

US EPA ARCHIVE DOCUMENT

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

DATE:

APR 3 1980

SUBJECT:

The Oregon Department of Agriculture requests a specific exemption to use Naphthaleneacetic Acid (NAA) for reduction in cracking of fruit of sweet cherries in Western Oregon in the spring of 1980. CASWELL #589

FROM:

William Dykstra
Toxicology Branch, HED (TS-769)

WSD 4/2/80

TO:

Don Stubbs
Emergency Response Section (TS-769)

WAA

THRU:

M. Adrian Gross, Chief
Toxicology Branch, HED (TS-769)

*William M. Butts for M. Adrian Gross
4/3/80*

Naphthaleneacetic Acid, 1-Naphthaleneacetic acid, or d-Naphthaleneacetic acid is the material to be used. It has been tested extensively for several years and found to be effective as a control agent for reduction of cracking of sweet cherries. Formulations currently available are Liquistik concentrate (EPA Reg.#279-2131 ZA) and Fruitone N (EPA Reg.# 264-141 AA). Inerts are cleared under 180.1001.

Naphthaleneacetic acid will be applied to a maximum of 7,500 acres of sweet cherries in western Oregon at the rate of 2 grams per acre. This acreage will require 33 pounds of actual Naphthaleneacetic acid, equivalent to 75 gallons of Liquistik concentrate or 937 gallons of Fruitone N.

Naphthaleneacetic acid will be applied in 50 to 500 gallons of water per acre, thoroughly covering all parts of the tree, including leaves and fruit. Addition of spray adjuvants, such as wetting agents or spreader-stickers, will not be recommended; the addition of such materials has been found to result in lowered effectiveness of Naphthaleneacetic acid.

Applications will be made in the spring of 1980 in the Western Oregon Countries of Benton, Clackamas, Douglas, Hood River, Lane, Linn, Marion, Multnomah, Polk, Washington, and Yamhill.

Applications will be made using ground equipment such as airblast sprayers.

Applications will be made during the period of May 1, 1980 through June 30, 1980. Applications will be made by growers using their own equivalent or by licensed commercial applicators.

(2)

Previously submitted toxicity data includes:

°Rat Oral LD₅₀ of 1-NAA = 1 gm/kg

°Rat I.P. LD₅₀ of 1-NAA = 100 mg/kg

°Rat Teratology: Negative at 250 mg/kg

°3-Generation Mouse Reproduction Study with methyl ester of 1-NAA = 600 ppm;
Life-span of mice was unaffected at this same level.

°90-Day Rat Feeding, 1-NAA: NOEL = 100 mg/kg

°90-Day Dog Feeding, 1-NAA: NOEL = 10 mg/kg

°2-Year Rat Feeding Study with methyl ester of 1-NAA: NOEL = 2500 ppm

It is noted that in some studies, the methyl ester of 1-NAA was used instead of the salt. This is acceptable for two main reasons:

- (1) 1-NAA is the principle metabolite of the methyl ester.
- (2) Even though the exact amount of 1-NAA arising from the methyl ester is not known, the toxicity of both compounds are similarly low.

Tolerances are established under 40 CFR 180.155. Although a chronic rat study is available, the most sensitive species, based on subchronic data, is the dog. Therefore, the provisional ADI (PADI), based on the 90-day dog NOEL of 10 mg/kg and using a 2000 fold safety factor, is 0.005 mg/kg/day. The MPI is 0.300 mg/day.

Published tolerances utilize 14.18% of the PADI. The current TMRC used is .0425 mg/day/1.5 kg.

The food factor for cherries is 0.10. If the tolerance were 10.0 ppm, rather than 0.1 ppm as requested, the Addition to the ADI would be as follows:

$$\text{TMRC} = \frac{10 \text{ mg}}{\text{kg}} \times 1.5 \text{ kg} \times \frac{0.10}{100} = .015 \text{ mg/kg/1.5 kg}$$

$$\frac{\text{TMRC}}{\text{MPI}} = \frac{.0150}{0.300} \times 100 = 5.0\% \text{ of the ADI at a tolerance of 10.0 ppm}$$

Although the residue data from RCB has not been provided as of 4/2/80, residues as high as 10.0 ppm would not significantly increase the ADI and would be toxicologically supported.

TOX/HED:th:CFRICK:4-2-80

file last updated 4/2/80

ACCEPTABLE DAILY INTAKE DATA

Dog	NOEL	S.F.	PADI	MPI
mg/kg	ppm		mg/kg/day	mg/day/60kg
10.000	400.00	2000	0.0050	0.3000

Published Tolerances

CROP	Tolerance	Food Factor	mg/day/1.5kg
Apples(2)	1.000	2.53	0.03795
Pears(116)	1.000	0.26	0.00383
Quinces(132)	1.000	0.03	0.00045
Olives(104)	0.100	0.06	0.00009
Pineapple(123)	0.050	0.30	0.00022

MPI	TMRC	% ADI
0.3000 mg/day/60kg	0.0425 mg/day/1.5kg	14.18
