SUBJECT: Risk Estimates Utilizing the Revised Dietary Exposure to
Diallate

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Using the revised dietary exposure data provided by your office, I have
completed risk estimates for dietary exposure to diallate.

These estimates are calculated by using the one-hit model,
$P = 1 - \exp[-Bd]$, where $B = 2.99 \times 10^{-3}$ $(ppm)^{-1}$, developed in the Carcinogen
Assessment Group's (CAG) Risk Assessment of Avadex (5/7/79).

Table 1 is the revised dietary exposure data you have provided us. Table 2
is risk estimates based on the revised exposure data in Table 1. Table 2 should
be used to replace Tables 2 and 3 presented in the CAG's 5/7/79 report
(p. 36-37).

## TABLE 1. REVISED DIETARY EXPOSURE TO DIALLATE

| Crop | Food factor (% diet) | Tolerance (ppm) | Crop treated (%) | Daily intake (mg/1.5 kg diet/day) |
|---|---|---|---|---|
| barley | 0.03 | 0.050 | 0.10 | 0.00000 |
| lentils | 0.04 | 0.050 | 38 | 0.00001 |
| peas | 0.69 | 0.050 | 10 | 0.00005 |
| potatoes | 5.43 | 0.050 | 0.46 | 0.00002 |
| safflower | 0.03 | 0.050 | 100* | 0.00002 |
| soybeans | 0.92 | 0.050 | 0.20 | 0.00000 |
| beet sugar | 1.10 | 0.050 | 14.3 | 0.00012 |
| Total | | | | 0.00022 |

*100% is assumed in absence of data.

TABLE 2. CANCER RISK TO U.S. POPULATION FROM DIETARY EXPOSURE TO DIALLATE BASED ON TOLERANCE LEVEL

| Source | ppm concentration in diet when crops were treated with diallate, d | Lifetime probability of cancer due to diallate at concentration d | Lifetime probability P of cancer due to diallate at concentration (fd)* | Expected number** of cancer cases per year due to dietary diallate |
|---|---|---|---|---|
| Barley | $1.50 \times 10^{-5}$ | $4.48 \times 10^{-8}$ | $4.48 \times 10^{-11}$ | < 1 |
| Lentils | $2.00 \times 10^{-5}$ | $5.98 \times 10^{-8}$ | $2.27 \times 10^{-8}$ | < 1 |
| Peas | $3.45 \times 10^{-4}$ | $1.03 \times 10^{-6}$ | $1.03 \times 10^{-7}$ | < 1 |
| Potatoes | $2.71 \times 10^{-3}$ | $8.10 \times 10^{-6}$ | $3.73 \times 10^{-8}$ | < 1 |
| Safflower | $1.50 \times 10^{-5}$ | $4.48 \times 10^{-8}$ | $4.48 \times 10^{-8}$ | < 1 |
| Soybeans | $4.60 \times 10^{-4}$ | $1.37 \times 10^{-6}$ | $2.74 \times 10^{-9}$ | < 1 |
| Beet sugar | $5.50 \times 10^{-4}$ | $1.64 \times 10^{-6}$ | $2.35 \times 10^{-7}$ | < 1 |
| Total | $4.12 \times 10^{-3}$ | $1.23 \times 10^{-5}$ | $4.46 \times 10^{-7}$ | 1 |

* f is the percentage of crop treated with diallate.
**Expected # of cancer cases from each source per year = $\dfrac{220 \times 10^6 \times P}{70}$

where 70 is the average individual life expectancy and $220 \times 10^6$ is the U.S. population.