Foliar Residue Calculations: For One Leaf You Get Two Sides

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It recently came to my attention that there presently exists two different philosophic approaches to the calculation of foliar residues. It is now accepted practice for both dislodgeable residues (GUNTHER, et al., 1974) and available residues (POPENDORF, et al., 1975) to report foliar residue values as mass of pesticide per unit area. However, it has not been common to report whether the author considered one side or two sides of the leaves in the calculation of the leaf area. Although this difference originates in philosophy, a factor of two can become important when comparing the results of different authors or laboratories.

Upon noting this difference, I began a personal survey of some of the researchers in the field, i.e. attendees of a recent Symposium of Pesticide Residue Hazards to Farm Workers (1976) who have collected such foliar residue data. The results as shown in Table 1 indicate that the field has in fact been split nearly 50:50 in their approach. Those who used only one side considered the projected leaf area as appropriate while the others felt that since residues are extracted from both sides of the leaf that twice the projected area was appropriate. To compare data from different approaches, one must either halve reported data based on one side of the leaf or double data based on two sides.

This finding should help to make more comparable the data reported by the many researchers in the field. Because of the diversity of the backgrounds and approaches of people now investigating pesticide residue hazards, this note also serves as a humble reminder to make sure that we communicate and agree on the basics before proceeding to unjustified extrapolations. In the meanwhile, it is suggested that when reporting foliar residue data in the near future, we all indicate the basis upon which the area was calculated.

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TABLE 1

Basis (One Side or Two Sides)
of Leaf Area Calculations When
Reporting Foliar Residues

RESEARCHER-AUTHOR	AFFILIATION/ LOCATION	BASIS
R. Foster	Wash. State, Pullman	One
J. Gehrich, et al.	U. Utah, Salt Lake City	Two
Gunther/Iwata	U.C., Riverside	Two
Kilgore/Winterlin	U.C., Davis	Two
K. Maddy/Knaak	Calif. Dept. of Agriculture	One
H. Nigg	U. Florida, Lake Alfred	Two
Spear/Popendorf	U.C., Berkeley	One
G. Ware, et al.	U. Ariz., Tucson	One
H. Wolfe/Davis	E.P.A., Wenatchee	Two

REFERENCES

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