



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

Caswell #160
420

MAR 29 1995

OFFICE OF
PREVENTION, PESTICIDES AND
TOXIC SUBSTANCES

MEMORANDUM

SUBJECT: Dietary Exposure and Risk Estimates for Endosulfan.

FROM: Jennifer M. Wintersteen
Dietary Risk Evaluation Section
Science Analysis Branch/HED

Jennifer M. Wintersteen
(7509C)

TO: Sepehr Haddad, Chemical Manager
Special Review Branch
Special Review and Reregistration Division
and
Christina Scheltema, Chemical Manager
Special Review Section
RCAB/HED

THROUGH: Elizabeth A. Doyle, Ph.D., Section Head
Dietary Risk Evaluation Section
Science Analysis Branch/Health Effects Division

E.A. Doyle
W. Brinn

Action Requested

Provide a DRES analysis for endosulfan which includes estimates of dietary risk from chronic exposure and acute exposure. This analysis was prompted by a recent Agency decision that endosulfan was an acute dietary toxicant. This is the first time that acute exposure has been calculated for endosulfan using the DRES system.

Discussion

I. Toxicological Endpoints

Chronic Endpoint: The chronic risk analysis used a Reference Dose (RfD) of 0.006 mg/kg body weight/day, based on a no observed effect level (NOEL) of 0.6 mg/kg bwt/day and an uncertainty factor of 100. The NOEL is taken from a long term feeding study in rats. Toxicity was evident at 2.9 mg/kg bwt/day in male rats and included blood vessel aneurysms and other effects. A NOEL from a chronic study in dogs of 0.6 mg/kg bwt/day is considered a co-critical study and supportive of the NOEL in rats. (G. Ghali memo, 10/13/92).

Acute Endpoint: In an HED document, Endosulfan Toxicology Endpoint Selection



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III. Results

Chronic Exposure

The DRES chronic analysis used tolerance level residues to calculate the Theoretical Maximum Residue Contribution (TMRC) for the overall U.S. population and 22 population subgroups. Refinements in residue and percent crop treated information were considered in calculating the Anticipated Residue Contribution (ARC) for those same population groups. The ARC is considered the more accurate estimate of dietary exposure. These exposure estimates were then compared to the RfD for endosulfan to get estimates of chronic dietary risk. Summaries of the TMRCs, ARCs, and their representations as percentages of the RfD are attached as Table 2.

Using Anticipated Residues:

| <u>Subgroup</u> | <u>Exposure(mg/kg/day)</u> | <u>%Reference Dose</u> |
|----------------------|----------------------------|------------------------|
| U.S. population | 0.001227 | 20 |
| Females 13+, Nursing | 0.001802 | 30 |
| Children (1-6 yrs) | 0.001718 | 29 |

The ARC for the U.S. population from published uses of endosulfan is 1.2×10^{-3} mg/kg bwt/day, which represents 20% of the RfD. The pending (poultry and eggs) and new tolerances (hops) in the DRES database for endosulfan contribute an insignificant amount to the percent of the Reference Dose, that is, < 1%.

The ARCs for the two most highly exposed DRES subgroups, females 13+ who are nursing and children (1-6), do not exceed the Reference Dose. Chronic dietary exposure from endosulfan seems to be of little concern for all DRES subgroups.

Acute Exposure

The DRES detailed acute exposure analysis evaluates individual food consumption as reported by respondents in the USDA 77-78 Nationwide Food Consumption Survey (NFCS) and estimates the distribution of single day exposures through the diet for the U.S. population and certain subgroups. The analysis assumes uniform distribution of endosulfan in the commodity supply. The toxicological effect seen in animal studies was neurotoxicity. All standard DRES subgroups, therefore, are of concern. The analysis includes the U.S. population-48 states and four subgroups: Infants (< 1 year), children (1-6 years), females (13+ years) and males (13+ years).

The Margin of Exposure (MOE) is a measure of how closely the high end exposure comes to the NOEL (the highest dose at which no effects were observed in the laboratory test), and is calculated as the ratio of the NOEL to the exposure ($NOEL/exposure = MOE$). The Agency is not generally concerned unless the MOE is below 100 when based upon data generated in animal studies.

In the analysis, tolerance level residues were used to calculate the high end and mean exposures for all subgroups. High end and mean exposures were compared to the NOEL of 0.7 mg/kg bwt/day from the rabbit developmental study to get both high end and mean Margins of Exposure (MOE). The table below provides the calculated MOEs for all subgroups.

Table 1.

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| CHEMICAL | STUDY TYPE | EFFECTS | REFERENCE DOSES | DATA GAPS/COMMENTS | STATUS |
|--|--|---|--|--|---|
| Endosulfan Caswell #420 CAS No. 115-29-7 A.I. CODE: 079401 CFR No. 180.182 185.2600 | 2yr feeding- rat NOEL= 0.6000 mg/kg 15.00 ppm LEL= 2.9000 mg/kg 75.00 ppm ONCO: Group E | Decr body wt gain M&F; incr incidence of progressive glomerulonephrosis & blood vessel aneurysms in M; No evidence of carcinogenicity in rats/mice | PADI UF -->100 OPP Rfd= 0.006000 EPA Rfd= 0.006000 | Developmental tox- rat (core supplementary) 1yr dog co-principal - NOEL=0.57 mg/kg; LEL=1.9 mg/kg (decr wt gains M; neurologic findings M&F) | WHO reviewed 03/20/92 Rfd/PR reviewed 10/01/92 EPA reviewed 11/04/92 Rfd/PR reviewed 03/25/93 EPA verified 03/31/93 |

| FOOD CODE | FOOD | FOOD FORM | PET.# | TOLERANCE (ppm) | ANTICIPATED RESIDUE (ppm) | AR STATISTIC TYPE | % CROP TREATED | RES. VALUE USED IN TAS RUN (ppm) |
|-----------|----------------|---------------------------------|---------|-----------------|---------------------------|-------------------|----------------|----------------------------------|
| 01006AA | RASPBERRIES | 10 RAW-FRESH OR NFS | 7E1940 | P 0.100000 | 0.030000 | FDA MON. | 100.00 | 0.030000 |
| 01006AA | RASPBERRIES | 15 RAW-FRESH OR CANNED | 7E1940 | P 0.100000 | 0.030000 | FDA MON. | 100.00 | 0.030000 |
| 01006AA | RASPBERRIES | 31 COOKED-FRESH OR CANNED | 7E1940 | P 0.100000 | 0.030000 | FDA MON. | 100.00 | 0.030000 |
| 01006AA | RASPBERRIES | 62 COOKED-FRESH OR FROZEN-BAKED | 7E1940 | P 0.100000 | 0.030000 | FDA MON. | 100.00 | 0.030000 |
| 01006AA | RASPBERRIES | 70 RAW-FROZEN | 7E1940 | P 0.100000 | 0.030000 | FDA MON. | 100.00 | 0.030000 |
| 01009AA | BLUEBERRIES | 10 RAW-FRESH OR NFS | 1F1034 | P 0.100000 | 0.023000 | FDA MON. | 100.00 | 0.023000 |
| 01009AA | BLUEBERRIES | 21 COOKED-NFS | 1F1034 | P 0.100000 | 0.023000 | FDA MON. | 100.00 | 0.023000 |
| 01009AA | BLUEBERRIES | 22 COOKED-FRESH-BAKED | 1F1034 | P 0.100000 | 0.023000 | FDA MON. | 100.00 | 0.023000 |
| 01009AA | BLUEBERRIES | 62 COOKED-FRESH OR FROZEN-BAKED | 238 | P 2.000000 | 0.030000 | FDA MON. | 100.00 | 0.030000 |
| 01014AA | GRAPES-FRESH | 10 RAW-FRESH OR NFS | 238 | P 2.000000 | 0.030000 | FDA MON. | 100.00 | 0.030000 |
| 01014AA | GRAPES-FRESH | 21 COOKED-NFS | 238 | P 2.000000 | 0.030000 | FDA MON. | 100.00 | 0.030000 |
| 01014AA | GRAPES-FRESH | 31 COOKED-FRESH OR CANNED | 238 | P 2.000000 | 0.030000 | FDA MON. | 100.00 | 0.030000 |
| 01014DA | GRAPES-RAISINS | 10 RAW-FRESH OR NFS | 238 | P 2.000000 | 0.030000C | FDA MON + PROC | 100.00 | 0.030000 |
| 01014DA | GRAPES-RAISINS | 22 COOKED-FRESH-BAKED | 238 | P 2.000000 | 0.030000C | FDA MON + PROC | 100.00 | 0.030000 |
| 01014DA | GRAPES-RAISINS | 10 RAW-FRESH OR NFS | 238 | P 2.000000 | 0.030000C | FDA MON + PROC | 100.00 | 0.030000 |
| 01014JA | GRAPES-JUICE | 10 RAW-FRESH OR NFS | 238 | P 2.000000 | 0.030000 | FDA MON. | 100.00 | 0.030000 |
| 01014JA | GRAPES-JUICE | 15 RAW-FRESH OR CANNED | 238 | P 2.000000 | 0.030000 | FDA MON. | 100.00 | 0.030000 |
| 01014JA | GRAPES-JUICE | 21 COOKED-NFS | 237 | P 2.000000 | 0.030000 | FDA MON. | 100.00 | 0.030000 |
| 01016AA | STRAWBERRIES | 10 RAW-FRESH OR NFS | 237 | P 2.000000 | 0.240000 | FDA MON. | 100.00 | 0.240000 |
| 01016AA | STRAWBERRIES | 21 COOKED-NFS | 237 | P 2.000000 | 0.240000 | FDA MON. | 100.00 | 0.240000 |
| 01016AA | STRAWBERRIES | 70 RAW-FROZEN | 237 | P 2.000000 | 0.240000 | FDA MON. | 100.00 | 0.240000 |
| 03001AA | ALMONDS | 10 RAW-FRESH OR NFS | 3F1314 | P 0.200000 | 0.200000 | FDA MON. | 1.00 | 0.002000 |
| 03001AA | ALMONDS | 21 COOKED-NFS | 3F1314 | P 0.200000 | 0.200000 | FDA MON. | 1.00 | 0.002000 |
| 03001AA | ALMONDS | 22 COOKED-FRESH-BAKED | 3F1314 | P 0.200000 | 0.200000 | FDA MON. | 1.00 | 0.002000 |
| 03005AA | FILBERTS | 10 RAW-FRESH OR NFS | 0F0922 | P 0.200000 | 0.200000 | FDA MON. | 100.00 | 0.200000 |
| 03005AA | FILBERTS | 21 COOKED-NFS | 0F0922 | P 0.200000 | 0.200000 | FDA MON. | 100.00 | 0.200000 |
| 03005AA | FILBERTS | 22 COOKED-FRESH-BAKED | 0F0922 | P 0.200000 | 0.200000 | FDA MON. | 100.00 | 0.200000 |
| 03007AA | MACADAMIA NUTS | 10 RAW-FRESH OR NFS | 0F0922 | P 0.200000 | 0.200000 | FDA MON. | 21.00 | 0.042000 |
| 03008AA | PECANS | 10 RAW-FRESH OR NFS | 0F0922 | P 0.200000 | 0.200000 | FDA MON. | 21.00 | 0.042000 |
| 03008AA | PECANS | 21 COOKED-NFS | 0F0922 | P 0.200000 | 0.200000 | FDA MON. | 21.00 | 0.042000 |
| 03008AA | PECANS | 22 COOKED-FRESH-BAKED | 0F0922 | P 0.200000 | 0.200000 | FDA MON. | 21.00 | 0.042000 |
| 03008AA | PECANS | 23 COOKED-FRESH-BOILED | 0F0922 | P 0.200000 | 0.200000 | FDA MON. | 21.00 | 0.042000 |
| 03008AA | PECANS | 62 COOKED-FRESH OR FROZEN-BAKED | 0F0922 | P 0.200000 | 0.200000 | FDA MON. | 1.00 | 0.002000 |
| 03009AA | WALNUTS | 10 RAW-FRESH OR NFS | 0F0922 | P 0.200000 | 0.200000 | FDA MON. | 1.00 | 0.002000 |
| 03009AA | WALNUTS | 21 COOKED-NFS | 0F0922 | P 0.200000 | 0.200000 | FDA MON. | 1.00 | 0.002000 |
| 03009AA | WALNUTS | 22 COOKED-FRESH-BAKED | 0F0922 | P 0.200000 | 0.200000 | FDA MON. | 1.00 | 0.002000 |
| 04001AA | APPLES-FRESH | 10 RAW-FRESH OR NFS | NO PET# | P 2.000000 | 0.030000 | FDA MON. | 100.00 | 0.030000 |
| 04001AA | APPLES-FRESH | 21 COOKED-NFS | NO PET# | P 2.000000 | 0.030000 | FDA MON. | 100.00 | 0.030000 |
| 04001AA | APPLES-FRESH | 31 COOKED-FRESH OR CANNED | NO PET# | P 2.000000 | 0.030000 | FDA MON. | 100.00 | 0.030000 |
| 04001AA | APPLES-FRESH | 62 COOKED-FRESH OR FROZEN-BAKED | NO PET# | P 2.000000 | 0.030000 | FDA MON. | 100.00 | 0.030000 |

Table 1.

ANTICIPATED RESIDUE INFORMATION FOR CASWELL NUMBER 420

PAGE: 3

DATE: 03/21/95

| CHEMICAL | STUDY TYPE | EFFECTS | REFERENCE DOSES | DATA GAPS/COMMENTS | STATUS |
|--|--|---|--|--|---|
| Endosulfan Caswell #420 CAS No. 115-29-7 A.I. CODE: 079401 CFR No. 180.182 185.2600 | 2yr feeding- rat NOEL= LEL= ONCO: Group E | Decr body wt gain M&F; incr incidence of progressive glomerulonephrosis & blood vessel aneurysms in M; No evidence of carcinogenicity in rats/mice | PADI UF -->100 OPP RfD= 0.006000 EPA RfD= 0.006000 | Developmental tox- rat (core supplementary) 1yr dog co-principal - NOEL=0.57 mg/kg; LEL=1.9 mg/kg (decr wt gains M; neurologic findings M&F) | WHO reviewed 03/20/92 RfD/PR reviewed 10/01/92 EPA reviewed 11/04/92 RfD/PR reviewed 03/25/93 EPA verified 03/31/93 |

| FOOD CODE | FOOD | FOOD FORM | PET.# | TOLERANCE (ppm) | ANTICIPATED RESIDUE (ppm) | AR STATISTIC TYPE | % CROP TREATED | RES. VALUE USED IN TAs RUN (ppm) |
|-----------|-----------------|--|---------|-----------------|---------------------------|-------------------|----------------|----------------------------------|
| 06013DA | PINEAPPLE-DRIED | 10 RAW-FRESH OR NFS | 7F0526 | P 2.000000 | 0.023000 | FDA MON. | 100.00 | 0.023000 |
| 06013JA | PINEAPPLE-JUICE | 10 RAW-FRESH OR NFS | 7F0526 | P 2.000000 | 0.005000C | FDA MON + PROC | 100.00 | 0.005000 |
| 06013JA | PINEAPPLE-JUICE | 15 RAW-FRESH OR CANNED | 7F0526 | P 2.000000 | 0.005000C | FDA MON + PROC | 100.00 | 0.005000 |
| 06013JA | PINEAPPLE-JUICE | 21 COOKED-NFS | 7F0526 | P 2.000000 | 0.005000C | FDA MON + PROC | 100.00 | 0.005000 |
| 06013JA | PINEAPPLE-JUICE | 31 COOKED-FRESH OR CANNED | 7F0526 | P 2.000000 | 0.005000C | FDA MON + PROC | 100.00 | 0.005000 |
| 07003AA | TEA | 21 COOKED-NFS | NO PET# | P 24.000000 | 24.000000 | IMPORT TOL | 100.00 | 24.000000 |
| 08020AA | HOPS | 21 COOKED-NFS | 9H5579 | N 10.000000 | 10.000000 | IMPORT TOL | 49.00 | 4.900000 |
| 10002AA | CANTALOUPE-UNSP | 00 NOT SPECIFIED (NO CONSUMPTION) | 338 | P 2.000000 | 0.140000 | FDA MON. | 100.00 | 0.140000 |
| 10002AB | CANTALOUPE-PULP | 10 RAW-FRESH OR NFS | 338 | P 2.000000 | 0.140000 | FDA MON. | 100.00 | 0.140000 |
| 10002AB | CANTALOUPE-PULP | 21 COOKED-NFS | 338 | P 2.000000 | 0.140000 | FDA MON. | 100.00 | 0.140000 |
| 10003AA | CASABAS | 10 RAW-FRESH OR NFS | 338 | P 2.000000 | 0.190000 | FDA MON TRANSL. | 100.00 | 0.190000 |
| 10004AA | CRENSHAWNS | 00 NOT SPECIFIED (NO CONSUMPTION) | 338 | P 2.000000 | 2.000000 | FDA MON. | 24.00 | 0.480000 |
| 10005AA | HONEYDEW MELONS | 10 RAW-FRESH OR NFS | 338 | P 2.000000 | 0.190000 | FDA MON. | 100.00 | 0.190000 |
| 10007AA | PERSTON MELONS | 00 NOT SPECIFIED (NO CONSUMPTION) | 338 | P 2.000000 | 2.000000 | FDA MON. | 24.00 | 0.480000 |
| 10008AA | WATERMELON | 10 RAW-FRESH OR NFS | 338 | P 2.000000 | 0.030000 | FDA MON. | 100.00 | 0.030000 |
| 10010AA | CUCUMBERS | 21 COOKED-NFS | 338 | P 2.000000 | 0.030000 | FDA MON. | 100.00 | 0.030000 |
| 10010AA | CUCUMBERS | 11 RAW-FRESH OR NFS | 338 | P 2.000000 | 0.150000 | FDA MON. | 100.00 | 0.150000 |
| 10010AA | CUCUMBERS | 11 RAW-FRESH-PICKLED, CORNED, OR CURED | 338 | P 2.000000 | 0.150000 | FDA MON. | 100.00 | 0.150000 |
| 10010AA | CUCUMBERS | 21 COOKED-NFS | 338 | P 2.000000 | 0.150000 | FDA MON. | 100.00 | 0.150000 |
| 10011AA | PUMPKIN | 21 COOKED-NFS | 338 | P 2.000000 | 0.030000 | FDA MON. | 100.00 | 0.030000 |
| 10011AA | PUMPKIN | 22 COOKED-FRESH-BAKED | 338 | P 2.000000 | 0.030000 | FDA MON. | 100.00 | 0.030000 |
| 10011AA | PUMPKIN | 62 COOKED-FRESH OR FROZEN-BAKED | 338 | P 2.000000 | 0.110000 | FDA MON. | 100.00 | 0.110000 |
| 10013AA | SQUASH-SUMMER | 21 COOKED-NFS | 338 | P 2.000000 | 0.110000 | FDA MON. | 100.00 | 0.110000 |
| 10013AA | SQUASH-SUMMER | 10 RAW-FRESH OR NFS | 338 | P 2.000000 | 0.110000 | FDA MON. | 100.00 | 0.110000 |
| 10014AA | SQUASH-WINTER | 21 COOKED-NFS | 338 | P 2.000000 | 0.110000 | FDA MON. | 100.00 | 0.110000 |
| 10014AA | SQUASH-WINTER | 10 RAW-FRESH OR NFS | 338 | P 2.000000 | 0.110000 | FDA MON. | 100.00 | 0.110000 |
| 10014AA | SQUASH-WINTER | 31 COOKED-FRESH OR CANNED | 338 | P 2.000000 | 0.110000 | FDA MON. | 100.00 | 0.110000 |
| 10017AA | BITTER MELON | 21 COOKED-NFS | 338 | P 2.000000 | 0.030000 | FDA MON. | 100.00 | 0.030000 |
| 10020AA | TOWELGOURD | 00 NOT SPECIFIED (NO CONSUMPTION) | 338 | P 2.000000 | 2.000000 | FDA MON. | 100.00 | 2.000000 |
| 11001AA | EGGPLANT | 10 RAW-FRESH OR NFS | 280 | P 2.000000 | 0.040000 | FDA MON. | 100.00 | 0.040000 |
| 11001AA | EGGPLANT | 21 COOKED-NFS | 280 | P 2.000000 | 0.040000 | FDA MON. | 100.00 | 0.040000 |
| 11001AA | EGGPLANT | 25 COOKED-FRESH-FRIED | 280 | P 2.000000 | 0.040000 | FDA MON. | 100.00 | 0.040000 |
| 11003AA | PEPPERS,SWEET | 10 RAW-FRESH OR NFS | 280 | P 2.000000 | 0.070000 | FDA MON. | 100.00 | 0.070000 |
| 11003AA | PEPPERS,SWEET | 21 COOKED-NFS | 280 | P 2.000000 | 0.070000 | FDA MON. | 100.00 | 0.070000 |
| 11003AB | PEPPERS-OTHER | 00 NOT SPECIFIED (NO CONSUMPTION) | 280 | P 2.000000 | 0.090000 | FDA MON. | 100.00 | 0.090000 |
| 11003AD | PEPPERS-OTHER | 10 RAW-FRESH OR NFS | 280 | P 2.000000 | 0.070000 | FDA MON. | 100.00 | 0.070000 |
| 11003AD | PEPPERS-OTHER | 21 COOKED-NFS | 280 | P 2.000000 | 0.070000 | FDA MON. | 100.00 | 0.070000 |
| 11003AD | PEPPERS-OTHER | 51 COOKED-CANNED | 280 | P 2.000000 | 0.070000 | FDA MON. | 100.00 | 0.070000 |
| 11005AA | TOMATOES-WHOLE | 10 RAW-FRESH OR NFS | 280 | P 2.000000 | 0.030000 | FDA MON. | 100.00 | 0.030000 |
| 11005AA | TOMATOES-WHOLE | 21 COOKED-NFS | 280 | P 2.000000 | 0.030000 | FDA MON. | 100.00 | 0.030000 |

Table 1.

ANTICIPATED RESIDUE INFORMATION FOR CASWELL NUMBER 420

| CHEMICAL | STUDY TYPE | EFFECTS | REFERENCE DOSES | DATA GAPS/COMMENTS | STATUS |
|--|--|---|--|--|---|
| Endosulfan Caswell #420 CAS No. 115-29-7 A.I. CODE: 079401 CFR No. 180.182 185.2600 | 2yr feeding- rat NOEL= 0.6000 mg/kg 15.00 ppm LEL= 2.9000 mg/kg 75.00 ppm ONCO: Group E | Decr body wt gain M&F; incr incidence of progressive glomerulonephrosis & blood vessel aneurysms in M; No evidence of carcinogenicity in rats/mice | PADI UF -->100 OPP RfD= 0.006000 EPA RfD= 0.006000 | Developmental tox- rat (core supplementary) 1yr dog co-principal - NOEL=0.57 mg/kg; LEL=1.9 mg/kg (decr wt gains M; neurologic findings M&F) | WHO reviewed 03/20/92 RfD/PR reviewed 10/01/92 EPA reviewed 11/04/92 RfD/PR reviewed 03/25/93 EPA verified 03/31/93 |

RES. VALUE USED
IN TAS RUN (ppm)

ANTICIPATED
RESIDUE (ppm)

AR STATISTIC TYPE

% CROP TREATED

TOLERANCE
(ppm)

PEI.#

FOOD FORM

FOOD CODE

| FOOD CODE | FOOD | PEI.# | TOLERANCE (ppm) | ANTICIPATED RESIDUE (ppm) | AR STATISTIC TYPE | % CROP TREATED | RES. VALUE USED IN TAS RUN (ppm) |
|-----------|------------------|--------|-----------------|---------------------------|-------------------|----------------|----------------------------------|
| 13045AA | LETTUCE-HEAD | 8F0723 | P 2.000000 | 0.070000 | FDA MON. | 100.00 | 0.070000 |
| 13045AA | LETTUCE-HEAD | 8F0723 | P 2.000000 | 0.070000 | FDA MON. | 100.00 | 0.070000 |
| 14003AA | CARROTS | 7F0526 | P 0.200000 | 0.030000 | FDA MON. | 100.00 | 0.030000 |
| 14003AA | CARROTS | 7F0526 | P 0.200000 | 0.030000 | FDA MON. | 100.00 | 0.030000 |
| 14003AA | CARROTS | 7F0526 | P 0.200000 | 0.030000 | FDA MON. | 100.00 | 0.030000 |
| 14003AA | CARROTS | 7F0526 | P 0.200000 | 0.030000 | FDA MON. | 100.00 | 0.030000 |
| 14003AA | CARROTS | 7F0526 | P 0.200000 | 0.030000 | FDA MON. | 100.00 | 0.030000 |
| 14013AA | POTATO(WH)-WHOLE | 0F0925 | P 0.200000 | 0.030000 | FDA MON TRANS | 100.00 | 0.030000 |
| 14013AA | POTATO(WH)-WHOLE | 0F0925 | P 0.200000 | 0.030000 | FDA MON TRANS | 100.00 | 0.030000 |
| 14013AA | POTATO(WH)-WHOLE | 0F0925 | P 0.200000 | 0.030000 | FDA MON TRANS | 100.00 | 0.030000 |
| 14013AB | POTATO(WH)-UNSP | 0F0925 | P 0.200000 | 0.030000 | FDA MON TRANS | 100.00 | 0.030000 |
| 14013AC | POTATO(WH)-PULP | 0F0925 | P 0.200000 | 0.030000 | FDA MON TRANS | 100.00 | 0.030000 |
| 14013AC | POTATO(WH)-PULP | 0F0925 | P 0.200000 | 0.030000 | FDA MON TRANS | 100.00 | 0.030000 |
| 14013AC | POTATO(WH)-PULP | 0F0925 | P 0.200000 | 0.030000 | FDA MON TRANS | 100.00 | 0.030000 |
| 14013AC | POTATO(WH)-PULP | 0F0925 | P 0.200000 | 0.030000 | FDA MON TRANS | 100.00 | 0.030000 |
| 14013DA | POTATO(WH)-DRY | 0F0925 | P 0.200000 | 0.030000 | FDA MON TRANS | 100.00 | 0.030000 |
| 14013DA | POTATO(WH)-DRY | 0F0925 | P 0.200000 | 0.030000 | FDA MON TRANS | 100.00 | 0.030000 |
| 14013DA | POTATO(WH)-DRY | 0F0925 | P 0.200000 | 0.030000 | FDA MON TRANS | 100.00 | 0.030000 |
| 14013DA | POTATO(WH)-DRY | 0F0925 | P 0.200000 | 0.030000 | FDA MON TRANS | 100.00 | 0.030000 |
| 14018AA | SWEETPOTATOES | 7F0526 | P 0.200000 | 0.030000 | FDA MON. | 100.00 | 0.030000 |
| 14018AA | SWEETPOTATOES | 7F0526 | P 0.200000 | 0.030000 | FDA MON. | 100.00 | 0.030000 |
| 14018AA | SWEETPOTATOES | 7F0526 | P 0.200000 | 0.030000 | FDA MON. | 100.00 | 0.030000 |
| 14018AA | SWEETPOTATOES | 7F0526 | P 0.200000 | 0.030000 | FDA MON. | 100.00 | 0.030000 |
| 15001AA | BEANS-DRY-GRN NO | 7F0526 | P 2.000000 | 2.000000 | FDA MON TRANS | 100.00 | 2.000000 |
| 15001AB | BEANS-DRY-KIDNEY | 7F0526 | P 2.000000 | 0.023000 | FDA MON TRANS | 100.00 | 0.023000 |
| 15001AB | BEANS-DRY-KIDNEY | 7F0526 | P 2.000000 | 0.023000 | FDA MON TRANS | 100.00 | 0.023000 |
| 15001AC | BEANS-DRY-LIMA | 7F0526 | P 2.000000 | 0.023000 | FDA MON TRANS | 100.00 | 0.023000 |
| 15001AD | BEANS-DRY-NAVY | 7F0526 | P 2.000000 | 0.023000 | FDA MON TRANS | 100.00 | 0.023000 |
| 15001AD | BEANS-DRY-NAVY | 7F0526 | P 2.000000 | 0.023000 | FDA MON TRANS | 100.00 | 0.023000 |
| 15001AE | BEANS-DRY-OTHER | 7F0526 | P 2.000000 | 0.023000 | FDA MON TRANS | 100.00 | 0.023000 |
| 15001AE | BEANS-DRY-OTHER | 7F0526 | P 2.000000 | 0.023000 | FDA MON TRANS | 100.00 | 0.023000 |
| 15001AE | BEANS-DRY-OTHER | 7F0526 | P 2.000000 | 0.023000 | FDA MON TRANS | 100.00 | 0.023000 |
| 15001AF | BEANS-DRY-PINTO | 7F0526 | P 2.000000 | 0.023000 | FDA MON TRANS | 100.00 | 0.023000 |
| 15002AA | BEANS-SUCC-LIMA | 7F0526 | P 2.000000 | 0.180000 | FDA MON TRANS | 100.00 | 0.180000 |
| 15002AA | BEANS-SUCC-LIMA | 7F0526 | P 2.000000 | 0.180000 | FDA MON TRANS | 100.00 | 0.180000 |
| 15002AA | BEANS-SUCC-LIMA | 7F0526 | P 2.000000 | 0.180000 | FDA MON TRANS | 100.00 | 0.180000 |
| 15002AA | BEANS-SUCC-LIMA | 7F0526 | P 2.000000 | 0.180000 | FDA MON TRANS | 100.00 | 0.180000 |
| 15003AB | BEANS-SUCC-OTH | 7F0526 | P 2.000000 | 0.180000 | FDA MON TRANS | 100.00 | 0.180000 |
| 15003AB | BEANS-SUCC-OTH | 7F0526 | P 2.000000 | 0.180000 | FDA MON TRANS | 100.00 | 0.180000 |
| 15003AB | BEANS-SUCC-OTH | 7F0526 | P 2.000000 | 0.180000 | FDA MON TRANS | 100.00 | 0.180000 |
| 15003AC | BEANS-SUCC-WAX | 7F0526 | P 0.200000 | 0.110000 | FIELD TRIAL | 100.00 | 0.110000 |
| 15005AA | CORN,SWEET | 7F0526 | P 0.200000 | 0.110000 | FIELD TRIAL | 100.00 | 0.110000 |
| 15005AA | CORN,SWEET | 7F0526 | P 0.200000 | 0.110000 | FIELD TRIAL | 100.00 | 0.110000 |
| 15005AA | CORN,SWEET | 7F0526 | P 0.200000 | 0.110000 | FIELD TRIAL | 100.00 | 0.110000 |

| CHEMICAL | STUDY TYPE | EFFECTS | REFERENCE DOSES | DATA GAPS/COMMENTS | STATUS |
|--|--|---|--|---|---|
| Endosulfan Caswell #420 CAS No. 115-29-7 A.I. CODE: 079401 CFR No. 180.182 185.2600 | 2yr feeding- rat NOEL= 0.6000 mg/kg LEL= 15.00 ppm 2.9000 mg/kg 75.00 ppm ONCO: Group E | Decr body wt gain M&F; incr incidence of progressive glomerulonephrosis & blood vessel aneurysms in M; No evidence of carcinogenicity in rats/mice | PADI UF -->100 OPP Rfd= 0.006000 EPA Rfd= 0.006000 | Developmental tox- rat (core supplementary) 1yr dog co-principal - NOEL=0.57 mg/kg; LEL=1.9 mg/kg (decr wt gains M; neurologic findings M&F) | WHO reviewed 1989 Rfd/PR reviewed 03/20/92 Rfd/PR reviewed 10/01/92 EPA reviewed 11/04/92 Rfd/PR reviewed 03/25/93 EPA verified 03/31/93 |

| FOOD CODE | FOOD | FOOD FORM | PET.# | TOLERANCE (ppm) | ANTICIPATED RESIDUE (ppm) | AR STATISTIC TYPE | % CROP TREATED | RES. VALUE USED IN TAS RUN (ppm) |
|-----------|------------------|---|--------|-----------------|---------------------------|-------------------|----------------|----------------------------------|
| 25003SA | CANE SUGAR | 21 COOKED-NFS | 7F0526 | P 0.500000 | 0.140000 | REHMANITOL PROP | 100.00 | 0.140000 |
| 25003SA | CANE SUGAR | 22 COOKED-FRESH-BAKED | 7F0526 | P 0.500000 | 0.140000 | REHMANITOL PROP | 100.00 | 0.140000 |
| 25003SA | CANE SUGAR | 31 COOKED-FRESH OR CANNED | 7F0526 | P 0.500000 | 0.140000 | REHMANITOL PROP | 100.00 | 0.140000 |
| 25003SB | SUGAR-MOLASSES | 10 RAW-FRESH OR NFS | 7F0526 | P 0.500000 | 0.140000C | REHMANITOL PROC | 100.00 | 0.140000 |
| 25003SB | SUGAR-MOLASSES | 21 COOKED-NFS | 7F0526 | P 0.500000 | 0.140000C | REHMANITOL PROC | 100.00 | 0.140000 |
| 25003SB | SUGAR-MOLASSES | 22 COOKED-FRESH-BAKED | 7F0526 | P 0.500000 | 0.140000C | REHMANITOL PROC | 100.00 | 0.140000 |
| 25003SB | SUGAR-MOLASSES | 31 COOKED-FRESH OR CANNED | 7F0526 | P 0.500000 | 0.140000C | REHMANITOL PROC | 100.00 | 0.140000 |
| 270030A | COTTONSEED-OIL | 18 PROCESSED OIL | 0F0929 | P 1.000000 | 1.000000 | | 1.00 | 0.010000 |
| 27003WA | COTTONSEED-MEAL | 18 PROCESSED OIL | 0F0929 | P 1.000000 | 1.000000 | | 1.00 | 0.010000 |
| 27008AA | SAFFLOWER-SEED | 00 NOT SPECIFIED (NO CONSUMPTION) | 0F0929 | P 0.200000 | 0.130000 | FIELD TRIAL | 100.00 | 0.130000 |
| 270080A | SAFFLOWER-OIL | 18 PROCESSED OIL | 0F0929 | P 0.200000 | 0.130000 | FIELD TRIAL | 100.00 | 0.130000 |
| 270110A | SUNFLOWER-OIL | 18 PROCESSED OIL | 7F0526 | P 2.000000 | 2.000000 | | 100.00 | 2.000000 |
| 27017AA | RAPE SEED | 00 NOT SPECIFIED (NO CONSUMPTION) | 3E1300 | P 0.200000 | 0.200000 | | 100.00 | 0.200000 |
| 500000B | MILK-NON-FAT SOL | 10 RAW-FRESH OR NFS | 8F0632 | P 0.100000 | 0.001000 | | 100.00 | 0.001000 |
| 500000B | MILK-NON-FAT SOL | 21 COOKED-NFS | 8F0632 | P 0.100000 | 0.001000 | | 100.00 | 0.001000 |
| 500000B | MILK-NON-FAT SOL | 51 COOKED-CANNED | 8F0632 | P 0.100000 | 0.001000 | | 100.00 | 0.001000 |
| 50000FA | MILK-FAT SOLIDS | 10 RAW-FRESH OR NFS | 8F0632 | P 0.500000 | 0.001000 | | 100.00 | 0.001000 |
| 50000FA | MILK-FAT SOLIDS | 21 COOKED-NFS | 8F0632 | P 0.500000 | 0.001000 | | 100.00 | 0.001000 |
| 50000FA | MILK-FAT SOLIDS | 51 COOKED-CANNED | 8F0632 | P 0.500000 | 0.001000 | | 100.00 | 0.001000 |
| 50000SA | MILK SUG (LACT) | 21 COOKED-NFS | 8F0632 | P 0.100000 | 0.001000 | | 100.00 | 0.001000 |
| 50000SA | MILK SUG (LACT) | 51 COOKED-CANNED | 8F0632 | P 0.100000 | 0.001000 | | 100.00 | 0.001000 |
| 53001BA | BEEF-MEAT BYP | 21 COOKED-NFS | 8F0632 | P 0.200000 | 0.002000 | | 100.00 | 0.002000 |
| 53001BA | BEEF-MEAT BYP | 26 COOKED-FRESH-PICKLED, CORNED, OR CURED | 8F0632 | P 0.200000 | 0.002000 | | 100.00 | 0.002000 |
| 53001BB | BEEF-MEAT BYP | 21 COOKED-NFS | 8F0632 | P 0.200000 | 0.002000 | | 100.00 | 0.002000 |
| 53001BB | BEEF-OTH ORGAN | 26 COOKED-FRESH-PICKLED, CORNED, OR CURED | 8F0632 | P 0.200000 | 0.002000 | | 100.00 | 0.002000 |
| 53001DA | BEEF-DRIED | 21 COOKED-NFS | 8F0632 | P 0.200000 | 0.002000 | | 100.00 | 0.002000 |
| 53001FA | BEEF-FAT | 10 RAW-FRESH OR NFS | 8F0632 | P 0.200000 | 0.003000 | | 100.00 | 0.003000 |
| 53001FA | BEEF-FAT | 21 COOKED-NFS | 8F0632 | P 0.200000 | 0.003000 | | 100.00 | 0.003000 |
| 53001FA | BEEF-FAT | 22 COOKED-FRESH-BAKED | 8F0632 | P 0.200000 | 0.003000 | | 100.00 | 0.003000 |
| 53001FA | BEEF-FAT | 23 COOKED-FRESH-BOILED | 8F0632 | P 0.200000 | 0.003000 | | 100.00 | 0.003000 |
| 53001FA | BEEF-FAT | 24 COOKED-FRESH-BROILED | 8F0632 | P 0.200000 | 0.003000 | | 100.00 | 0.003000 |
| 53001FA | BEEF-FAT | 25 COOKED-FRESH-FRIED | 8F0632 | P 0.200000 | 0.003000 | | 100.00 | 0.003000 |
| 53001FA | BEEF-FAT | 21 COOKED-NFS | 8F0632 | P 0.200000 | 0.001000 | | 100.00 | 0.001000 |
| 53001KA | BEEF-KIDNEY | 25 COOKED-FRESH-FRIED | 8F0632 | P 0.200000 | 0.002000 | | 100.00 | 0.002000 |
| 53001LA | BEEF-LIVER | 25 COOKED-FRESH-FRIED | 8F0632 | P 0.200000 | 0.002000 | | 100.00 | 0.002000 |
| 53001LA | BEEF-LIVER | 31 COOKED-FRESH OR CANNED | 8F0632 | P 0.200000 | 0.002000 | | 100.00 | 0.002000 |
| 53001MA | BEEF-LEAN | 10 RAW-FRESH OR NFS | 8F0632 | P 0.200000 | 0.001000 | | 100.00 | 0.001000 |
| 53001MA | BEEF-LEAN | 21 COOKED-NFS | 8F0632 | P 0.200000 | 0.001000 | | 100.00 | 0.001000 |
| 53001MA | BEEF-LEAN | 22 COOKED-FRESH-BAKED | 8F0632 | P 0.200000 | 0.001000 | | 100.00 | 0.001000 |
| 53001MA | BEEF-LEAN | 23 COOKED-FRESH-BOILED | 8F0632 | P 0.200000 | 0.001000 | | 100.00 | 0.001000 |
| 53001MA | BEEF-LEAN | 24 COOKED-FRESH-BROILED | 8F0632 | P 0.200000 | 0.001000 | | 100.00 | 0.001000 |

| CHEMICAL | STUDY TYPE | EFFECTS | REFERENCE DOSES | DATA GAPS/COMMENTS | STATUS |
|--|--|---|--|--|--|
| Endosulfan Caswell #420 CAS No. 115-29-7 A.I. CODE: 079401 CFR No. 180.182 185.2600 | 2yr feeding- rat NOEL= 0.6000 mg/kg 15.00 ppm LEL= 2.9000 mg/kg 75.00 ppm ONCO: Group E | Decr body wt gain M&F; incr incidence of progressive glomerulonephrosis & blood vessel aneurysms in M; No evidence of carcinogenicity in rats/mice | PADI UF -->100 OPP Rfd= 0.006000 EPA Rfd= 0.006000 | Developmental tox- rat (core supplementary) 1yr dog co-principal - NOEL=0.57 mg/kg; LEL=1.9 mg/kg (decr wt gains M; neurologic findings M&F) | WHO reviewed 1989 Rfd/PR reviewed 03/20/92 Rfd/PR reviewed 10/01/92 EPA reviewed 11/04/92 Rfd/PR reviewed 03/25/93 EPA verified 03/31/93 |

| FOOD CODE | FOOD | FOOD FORM | PET.# | TOLERANCE (ppm) | ANTICIPATED RESIDUE (ppm) | AR STATISTIC TYPE | % CROP TREATED | RES. VALUE USED IN TAS RUN (ppm) |
|-----------|------------------|---|--------|-----------------|---------------------------|-------------------|----------------|----------------------------------|
| 55013BA | POULTRY, OTH-BYP | 00 NOT SPECIFIED (NO CONSUMPTION) | NO TOL | A 0.001000 | 0.001000 | | 100.00 | 0.001000 |
| 55013LA | POULTRY, ORGAN | 25 COOKED-FRESH-FRIED | NO TOL | A 0.001000 | 0.001000 | | 100.00 | 0.001000 |
| 55013MA | POULTRY, OTHER | 21 COOKED-NFS | NO TOL | A 0.001000 | 0.001000 | | 100.00 | 0.001000 |
| 55014AA | EGGS-WHOLE | 10 RAW-FRESH OR NFS | NO TOL | A 0.001000 | 0.001000 | | 100.00 | 0.001000 |
| 55014AA | EGGS-WHOLE | 21 COOKED-NFS | NO TOL | A 0.001000 | 0.001000 | | 100.00 | 0.001000 |
| 55014AA | EGGS-WHOLE | 22 COOKED-FRESH-BAKED | NO TOL | A 0.001000 | 0.001000 | | 100.00 | 0.001000 |
| 55014AA | EGGS-WHOLE | 23 COOKED-FRESH-BOILED | NO TOL | A 0.001000 | 0.001000 | | 100.00 | 0.001000 |
| 55014AA | EGGS-WHOLE | 25 COOKED-FRESH-FRIED | NO TOL | A 0.001000 | 0.001000 | | 100.00 | 0.001000 |
| 55014AB | EGGS-WHOLE | 10 RAW-FRESH OR NFS | NO TOL | A 0.001000 | 0.001000 | | 100.00 | 0.001000 |
| 55014AB | EGGS-WHITE ONLY | 21 COOKED-NFS | NO TOL | A 0.001000 | 0.001000 | | 100.00 | 0.001000 |
| 55014AB | EGGS-WHITE ONLY | 22 COOKED-FRESH-BAKED | NO TOL | A 0.001000 | 0.001000 | | 100.00 | 0.001000 |
| 55014AB | EGGS-WHITE ONLY | 62 COOKED-FRESH OR FROZEN-BAKED | NO TOL | A 0.001000 | 0.001000 | | 100.00 | 0.001000 |
| 55014AB | EGGS-WHITE ONLY | 81 COOKED-FROZEN | NO TOL | A 0.001000 | 0.001000 | | 100.00 | 0.001000 |
| 55014AC | EGGS-YOLK ONLY | 10 RAW-FRESH OR NFS | NO TOL | A 0.001000 | 0.001000 | | 100.00 | 0.001000 |
| 55014AC | EGGS-YOLK ONLY | 21 COOKED-NFS | NO TOL | A 0.001000 | 0.001000 | | 100.00 | 0.001000 |
| 55014AC | EGGS-YOLK ONLY | 25 COOKED-FRESH-FRIED | NO TOL | A 0.001000 | 0.001000 | | 100.00 | 0.001000 |
| 55014AC | EGGS-YOLK ONLY | 31 COOKED-FRESH OR CANNED | NO TOL | A 0.001000 | 0.001000 | | 100.00 | 0.001000 |
| 55015BA | CHICKEN-BYP | 00 NOT SPECIFIED (NO CONSUMPTION) | NO TOL | A 0.001000 | 0.001000 | | 100.00 | 0.001000 |
| 55015LA | CHICKEN-ORGAN | 21 COOKED-NFS | NO TOL | A 0.001000 | 0.001000 | | 100.00 | 0.001000 |
| 55015LA | CHICKEN-ORGAN | 25 COOKED-FRESH-FRIED | NO TOL | A 0.001000 | 0.001000 | | 100.00 | 0.001000 |
| 55015LA | CHICKEN-ORGAN | 26 COOKED-FRESH-PICKLED, CORNED, OR CURED | NO TOL | A 0.001000 | 0.001000 | | 100.00 | 0.001000 |
| 55015MA | CHICKEN-W/O SKIN | 21 COOKED-NFS | NO TOL | A 0.001000 | 0.001000 | | 100.00 | 0.001000 |
| 55015MA | CHICKEN-W/O SKIN | 22 COOKED-FRESH-BAKED | NO TOL | A 0.001000 | 0.001000 | | 100.00 | 0.001000 |
| 55015MA | CHICKEN-W/O SKIN | 25 COOKED-FRESH-FRIED | NO TOL | A 0.001000 | 0.001000 | | 100.00 | 0.001000 |
| 55015MA | CHICKEN-W/O SKIN | 31 COOKED-FRESH OR CANNED | NO TOL | A 0.001000 | 0.001000 | | 100.00 | 0.001000 |
| 55015MA | CHICKEN-W/O SKIN | 53 COOKED-CANNED-BOILED | NO TOL | A 0.001000 | 0.001000 | | 100.00 | 0.001000 |
| 55015MB | CHICKEN+SKIN | 21 COOKED-NFS | NO TOL | A 0.001000 | 0.001000 | | 100.00 | 0.001000 |
| 55015MB | CHICKEN+SKIN | 25 COOKED-FRESH-FRIED | NO TOL | A 0.001000 | 0.001000 | | 100.00 | 0.001000 |

Table 3: Acute Dietary Exposure Distribution for Endosulfan

DETAILED ACUTE ANALYSIS INCLUDING AR'S: ALL STATISTICS BASED ON USERS' DAILY CONSUMPTION 16:38 Thursday, March 23, 1995 69

 *NAME: ENDOSULFAN
 *CASWELL NO: 420
 *CAS NO: 00115-29-7 SHAUGHNESSY NO: 079401 B
 *STATUS CODES: C
 *RDV INFO: The LD value used in this analysis is 0.007
 *FILE INFO: No Tolerance Data Are Used--Without User Modifications.

 U.S. POP.---48 STATES

ESTIMATED % OF POTENTIAL

| PERSON DAYS THAT ARE USER-DAYS | RDV | NOEL | SF | STUDY TYPE | SPECIES | EFF. LEV. | CORE GRADE | DOC. NO. |
|--------------------------------|-----|------|----|------------|---------|-----------|------------|--------------|
| 0 | 0 | 0 | 0 | 000030.000 | Dog | Systemic | Minimum | 0000000416* |
| 100 | 95 | 87 | 0 | 00000.4000 | Rat | Systemic | Minimum | 00000001488* |
| | | | | 000040.000 | Rabbit | Systemic | Minimum | 00000001488* |

MEAN DAILY RESIDUE CONTRIBUTION PER USER-DAY

| MG/KG BODY WEIGHT/DAY | AS PERCENT OF RDV |
|-----------------------|-------------------|
| 0.000000 | 0.00 |
| 0.012197 | 174.24 |

ESTIMATED % OF POPULATION USER-DAYS WITH RESIDUE CONTRIBUTION EXCEEDING X TIMES THE RDV, FOR X=

| X | 0 | .2 | .4 | .6 | .8 | 1 | 1.2 | 1.4 | 1.6 | 1.8 | 2 | 3 | 4 | 5 | 10 | 15 | 20 |
|-----|----|----|----|----|----|----|-----|-----|-----|-----|----|---|---|---|----|----|----|
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 100 | 95 | 87 | 78 | 68 | 59 | 50 | 43 | 37 | 32 | 28 | 14 | 8 | 5 | 1 | 0 | 0 | 0 |

MOE = 0.7 mg/kg/day ÷ 0.105 mg/kg/day = 7
 41st Percentile consumer MOE = 100
 Mean MOE = 57

INFANTS (<1 YEAR)

ESTIMATED % OF POTENTIAL

| PERSON DAYS THAT ARE USER-DAYS | RDV | NOEL | SF | STUDY TYPE | SPECIES | EFF. LEV. | CORE GRADE | DOC. NO. |
|--------------------------------|-----|------|----|------------|---------|-----------|------------|--------------|
| 0 | 0 | 0 | 0 | 000030.000 | Dog | Systemic | Minimum | 0000000416* |
| 100 | 99 | 97 | 95 | 00000.4000 | Rat | Systemic | Minimum | 00000001488* |
| | | | | 0.040594 | Rabbit | Systemic | Minimum | 00000001488* |

MEAN DAILY RESIDUE CONTRIBUTION PER USER-DAY

| MG/KG BODY WEIGHT/DAY | AS PERCENT OF RDV |
|-----------------------|-------------------|
| 0.000000 | 0.00 |
| 0.040594 | 579.92 |

ESTIMATED % OF POPULATION USER-DAYS WITH RESIDUE CONTRIBUTION EXCEEDING X TIMES THE RDV, FOR X=

| X | 0 | .2 | .4 | .6 | .8 | 1 | 1.2 | 1.4 | 1.6 | 1.8 | 2 | 3 | 4 | 5 | 10 | 15 | 20 |
|-----|----|----|----|----|----|----|-----|-----|-----|-----|----|----|----|----|----|----|----|
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 100 | 99 | 97 | 95 | 92 | 86 | 83 | 79 | 75 | 73 | 70 | 60 | 50 | 43 | 19 | 8 | 2 | 2 |

MOE = ?
 14th Percentile consumer MOE = 100
 Mean MOE = 17
 CHILDREN (1-6 YRS)

ESTIMATED % OF POTENTIAL

| PERSON DAYS THAT ARE USER-DAYS | RDV | NOEL | SF | STUDY TYPE | SPECIES | EFF. LEV. | CORE GRADE | DOC. NO. |
|--------------------------------|-----|------|----|------------|---------|-----------|------------|--------------|
| 0 | 0 | 0 | 0 | 000030.000 | Dog | Systemic | Minimum | 0000000416* |
| 100 | 100 | 100 | 98 | 00000.4000 | Rat | Systemic | Minimum | 00000001488* |
| | | | | 0.026311 | Rabbit | Systemic | Minimum | 00000001488* |

MEAN DAILY RESIDUE CONTRIBUTION PER USER-DAY

| MG/KG BODY WEIGHT/DAY | AS PERCENT OF RDV |
|-----------------------|-------------------|
| 0.000000 | 0.00 |
| 0.026311 | 375.87 |

ESTIMATED % OF POPULATION USER-DAYS WITH RESIDUE CONTRIBUTION EXCEEDING X TIMES THE RDV, FOR X=

| X | 0 | .2 | .4 | .6 | .8 | 1 | 1.2 | 1.4 | 1.6 | 1.8 | 2 | 3 | 4 | 5 | 10 | 15 | 20 |
|-----|-----|----|----|----|----|----|-----|-----|-----|-----|----|----|----|---|----|----|----|
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 100 | 100 | 98 | 95 | 90 | 86 | 81 | 76 | 72 | 68 | 64 | 47 | 34 | 24 | 5 | 1 | 0 | 0 |

MOE = 0.7 mg/kg/day ÷ 0.14 mg/kg/day = 5
 14th Percentile Consumer MOE = 100
 Mean MOE = 27

Residues for Endosulfan Acute DRES Analysis

| | | | | | | |
|-----|-----------|--------|----------------|-----------|---------|-----------------|
| 420 | 01006AA10 | 0.1000 | RASPBERRIES | 05002DA00 | 2.0000 | CHERRIES-DRIED |
| 420 | 01006AA15 | 0.1000 | RASPBERRIES | 05002JA15 | 2.0000 | CHERRIES-JUICE |
| 420 | 01006AA31 | 0.1000 | RASPBERRIES | 05002JA21 | 2.0000 | CHERRIES-JUICE |
| 420 | 01006AA62 | 0.1000 | RASPBERRIES | 05003AA10 | 2.0000 | NECTARINES |
| 420 | 01006AA70 | 0.1000 | RASPBERRIES | 05004AA10 | 2.0000 | PEACHES-FRESH |
| 420 | 01009AA10 | 0.1000 | BLUEBERRIES | 05004AA21 | 2.0000 | PEACHES-FRESH |
| 420 | 01009AA21 | 0.1000 | BLUEBERRIES | 05004AA31 | 2.0000 | PEACHES-FRESH |
| 420 | 01009AA22 | 0.1000 | BLUEBERRIES | 05004AA51 | 2.0000 | PEACHES-FRESH |
| 420 | 01009AA62 | 0.1000 | BLUEBERRIES | 05004DA10 | 2.0000 | PEACHES-DRIED |
| 420 | 01014AA10 | 2.0000 | GRAPES-FRESH | 05004DA21 | 2.0000 | PEACHES-DRIED |
| 420 | 01014AA21 | 2.0000 | GRAPES-FRESH | 05005AA10 | 2.0000 | PLUMS-FRESH |
| 420 | 01014AA31 | 2.0000 | GRAPES-FRESH | 05005AA31 | 2.0000 | PLUMS-FRESH |
| 420 | 01014DA10 | 2.0000 | GRAPES-RAISINS | 05005DA10 | 2.0000 | PLUMS-PRUNES |
| 420 | 01014DA21 | 2.0000 | GRAPES-RAISINS | 05005DA21 | 2.0000 | PLUMS-PRUNES |
| 420 | 01014DA22 | 2.0000 | GRAPES-RAISINS | 05005DA31 | 2.0000 | PLUMS-PRUNES |
| 420 | 01014JA10 | 2.0000 | GRAPES-JUICE | 05005JA10 | 2.0000 | PRUNE-JUICE |
| 420 | 01014JA15 | 2.0000 | GRAPES-JUICE | 05005JA62 | 2.0000 | PRUNE-JUICE |
| 420 | 01014JA21 | 2.0000 | GRAPES-JUICE | 06013AA10 | 2.0000 | PINEAPPLE-PULP |
| 420 | 01016AA10 | 2.0000 | STRAWBERRIES | 06013AA21 | 2.0000 | PINEAPPLE-PULP |
| 420 | 01016AA21 | 2.0000 | STRAWBERRIES | 06013AA31 | 2.0000 | PINEAPPLE-PULP |
| 420 | 01016AA70 | 2.0000 | STRAWBERRIES | 06013DA10 | 2.0000 | PINEAPPLE-DRIED |
| 420 | 03001AA10 | 0.2000 | ALMONDS | 06013JA10 | 2.0000 | PINEAPPLE-DRIED |
| 420 | 03001AA21 | 0.2000 | ALMONDS | 06013JA15 | 2.0000 | PINEAPPLE-JUICE |
| 420 | 03001AA22 | 0.2000 | ALMONDS | 06013JA21 | 2.0000 | PINEAPPLE-JUICE |
| 420 | 03005AA10 | 0.2000 | FILBERTS | 06013JA31 | 2.0000 | PINEAPPLE-JUICE |
| 420 | 03005AA21 | 0.2000 | FILBERTS | 07003AA21 | 24.0000 | TEA |
| 420 | 03005AA22 | 0.2000 | FILBERTS | 10002AA00 | 2.0000 | CANTALOUPE-UNSP |
| 420 | 03007AA10 | 0.2000 | FILBERTS | 10002AB10 | 2.0000 | CANTALOUPE-PULP |
| 420 | 03008AA10 | 0.2000 | MACADAMIA NUTS | 10002AB21 | 2.0000 | CANTALOUPE-PULP |
| 420 | 03008AA21 | 0.2000 | PECANS | 10003AA10 | 2.0000 | CASABAS |
| 420 | 03008AA22 | 0.2000 | PECANS | 10004AA00 | 2.0000 | CRENSHAW |
| 420 | 03008AA23 | 0.2000 | PECANS | 10005AA10 | 2.0000 | HONEYDEW MELONS |
| 420 | 03008AA62 | 0.2000 | PECANS | 10007AA00 | 2.0000 | PERSION MELONS |
| 420 | 03009AA10 | 0.2000 | WALNUTS | 10008AA10 | 2.0000 | WATERMELON |
| 420 | 03009AA21 | 0.2000 | WALNUTS | 10008AA21 | 2.0000 | WATERMELON |
| 420 | 03009AA22 | 0.2000 | WALNUTS | 10010AA10 | 2.0000 | CUCUMBERS |
| 420 | 04001AA10 | 2.0000 | APPLES-FRESH | 10010AA11 | 2.0000 | CUCUMBERS |
| 420 | 04001AA21 | 2.0000 | APPLES-FRESH | 10010AA21 | 2.0000 | CUCUMBERS |
| 420 | 04001AA31 | 2.0000 | APPLES-FRESH | 10011AA21 | 2.0000 | CUCUMBERS |
| 420 | 04001DA10 | 2.0000 | APPLES-DRIED | 10011AA22 | 2.0000 | PUMPKIN |
| 420 | 04001DA22 | 2.0000 | APPLES-DRIED | 10011AA62 | 2.0000 | PUMPKIN |
| 420 | 04001DA62 | 2.0000 | APPLES-DRIED | 10013AA10 | 2.0000 | SQUASH-SUMMER |
| 420 | 04001JA15 | 2.0000 | APPLES-JUICE | 10013AA21 | 2.0000 | SQUASH-SUMMER |
| 420 | 04001JA31 | 2.0000 | APPLES-JUICE | 10014AA10 | 2.0000 | SQUASH-WINTER |
| 420 | 04003AA10 | 2.0000 | PEARS-FRESH | 10014AA21 | 2.0000 | SQUASH-WINTER |
| 420 | 04003AA31 | 2.0000 | PEARS-FRESH | 10017AA31 | 2.0000 | SQUASH-WINTER |
| 420 | 04003AA51 | 2.0000 | PEARS-FRESH | 10017AA21 | 2.0000 | BITTER MELON |
| 420 | 04003DA10 | 2.0000 | PEARS-DRIED | 10020AA00 | 2.0000 | TOMEGOURD |
| 420 | 04003DA21 | 2.0000 | PEARS-DRIED | 11001AA10 | 2.0000 | EGGPLANT |
| 420 | 05001AA10 | 2.0000 | APRICOTS-FRESH | 11001AA21 | 2.0000 | EGGPLANT |
| 420 | 05001AA21 | 2.0000 | APRICOTS-FRESH | 11001AA25 | 2.0000 | EGGPLANT |
| 420 | 05001DA10 | 2.0000 | APRICOTS-DRIED | 11003AA10 | 2.0000 | PEPPERS,SWEET |
| 420 | 05001DA22 | 2.0000 | APRICOTS-DRIED | 11003AA21 | 2.0000 | PEPPERS,SWEET |
| 420 | 05002AA10 | 2.0000 | CHERRIES-FRESH | 11003AB00 | 2.0000 | CHILI PEPPERS |
| 420 | 05002AA21 | 2.0000 | CHERRIES-FRESH | 11003AD10 | 2.0000 | PEPPERS-OTHER |
| 420 | 05002AA31 | 2.0000 | CHERRIES-FRESH | 11003AD21 | 2.0000 | PEPPERS-OTHER |
| 420 | 05002AA62 | 2.0000 | CHERRIES-FRESH | 11003AD51 | 2.0000 | PEPPERS-OTHER |
| 420 | | | | 11005AA10 | 2.0000 | TOMATOES-WHOLE |
| 420 | | | | 11005AA21 | 2.0000 | TOMATOES-WHOLE |
| 420 | | | | 11005AA31 | 2.0000 | TOMATOES-WHOLE |

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Table 4.

Residues for Endosulfan Acute DRES Analysis

| | | | | | | | |
|-----|-----------|--------|------------------|-----|-----------|--------|------------------|
| 420 | 25003SA21 | 0.5000 | CANE SUGAR | 420 | 53006FA21 | 0.2000 | PORK-FAT |
| 420 | 25003SA22 | 0.5000 | CANE SUGAR | 420 | 53006FA23 | 0.2000 | PORK-FAT |
| 420 | 25003SA31 | 0.5000 | CANE SUGAR | 420 | 53006FA25 | 0.2000 | PORK-FAT |
| 420 | 25003SB10 | 0.5000 | SUGAR-MOLASSES | 420 | 53006KA21 | 0.2000 | PORK-KIDNEY |
| 420 | 25003SB22 | 0.5000 | SUGAR-MOLASSES | 420 | 53006LA21 | 0.2000 | PORK-LIVER |
| 420 | 25003SB22 | 0.5000 | SUGAR-MOLASSES | 420 | 53006LA25 | 0.2000 | PORK-LIVER |
| 420 | 25003SB31 | 0.5000 | SUGAR-MOLASSES | 420 | 53006MA21 | 0.2000 | PORK-LEAN |
| 420 | 27003OA18 | 1.0000 | COTTONSEED-OIL | 420 | 53006MA25 | 0.2000 | PORK-LEAN |
| 420 | 27003MA18 | 1.0000 | COTTONSEED-MEAL | 420 | 53006HA26 | 0.2000 | PORK-LEAN |
| 420 | 27008AA00 | 0.2000 | SAFFLOWER-SEED | 420 | 55008BA21 | 0.0010 | TURKEY-BYP |
| 420 | 27008OA18 | 0.2000 | SAFFLOWER-OIL | 420 | 55008BA26 | 0.0010 | TURKEY-BYP |
| 420 | 27011OA18 | 2.0000 | SUNFLOWER-OIL | 420 | 55008LA21 | 0.0010 | TURKEY ORGAN |
| 420 | 27017AA00 | 0.2000 | RAPE SEED | 420 | 55008LA25 | 0.0010 | TURKEY ORGAN |
| 420 | 50000DB10 | 0.1000 | MILK-NON-FAT SOL | 420 | 55008LA26 | 0.0010 | TURKEY W/O SKIN |
| 420 | 50000DB21 | 0.1000 | MILK-NON-FAT SOL | 420 | 55008MA21 | 0.0010 | TURKEY W/O SKIN |
| 420 | 50000DB51 | 0.1000 | MILK-NON-FAT SOL | 420 | 55008MA31 | 0.0010 | TURKEY W/O SKIN |
| 420 | 50000FA10 | 0.5000 | MILK-FAT SOLIDS | 420 | 55008MA62 | 0.0010 | TURKEY W/O SKIN |
| 420 | 50000FA21 | 0.5000 | MILK-FAT SOLIDS | 420 | 55008HB21 | 0.0010 | TURKEY+SKIN |
| 420 | 50000FA51 | 0.5000 | MILK-FAT SOLIDS | 420 | 55008HB25 | 0.0010 | TURKEY+SKIN |
| 420 | 50000SA21 | 0.1000 | MILK SUG (LACT) | 420 | 55008HC21 | 0.0010 | TURKEY-UNSPEC |
| 420 | 50000SA51 | 0.1000 | MILK SUG (LACT) | 420 | 55013BA00 | 0.0010 | POULTRY,OTH-BYP |
| 420 | 53001BA21 | 0.2000 | BEEF-MEAT BYP | 420 | 55013LA25 | 0.0010 | POULTRY,ORGAN |
| 420 | 53001BA26 | 0.2000 | BEEF-MEAT BYP | 420 | 55013MA21 | 0.0010 | POULTRY,OTHER |
| 420 | 53001BB21 | 0.2000 | BEEF-OTH ORGAN | 420 | 55014AA10 | 0.0010 | EGGS-WHOLE |
| 420 | 53001BB51 | 0.2000 | BEEF-OTH ORGAN | 420 | 55014AA21 | 0.0010 | EGGS-WHOLE |
| 420 | 53001DA21 | 0.2000 | BEEF-DRIED | 420 | 55014AA22 | 0.0010 | EGGS-WHOLE |
| 420 | 53001FA10 | 0.2000 | BEEF-FAT | 420 | 55014AA23 | 0.0010 | EGGS-WHOLE |
| 420 | 53001FA21 | 0.2000 | BEEF-FAT | 420 | 55014AA25 | 0.0010 | EGGS-WHOLE |
| 420 | 53001FA22 | 0.2000 | BEEF-FAT | 420 | 55014AB10 | 0.0010 | EGGS-WHITE ONLY |
| 420 | 53001FA23 | 0.2000 | BEEF-FAT | 420 | 55014AB21 | 0.0010 | EGGS-WHITE ONLY |
| 420 | 53001FA24 | 0.2000 | BEEF-FAT | 420 | 55014AB22 | 0.0010 | EGGS-WHITE ONLY |
| 420 | 53001FA25 | 0.2000 | BEEF-FAT | 420 | 55014AB62 | 0.0010 | EGGS-WHITE ONLY |
| 420 | 53001KA21 | 0.2000 | BEEF-KIDNEY | 420 | 55014AB81 | 0.0010 | EGGS-WHITE ONLY |
| 420 | 53001LA25 | 0.2000 | BEEF-LIVER | 420 | 55014AC10 | 0.0010 | EGGS-YOLK ONLY |
| 420 | 53001LA31 | 0.2000 | BEEF-LIVER | 420 | 55014AC21 | 0.0010 | EGGS-YOLK ONLY |
| 420 | 53001MA10 | 0.2000 | BEEF-LEAN | 420 | 55014AC25 | 0.0010 | EGGS-YOLK ONLY |
| 420 | 53001MA21 | 0.2000 | BEEF-LEAN | 420 | 55014AC31 | 0.0010 | EGGS-YOLK ONLY |
| 420 | 53001MA22 | 0.2000 | BEEF-LEAN | 420 | 55015BA00 | 0.0010 | CHICKEN-BYP |
| 420 | 53001MA23 | 0.2000 | BEEF-LEAN | 420 | 55015LA21 | 0.0010 | CHICKEN-ORGAN |
| 420 | 53001MA24 | 0.2000 | BEEF-LEAN | 420 | 55015LA25 | 0.0010 | CHICKEN-ORGAN |
| 420 | 53002BA00 | 0.2000 | GOAT-MEAT BYP | 420 | 55015LA26 | 0.0010 | CHICKEN-ORGAN |
| 420 | 53002BB00 | 0.2000 | GOAT-OTH ORGAN | 420 | 55015MA21 | 0.0010 | CHICKEN-W/O SKIN |
| 420 | 53002FA23 | 0.2000 | GOAT-FAT | 420 | 55015MA22 | 0.0010 | CHICKEN-W/O SKIN |
| 420 | 53002KA00 | 0.2000 | GOAT-KIDNEY | 420 | 55015MA25 | 0.0010 | CHICKEN-W/O SKIN |
| 420 | 53002LA00 | 0.2000 | GOAT-LIVER | 420 | 55015MA31 | 0.0010 | CHICKEN-W/O SKIN |
| 420 | 53002MA23 | 0.2000 | GOAT-LEAN | 420 | 55015MA53 | 0.0010 | CHICKEN-W/O SKIN |
| 420 | 53002MA25 | 0.2000 | GOAT-LEAN | 420 | 55015HB21 | 0.0010 | CHICKEN+SKIN |
| 420 | 53002MA25 | 0.2000 | GOAT-LEAN | 420 | 55015HB25 | 0.0010 | CHICKEN+SKIN |
| 420 | 53003AA00 | 0.2000 | HORSE | | | | |
| 420 | 53005BA21 | 0.2000 | SHEEP-MEAT BYP | | | | |
| 420 | 53005BB21 | 0.2000 | SHEEP-OTH ORGAN | | | | |
| 420 | 53005FA21 | 0.2000 | SHEEP-FAT | | | | |
| 420 | 53005KA21 | 0.2000 | SHEEP-KIDNEY | | | | |
| 420 | 53005LA00 | 0.2000 | SHEEP-LIVER | | | | |
| 420 | 53005MA21 | 0.2000 | SHEEP-LEAN | | | | |
| 420 | 53005MA31 | 0.2000 | SHEEP-LEAN | | | | |
| 420 | 53006BA21 | 0.2000 | PORK-MEAT BYP | | | | |
| 420 | 53006BB21 | 0.2000 | PORK-OTH ORGAN | | | | |
| 420 | 53006BB26 | 0.2000 | PORK-OTH ORGAN | | | | |
| 420 | 53006FA10 | 0.2000 | PORK-FAT | | | | |