

US EPA ARCHIVE DOCUMENT



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

OFFICE OF  
PREVENTION, PESTICIDES AND  
TOXIC SUBSTANCES

May 14, 1999

**MEMORANDUM**

**SUBJECT:** Enamectin. 99OK0008. Section 18 Exemption: Cotton. Acute and Chronic Dietary Exposure Analyses. PC Code 122806. DP Barcode: D255975.

**FROM:** Leung Cheng, Chemist  
Registration Action Branch 3  
Health Effects Division (7509C)

**THROUGH:** David Hrdy and Christina Swartz, Peer Reviewers  
Dietary Exposure Science Advisory Council  
Health Effects Division (7509C)

Stephen Dapson, Branch Senior Scientist  
Registration Action Branch 3  
Health Effects Division (7509C)

**TO:** Mary Rust, Biologist  
Reregistration Branch 3  
Health Effects Division (7509C)

**Action Requested**

Provide a Dietary Exposure Evaluation Model (DEEM™) analysis for chronic and acute dietary exposures for the proposed section 18 use on cotton with Denim™. The active ingredient Denim™ is a mixture of a minimum of 90% 4"-epi-methylamino-4"-deoxyavermectin B<sub>1a</sub> and a maximum of 10% 4"-epi-methylamino-4"-deoxyavermectin B<sub>1b</sub>, or emamectin, formulated as the benzoate salt. HED recently recommended for the establishment

1/11

of tolerances for emamectin residues in broccoli, Brussels sprouts, cabbage, cauliflower, lettuce and celery at 0.025 ppm (PP#6F4628, M. Rust, S. Weiss, W. Cutchin, and G. Reddy, 6-April-1999). The tolerance on cabbage (0.025 ppm) expired 12/31/98.

### **Executive Summary**

The assessment used the consumption data from the 1989-1992 Continuing Survey of Food Intakes by Individuals (CSFII) conducted by USDA. For chronic analysis, the residue database consists of tolerance level residues for the six vegetables, recommended tolerance for cottonseed oil, and estimated average residue levels (anticipated residues) for meat and milk. The probabilistic acute analysis used residue distribution files generated for the six vegetables using half the tolerance level and percent crop treated data, recommended tolerance for cottonseed oil, and maximum estimated residue levels for meat and milk. The highest exposed subgroup in both chronic and acute assessment is the children ages 1-6 years (21% chronic PAD and 65% acute PAD). Dietary exposure estimates associated with this section 18 exemption request are below the Agency's level of concern for any population subgroups, including infants and children.

### **Toxicology Information**

The HED's Hazard Identification Assessment Review Committee determined the chronic dietary reference dose (RfD) to be 0.00025 mg/kg/day based on the effects from a 15-day mouse study. HIARC concluded an uncertainty factor of 300 to account for interspecies extrapolation, intraspecies variability, and the use of a study of short duration (J. Rowland, 9/24/98).

HIARC determined the acute dietary RfD to be 0.00075 mg/kg/day based on a 15-day mouse study and concluded an uncertainty factor of 100 for interspecies extrapolation and intraspecies variability (J. Rowland, 9/24/98).

The FQPA Safety Factor Committee evaluated the hazard and exposure data for emamectin and recommended that the 10x safety factor for enhanced sensitivity to infants and children be reduced to 3x (B. Tarplee, 4/23/98). The Committee also recommended that the population adjusted doses (PADs: 0.000083 and 0.00025 mg/kg/day for chronic and acute exposure, respectively) be extended to general populations which include infants and children.

HIARC classified emamectin as a "not likely" human carcinogen (J. Rowland, 9/24/98); cancer assessment is not required.

## Residue Information

The tolerances for broccoli, Brussels sprouts, cabbage, cauliflower, lettuce, and celery were recommended as a summation of the limits of quantitation (LOQ) for the regulated metabolites of emamectin. The previous chronic analysis was conducted using tolerance level residues and percent crop treated data (25%), and for acute analysis, half the LOQ values were used in a probabilistic analysis (D253603, W. Cutchin, 3/5/99); see Table 1 for details. The current DEEM run retains the previous databases and added the average residues for cottonseed oil, meat and milk for chronic and has added the maximum residues for acute. See attachments for details.

Table 1. Information and Data for Probabilistic Acute Exposure Analysis

Crop	RDF	% crop treated	Total z	Total nz	Residue value (ppm)
Broccoli	1	25 (for all 6 crops)	3 (all)	1 (all)	0.0125 (all)
B. sprouts	2				
Cabbage	3				
Cauliflower	4				
Celery	5				
Lettuce	6				

## Results

In conducting the chronic dietary analysis, the average residue values were used in deriving the anticipated residues in cottonseed oil, and meat and milk, and for acute analysis, the maximum residue values were used in deriving the meat and milk values. The chronic and acute results are tabulated in the following tables.

Population subgroup	Exposure, mg/kg/day	% cPAD
US population	0.000013	15.2
All infants	0.000001	1.6
Nursing infants	0.000001	0.9
Non-nursing infants	0.000002	1.8
Children 1-6 yrs	0.000018	21.3
Children 7-12 yrs	0.000013	15.5

Females (13 +/nursing)	0.000017	20.4
------------------------	----------	------

Table 3. Acute Dietary Exposure Estimates at 99.9th %ile		
Population subgroup	Exposure, mg/kg/day	% aPAD
US population	0.000074	29.42
All infants	0.000023	9.24
Nursing infants	0.000016	6.48
Non-nursing infants	0.000024	9.55
Children 1-6 yrs	0.000162	64.66
Children 7-12 yrs	0.000086	34.23
Females (13 +/nursing)	0.000067	26.99

Attachments:

1. Emamectin Anticipated Residues for Cotton Commodities, Meat and Milk
2. Chronic Exposure Analysis
3. Acute Exposure Analysis
4. Values for Chronic Analysis
5. Values for Acute Analysis

cc:RAB3 Reading F, L. Richardson (DEEM), Cheng  
RD/I:DE SAC:5/11/99:SDapson:5/13/99  
7509C:RAB3:LCheng:CM#2:RM810A:5/7/99:3rab\emamectin\dmr



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

OFFICE OF  
PREVENTION, PESTICIDES AND  
TOXIC SUBSTANCES

Attachment 1

May 10, 1999

**MEMORANDUM**

**SUBJECT:** Emamectin. 99OK0008. PC Code 122806. Section 18 Exemption: Cotton.  
Anticipated Residues. DP Barcode: D255553.

**FROM:** Leung Cheng, Chemist  
Registration Action Branch 3  
Health Effects Division (7509C)

**THROUGH:** Stephen Dapson, Branch Senior Scientist  
Registration Action Branch 3  
Health Effects Division (7509C)

**TO:** Mary Rust, Biologist  
Registration Action Branch 3  
Health Effects Division (7509C)

Oklahoma has requested an emergency exemption under FIFRA for the use of emamectin on cotton. Emamectin is a mixture of two active homologous compounds, 4"-deoxy-4"-epi-methylamino-avermectin B<sub>1a</sub> (90% minimum) and 4"-deoxy-4"-epi-methylamino-avermectin B<sub>1b</sub> (10% maximum). The end use product Denim™ is formulated as the benzoate salt in an emulsifiable concentrate. Along with the exemption request was a cotton residue study intended for a Section 3 registration (MRID 44795001, PP#7F4845).

HED very recently recommended for the establishment of tolerances for residues of emamectin and its metabolites at 0.025 ppm in broccoli, Brussels sprouts, cabbage, cauliflower, head lettuce, and celery (D241907, PP#6F4628, 6-April-1999, M. Rust, S. Weiss, W. Cutchin, and G. Reddy). As a condition of registration, the Agency requires a successful

method validation and the registrant is to make any necessary modifications to the method resulting from the BEAD laboratory validation. According to the latest dietary exposure analysis report, only acute and chronic dietary exposures need to be conducted (D253603, W. Cutchin, 3/5/99).

The proposed use label calls for up to 3 applications made to cotton at 0.0075-0.01 lb active per acre at  $\geq 5$ -day intervals. Emamectin may be applied in  $\geq 5$  gallons of spray volume using ground or aerial equipment; application through an irrigation system is prohibited. A preharvest interval of 21 days has been proposed. The state estimated that a total of 150,000 acres of cotton, primarily in the southwest and west central regions, would be treated. Grazing of livestock in the treated areas is prohibited.

HED's Metabolism Assessment Review Committee concluded that the following residues should be included in the tolerance expression and in the dietary exposure assessment in plants: emamectin,  $\Delta$ -8,9 isomer of B<sub>1a</sub> and B<sub>1b</sub>, AB<sub>1a</sub> (N-desmethyl B<sub>1a</sub>), MFB<sub>1a</sub> (N-formyl B<sub>1a</sub>), and FAB<sub>1a</sub> (N-formyl AB<sub>1a</sub>). It should be noted that B<sub>1a</sub> and its  $\Delta$ -8,9 isomer account for  $> 50\%$  of the residue in lettuce, cabbage and corn (Briefing memo to MARC, 9/2/97, J. Stokes).

A cursory review of the residue study indicated that field trials were conducted in AZ, AR, TX, and OK in 1996 and conducted in CA, LA, OK, SC, and TX in 1997. Six applications of emamectin (MK-244 5 SG, a soluble granule formulation) were made at 0.01 lb ai/A with a spray interval of  $5 \pm 1$  days using ground equipment. Cotton samples were collected (stripper or spindle harvester) 25-32 days after the last application.

Method 244-92-3, Revision 1, "HPLC-Fluorescence Method to Determine the Total Toxic Residue of MK-0244 and Its Metabolites on Vegetables, including Leafy Vegetables and Cole Crops", with modifications and method 244-96-1 (similar to Method 244-92-3) were used for analyzing emamectin residues in gin trash and cottonseed. It should be noted that the method does not resolve B<sub>1a</sub> or B<sub>1b</sub> from their respective  $\Delta$ -8,9 isomer. In cottonseed, concurrent method recoveries ranged from 74-94% for B<sub>1a</sub> at 2.0 ppb, 52-64% for AB<sub>1a</sub> at 5.0 ppb, 61-100% for MFB<sub>1a</sub> at 1.0 ppb, and 70-120% FAB<sub>1a</sub> at 1.0 ppb. No example chromatograms were submitted for cottonseed; we assume the method recoveries for B<sub>1b</sub> to be similar to B<sub>1a</sub>. In gin trash, concurrent method recoveries yielded 71% B<sub>1a</sub> at 2.5 ppb, 56, 68% B<sub>1a</sub> at 5.0 ppb, and 89-95% B<sub>1a</sub> at 50.5 ppb and 72-96% B<sub>1b</sub> at 5.2 ppb. Sample chromatograms for cotton gin trash were provided and support the assignment of LOQs of 2.0 ppb for B<sub>1a</sub> and B<sub>1b</sub>.

Combined residues of emamectin, B<sub>1a</sub>, AB<sub>1a</sub>, MFB<sub>1a</sub>, and FAB<sub>1a</sub> were all nondetectable (17 samples) except for 2 values at  $< \text{LOQ}$  B<sub>1a</sub> in cottonseed resulting from 6 x 0.01 lb ai/A and PHIs of 25-32 days (twice the proposed use rate). Residues in gin trash (also twice the proposed use rate) ranged from  $< 2.5$  to 41 ppb B<sub>1a</sub> and  $< 2.5$ -3.3 ppb B<sub>1b</sub>. Residue data for cottonseed oil, hulls and meal were not provided.

Residue data for celery, head lettuce, and cabbage described in PP#3G4239 (M. Flood, 23-Mar-1995) and PP#6F4628 (W. Cutchin, 26 Jan, 1999) showed comparable levels of emamectin residues resulting from EC and SG formulations.

We note that B<sub>1b</sub> is at most at 10% of the active ingredient and AB<sub>1a</sub>, MFB<sub>1a</sub>, and FAB<sub>1a</sub> are very minor metabolites; AB<sub>1a</sub>, MFB<sub>1a</sub>, and FAB<sub>1a</sub> would be considered negligible to B<sub>1a</sub> when present at nondetectable levels. Therefore, we recommend that the tolerance be set at 2 ppb in cottonseed as a result of the proposed section 18 use. Residue data for gin trash support a tolerance of 25 ppb (half of 41 + 3.3 ppb). For the processed commodities cottonseed oil, cotton meal, and cotton hulls, we base the tolerance levels on the average field trial residue of 1 ppb in cottonseed multiplied by the maximum theoretical concentration factors (GLN 860.1520); thus 6.0 ppb for cottonseed oil, 2.0 ppb for cotton meal, and 4.0 ppb for cotton hulls.

Undelinted cottonseed, hulls, meal and gin trash may be fed to beef and dairy cattle, and cotton meal may be fed to poultry. However, the exposure of emamectin residues to livestock through these feed items except for gin trash would be negligible; likewise for poultry since gin trash is not usually fed to chickens. The theoretical dietary burden for beef and dairy cattle from treated gin trash in the feed would be (0.025 ppm residue x 20% in the diet ÷ 90% dry matter) 0.0055 ppm.

Cows (3 lactating at each level) were fed emamectin benzoate at 30, 90, and 300 ppb in the feed for 28 days; only B<sub>1a</sub> and B<sub>1b</sub> were measured with an LOQ of 2 ppb for each compound in liver, kidney, muscle and fat, and 0.5 ppb in milk (Method 244-95-1, HPLC-Fluorescence Method for the Determination of Emamectin Benzoate (MK-0244) Residues in Bovine Tissue, Milk, Cream and Plasma). Feeding study data showed finite transfer of emamectin only in kidney, liver and marginally in fat at the 30 ppb feeding level, not quantifiable (<0.5 ppb) in milk and not quantifiable (<2.0 ppb) or not detectable (<1.0 ppb) in muscle; B<sub>1b</sub> was not detectable (<1.0 ppb) in milk or tissues. We estimate the following average B<sub>1a</sub> residues: 0.25 ppb in milk, 8.6 ppb in liver, 1.4 ppb in fat, 3.7 ppb in kidney, and 0.67 ppb in muscle. The estimated maximum residue values are: 0.5 ppb in milk, 10 ppb in liver, 2.1 ppb in fat, 4.0 ppb in kidney, and 1.3 ppb in muscle.

Since the dietary burden is only about one sixth of the lowest feeding dose, the average residues transferred to milk and tissues should be corrected by 5.5/30. The following values should be used for chronic dietary analysis:

Milk	0.046 ppb
Liver	1.6 ppb
Fat	0.26 ppb
Kidney	0.68 ppb
Muscle	0.12 ppb



The corrected (5.5 ÷ 30) maximum residues in milk and tissues should be used for acute dietary analysis:

Milk	0.092 ppb
Liver	1.8 ppb
Fat	0.38 ppb
Kidney	0.73 ppb
Muscle	0.24 ppb

cc:RAB3 Reading File, SF, Section 18 F, Cheng  
 RD/I:ChemTeam:5/5/99:SDapson:5/10/99  
 7509C:RAB3:LCheng:CM#2:RM810A:5/3/99:3rab\emamectin\antiresi

#### Attachment 2

U.S. Environmental Protection Agency Ver. 6.74  
 DEEM Chronic analysis for EMAMECTIN (1989-92 data)  
 Residue file name: C:\deem\residue files\18cotton.R96  
 Adjustment factor #2 NOT used.  
 Analysis Date 05-12-1999/15:49:23 Residue file dated: 05-06-1999/13:55:26/8  
 Reference dose (Rfd, CHRONIC) = .000083 mg/kg bw/day  
 COMMENT 1: rfd includes a 3x fqa factor

=====

Total exposure by population subgroup

-----

Population Subgroup	Total Exposure	
	mg/kg body wt/day	Percent of Rfd
U.S. Population (total)	0.000013	15.2%
U.S. Population (spring season)	0.000013	15.6%
U.S. Population (summer season)	0.000013	15.8%
U.S. Population (autumn season)	0.000011	13.7%
U.S. Population (winter season)	0.000013	15.7%
Northeast region	0.000013	16.2%
Midwest region	0.000011	12.8%
Southern region	0.000012	14.8%
Western region	0.000015	17.8%
Hispanics	0.000012	14.0%
Non-hispanic whites	0.000013	15.3%
Non-hispanic blacks	0.000012	14.2%
Non-hisp/non-white/non-black)	0.000016	19.6%
All infants (< 1 year)	0.000001	1.6%
Nursing infants	0.000001	0.9%
Non-nursing infants	0.000002	1.8%
Children 1-6 yrs	0.000018	21.3%
Children 7-12 yrs	0.000013	15.5%

Females 13-19(not preg or nursing)	0.000010	12.3%
Females 20+ (not preg or nursing)	0.000014	16.5%
Females 13-50 yrs	0.000012	14.9%
Females 13+ (preg/not nursing)	0.000010	12.0%
Females 13+ (nursing)	0.000017	20.4%
Males 13-19 yrs	0.000009	11.3%
Males 20+ yrs	0.000011	13.5%
Seniors 55+	0.000014	16.5%
Pacific Region	0.000016	18.9%

### Attachment 3

U.S. Environmental Protection Agency Ver. 6.73  
 DEEM ACUTE analysis for EMAMECTIN (1989-92 data)  
 Residue file: 18cotton-ac.R96 Adjustment factor #2 NOT used.  
 Analysis Date: 05-06-1999/15:36:31 Residue file dated: 05-06-1999/14:04:30/8  
 Acute Reference Dose (aRfD) = 0.000250 mg/kg body-wt/day  
 NOEL (Acute) = 0.075000 mg/kg body-wt/day  
 MC iterations = 1000 MC list in residue file MC seed = 1  
 Run Comment: rfd includes a 3x fqa factor

#### Summary calculations:

95th Percentile			99th Percentile			99.9th Percentile		
Exposure	% aRfD	MOE	Exposure	% aRfD	MOE	Exposure	% aRfD	MOE
-----								
U.S. pop - all seasons:								
0.000011	4.49	6678	0.000028	11.22	2673	0.000074	29.42	1019
All infants (<1 year):								
0.000008	3.13	9589	0.000014	5.76	5211	0.000023	9.24	3245
Nursing infants (<1 year):								
0.000002	0.92	32477	0.000005	1.95	15397	0.000016	6.48	4628
Non-nursing infants (<1 yr):								
0.000009	3.68	8158	0.000015	6.07	4939	0.000024	9.55	3141
Children (1-6 years):								
0.000013	5.17	5804	0.000050	20.09	1493	0.000162	64.66	463
Children (7-12 years):								
0.000012	4.67	6428	0.000032	12.75	2352	0.000086	34.23	876
Females (13+/preg/not nsg):								
0.000009	3.59	8367	0.000022	8.66	3464	0.000049	19.61	1529
Females (13+/nursing):								
0.000013	5.27	5688	0.000038	15.06	1991	0.000067	26.99	1111
Females (13-19 yrs/np/nn):								
0.000009	3.42	8777	0.000024	9.77	3070	0.000068	27.02	1110
Females (20+ years/np/nn):								
0.000012	4.91	6107	0.000029	11.73	2557	0.000062	24.60	1219
Females (13-50 years):								
0.000011	4.55	6595	0.000028	11.20	2678	0.000059	23.73	1264
Males (13-19 years):								
0.000009	3.61	8305	0.000022	8.88	3376	0.000050	19.84	1512
Males (20+ years):								
0.000010	4.09	7341	0.000024	9.53	3146	0.000046	18.38	1632

### Attachment 4

"emamectin"  
0.000083

NEWN,	0.00025				
NOEL,	0.075	0.075		0	
05-06-1999/13:55:26					
-1					
999					
166	13002AA,4B,	0.025	1	1	0 "Celery", ""
168	13005AA,5A,	0.025	1	1	0 "Broccoli", ""
169	13006AA,5A,	0.025	1	1	0 "Brussels sprouts", ""
170	13007AA,5A,	0.025	1	1	0 "Cabbage-green and red", ""
171	13008AA,5A,	0.025	1	1	0 "Cauliflower", ""
176	13013AA,4A,	0.025	1	1	0 "Lettuce-leafy varieties", ""
182	13020AA,4A,	0.025	1	1	0 "Lettuce-unspecified", ""
192	13045AA,4A,	0.025	1	1	0 "Lettuce-head varieties", ""
290	270030A,0,	0.006	1	1	0 "Cottonseed-oil", ""
318	50000DB,D,	0.000046	1	1	0 "Milk-nonfat solids", ""
319	50000FA,D,	0.000046	1	1	0 "Milk-fat solids", ""
320	50000SA,D,	0.000046	1	1	0 "Milk sugar (lactose)", ""
321	53001BA,M,	0.0016	1	1	0 "Beef-meat byproducts", ""
322	53001BB,M,	0.00012	1	1	0 "Beef-other organ meats", ""
323	53001DA,M,	0.00012	1.92	1	0 "Beef-dried", ""
324	53001FA,M,	0.00026	1	1	0 "Beef-fat w/o bones", ""
325	53001KA,M,	0.00068	1	1	0 "Beef-kidney", ""
326	53001LA,M,	0.0016	1	1	0 "Beef-liver", ""
327	53001MA,M,	0.00012	1	1	0 "Beef-lean (fat/free) w/o bones", ""
328	53002BA,M,	0.0016	1	1	0 "Goat-meat byproducts", ""
329	53002BB,M,	0.00026	1	1	0 "Goat-other organ meats", ""
330	53002FA,M,	0.00026	1	1	0 "Goat-fat w/o bone", ""
331	53002KA,M,	0.00068	1	1	0 "Goat-kidney", ""
332	53002LA,M,	0.0016	1	1	0 "Goat-liver", ""
333	53002MA,M,	0.00012	1	1	0 "Goat-lean (fat/free) w/o bone", ""
336	53005BA,M,	0.0016	1	1	0 "Sheep-meat byproducts", ""
337	53005BB,M,	0.00012	1	1	0 "Sheep-other organ meats", ""
338	53005FA,M,	0.00026	1	1	0 "Sheep-fat w/o bone", ""
339	53005KA,M,	0.00068	1	1	0 "Sheep-kidney", ""
340	53005LA,M,	0.0016	1	1	0 "Sheep-liver", ""
341	53005MA,M,	0.00012	1	1	0 "Sheep-lean (fat free) w/o bone", ""
342	53006BA,M,	0.0016	1	1	0 "Pork-meat byproducts", ""
343	53006BB,M,	0.00012	1	1	0 "Pork-other organ meats", ""
344	53006FA,M,	0.00026	1	1	0 "Pork-fat w/o bone", ""
345	53006KA,M,	0.00068	1	1	0 "Pork-kidney", ""
346	53006LA,M,	0.0016	1	1	0 "Pork-liver", ""
347	53006MA,M,	0.00012	1	1	0 "Pork-lean (fat free) w/o bone", ""
383	13007SA,5B,	0.025	1	1	0 "Cabbage-savoy", ""
384	13002JA,4B,	0.025	1	1	0 "Celery juice", ""
398	50000WA,D,	0.000046	1	1	0 "Milk-based water", ""
424	56000FA,M,	0.00026	1	1	0 "Veal-fat w/o bones", ""
425	56000MA,M,	0.00012	1	1	0 "Veal-lean (fat free) w/o bones", ""
426	56000KA,M,	0.00068	1	1	0 "Veal-kidney", ""
427	56000LA,M,	0.0016	1	1	0 "Veal-liver", ""
428	56000BB,M,	0.00012	1	1	0 "Veal-other organ meats", ""
429	56000DA,M,	0.00012	1.92	1	0 "Veal-dried", ""
430	56000BA,M,	0.0016	1	1	0 "Veal-meat byproducts", ""
467	08010AA,19B,	0.025	1	1	0 "Celery seed", ""

Attachment 5

"emamectin"	0.000083				
NEWMCN,	0.00025	0.075		0	
NOEL, 0.075					
05-06-1999/14:04:30					
6					
broc.rdf					
bruss.rdf					
cabb.rdf					

caulif.rdf  
celery.rdf  
lettuce.rdf

-1

999							
166	13002AA,4B,	0.025	5	1	1	0	"Celery", ""
168	13005AA,5A,	0.025	1	1	1	0	"Broccoli", ""
169	13006AA,5A,	0.025	2	1	1	0	"Brussels sprouts", ""
170	13007AA,5A,	0.025	3	1	1	0	"Cabbage-green and red", ""
171	13008AA,5A,	0.025	4	1	1	0	"Cauliflower", ""
176	13013AA,4A,	0.025	6	1	1	0	"Lettuce-leafy varieties", ""
182	13020AA,4A,	0.025	6	1	1	0	"Lettuce-unspecified", ""
192	13045AA,4A,	0.025	6	1	1	0	"Lettuce-head varieties", ""
290	270030A,O,	0.006	0	1	1	0	"Cottonseed-oil", ""
318	50000DB,D,	0.000092	0	1	1	0	"Milk-nonfat solids", ""
319	50000FA,D,	0.000092	0	1	1	0	"Milk-fat solids", ""
320	50000SA,D,	0.000092	0	1	1	0	"Milk sugar (lactose)", ""
321	53001BA,M,	0.0018	0	1	1	0	"Beef-meat byproducts", ""
322	53001BB,M,	0.00024	0	1	1	0	"Beef-other organ meats", ""
323	53001DA,M,	0.00024	0	1.92	1	0	"Beef-dried", ""
324	53001FA,M,	0.00038	0	1	1	0	"Beef-fat w/o bones", ""
325	53001KA,M,	0.00073	0	1	1	0	"Beef-kidney", ""
326	53001LA,M,	0.0018	0	1	1	0	"Beef-liver", ""
327	53001MA,M,	0.00024	0	1	1	0	"Beef-lean (fat/free) w/o bones", ""
328	53002BA,M,	0.0018	0	1	1	0	"Goat-meat byproducts", ""
329	53002BB,M,	0.00024	0	1	1	0	"Goat-other organ meats", ""
330	53002FA,M,	0.00038	0	1	1	0	"Goat-fat w/o bone", ""
331	53002KA,M,	0.00073	0	1	1	0	"Goat-kidney", ""
332	53002LA,M,	0.0018	0	1	1	0	"Goat-liver", ""
333	53002MA,M,	0.00024	0	1	1	0	"Goat-lean (fat/free) w/o bone", ""
336	53005BA,M,	0.0018	0	1	1	0	"Sheep-meat byproducts", ""
337	53005BB,M,	0.00024	0	1	1	0	"Sheep-other organ meats", ""
338	53005FA,M,	0.00038	0	1	1	0	"Sheep-fat w/o bone", ""
339	53005KA,M,	0.00073	0	1	1	0	"Sheep-kidney", ""
340	53005LA,M,	0.0018	0	1	1	0	"Sheep-liver", ""
341	53005MA,M,	0.00024	0	1	1	0	"Sheep-lean (fat free) w/o bone", ""
342	53006BA,M,	0.0018	0	1	1	0	"Pork-meat byproducts", ""
343	53006BB,M,	0.00024	0	1	1	0	"Pork-other organ meats", ""
344	53006FA,M,	0.00038	0	1	1	0	"Pork-fat w/o bone", ""
345	53006KA,M,	0.00073	0	1	1	0	"Pork-kidney", ""
346	53006LA,M,	0.0018	0	1	1	0	"Pork-liver", ""
347	53006MA,M,	0.00024	0	1	1	0	"Pork-lean (fat free) w/o bone", ""
383	13007SA,5B,	0.025	3	1	1	0	"Cabbage-savoy", ""
384	13002JA,4B,	0.025	0	1	1	0	"Celery juice", ""
398	50000WA,D,	0.000092	0	1	1	0	"Milk-based water", ""
424	56000FA,M,	0.00038	0	1	1	0	"Veal-fat w/o bones", ""
425	56000MA,M,	0.00024	0	1	1	0	"Veal-lean (fat free) w/o bones", ""
426	56000KA,M,	0.00073	0	1	1	0	"Veal-kidney", ""
427	56000LA,M,	0.0018	0	1	1	0	"Veal-liver", ""
428	56000BB,M,	0.00024	0	1	1	0	"Veal-other organ meats", ""
429	56000DA,M,	0.00024	0	1.92	1	0	"Veal-dried", ""
430	56000BA,M,	0.0018	0	1	1	0	"Veal-meat byproducts", ""
467	08010AA,19B,	0.025	0	1	1	0	"Celery seed", ""