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M E M O R A N D U M

TO: Sue Edmiston **HSM-01019**
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Worker Health and Safety Branch

FROM: Cynthia Curtis, Exposure Monitoring Program **[original signed by C. Curtis]**
324-8847

DATE: March 5, 2002

SUBJECT: CARBOFURAN DISLOGEABLE FOLIAR RESIDUE DATA FROM COTTON FIELDS SAMPLED IN FRESNO, MADERA, COLUSA AND YOLO COUNTIES IN SUMMER, 2001.

As requested by the Exposure Assessment Program in an effort to more clearly understand the potential human exposures from carbofuran residues on cotton and alfalfa, 238 dislodgeable foliar residue (DFR) samples from 35 unique fields were collected during the months of July-September 2001. Focusing on the sampling interval of 2 days to 14 days post-application, scientists worked in conjunction with county agricultural commissioners, farm owners, and pest control operators to locate, enter, and sample fields treated with Furadan® 4F (44% 2,3-Dihydro-2,2-dimethyl-7-benzofuranylmethylcarbamate) U.S. Environmental Protection Agency registration number 279-2876. The active ingredient in Furadan® is carbofuran, an insecticide/nematicide. All applications to cotton were made in accordance with the most recent Section 18 Emergency Exemption No. 01-17 guideline for Furadan® 4F of 8 fluid ounces (0.25 lbs. active ingredient) per acre with a maximum of two treatments per year. The 8 ounces of Furadan® 4F is mixed with between 10 and 15 gallons of diluent per acre. The maximum label rate for Furadan® 4F on alfalfa is a single treatment per year at 2 pints per acre (1 lb active ingredient per acre).[i]

This project, number 0102, began as an amendment to Worker Health and Safety's ongoing Project 9505 which focuses on pesticide residues remaining on foliage at the expiration of the restricted entry interval. This project both supplemented data collection for Project 9505 as well as focused the data collection toward carbofuran DFR on cotton. Section 18 Emergency Exemption No. 01-17 delineates the Restricted Entry Interval (REI) for Furadan® 4F as 14 days post-application with an exception for workers performing hand labor. Those workers may enter at 2 days post-application as long as early entry personal protective equipment as permitted under the Worker Protection Standard is employed. Given that the purpose of this project is to collect data on potential exposures of cotton and alfalfa scouts to carbofuran residues at expiration of the REI, the sampling intervals were set accordingly at 2 and 14 days, with 7 days also included as a midpoint.

In the absence of crop-specific data, evaluators must rely on exposure data for ornamental crops following Furadan® 4F treatments. At an application rate of 10 lbs active ingredient an acre, the data potentially overestimated the carbofuran residues on cotton and alfalfa by 40-fold and 20-fold, respectively. In Worker Health and Safety Memorandum 01011[ii], this branch reported on a

limited study to analyze the deposition and degradation of carbofuran on alfalfa. Data were limited due to low use of pesticide carbofuran in California at the time of research. Acting on the assumption that carbofuran applications perform similarly on both alfalfa and cotton foliage, cotton was selected as the target crop because alfalfa foliage is too small to be sampled by the leaf punch.

During the historically high carbofuran use months of July-September, scientists sampled treated cotton plants from 35 unique fields and resampled 8 fields. All of the samples were taken following the first carbofuran applications of the cotton-growing season. The scientists observed no second application on any of the fields sampled; defoliation applications proceeded at the end of the growing season, and subsequently, harvest. All samples were taken and analyzed in accordance with applicable Worker Health and Safety policies and standard operating procedures. [iii,iv,v,vi,vii]

Each sample consisted of 40 circular punches of a cotton plant's leaf collected with a 5 cm^2 Rabbit® leaf punch for a total surface area of 400 cm^2 [viii]. Field samples were taken in a V-shaped pattern, or in the special case that the foliage was too tall to traverse, an S-shaped sampling pattern was used in accordance with Worker Health and Safety Memo HSM-01002.[ix] Within each sampled cotton plant, punches were taken from random leaves in random heights. All leaf discs were collected in four-ounce glass jars attached to the punch so that the leaf sample was never touched. Each sample jar was capped with a Teflon®-lined lid, labeled, sealed, bagged, and placed on ice in an insulated chest. Samples were transported on ice to the California Department of Food and Agriculture, Center for Analytical Chemistry (CDFA), Worker Health and Safety laboratory for residue extraction within 24 hours of sample collection.

Three sequential washings removed foliar residues, each consisting of a 30-minute rotation on a mechanical rotator with 50 mL distilled water and 4 drops of sodium dioctyl sulfosuccinate solution. The solution was decanted between washings and the combined wash extracted with ethyl acetate. The organic extract was then dried by anhydrous sodium sulfate. The samples were analyzed on a Hewlett-Packard 1050 liquid chromatograph equipped with HP 1046A programmable FL detector. The conditions for carbofuran and its metabolites were:

- Pickering Laboratories analysis column, 5µ, C18, 4.6 mm x 250 mm
- HPLC pump gradient: acetonitrile/H20 1 mL/min, stoptime=23 min, postime=5 min
- 1050 ALS Injector program: 40 µL drawn from sample
- Post column parameters: heated reactor temperature=100°C
- Column temperature=42°C
- Fluorescence detector: excitation at 330 nm, emission at 464 nm

Analytical results from CDFA were reported as micrograms per sample and recorded in a Microsoft Access® database (see Appendix 3). The results were then converted to micrograms/square centimeter ($\mu g/cm^2$) by dividing the sample result by the sample total surface

area (400 cm^2 from both sides of the leaves). Samples from three separate fields (all at the 14th day post-application) had residues less than the 1 μg/sample limit of quantification (LOQ), which equals 0.003 $\mu g/cm^2$.

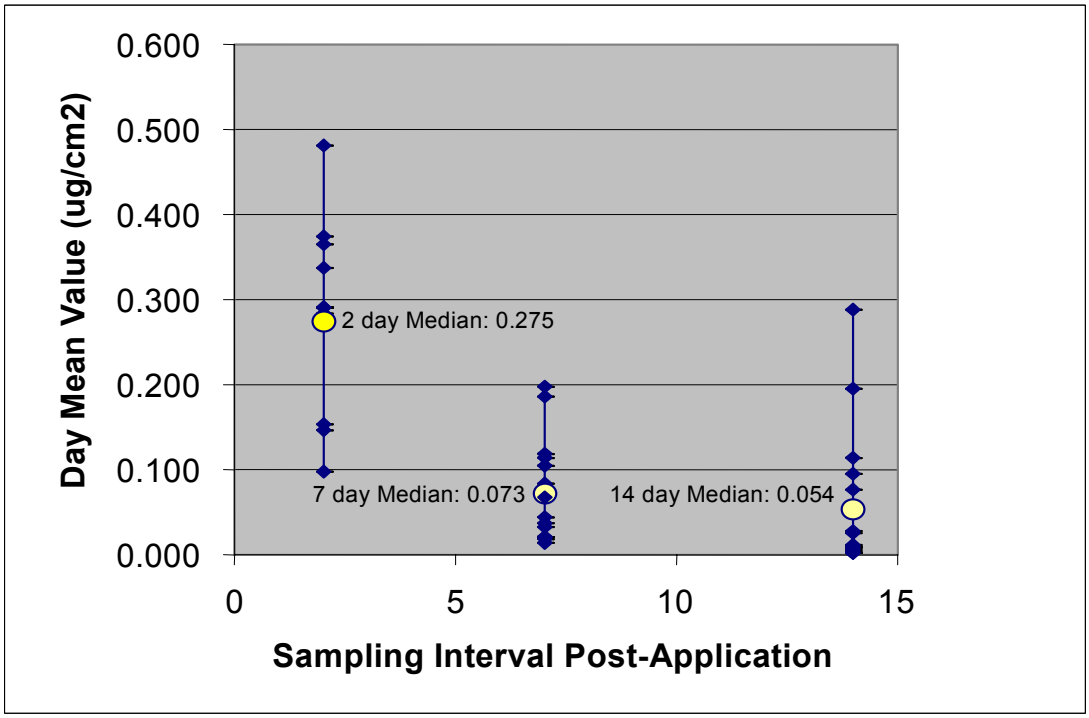
Results are reported for the 180 samples collected on three specific day intervals post-application; 2, 7, and 14. Of the 236 samples analyzed, 180 of the samples that were taken on days 2, 7, 14 post-application are reported here. Results for the 56 samples from 6 fields collected at other intervals are available in Appendix 2.

Results of day means for sampled fields are listed from low to high within each sampling interval in Table 1, and a graphical representation of the data is located in Figure 1.

Table 1. Day mean results of carbofuran DFR on cotton, by field sampling event at days 2, 7, and 14 post-application

Days post application	Day mean (ug/cm^2)	County
2	0.097	Fresno
2	0.118	Fresno
2	0.147	Madera
2	0.152	Fresno
2	0.275	Fresno
2	0.284	Fresno
2	0.290	Yolo
2	0.291	Colusa
2	0.313	Fresno
2	0.337	Madera
2	0.366	Yolo
2	0.374	Fresno
2	0.481	Fresno
7	0.014	Madera
7	0.019	Yolo
7	0.020	Yolo
7	0.021	Colusa
7	0.032	Fresno
7	0.037	Fresno
7	0.045	Colusa
7	0.067	Fresno
7	0.073	Yolo
7	0.084	Madera
7	0.114	Fresno
7	0.138	Fresno
7	0.185	Colusa
7	0.198	Fresno
14	0.003	Colusa
14	0.003	Colusa
14	0.003	Colusa
14	0.005	Yolo
14	0.006	Colusa
14	0.009	Colusa
14	0.010	Colusa
14	0.011	Colusa
14	0.029	Madera
14	0.054	Fresno
14	0.055	Colusa
14	0.077	Fresno
14	0.095	Fresno
14	0.114	Fresno
14	0.195	Fresno
14	0.289	Fresno

Figure 1. Range of carbofuran DFR on cotton day mean results by sampling event, grouped by post-application interval



Overall calculations within post-applications intervals are presented in Table 2:

Table 2. Means and standard deviations for carbofuran DFR on cotton at 2, 7, and 14-day intervals post-application

2 days post-application	Mean:	0.271 ug/cm^2
	Standard Deviation:	0.113 ug/cm^2
7 days post-application	Mean:	0.075 ug/cm^2
	Standard Deviation:	0.062 ug/cm^2
14 days post-application	Mean:	0.058 ug/cm^2
	Standard Deviation:	0.079 ug/cm^2

Table 3 shows DFR results for eight fields that were sampled more than once within 14 days after application.

Table 3. DFR day mean results of resampled carbofuran-treated cotton fields

Day post-app	Day mean result (ug/cm2)	County
2	0.290	Yolo
7	0.019	Yolo
14	0.005	Yolo
2	0.152	Fresno
7	0.037	Fresno
2	0.291	Colusa
7	0.185	Colusa
2	0.366	Yolo
7	0.073	Yolo
7	0.021	Colusa
14	0.006	Colusa
7	0.032	Fresno
14	0.077	Fresno
7	0.045	Colusa
14	0.003	Colusa
7	0.118	Madera
14	0.029	Madera

There are several distinctions between Northern and Central California cotton growing regions. Fresno and Madera counties are considered central counties. This region typically has higher temperatures during the cotton-growing season and drier air. This climate coupled with sandy, dusty soil leads to greater insect pressure on fields and necessitates pesticide applications earlier in the growing season. Colusa and Yolo counties in the northern region are generally more moist and the soil contains more clay particles. Table 4 depicts the difference in carbofuran DFR day mean results between the two regions.

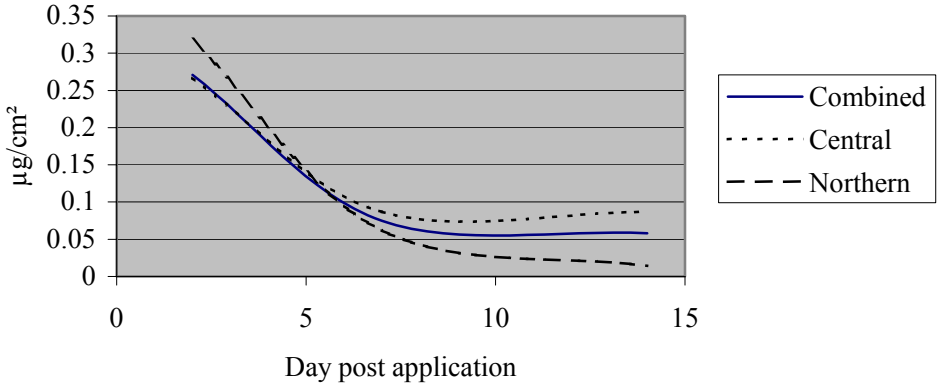
Table 4. Comparison of day mean results between Central and Northern California cotton growing counties

Region	Days post-app.	Mean result (ug/cm^2)	Count of samples taken in region
Central	2	0.267	52
Northern	2	0.319	16
Central	7	0.087	37
Northern	7	0.062	25
Central	14	0.087*	36
Northern	14	0.014	38

**Mean result excludes sampling event no. 43 in Fresno due to atypical (0.289ug/cm^2) findings.*

While the study was not designed to characterize residue dissipation, the data were examined to see if such analysis was feasible. However, log-linear and log-quadratic regression analyses of the combined data both gave a poor fit with r^2 less than 0.5. Figure 2 plots DFR days means versus days post application from Tables 2 and 4.

Figure 2. Day means for carbofuran dislodgeable foliar residues



[i] CDPR. (2001) Section 18 Emergency Exemption No. 01-17, Furadan 4F Insecticide/Nematicide (EPA Reg. No. 279-2876) /Cotton/Cotton Aphids (*Aphis Gossypii)* PRB# 01-40, ID# 189104. July 18, 2001. Cal/EPA Department of Pesticide Regulation, Pesticide Registration Branch. P.O. Box 4015, Sacramento, CA 95812-4015. (www.cdpr.ca.gov)

[ii] Hernandez, Bernardo Z. (2001) Carbofuran Results for Alfalfa DFR Collected in Imperial County in March, 2001. August 22, 2001. Cal/ EPA Department of Pesticide Regulation, Worker Health and Safety Branch. P.O. Box 4015, Sacramento CA 95812-4015. HSM-01011.

[iii] Edmiston S, O'Connell L, Bissell S, Conrad D. Guidance for the determination of dislodgeable foliar residue. HS 1600. Sacramento, CA: Cal/EPA, Department of Pesticide Regulation (1990).

[iv] Edmiston, S. Use of Leaf Punch Samplers. WHS-EQ15.03. Sacramento, CA: Cal/EPA, Department of Pesticide Regulation (2001).

[v] Edmiston, S. Sample Tracking, Shipping, and Receiving. WHS-FO05.06. Sacramento, CA: Cal/EPA, Department of Pesticide Regulation (1999).

[vi] Schneider, F. Identification and Labeling of Samples. WHS-FO04.06. Sacramento, CA: Cal/EPA, Department of Pesticide Regulation (2000).

[vii] Andrews, C. Worker Health and Safety Branch Policy on the Statistical Analysis for Dislodgeable Foliar Residue Data. HSM-00011. Sacramento, CA: Cal/EPA, Department of Pesticide Regulation (2000).

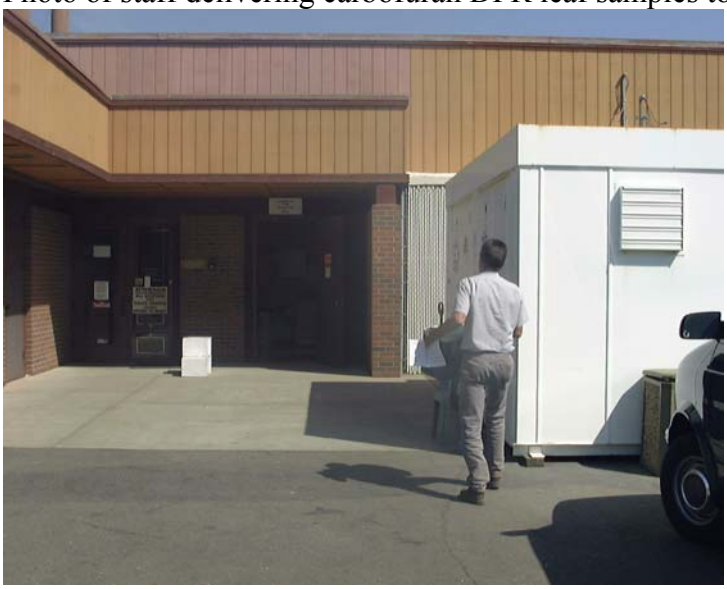
[viii] Rabbit Tool U.S.A., Inc. 903 2nd Ave. Rock Island, Il. 61201 Ph. 309-793-4375

[ix] Hernandez, Bernardo Z. (2001) Dislodgeable Foliar Residue Sampling Pattern. March 2, 2001. Cal/EPA Department of Pesticide Regulation, Worker Health and Safety Branch. P.O. Box 4015, Sacramento CA 95812-4015.

Appendix 1. Photo of staff conducting carbofuran sampling activities on cotton plants in Colusa County.

Photo of Furadan® 4F field posting at the edge of a cotton field.

Photo of staff delivering carbofuran DFR leaf samples to the CDFA laboratory for analysis.



Appendix 2. Carbofuran DFR mean results from cotton plants for 3, 5, 10, and 12 days post-application.

Post-application interval	Day Mean (ug/cm2)	County
3	0.459	Fresno
3	0.160	Fresno
3	0.041	Fresno
5	0.356	Colusa
10	0.046	Yolo
12	0.003	Colusa

Appendix 3. DFR results from carbofuran-treated cotton fields sampled in Fresno, Madera, Colusa and Yolo counties in summer, 2001. This data was used to calculate day means per field sampling event. LOQ= 1 µg/sample.

Sample#	Result (ug/spl)	Result (ug/cm2)	Sampling Interval	County	Total area (cm2/spl)
Fd01-3000	131	0.328	2	Fresno	400
Fd01-3001	190	0.475	2	Fresno	400
Fd01-3002	197	0.493	2	Fresno	400
Fd01-3003	144	0.360	2	Fresno	400
Fd01-3004	213	0.533	2	Fresno	400
Fd01-3005	292	0.730	2	Fresno	400
Fd01-3006	181	0.453	2	Fresno	400
Fd01-3007	190	0.475	2	Fresno	400
Fd01-3008	165	0.413	2	Fresno	400
Fd01-3009	138	0.345	2	Fresno	400
Fd01-3010	116	0.290	2	Fresno	400
Fd01-3011	180	0.450	2	Fresno	400
Fd01-3012	92.7	0.232	2	Fresno	400
Fd01-3013	106	0.265	2	Fresno	400
Fd01-3014	73.9	0.185	2	Fresno	400
Fd01-3015	129	0.323	2	Fresno	400
Fd01-3016	199	0.498	2	Fresno	400
Fd01-3017	99.8	0.250	2	Fresno	400
Fd01-3018	68.8	0.172	14	Fresno	400
Fd01-3019	15.8	0.040	14	Fresno	400
Fd01-3020	48.7	0.122	14	Fresno	400
Fd01-3021	46.7	0.117	14	Fresno	400
Fd01-3022	51.2	0.128	14	Fresno	400
Fd01-3023	48.7	0.122	14	Fresno	400
Fd01-3024	16.1	0.040	14	Fresno	400
Fd01-3025	67.3	0.168	14	Fresno	400
Fd01-3026	19.5	0.049	14	Fresno	400
Fd01-3027	8.59	0.021	14	Fresno	400
Fd01-3028	58.2	0.146	14	Fresno	400
Fd01-3029	19.5	0.049	14	Fresno	400
Fd01-3030	23.8	0.060	14	Fresno	400
Fd01-3031	54.3	0.136	14	Fresno	400
Fd01-3032	22.2	0.056	7	Madera	400
Fd01-3033	66.1	0.165	7	Madera	400
Fd01-3034	51.6	0.129	7	Madera	400
Fd01-3035	11	0.028	7	Madera	400
Fd01-3036	20	0.050	7	Madera	400
Fd01-3037	30.1	0.075	7	Madera	400

Fd01-3038	60.9	0.152	2	Madera	400
Fd01-3039	28.3	0.071	2	Madera	400
Fd01-3040	108	0.270	2	Madera	400
Fd01-3041	19.7	0.049	2	Madera	400
Fd01-3042	29.5	0.074	2	Madera	400
Fd01-3043	68.2	0.171	2	Madera	400
Fd01-3044	82.9	0.207	2	Madera	400
Fd01-3045	73.9	0.185	2	Madera	400
Fd01-3046	172	0.430	2	Madera	400
Fd01-3047	120	0.300	2	Madera	400
Fd01-3048	177	0.443	2	Madera	400
Fd01-3049	70.2	0.176	2	Madera	400
Fd01-3050	47.5	0.119	7	Madera	400
Fd01-3051	28.4	0.071	7	Madera	400
Fd01-3052	82.3	0.206	7	Madera	400
Fd01-3053	26.5	0.066	7	Madera	400
Fd01-3054	37.8	0.095	7	Madera	400
Fd01-3055	60.4	0.151	7	Madera	400
Fd01-3056	144	0.360	2	Fresno	400
Fd01-3057	136	0.340	2	Fresno	400
Fd01-3058	134	0.335	2	Fresno	400
Fd01-3059	39.7	0.099	2	Fresno	400
Fd01-3060	15.9	0.040	14	Fresno	400
Fd01-3061	39.5	0.099	14	Fresno	400
Fd01-3062	11.8	0.030	14	Fresno	400
Fd01-3063	18.8	0.047	14	Fresno	400
Fd01-3064	32.6	0.082	14	Madera	400
Fd01-3065	13.1	0.033	14	Madera	400
Fd01-3066	6.14	0.015	14	Madera	400
Fd01-3067	6.61	0.017	14	Madera	400
Fd01-3068	5.51	0.014	14	Madera	400
Fd01-3069	9.78	0.024	14	Madera	400
Fd01-3070	11.9	0.030	14	Madera	400
Fd01-3071	6.88	0.017	14	Madera	400
Fd01-3072	3.48	0.009	7	Madera	400
Fd01-3073	1	0.003	7	Madera	400
Fd01-3074	18.6	0.047	7	Madera	400
Fd01-3075	2.79	0.007	7	Madera	400
Fd01-3076	4.57	0.011	7	Madera	400
Fd01-3077	2.82	0.007	7	Madera	400
Fd01-3078	20.9	0.052	7	Fresno	400
Fd01-3079	4.58	0.011	7	Fresno	400

Fd01-3080	28.3	0.071	7	Yolo	400
Fd01-3081	79.3	0.198	7	Yolo	400
Fd01-3082	17.2	0.043	7	Yolo	400
Fd01-3083	23.6	0.059	7	Yolo	400
Fd01-3084	6.85	0.017	7	Yolo	400
Fd01-3085	20.4	0.051	7	Yolo	400
Fd01-3086	119	0.298	2	Yolo	400
Fd01-3087	104	0.260	2	Yolo	400
Fd01-3088	146	0.365	2	Yolo	400
Fd01-3089	120	0.300	2	Yolo	400
Fd01-3090	95.4	0.239	2	Yolo	400
Fd01-3091	111	0.278	2	Yolo	400
Fd01-3092	4.84	0.012	7	Yolo	400
Fd01-3093	17.5	0.044	7	Yolo	400
Fd01-3094	3.03	0.008	7	Yolo	400
Fd01-3095	3.18	0.008	7	Yolo	400
Fd01-3096	7.75	0.019	7	Yolo	400
Fd01-3097	8.94	0.022	7	Yolo	400
Fd01-3098	184	0.460	2	Yolo	400
Fd01-3099	141	0.353	2	Yolo	400
Fd01-3100	128	0.320	2	Yolo	400
Fd01-3101	219	0.548	2	Yolo	400
Fd01-3102	87	0.218	2	Yolo	400
Fd01-3103	119	0.298	2	Yolo	400
Fd01-3104	2.65	0.007	14	Yolo	400
Fd01-3105	2.86	0.007	14	Yolo	400
Fd01-3106	1	0.003	14	Yolo	400
Fd01-3107	1	0.003	14	Yolo	400
Fd01-3108	2.51	0.006	7	Colusa	400
Fd01-3109	14.3	0.036	7	Colusa	400
Fd01-3114	1	0.003	12	Colusa	400
Fd01-3115	1	0.003	12	Colusa	400
Fd01-3116	1	0.003	12	Colusa	400
Fd01-3117	1	0.003	12	Colusa	400
Fd01-3118	1	0.003	12	Colusa	400
Fd01-3119	1	0.003	12	Colusa	400
Fd01-3120	15.3	0.038	7	Colusa	400
Fd01-3121	8.98	0.022	7	Colusa	400
Fd01-3122	30.1	0.075	7	Colusa	400
Fd01-3123	4.45	0.011	14	Colusa	400
Fd01-3124	1	0.003	14	Colusa	400
Fd01-3125	1	0.003	14	Colusa	400

Fd01-3126	4.33	0.011	14	Colusa	400
Fd01-3127	4.57	0.011	14	Colusa	400
Fd01-3128	5.64	0.014	14	Colusa	400
Fd01-3129	1	0.003	14	Colusa	400
Fd01-3130	1	0.003	14	Colusa	400
Fd01-3131	1	0.003	14	Colusa	400
Fd01-3132	59.6	0.149	2	Colusa	400
Fd01-3133	112	0.280	2	Colusa	400
Fd01-3134	135	0.338	2	Colusa	400
Fd01-3135	159	0.398	2	Colusa	400
Fd01-3136	146	0.365	5	Colusa	400
Fd01-3137	127	0.318	5	Colusa	400
Fd01-3138	163	0.408	5	Colusa	400
Fd01-3139	134	0.335	5	Colusa	400
Fd01-3140	1	0.003	14	Colusa	400
Fd01-3141	1	0.003	14	Colusa	400
Fd01-3142	12	0.030	2	Fresno	400
Fd01-3143	20.3	0.051	2	Fresno	400
Fd01-3144	45	0.113	2	Fresno	400
Fd01-3145	50.1	0.125	2	Fresno	400
Fd01-3146	64.9	0.162	2	Fresno	400
Fd01-3147	39.7	0.099	2	Fresno	400
Fd01-3148	94.3	0.236	2	Fresno	400
Fd01-3149	115	0.288	2	Fresno	400
Fd01-3150	144	0.360	2	Fresno	400
Fd01-3151	102	0.255	2	Fresno	400
Fd01-3152	88.9	0.222	2	Fresno	400
Fd01-3153	116	0.290	2	Fresno	400
Fd01-3154	6.52	0.016	2	Fresno	400
Fd01-3155	25.3	0.063	2	Fresno	400
Fd01-3156	135	0.338	2	Fresno	400
Fd01-3157	108	0.270	2	Fresno	400
Fd01-3158	62.1	0.155	2	Fresno	400
Fd01-3159	28.7	0.072	2	Fresno	400
Fd01-3160	429	1.073	3	Fresno	400
Fd01-3161	323	0.808	3	Fresno	400
Fd01-3162	68.2	0.171	3	Fresno	400
Fd01-3163	69	0.173	3	Fresno	400
Fd01-3164	110	0.275	3	Fresno	400
Fd01-3165	102	0.255	3	Fresno	400
Fd01-3166	115	0.288	3	Fresno	400
Fd01-3167	106	0.265	3	Fresno	400

Fd01-3168	24.7	0.062	3	Fresno	400
Fd01-3169	9.77	0.024	3	Fresno	400
Fd01-3170	25.4	0.064	3	Fresno	400
Fd01-3171	103	0.258	3	Fresno	400
Fd01-3172	12	0.030	4	Fresno	400
Fd01-3173	10.6	0.027	4	Fresno	400
Fd01-3174	7.21	0.018	4	Fresno	400
Fd01-3175	7.84	0.020	4	Fresno	400
Fd01-3176	22.6	0.057	4	Fresno	400
Fd01-3177	38.7	0.097	4	Fresno	400
Fd01-3178	52.6	0.132	14	Fresno	400
Fd01-3179	23.5	0.059	14	Fresno	400
Fd01-3180	2.36	0.006	14	Colusa	400
Fd01-3181	1	0.003	14	Colusa	400
Fd01-3182	2.96	0.007	14	Colusa	400
Fd01-3183	3.35	0.008	14	Colusa	400
Fd01-3184	9.8	0.025	14	Colusa	400
Fd01-3185	1	0.003	14	Colusa	400
Fd01-3186	1	0.003	14	Colusa	400
Fd01-3187	72.9	0.182	7	Colusa	400
Fd01-3188	73.5	0.184	7	Colusa	400
Fd01-3189	113	0.283	7	Colusa	400
Fd01-3190	36.7	0.092	7	Colusa	400
Fd01-3191	1	0.003	14	Yolo	400
Fd01-3192	11.5	0.029	14	Yolo	400
Fd01-3193	3.98	0.010	14	Yolo	400
Fd01-3194	25.9	0.065	14	Yolo	400
Fd01-3195	1	0.003	14	Colusa	400
Fd01-3196	1	0.003	14	Colusa	400
Fd01-3197	1	0.003	14	Colusa	400
Fd01-3198	1	0.003	14	Colusa	400
Fd01-3200	120	0.300	14	Fresno	400
Fd01-3201	77.7	0.194	14	Fresno	400
Fd01-3202	53.4	0.134	14	Fresno	400
Fd01-3203	61.6	0.154	14	Fresno	400
Fd01-3204	13	0.033	7	Fresno	400
Fd01-3205	40.5	0.101	7	Fresno	400
Fd01-3206	15.5	0.039	7	Fresno	400
Fd01-3208	71.6	0.179	7	Fresno	400
Fd01-3209	39.1	0.098	7	Fresno	400
Fd01-3210	119	0.298	14	Fresno	400
Fd01-3211	79.6	0.199	14	Fresno	400

Fd01-3212	180	0.450	14	Fresno	400
Fd01-3213	84.5	0.211	14	Fresno	400
Fd01-3214	23.6	0.059	7	Fresno	400
Fd01-3215	17.4	0.044	7	Fresno	400
Fd01-3216	13.7	0.034	7	Fresno	400
Fd01-3217	4.44	0.011	7	Fresno	400
Fd01-3218	80.9	0.202	7	Fresno	400
Fd01-3219	72.9	0.182	7	Fresno	400
Fd01-3220	97.2	0.243	7	Fresno	400
Fd01-3221	4.13	0.010	14	Colusa	400
Fd01-3222	5.8	0.015	14	Colusa	400
Fd01-3223	5.46	0.014	14	Colusa	400
Fd01-3224	2.29	0.006	14	Colusa	400
Fd01-3225	2.25	0.006	7	Yolo	400
Fd01-3226	7.73	0.019	7	Yolo	400
Fd01-3227	8.62	0.022	7	Yolo	400
Fd01-3228	13.5	0.034	7	Yolo	400
Fd01-3229	65.7	0.164	7	Fresno	400
Fd01-3230	46.2	0.116	7	Fresno	400
Fd01-3231	37	0.093	7	Fresno	400
Fd01-3232	58.5	0.146	7	Fresno	400
Fd01-3233	40.7	0.102	7	Fresno	400
Fd01-3234	9.46	0.024	10	Yolo	400
Fd01-3235	11.1	0.028	10	Yolo	400
Fd01-3236	7.88	0.020	10	Yolo	400
Fd01-3237	45.8	0.115	10	Yolo	400
Fd01-3238	29.6	0.074	14	Colusa	400
Fd01-3239	25.5	0.064	14	Colusa	400
Fd01-3240	18.3	0.046	14	Colusa	400
Fd01-3241	14.1	0.035	14	Colusa	400