



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
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OFFICE OF
RESEARCH AND DEVELOPMENT

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 $B = 2.99 \times 10^{-3} \text{ (ppm)}^{-1}$, 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 DIALATE

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 of cancer due to diallate at concentration (fd)*	Expected number** of cancer cases per year due to dietary diallate
Barley	1.50×10^{-5}	4.48×10^{-8}	4.48×10^{-11}	< 1
Lentils	2.00×10^{-5}	5.98×10^{-8}	2.27×10^{-8}	< 1
Peas	3.45×10^{-4}	1.03×10^{-6}	1.03×10^{-7}	< 1
Potatoes	2.71×10^{-3}	8.10×10^{-6}	3.73×10^{-8}	< 1
Safflower	1.50×10^{-5}	4.48×10^{-8}	4.48×10^{-8}	< 1
Soybeans	4.60×10^{-4}	1.37×10^{-6}	2.74×10^{-9}	< 1
Beet sugar	5.50×10^{-4}	1.64×10^{-6}	2.35×10^{-7}	< 1
Total	4.12×10^{-3}	1.23×10^{-5}	4.46×10^{-7}	1

* f is the percentage of crop treated with diallate.

**Expected # of cancer cases from each source per year = $\frac{220 \times 10^6 \times P}{70}$

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