0000 CHILI			
PEPPERS			
072A 11003AD10 4.0000			
PEPPERS-OTHER			
072A 11003AD21 4.0000			
PEPPERS-OTHER			
072A 11003AD51 4.0000			
PEPPERS-OTHER			
072A 11004AA10 4.0000 PIMIENTOS			
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072A 11004AA31 4.0000 PIMIENTOS			
072A 11005AA10 4.0000			
TOMATOES-WHOLE			
072A 11005AA21 4.0000			
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072A 11005JA21			
24.0000TOMATOES-JUICE			
072A 11005RA10			
24.0000TOMATOES-PUREE			
072A 11005RA21			
24.0000TOMATOES-PUREE			
072A 11005RA31			
24.0000TOMATOES-PUREE			
072A 11005RA32			
24.0000TOMATOES-PUREE			
072A 11005RA51			
24.0000TOMATOES-PUREE			
072A 11005TA21			
24.0000TOMATOES-PASTE			
072A 11005TA22			
24.0000TOMATOES-PASTE			
072A 11005TA31			
24.0000TOMATOES-PASTE			
072A 11005UA21			
24.0000TOMATOES-CATSUP			
072A 13002AA10 1.0000 CELERY			
072A 13002AA21 1.0000 CELERY			
072A 13005AA21 5.0000 BROCCOLI			
072A 13005AA31 5.0000 BROCCOLI			
072A 13005AA63 5.0000 BROCCOLI			
072A 13006AA21 5.0000 BRUSSEL			
SPROUTS			
072A 13006AA23 5.0000 BRUSSEL			
SPROUTS			
072A 13007AA10 5.0000 CABBAGE			
072A 13007AA11 5.0000 CABBAGE			
072A 13007AA21 5.0000 CABBAGE			
072A 13008AA10 5.0000 CAULIFLOWER			
072A 13008AA21 5.0000 CAULIFLOWER			
072A 13009AA51 5.0000 COLLARDS			
072A 13009AA63 5.0000 COLLARDS			
072A 13010AA10 5.0000			
CABBAGE-CHINESE			
072A 13010AA21 5.0000			
CABBAGE-CHINESE			
072A 13011AA63 5.0000 KALE			
072A 13012AA21 5.0000 KOHLRABI			
072A 13013AA10 2.0000			
LETTUCE-LEAFY			
072A 13015AA10 2.0000 ENDIVE			
072A 13015AA21 2.0000 ENDIVE			
072A 13016AA00 5.0000 FENNEL			
072A 13018AA21 3.0000			
ARTICHOKE-GLOBE			
072A 13020AA10 2.0000			
LETTUCE-UNSPEC			
072A 13021AA21 5.0000 MUSTARD			
GREENS			
072A 13021AA63 5.0000 MUSTARD			
GREENS			
072A 13023AA10 0.3000 RHUBARB			
072A 13023AA21 0.3000 RHUBARB			
072A 13023AA31 0.3000 RHUBARB			
072A 13023AA62 0.3000 RHUBARB			
072A 13024AA10 4.0000 SPINACH			
072A 13024AA21 4.0000 SPINACH			
072A 13024AA31 4.0000 SPINACH			
072A 13045AA10 1.0000 LETTUCE-HEAD			
072A 13045AA21 1.0000 LETTUCE-HEAD			
072A 14003AA10 1.0000 CARROTS			
072A 14003AA21 1.0000 CARROTS			
072A 14003AA23 1.0000 CARROTS			
072A 14003AA31 1.0000 CARROTS			
072A 14003AA51 1.0000 CARROTS			
072A 14007AA10 1.0000 GARLIC			
072A 14007AA21 1.0000 GARLIC			
072A 14007AA32 1.0000 GARLIC			
072A 14010AA31 1.0000 LEEKS			
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ONIONS-DRY-BULB			
072A 14011AA21 1.0000			
ONIONS-DRY-BULB			
072A 14011AA22 1.0000			
ONIONS-DRY-BULB			
072A 14011AA31 1.0000			
ONIONS-DRY-BULB			
072A 14011DA12 1.0000 ONIONS-DRIED			
072A 14013AA10 4.0000			
POTATO(WH)-WHOLE			
072A 14013AA21 4.0000			
POTATO(WH)-WHOLE			
072A 14013AA22 4.0000			
POTATO(WH)-WHOLE			
072A 14013AB22 4.0000			
POTATO(WH)-UNSPEC			
072A 14013AC21 4.0000			
POTATO(WH)-PULP			
072A 14013AC22 4.0000			
POTATO(WH)-PULP			
072A 14013AC23 4.0000			
POTATO(WH)-PULP			
072A 14013AC25 4.0000			
POTATO(WH)-PULP			
072A 14013DA10			
8.0000POTATO(WH)-DRY			
072A 14013DA31			
8.0000POTATO(WH)-DRY			
072A 14013HA22 4.0000			
POTATO(WH)-PEEL			
072A 14017AA00 1.0000 SHALLOTS			
072A 14018AA21 4.0000			
SWEETPOTATOES			
072A 14018AA31 4.0000			

SWEETPOTATOES  
 072A 14018AA51 4.0000  
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 BEANS-DRY-GRT NO  
 072A 15001AB21 20.0000  
 BEANS-DRY-KIDNEY  
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 BEANS-DRY-KIDNEY  
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 BEANS-DRY-LIMA  
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 BEANS-DRY-NAVY  
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 BEANS-DRY-OTHER  
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 BEANS-DRY-PINTO  
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 BEANS-SUCC-LIMA  
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 BEANS-SUCC-LIMA  
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 BEANS-SUCC-GREEN  
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 BEANS-SUCC-OTH  
 072A 15003AB21 5.0000  
 BEANS-SUCC-OTH  
 072A 15003AC21 5.0000  
 BEANS-SUCC-WAX  
 072A 15005AA10 0.2000 CORN, SWEET  
 072A 15005AA21 0.2000 CORN, SWEET  
 072A 15005AA31 0.2000 CORN, SWEET  
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 PEANUTS-WHOLE  
 072A 15006AA21 25.0000  
 PEANUTS-WHOLE  
 072A 15006AA22 25.0000  
 PEANUTS-WHOLE  
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 DRY-GARDEN  
 072A 15007AA31 40.0000 PEAS  
 DRY-GARDEN  
 072A 15009AA21 10.0000 PEAS  
 SUCC-GARDEN  
 072A 15009AA31 10.0000 PEAS  
 SUCC-GARDEN  
 072A 15011AA31 30.0000  
 LENTILES-WHOLE  
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 LENTILES-SPLIT  
 072A 15013AA10 5.0000 MUNG BEANS  
 072A 15013AA21 5.0000 MUNG BEANS  
 072A 15018AA10 7.0000  
 SUNFLOWER-SEEDS  
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 BEANS-DRY-BROAD  
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 BEANS-SUCC-BROAD  
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 BEANS-DRY-PIGEON  
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 SOYBEAN-SPROUTED  
 072A 15030AA00 20.0000  
 BEANS-DRY-HYAC

072A 15030AB00 5.0000  
 BEANS-SUCC-HYAC  
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 PEAS-DRY  
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 072A 16002AA23 4.0000 ASPARAGUS  
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 072A 16004AA21 1.0000 ONIONS-GREEN  
 072A 16004AA25 1.0000 ONIONS-GREEN  
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 CORN, GRAIN-ENDO  
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 CORN, GRAIN-ENDO  
 072A 24002EA22 0.5000  
 CORN, GRAIN-ENDO  
 072A 24002EA23 0.5000  
 CORN, GRAIN-ENDO  
 072A 24002HA00 0.5000  
 CORN, GRAIN-BRAN  
 072A 24002SA10 0.5000 CORN SUGAR  
 072A 24002SA21 0.5000 CORN SUGAR  
 072A 24002SA22 0.5000 CORN SUGAR  
 072A 25002SA10 0.1000 BEET SUGAR  
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 072A 25002SA22 0.1000 BEET SUGAR  
 072A 25002SA31 0.1000 BEET SUGAR  
 072A 27003OA18 5.0000  
 COTTONSEED-OIL  
 072A 27003WA18 5.0000  
 COTTONSEED-MEAL  
 072A 27004AA00 5.0000 FLAX SEED  
 072A 27007OA18 25.0000 PEANUTS-OIL  
 072A 27010OA18 10.0000 SOYBEANS-OIL  
 072A 27011OA18 7.0000  
 SUNFLOWER-OIL  
 072A 27017AA00 35.0000 RAPE SEED  
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 SOYBEANS-UNSPEC  
 072A 28023AB10 10.0000 SOYBEANS-DRY  
 072A 28023AB21 10.0000 SOYBEANS-DRY  
 072A 28023AB23 10.0000 SOYBEANS-DRY  
 072A 28023AB25 10.0000 SOYBEANS-DRY  
 072A 28023AB31 10.0000 SOYBEANS-DRY  
 072A 28023WA21 10.0000 SOY-FL, FULL  
 FAT  
 072A 28023WA22 10.0000 SOY-FL, FULL  
 FAT  
 072A 28023WA31 10.0000 SOY-FL, FULL  
 FAT  
 072A 28023WB21 10.0000 SOY-FL, LOW  
 FAT  
 072A 28023WC10 10.0000 SOY-FL, DEFAT  
 072A 28023WC21 10.0000 SOY-FL, DEFAT  
 072A 28023WC22 10.0000 SOY-FL, DEFAT  
 072A 28023WC51 10.0000 SOY-FL, DEFAT  
 072A 28023WC53 10.0000 SOY-FL, DEFAT  
 072A 28080AA00 30.0000 PEPPERMINT  
 072A 28080CA00 30.0000  
 PEPPERMINT-OIL  
 072A 28081AA00 30.0000 SPEARMINT  
 072A 28081OA00 30.0000  
 SPEARMINT-OIL  
 072A 43058AA10 0.2000 WINE AND  
 SHERRY  
 072A 43058AA21 0.2000 WINE AND  
 SHERRY  
 072A 50000DB10 0.0500 MILK-NON-FAT  
 SOL  
 072A 50000DB21 0.0500 MILK-NON-FAT



SOL  
 072A 50000B51 0.0500 MILK-NON-FAT  
 SOL  
 072A 50000FA10 0.0500 MILK-FAT  
 SOLIDS  
 072A 50000FA21 0.0500 MILK-FAT  
 SOLIDS  
 072A 50000FA51 0.0500 MILK-FAT  
 SOLIDS  
 072A 50000SA21 0.0500 MILK SUG  
 (LACT)  
 072A 50000SA51 0.0500 MILK SUG  
 (LACT)  
 072A 53001BA21 0.2000 BEEF-MEAT  
 BYP  
 072A 53001BA26 0.2000 BEEF-MEAT  
 BYP  
 072A 53001BB21 0.2000 BEEF-OTH  
 ORGAN  
 072A 53001BB51 0.2000 BEEF-OTH  
 ORGAN  
 072A 53001DA21 0.2000 BEEF-DRIED  
 072A 53001FA10 0.2000 BEEF-FAT  
 072A 53001FA21 0.2000 BEEF-FAT  
 072A 53001FA22 0.2000 BEEF-FAT  
 072A 53001FA23 0.2000 BEEF-FAT  
 072A 53001FA24 0.2000 BEEF-FAT  
 072A 53001FA25 0.2000 BEEF-FAT  
 072A 53001KA21 0.2000 BEEF-KIDNEY  
 072A 53001LA25 0.2000 BEEF-LIVER  
 072A 53001LA31 0.2000 BEEF-LIVER  
 072A 53001MA10 0.2000 BEEF-LEAN  
 072A 53001MA21 0.2000 BEEF-LEAN  
 072A 53001MA22 0.2000 BEEF-LEAN  
 072A 53001MA23 0.2000 BEEF-LEAN  
 072A 53001MA24 0.2000 BEEF-LEAN  
 072A 53002BA00 0.2000 GOAT-MEAT  
 BYP  
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 ORGAN  
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 072A 53002LA00 0.2000 GOAT-LIVER  
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 072A 53002MA25 0.2000 GOAT-LEAN  
 072A 53003AA00 0.2000 HORSE  
 072A 53005BA21 0.2000 SHEEP-MEAT  
 BYP  
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 ORGAN  
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 072A 53005KA21 0.2000 SHEEP-KIDNEY  
 072A 53005LA00 0.2000 SHEEP-LIVER  
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 072A 53005MA31 0.2000 SHEEP-LEAN  
 072A 53006BA21 0.2000 PORK-MEAT  
 BYP  
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 ORGAN  
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 ORGAN  
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 072A 53006FA23 0.2000 PORK-FAT  
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 072A 53006MA21 0.2000 PORK-LEAN

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 SKIN  
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 SKIN  
 072A 55008MA62 0.2000 TURKEY W/O  
 SKIN  
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 072A 55008MB25 0.2000 TURKEY+SKIN  
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 TURKEY-UNSPEC  
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 POULTRY,ORGAN  
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 POULTRY,OTHER  
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 ONLY  
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 ONLY  
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 ONLY  
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 072A 55015LA21 2.0000  
 CHICKEN-ORGAN  
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 CHICKEN-ORGAN  
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 CHICKEN-ORGAN



13544

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**Chemical:** Sethoxydim

**PC Code:** 121001

**HED File Code:** ~~11000 Chemistry Reviews~~ 14000 Risk Review

**Memo Date:** 12/20/96 12:00:00 AM

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