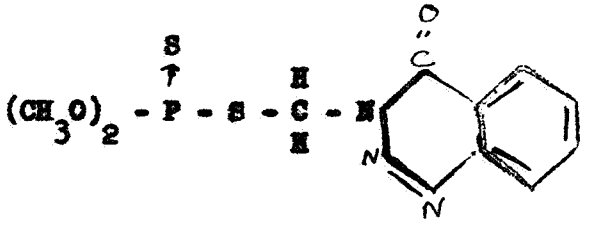
JAShaughnessy:scg:rjj
10/27/66

Evaluation of Residue Data in Petition Number 7F0539
For Guthion in 16 Crops
Filed on October 5, 1966, by Chemagro Corporation
Due November 4, 1966

INTRODUCTION

Guthion has several chemical names. CA name is O, O-Dimethyl S-[(3-mercaptomethyl-1,2,3-benzotriazin-4 (3H)-one]phosphorodithioate



Said to be NON-SYSTEMIC, but is cholinesterase inhibitor.

Crops are dry beans, cowpeas, eggplant, oats, dry onions, pecans, potatoes, soybeans, walnuts, wheat, blueberries, celery, cucumbers, melons, green onions, and peppers.

Most of these uses are already in the Summary as "NR" uses. Now want 0.1 ppm tolerance as negligible residue (except as follows;).

Blueberry use is presently under a tolerance of 2.0 ppm. Want change to 5.0 ppm with a decrease in PHI from 14 days to 3 days (although Sec. F says 0.375 days? for dust

Use on cucumbers, melons, peppers is to be changed to shorter PHI.

Celery and green onion use is entirely new.

DIRECTIONS FOR USE

Formulation 25% WP, Spray Conc. 2 lbs. act/gal. Liquid Conc. 2 lbs. act/gal, 2% Dust, 3% Dust.

The following table gives most of the directions for use and the tolerances requested.

CROP	Max. Dose lbs. act/A	PHI (days)	Limitations Etc.	PPM tolerance requested
Dry beans	0.6	30	Do not exceed 4 appli. Do not feed or ensile forage.	0.1
Cowpeas (Southern blackeyed, and Crowder peas)	1.0	7	Do not exceed 4 appli. Do not use vines for feed or forage or pasture.	0.1
Eggplant	0.5	Prior to fruit set.	Repeat as nec.	0.1
Oats	0.6	30	One applic. per season.	0.1
Dry Onions	0.75	28	Only 3 applic. per season.	0.1
Pecans	0.562 lbs. per 100 gal.	Prior to husk split.	Do not graze livestock for 21 days.	0.1
Potatoes	0.75	7		0.1
Soybeans	0.75	21	Do not graze or feed treated vines to livestock.	0.1
Walnuts	1.50 or 0.94 lbs./100 gal.	Prior to husk split.	Do not graze livestock for 21 days.	0.1
Wheat	0.6	30	One applic. per season.	0.1
Blueberries (East and No. Central States only.	0.75	0.375 (9 hours)	Not more than 4 applic./ season. Not more than 2 late applic. with last no later than early July.	5.0
Celery	0.5 lbs. per 100 gal.	14		2.0
Cucumbers	0.5	1	No more than 3 applic. per season.	2.0

CROP	Max. Dose lbs. act/A	PHI (days)	Limitations etc.	PPM tolerance requested
Melons (honey-dew, musk, canta-loupe, water, and other melons)	0.5	0	Repeat as necessary	2.0
Green onions	0.75	7	No more than three applications.	2.0
Peppers	0.5	3	Max. of 4 applic. or if more than 4 applic., the PHI is 14 days.	0.5

added [illegible]
Soybean C.L 12/5/67

ANALYTICAL METHODS

Colorimetric method (Ag. and Food Chem., vol. 8, No. 4, p. 282, July/Aug. 1960) as used in many submissions.

Modified as per K. C. Walker. Also as modified by W. S. Cox (JAOAC vol. 44, No. 2, 1961) (with paper chromatography).

Also as modified by T. J. Olson (Chemagro report No. 13517) for SOIL RESIDUES. As modified by J. M. Adams (Chemagro Report No. 13534) for Chlorophyll containing crops.

Method measures parent compound and oxygen analog, the only important metabolite.

Sensitivity to about 0.1 ppm.

Many blanks and recoveries.

Method O.K.

NATURE OF RESIDUES

Can be translocated - may be in vines, etc.
Metabolite is oxygen analog.
Method measures parent and metabolite.

DISCUSSION OF DATA

Dry Beans

Request:	0.6 lb. act/A	30 days	Don't exceed 4 applic.	0.1 ppm.
Summary:	0.5 lb. act/A	30 days.	Don't feed or ensile forage.	

The 30 day PHI is a compromise, but it is supported by data. There are many analyses of dry lima beans treated at 1.5 lb. act/A (multiple appl4) showing <0.1 ppm residues at 44 days. 1 analysis of dry cowpeas - 1.0 lb. - at 28 days showing <0.1 ppm. Also several at 28-44 days show <0.1 ppm for 1.0 lb. act/A. The clinching data is a study of 4 applic. at 1.0 lb. showing <0.1 ppm at 0 days. Since we have already accepted 30 days, we can go along with it again.

Cowpeas (Southern, blackeyed or crowderpeas)

Request:	1.0 lb. act/A	7 days	Dont exceed 4 applications Don't feed	0.1 ppm.
Summary:	Same (NR)			

This is supported by several studies showing no residue (<0.1 ppm.) after multiple applications of 1.0 lb. act/A at PHI of 7 days (Some show <0.1 ppm at 3 days). This looks acceptable. Need caution on feeding.

Eggplant

Request:	0.5 lb. act/A	Prior to first set	Repeat as nec.	0.1 ppm.
Summary:	0.5 lb. act/A	Do not apply after edible parts begin to form.		NR

NO DATA AT ALL

Oats

Request:	0.6 lb. act/A	30 days	0.1.ppm
Summary:	0.6 lb. act/A	30 days	NR

No new data - we can still go along.

Dry Onions

Request:	0.75 lb. act/A	28 days	3 Applic.	0.1
Summary:	Ditto			

No new data - no change.

Pecans

Request:	0.562 lb. act/100 gal.	Prior to husk split.	Don't graze for 21 days.	0.1
Summary:	5.6 lb. act/A (1000 gal per acre)		"	NR
Same dosage - no new data				OK

Potatoes

Request:	0.75 lb./A	7 days	0.1
Summary:	Same		NR
		Acceptable	

Soybeans

Request:	0.75 lb. act/A	21 days	Don't graze Don't feed vines	0.1
Summary:	0.5 spray 0.6 dust	"	"	NR

Old residue data support 0.75 lb. dose.
Acceptable

Walnuts

Requested:	1.50 lbs. dust or 0.94 lbs./100 gals.	Prior to husk split	Don't graze for 21 days	
Summary:	10.0 lbs. act/A (1000 gals per acre)	"	"	NR

Old use - no new data - acceptable

Wheat

Requested:	0.6 lbs. act/A	30 days	One applic	0.1 ppm.
Summary:	Same			

No change - no new data - acceptable.

Blueberries (East and North Central States only)

Requested:	0.75 lb. act/A	0.375 days (9 hours)	4 applic. per season	5.0 ppm.
Summary:	1.0 lb. act/A	14 days		2.0 ppm.

New data

Note: The 9-hour PHI applies only to 2% and 3% dusts. Other formulations have 3 day PHI

Residue data support the .375 day PHI and are 5.0 ppm. tolerance for the 2-3% dust. However, such a high tolerance would not be needed if they had a 3 day PHI. We can go along. Data for other formulations are also acceptable.

Celery New Use

Requested: 0.5 lb. act/100 gallons 14 days Repeat as nec. 2.0 ppm. Ten analyses for multiple applic of 0.5 lb/100 gal show residues <2.0 ppm. at 14 days. Actually, all are less than 1.0 ppm. should mention this.

Cucumbers

Requested:	0.5 lb. act/A	1 day PHI	only 3 applic.	2.0 ppm.
Summary:	0.5 lb.	6 day	"	NR

New data

Six analyses show residues of 0.1-0.9 ppm. at 1 day for 3 applic. Tolerance requested is too high. 1.0 ppm is enough.

Melons

Requested:	0.5 lb. act/A	0 days	As nec.	2.0 ppm.
Summary:	0.5 lb. act/A	14 days	-	NR

Data for honeydew, muskmelon, canteloupe, are watermelon (Group 12) are presented at zero days. The residues are 0.1-1.5 ppm. Therefore 2.0 ppm is reasonable. Only question is what is meant by "other melons."

Green Onions

Requested:	0.75 lb. act/A	7 days	3 applic.	2.0 ppm
Summary:	1.5 lb. act/A	Apply in furrow at planting		2.0 ppm.

New data

Six analyses show < 0.1 to 1.3 ppm residues at 7 days. Multiple applic. Acceptable.

Peppers

Requested:	0.5 lb. act/A	3 days - 4 applic. or less 14 days - 4 applic. 5 days - 4 applic. or less	0.5 ppm.
Summary:	0.5 "	14 days > 4 applic. No new data	NR

The highest residue at 3 days for 4 applications or less is 0.2 ppm. For more than 4 applications, the highest is also 0.2 ppm. Therefore the requested tolerance is too high. 0.2 ppm is enough.

DISCUSSION OF DATA

We can give a favorable opinion on dry beans, cowpeas, oats, dry onions, pecans, potatoes, soybeans, walnuts, and wheat because the pattern of use is essentially the same as that previously accepted on a HR basis.

The requested tolerance (5.0 ppm) for blueberries is acceptable - supported by data.

They ask 2.0 ppm tolerance on celery, but 1.0 ppm is sufficient - we should mention this.

We can give a favorable opinion on eggplant based on previous HR acceptance. However, we must tell FDA that there are no data. This use was accepted because of the restriction "Do not apply after edible plants begin to form."

Cucumber use does not need 2.0 ppm tolerance - 1.0 ppm is enough, based on data.

Melon tolerance of 2.0 ppm is supported by data. We can give favorable opinion.

Green onions is a later use - same tolerance. We can go along.

Pepper use requests 0.5 ppm tolerance. Data show that 0.2 ppm is enough. We should mention.

CONCLUSION

It is recommended that we give a favorable opinion on dry beans, cowpeas, oats, dry onions, pecans, potatoes, soybeans, walnuts, wheat, blueberries, melons, and green onions.

For eggplant, we should give a qualified opinion - no data.

We should give an unfavorable opinion on celery, cucumbers, and peppers. The requested tolerances are too high.