

US EPA ARCHIVE DOCUMENT



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

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P. ERIC
W. T. CHIN
6F3380
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FEB 3 1989

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OFFICE OF
PESTICIDES AND TOXIC SUBSTANCES

MEMORANDUM

SUBJECT: PP#6F3380/6H5502. Glyphosate in or on Soybeans:
TAS Dietary Exposure Analysis.

FROM: Susan L. Stanton *Susan L. Stanton 02/02/89*
Tolerance Assessment Staff
HED/SACB (TS-769C)

THRU: Bruce Jaeger *BJ 2/3/89*
Head, Special Analysis and Outreach Section
HED/SACB (TS-769C)

TO: Robert J. Taylor, PM #25
Herbicide-Fungicide Branch
Registration Division (TS-767C)

Action Requested

SACB has been asked to provide a TAS analysis of dietary exposure resulting from the proposed use of glyphosate on soybeans. The proposed use would increase the established tolerance for residues of glyphosate and its AMPA metabolite in or on soybeans from 6.0 ppm to 20.0 ppm. Dietary Exposure Branch (DEB) has recommended in favor of the proposed increase (memo. W. T. Chin to R. J. Taylor, 01/30/89).

Discussion

1. Toxicology Endpoint: A TAS chronic exposure analysis was conducted using a Reference Dose (ADI) of 0.1 mg/kg body wt/day, based on the No Observable Effect Level (NOEL) of 10.0 mg/kg/day from a 3-generation rat reproduction study with an uncertainty factor of 100. This value has been approved by HED (02/28/86) and verified by the Agency reference dose committee (03/11/86).

2. Residue Data Used in the Analysis: The food uses evaluated include those for which tolerances have been established under 40 CFR 180.364 and 185.3500 and the proposed use on soybeans. Exposure estimates provided by this analysis assume that residues would be present at tolerance levels on all foods and that 100% of all crops would be treated with glyphosate. The attached Table 1 contains a complete listing of residues used in the analysis.

3. Analysis Summary: The TAS chronic exposure analysis estimates average daily exposure for the overall U.S. population and each of 22 population subgroups and compares these estimates to the acceptable daily intake (See Table 2). The Theoretical Maximum Residue Contribution (TMRC) for the overall U.S. population from the established uses and the proposed use on soybeans is estimated to be 0.009853 mg/kg body wt/day, which occupies approximately 10% of the ADI. The two most highly exposed subgroups are non-nursing infants less than 1 year old (TMRC = 0.039048 mg/kg/day or 39% of the ADI) and children, 1 to 6 years old (TMRC = 0.019086 mg/kg/day or 19% of the ADI). The effect of the new action (increasing the soybean tolerance from 6 to 20 ppm) on exposure is shown below:

	<u>Established Uses</u>	<u>New Action (Soybeans)^a</u>	<u>Total Exposure</u>
U.S. Population	0.005095 ^b (5.1%) ^c	0.004759 (4.8%)	0.009853 (9.9%)
Non-Nursing Infants	0.016217 (16.2%)	0.022832 (22.8%)	0.039048 (39.0%)
Children, 1 to 6	0.010180 (10.2%)	0.008906 (8.9%)	0.019086 (19.1%)

^aIncludes the exposure from the increase of 14 ppm in the soybean tolerance only (from 6 to 20 ppm).

^bExposure expressed as mg/kg body wt/day.

^cExposure expressed as a percent of the ADI.

The above estimates are based on tolerance level residues and assume 100% of all crops are treated. Actual exposure would likely be lower, since tolerances generally overestimate residues that would be found in foods as eaten. However, since no TAS subgroups have estimated exposures which exceed the acceptable daily intake using this conservative approach, a more refined analysis is not deemed necessary.

CC: Stanton (SACB), Caswell File #661A, TAS File, DEB (Loranger), Dykstra (HFASB)

Table 1

CHEMICAL INFORMATION FOR CASWELL NUMBER 661A DATE: 02/02/89 PAGE: 1.

FOOD CODE	FOOD NAME	STUDY TYPE	EFFECTS	REFERENCE DOSES		DATA GAPS/COMMENTS	STATUS
				ADI	SF		
01002AA	BLACKBERRIES	3gen reprod- rat	Renal tubular dilation in pups.	OPP RFD= 0.100000	0.200000	Rat oncogenicity (no MTD in chronic feeding study)	HED complete 2/28/86.
01003AA	BOYSENBERRIES	NOEL= 10.0000 mg/kg	Equivocal evidence of oncogenicity in the mouse (kidney adenoma); rat study no MTD.	EPA RFD= 0.100000	0.200000	Mouse oncogenicity (need to resolve kidney tumor issue).	EPA verified 3/11/86.
01004AA	DEWBERRIES	LEL= 30.0000 mg/kg			0.200000		
01005AA	LOGANBERRIES	0.00 ppm			0.200000		
01006AA	RASPBERRIES	0.00 ppm			0.200000		
01007AA	YOUNGBERRIES	0.00 ppm			0.200000		
01009AA	BLUEBERRIES	ONCO: D (SAP); C (TOX)			0.200000		
01010AA	CRANBERRIES				0.200000		
01010JA	CRANBERRIES-JUICE				0.200000		
01011AA	CURRANTS				0.200000		
01012AA	ELDERBERRIES				0.200000		
01013AA	GOOSEBERRIES				0.200000		
01014AA	GRAPES-FRESH				0.200000		
01014DA	GRAPES-RAISINS				0.200000		
01014JA	GRAPES-JUICE				0.200000		
01015AA	HUCKLEBERRIES (GAYLUSSACTA)				0.200000		
01016AA	STRAWBERRIES				0.200000		
02001AA	CITRUS CITRUS				0.200000		
02002AA	GRAPEFRUIT-UNSPECIFIED				0.200000		
02002AB	GRAPEFRUIT-PULP				0.200000		
02002JA	GRAPEFRUIT-JUICE				0.200000		
02003AA	KUMQUATS				0.200000		
02004AA	LEMONS-UNSPECIFIED				0.200000		
02004AB	LEMONS-PULP				0.200000		
02004HA	LEMONS-PEEL				0.200000		
02004JA	LEMONS-JUICE				0.200000		
02005AA	LIMES-UNSPECIFIED				0.200000		
02005AB	LIMES-PULP				0.200000		
02005HA	LIMES-PEEL				0.200000		
02005JA	LIMES-JUICE				0.200000		
02006AA	ORANGES-UNSPECIFIED				0.200000		
02006AB	ORANGES-PULP				0.200000		
02006HA	ORANGES-PEEL				0.200000		
02006JA	ORANGES-JUICE				0.200000		
02007AA	TANGELOS				0.200000		
02008AA	TANGERINES				0.200000		
02008JA	TANGERINE-JUICE				0.200000		
03001AA	ALMONDS				0.200000		
03002AA	BRAZIL NUTS				0.200000		
03003AA	CASHEWS				0.200000		

Table 1 (cont.)

CHEMICAL	STUDY TYPE	EFFECTS	REFERENCE DOSES	DATA GAPS/COMMENTS	STATUS
Gliphosate (+ salts) Caswell #661A CAS No. 1071-83-6 A.I. CODE: 417300 CFR No. 180.364	ngen reprod- rat NOEL= 10,0000 mg/kg 0.00 ppm LEL= 30,0000 mg/kg 0.00 ppm ONCO: D (SAP); C (TOX)	Renal tubular dilation in pups. Equivocal evidence of oncogenicity in the mouse (kidney adenoma); rat study no MTD.	SF -->100 OPP RfD= 0.100000 EPA RfD= 0.100000	Rat oncogenicity (no MTD in chronic feeding study) Mouse oncogenicity (need to resolve kidney tumor issue). Not regulated as oncogen.	HED complete 2/28/86 EPA verified 3/1/86. WHO last reviewed .986.

FOOD CODE	FOOD NAME	PETITION NUMBER	NEW	TOLERANCE (PPM)	PUBLISHED
03004AA	CHESTNUTS	7F1893		0.200000	
03005AA	FILBERTS & HAZELNUTS	7F1893		0.200000	
03006AA	HICKORY NUTS	7F1893		0.200000	
03007AA	MACADAMIA NUTS (BUSH NUTS)	7F1893		0.200000	
03008AA	PECANS	7F1893		0.200000	
03009AA	WALNUTS	7F1893		0.200000	
03010AA	BUTTER NUTS	7F1893		0.200000	
03011AA	PISTACHIO NUTS	7F1893		0.200000	
03013AA	BEECHNUTS	6F1861		0.200000	
04001AA	APPLES-FRESH	6F1861		0.200000	
04001DA	APPLES-DRIED	6F1861		0.200000	
04001JA	APPLES-JUICE	6F1861		0.200000	
04002AA	CRABAPPLES	6F1861		0.200000	
04003AA	PEARS-FRESH	6F1861		0.200000	
04003DA	PEARS-DRIED	6F1861		0.200000	
04004AA	QUINCES	6F1861		0.200000	
05001AA	APRICOTS-FRESH	260044		0.200000	
05001DA	APRICOTS-DRIED	260044		0.200000	
05002AA	CHERRIES-FRESH	260044		0.200000	
05002DA	CHERRIES-DRIED	260044		0.200000	
05002JA	CHERRIES-JUICE	260044		0.200000	
05003AA	NECTARINES	260044		0.200000	
05004AA	PEACHES-FRESH	260044		0.200000	
05004DA	PEACHES-DRIED	260044		0.200000	
05005AA	PLUMS(DAMSONS) - FRESH	260044		0.200000	
05005DA	PLUMS-PRUNES(DRIED)	260044		0.200000	
05005JA	PLUMS/PRUNE - JUICE	260044		0.200000	
06001AA	AVOCADOS	8F2021		0.200000	
06002AA	BANANAS-UNSPECIFIED	9F2223		0.200000	
06002AB	BANANAS-FRESH	9F2223		0.200000	
06002DA	BANANAS-DRIED	9F2223		0.200000	
06003AA	COCONUT-FRESH	2F2680		0.100000	
06003DA	COCONUT-COPRA	2F2680		0.100000	
06003JA	COCONUT-WATER	3E2929		0.200000	
06005AA	FIGS	1E2443		0.200000	
06006AA	GUAVA	1E2443		0.200000	
06007AA	MANGOES	1E2490		0.200000	
06009AA	OLIVES	3E2929		0.200000	
06010AA	PAPAYAS-UNSPECIFIED	1E2443		0.200000	
06010AB	PAPAYAS-PULP	1E2443		0.200000	

Table 1 (cont.)

FOOD CODE	FOOD NAME	PETITION NUMBER	NEW	TOLERANCE (PPM)		PUBLISHED	EFFECTS	STUDY TYPE	CHEMICAL	REFERENCES	DOSES	DATA GAPS/COMMENTS	STATUS
				PENDING	NEW								
06010DA	PAPAYAS-DRIED	1E2443				0.200000		3gen reprod- rat			SF -->100	Rat oncogenicity (no MTD in chronic feeding study)	HED complete 2/28/86.
06010JA	PAPAYAS-JUICE	1E2443				0.200000		NOEL= 10.0000 mg/kg			OPP RfD= 0.100000	Mouse oncogenicity (need to resolve kidney tumor issue)	EPA verified 3/11/86.
06013AA	PINEAPPLE-FRESH/PULP	2F2634				0.100000		LEL= 30.0000 mg/kg			EPA RfD= 0.100000		WHO last reviewed 1986.
06013DA	PINEAPPLE-DRIED	2F2634				0.100000		A.I. CODE: 417300					
06013JA	PINEAPPLE-FRESH/JUICE	2F2634				0.100000		CFR No. 180.364					
06016AA	PLANTAINS	9F2223				0.200000							
06018AA	KIWI	3E2929				0.200000							
06020AA	ACEROLA	3E2929				0.200000							
06025AA	SUGAR APPLES (SWEETSOP)	6E3424				0.200000							
06029AA	CARAMBOLA	6E3424				0.200000							
07002AA	COFFEE	6E1809				1.000000							
07003AA	TEA	1H5310				4.000000							
07006AA	CHICORY	7F2016				0.200000							
08015AA	DILL	7F2016				0.200000							
08020AA	HOPS					0.100000							
10002AA	CANTALOUPE-UNSPECIFIED	3E2845				0.500000							
10002AB	CANTALOUPE-PULP	3E2845				0.500000							
10003AA	CASABAS	3E2845				0.500000							
10004AA	CRENSHAW	3E2845				0.500000							
10005AA	HONEYDEW MELONS	3E2845				0.500000							
10007AA	PERSION MELONS	3E2845				0.500000							
10008AA	WATERMELON	3E2845				0.500000							
10010AA	CUCUMBERS	3E2845				0.500000							
10011AA	PUMPKIN	3E2845				0.500000							
10013AA	SQUASH-SUMMER	3E2845				0.500000							
10014AA	SQUASH-WINTER	3E2845				0.500000							
10017AA	BITTER MELON	3E2845				0.500000							
10020AA	TOMELGOURD	3E2845				0.500000							
11001AA	EGGPLANT					0.100000							
11003AA	PEPPERS (SWEET/GARDEN)					0.100000							
11003AB	CHILI PEPPERS					0.100000							
11003AD	PEPPERS-OTHER					0.100000							
11004AA	PIMIENTOS					0.100000							
11005AA	TOMATOES-WHOLE					0.100000							
11005JA	TOMATOES-JUICE					0.100000							
11005RA	TOMATOES-PUREE					0.100000							
11005TA	TOMATOES-PASTE					0.100000							
11005UA	TOMATOES-TATSUP					0.100000							
13001AA	BEEETS-TOPS(GREENS)	8E2122				0.200000							
13002AA	CELERY	8E2122				0.200000							

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Table 1 (con't)

CHEMICAL INFORMATION FOR CASWELL NUMBER 661A

CHEMICAL	STUDY TYPE	EFFECTS	REFERENCE DOSES		DATA GAPS/COMMENTS	STATUS
			ADI	SF -->100		
Glyphosate (+ salts)	3gen reprod- rat	Renal tubular dilation in pups.			Rat oncogenicity (no MTD in chronic feeding study)	HED complete 2/28/86.
Caswell #661A	NOEL= 10.0000 mg/kg		OPP RfD= 0.100000			EPA verified 3/11/86.
CAS No. 1071-83-6	0.00 ppm	Equivocal evidence of oncogenicity in the mouse (kidney adenoma); rat study no MTD.	EPA RfD= 0.100000		Mouse oncogenicity (need to resolve kidney tumor issue).	WHO last reviewed 1986.
A.I. CODE: 417300	LEL= 30.0000 mg/kg					
CFR No. 180.364	0.00 ppm					
	ONCO: D (SNP); C (TOX)				Not regulated as oncogen.	On IRIS.

FOOD CODE	FOOD NAME	PETITION NUMBER	TOLERANCE (PPM)	
			NEW	PUBLISHED
13003AA	CHICORY (FRENCH OR BELGIAN ENDIVE)	8E2122		0.200000
13005AA	BROCCOLI	8E2122		0.200000
13006AA	BRUSSEL SPROUTS	8E2122		0.200000
13007AA	CABBAGE-GREEN AND RED	8E2122		0.200000
13008AA	CAULIFLOWER	8E2122		0.200000
13009AA	COLLARDS	8E2122		0.200000
13010AA	CABBAGE-CHINESE/CELERY(INC. BOK CHOY)	8E2122		0.200000
13011AA	KALE	8E2122		0.200000
13012AA	KOHLRABI	8E2122		0.200000
13013AA	LETTUCE-LEAFY VARIETIES	8E2122		0.200000
13014AA	DANDELION	8E2122		0.200000
13015AA	ENDIVE (CURLY) AND ESCAROLE	8E2122		0.200000
13016AA	FENNEL	8E2122		0.200000
13017AA	CRESS (GARDEN/FIELD)	8E2122		0.200000
13020AA	LETTUCE-UNSPECIFIED	8E2122		0.200000
13021AA	MUSTARD GREENS	8E2122		0.200000
13022AA	PARSLEY	8E2122		0.200000
13023AA	RHUBARB	8E2122		0.200000
13024AA	SPINACH	8E2122		0.200000
13025AA	SWISS CHARD	8E2122		0.200000
13026AA	TURNIPS-TOPS	8E2122		0.200000
13039AA	CRESS (UPLAND)	8E2122		0.200000
13045AA	LETTUCE-HEAD VARIETIES	8E2122		0.200000
14001AA	BEETS-ROOTS	7F2016		0.200000
14003AA	CARROTS	7F2016		0.200000
14007AA	GARLIC	8E3676		0.200000
14009AA	ARTICHOKES-JERUSALEM	7F2016		0.200000
14010AA	LEEK	8E3676		0.200000
14011AA	ONIONS-DRY-BULB (CIPOLLINI)	8E3676		0.200000
14011DA	ONIONS-DEHYDRATED OR DRIED	8E3676		0.200000
14013AA	POTATOES(WHITE)-WHOLE	7F2016		0.200000
14013AB	POTATOES(WHITE)-UNSPECIFIED	7F2016		0.200000
14013AC	POTATOES(WHITE)-PEELED	7F2016		0.200000
14013DA	POTATOES(WHITE)-DRY	7F2016		0.200000
14013HA	POTATOES(WHITE)-PEEL ONLY	7F2016		0.200000
14014AA	RUTABAGAS ROOTS	7F2016		0.200000
14015AA	RAISINS	7F2016		0.200000
14016AA	RAISINS (INCLUDING STEMS)	7F2016		0.200000
14017AA	RAISINS (INCLUDING STEMS)	7F2016		0.200000
14018AA	RAISINS (INCLUDING STEMS)	7F2016		0.200000
14019AA	RAISINS (INCLUDING STEMS)	7F2016		0.200000

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Table 1 (con't)

CHEMICAL	STUDY TYPE	EFFECTS	REFERENCE DOSES		DATA GAPS/COMMENTS	STATUS
			ADI	SF -->100		
Glyphosate (+ salts) Caswell #661A	3gen reprod- rat NOEL= 10,000 mg/kg	Renal tubular dilation in pups.	OPP RfD= 0.100000	Rat oncogenicity (no MTD in chronic feeding study)	HED complete 2/28/86.	
CAS No. 1071-83-6	LEL= 30,000 mg/kg	Equivocal evidence of on-cogenicity in the mouse	EPA RfD= 0.100000	Mouse oncogenicity (need to resolve kidney tumor issue).	EPA verified 3/11/86.	
A. I. CODE: 417300	ONCO: D (SAP); C (TOX)	(kidney adenoma); rat study no MTD.			WHO last reviewed 1986.	
CFR No. 180.364						

FOOD CODE	FOOD NAME	PETITION NUMBER	TOLERANCE (PPM)		PUBLISHED
			NEW	PENDING	
14019AA	TURNIPS-ROOTS	7F2016			0.200000
14021AA	PARSNIPS	7F2016			0.200000
14030AA	PARSLEY ROOTS	7F2016			0.200000
15001AA	BEANS-DRY-GREAT NORTHERN	7F2016			0.200000
15001AB	BEANS-DRY-KIDNEY	7F2016			0.200000
15001AC	BEANS-DRY-LIMA	7F2016			0.200000
15001AD	BEANS-DRY-NAVY (PEA)	7F2016			0.200000
15001AE	BEANS-DRY-OTHER	7F2016			0.200000
15001AF	BEANS-DRY-PINTO	7F2016			0.200000
15002AA	BEANS-SUCCULENT-LIMA	7F2016			0.200000
15003AA	BEANS-SUCCULENT-GREEN	7F2016			0.200000
15003AB	BEANS-SUCCULENT-OTHER	7F2016			0.200000
15003AC	BEANS-SUCCULENT-YELLOW/WAX	7F2016			0.200000
15004AA	CORN (POP)	8E2122			0.100000
15005AA	CORN (SWEET)	8E2122			0.100000
15006AA	PEANUTS-WHOLE	0F2329			0.100000
15007AA	PEAS(GARDEN)-MATURE SEEDS/DRY	7F2016			0.200000
15009AA	PEAS(GARDEN)-GREEN IMMATURE	7F2016			0.200000
15011AA	LENTILES-WHOLE	7F2016			0.200000
15011AB	LENTILES-SPLIT	7F2016			0.200000
15013AA	MUNG BEANS (SPROUTS)	7F2016			0.200000
15015AA	OKRA	7F2016			0.200000
15022AA	BEANS-DRY-BROADBEANS(MATURE SEED)	7F2016			0.200000
15022AB	BEANS-SUCCULENT-BROADBEANS(IMMATURE SEED)	7F2016			0.200000
15023AA	BEANS-DRY-PIGEON BEANS	7F2016			0.200000
15027AA	BEANS-UNSPECIFIED	7F2016			0.200000
15029AA	SOYBEANS-SPROUTED SEEDS	5F1536			6.000000
15029AA	SOYBEANS-SPROUTED SEEDS	6F3380			6.000000
15030AA	BEANS-DRY-HYACINTH(MATURE SEEDS)	7F2016		14.000000	0.200000
15030AB	BEANS-SUCCULENT-HYACINTH(YOUNG PODS)	7F2016			0.200000
15031AA	BEANS-DRY-BLACKEYE PEAS(COMPEAS)	7F2016			0.200000
15032AA	BEANS-DRY-GARBANZO(CHICK PEA)	7F2016			0.200000
16002AA	ASPARAGUS	8E3648			0.500000
16004AA	ONIONS-GREEN	8E3676			0.200000
24001AA	BARLEY	8E2122			0.100000
24002EA	CORN (GRAIN-ENDOSPERM)	8E2122			0.100000
24002HA	CORN (GRAIN-BRAN)	8E2122			0.100000
24002SA	CORN SUGAR	8E2122			0.100000
24003AA	OATS	8E2122			0.100000
24004AA	RICE-ROUGH	8E2122			0.100000

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Table 1 (cont.)

CHEMICAL	STUDY TYPE	EFFECTS	REFERENCE DOSES		DATA GAPS/COMMENTS	STATUS
			ADI	SF -->100		
Glyphosate (+ salts)	3gen reprod- rat	Renal tubular dilation in pups.			Rat oncogenicity (no MTD in chronic feeding study)	HED complete 2/28/86.
Caswell #661A	NOEL= 10.0000 mg/kg	Equivocal evidence of on- cogenicity in the mouse (kidney adenoma); rat study no MTD.	OPP RfD= 0.100000		in chronic feeding study)	EPA verified 3/11/86.
CAS No. 1071-83-6	LEL= 30.0000 mg/kg		EPA RfD= 0.100000		Mouse oncogenicity (need to resolve kidney tumor issue).	WHO last reviewed 1986.
A.I. CODE: 417300	ONCO: D (SAP); C (TOX)					
CFR No. 180.364						

FOOD CODE	FOOD NAME	PETITION NUMBER	NEW	TOLERANCE (PPM)	
				PENDING	PUBLISHED
24004AB	RICE-MILLED	8E2122			0.100000
24005AA	RYE-ROUGH	8E2122			0.100000
24005GA	RYE-GERM	8E2122			0.100000
24005WA	RYE-FLOUR	8E2122			0.100000
24006AA	SORGHUM (INCLUDING MILO)	8E2122			0.100000
24007AA	WHEAT-ROUGH	8E2122			0.100000
24007GA	WHEAT-GERM	8E2122			0.100000
24007HA	WHEAT-BRAN	8E2122			0.100000
24007WA	WHEAT-FLOUR	8E2122			0.100000
24012AA	MILLET	8E2122			0.100000
25003SA	CANE SUGAR				0.200000
25003SB	SUGAR-MOLASSES	9H5196			30.000000
26001AA	BUCKWHEAT	8E2122			0.100000
270020A	CORN/GRAIN-OIL	8E2122			0.100000
270030A	COTTONSEED-OIL	8E2122			15.000000
27003WA	COTTONSEED-MEAL	8E2122			15.000000
270070A	PEANUTS-OIL	0F2329			0.100000
270100A	SOYBEANS-OIL	5F1536		14.000000	6.000000
270100A	SOYBEANS-OIL	6F3380			0.100000
270150A	COCONUT-OIL	2F2680			0.200000
270160A	OLIVE OIL	3E2929			0.100000
270190A	PALM OIL	6H5115			6.000000
28023AA	SOYBEANS-UNSPECIFIED	5F1536		14.000000	6.000000
28023AA	SOYBEANS-UNSPECIFIED	6F3380			6.000000
28023AB	SOYBEANS-MATURE/SEEDS DRY	5F1536		14.000000	6.000000
28023AB	SOYBEANS-MATURE/SEEDS DRY	6F3380			6.000000
28023WA	SOYBEANS-FLOUR/FULL FAT	5F1536		14.000000	6.000000
28023WA	SOYBEANS-FLOUR/FULL FAT	6F3380			6.000000
28023WB	SOYBEANS-FLOUR/LOW FAT	5F1536		14.000000	6.000000
28023WB	SOYBEANS-FLOUR/LOW FAT	6F3380			6.000000
28023WC	SOYBEANS-FLOUR/DEFATTED	5F1536		14.000000	6.000000
28023WC	SOYBEANS-FLOUR/DEFATTED	6F3380			6.000000
53001KA	BEEF (ORGAN MEATS) -KIDNEY	0F2329			0.500000
53001LA	BEEF (ORGAN MEATS) -LIVER	0F2329			0.500000
53002KA	GOAT (ORGAN MEATS) -KIDNEY	0F2329			0.500000
53002LA	GOAT (ORGAN MEATS) -LIVER	0F2329			0.500000
53003AA	HORSE	0F2329			0.500000
53005KA	SHEEP (ORGAN MEATS) -KIDNEY	0F2329			0.500000
53005LA	SHEEP (ORGAN MEATS) -LIVER	0F2329			0.500000
53006KA	PORK (ORGAN MEATS) -KIDNEY	0F2329			0.500000

Table 1 (con't)

CHEMICAL INFORMATION FOR CASWELL NUMBER 661A DATE: 02/02/89 PAGE: 7

CHEMICAL	STUDY TYPE	EFFECTS	REFERENCE DOSES		DATA GAPS/COMMENTS	STATUS
			ADI	SF		
Glyphosate (+ salts)	3gen reprod- rat	Renal tubular dilation in pups.	-->100		Rat oncogenicity (no MTD in chronic feeding study)	HED complete 2/28/86.
Caswell #661A	NOEL= 10.0000 mg/kg	Equivocal evidence of oncogenicity in the mouse (kidney adenoma); rat study no MTD.	OPP RFD= 0.100000		Mouse oncogenicity (need to resolve kidney tumor issue).	EPA verified 3/11/86.
CAS No. 1071-83-6	0.00 ppm		EPA RFD= 0.100000			WHO last reviewed 1986.
A.I. CODE: 417300	LEL= 30.0000 mg/kg					
CFR No. 180.364	0.00 ppm					
	ONCO: D (SMP); C (TOX)				Not regulated as oncogen.	On IRIS.

FOOD CODE	FOOD NAME	PETITION NUMBER	TOLERANCE (PPM)	
			NEW	PUBLISHED
530061A	PORK(ORGAN MEATS)-LIVER	0F2329		0.500000
53010AA	FISH-UNSPECIFIED	9F2163		0.250000
53013AA	FISH-SHELLFISH	3F2956		3.000000
53016AA	FISH-FRESHWATER FINFISH	9F2163		0.250000
53017AA	FISH-SALTWATER FINFISH	9F2163		0.250000
53017DA	FISH-FINFISH-SALTWATER-DRIED	9F2163		0.250000
55008LA	TURKEY-GIBLETS (LIVER)	0F2329		0.500000
55013LA	POULTRY/OTHER-GIBLETS(LIVER)	0F2329		0.500000
55015LA	CHICKEN-GIBLETS(LIVER)	0F2329		0.500000

Table 2
TOLERANCE ASSESSMENT SYSTEM ROUTINE CHRONIC ANALYSIS

DATE: 02/02/89

PAGE: 1

CHEMICAL INFORMATION	STUDY TYPE	EFFECTS	REFERENCE DOSES		DATA GAPS/COMMENTS	STATUS
			ADI	SF -->100		
Glyphosate (+ salts) Caswell #661A CAS No. 1071-83-6 A.I. CODE: 417300 CFR No. 180.364	3gen reprod- rat NOEL= 10.0000 mg/kg 0.00 ppm LEL= 30.0000 mg/kg 0.00 ppm ONCO: D (SAP); C (TOX)	Renal tubular dilation in pups. Equivoical evidence of on-cogenicity in the mouse (kidney adenoma); rat study no MTD	OPP Rfd= 0.100000 EPA Rfd= 0.100000		Rat oncogenicity (no MTD) in chronic feeding study Mouse oncogenicity (need to resolve kidney tumor issue) Not regulated as oncogen.	HED complete 2/28/86. EPA verified 3/11/86. WHO last reviewed 1986.
POPULATION SUBGROUP						
TOTAL TMRC (MG/KG BODY WEIGHT/DAY)						
CURRENT TMRC*	NEW TMRC**	NEW TMRC AS PERCENT OF RFD	DIFFERENCE AS PERCENT OF RFD	ARC	ARC	%RFD
0.005094	0.009853	9.852821	4.758740			
U.S. POPULATION - 48 STATES						
U.S. POPULATION - SPRING SEASON						
0.005005	0.009596	9.595550	4.590995			
0.005151	0.009899	9.898631	4.747361			
0.005145	0.010056	10.055506	4.910754			
0.005062	0.009848	9.848128	4.786346			
NORTHEAST REGION						
0.005076	0.009382	9.381622	4.305688			
0.005016	0.009803	9.802751	4.786282			
0.004942	0.009740	9.739771	4.797480			
0.005476	0.010740	10.739798	5.263516			
NORTH CENTRAL REGION						
SOUTHERN REGION						
WESTERN REGION						
HISPANICS						
0.005115	0.010089	10.088781	4.973872			
0.005142	0.009940	9.939939	4.797527			
0.004665	0.009094	9.093906	4.429108			
0.005788	0.010349	10.348639	4.560928			
NURSING INFANTS (< 1 YEAR OLD)						
0.005827	0.011274	11.274282	5.447637			
0.016216	0.039048	39.047783	22.831582			
0.003595	0.006768	6.767928	3.173066			
0.004590	0.008761	8.760515	4.170235			
0.010180	0.019086	19.086457	8.906473			
0.007114	0.013963	13.962931	6.848549			
0.004911	0.009851	9.850690	4.939201			
0.004209	0.008329	8.328695	4.119846			
0.003999	0.007777	7.777192	3.778586			
0.003886	0.007253	7.253455	3.367844			

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