White mulberry *Morus alba* L.	4-5
Beech *'Fagus grandifolia* Ehrh.	5

DECIDUOUS SHRUBS	INJURY RATING*
Siberian pea-tree *'Caragana arborescens* Lam.	1
Staghorn sumac *Rhus typhina* L.	1-2
Japanese lilac *Syringa amurensis japonica* (Maxim.) Fr. & Sav.	1-2
Common lilac *Syringa vulgaris* L.	1-2
Honeysuckle *Lonicera* spp.	1-2
European cranberry-bush *Viburnum opulus* L.	1-3
Russian olive *Elaeagnus angustifolia* L.	1-3
Mock orange *Philadelphus* spp.	1-3
Japanese barberry *Berberis thunbergii atropurpurea* Chenault.	2
Burning bush *Euonymus alata* [*Thunb.*) Sieb.	2
Forsythia *Forsythia x intermedia* Zab.	2-3
Privet *Ligustrum* spp.	2-3
Alder buckthron *Rhamnus frangula* L.	2-3
Speckled alder *Alnus rugosa* (Du Roi) Spreng.	3
Flowering quince *Chaenomeles lagenaria* (Loisel.) Koidz.	3-4
Bumalda spirea *Spirea x bumalda* Burv.	3-4
Beauty bush *Kolkwitzia amabilis* Graebn.	3-4
Gray dogwood *Cornus racemosa* Lam.	3-4
Red osier dogwood *Cornus stolonifera* Michx.	4-5

CONIFERS	INJURY RATING
Blue spruce *Picea pungens* Englem.	1
Jack pine *Pinus divaricata* (Ait.) Dumont	1-2
Mugo pine *Pinus mago* Turra.	1-2
Austrian pine *Pinus nigra* Arnold	2
Tamarack *Larix laricina* (Du Roi) K. Koch	2
Juniper *Juniperus* spp.	2-3
Norway spruce *Picea abies* (L.) Karst.	3
White cedar *Thuja occidentalis* L.	3-4
Yew *Taxus* spp.	4
Red pine *Pinus resinosa* Ait.	4-5
Scots pine *Pinus sylvestris* L.	4-5
White spruce *Picea glauca* (Moench) Voss	4-5
Hemlock *Tsuga canadensis* L.	4-5
White pine *Pinus strobus* L.	5

* A rating of 1 indicates no twig dieback or needle browning of conifers and no dieback, tufting, or inhibition of flowering of deciduous trees and shrubs. Ratings of 5 represent complete branch dieback and needle browning of conifers, and complete dieback, evidence of previous tufting, and lack of flowering of deciduous trees and shrubs. Under severe conditions plants rated 5 will eventually die. Ratings of 2, 3 and 4 encompass slight, moderate and extensive gradations of the above injury symptoms.

2,4,5-T HEARINGS[1]

by Harold M. Collins

On June 24, 1974, Mr. John Quarles, Deputy Administrator, United States Environmental Protection Agency, announced at a conference in Washington, D.C. that the EPA, which handles pesticide programs, recommends termination of its proceedings concerning 2,4,5-T. A notice in the June 28, 1974 Federal Register confirmed this action. After reading a transcript of the conference proceedings I conclude that unless future research produces substantiated scientific evidence that 2,4,5-T-containing products are an imminent hazard to the public, we can assume that the legal Federal controversy over the compound is ended.

Following Mr. Quarles' announcement at the hearing, Dr. William Upholt, senior science advisor to the assistant administrator for Water and Hazardous Materials, elaborated on the facts leading to the above decision. My interpretation of this discussion is as follows: There is insufficient evidence demonstrating the presence of residues of 2,4,5-T and dioxin (TCDD) in the environment to warrant cancellation of presently registered uses of the 2,4,5-T-containing pesticides. As a result, industry may continue to sell 2,4,5-T for all uses listed on the current product label. Use areas include rice, rangeland and rights-of-way such as highways, power and communication transmission lines, pipelines and railroads.

Considering that 2,4,5-T has been used since the late 1940's and that there is presently no detectable toxic residue in our environment, continued future use is justified. While birth defects have been induced in rats and mice that were chronically exposed to 2,4,5-T, Dr. Upholt

1. Paper presented at the 50th International Shade Tree Conference in Atlanta, Georgia, August 18-22, 1974.

agreed that there has been no evidence of human teratogenicity. Further, degradation of 2,4,5-T in the environment is known to be "sufficiently rapid that currently registered products should not result in detectable residues if used according to directions . . . little or no residue is apt to remain in food as a result of use on rice, rangeland, or other uncancelled uses."

The defense of 2,4,5-T was begun in 1969. Since then, substantial sums of money have been expended by industry to accumulate scientific data to support continued use of the product. Amchem was privileged to participate in the portion of the defense involving utility use of the herbicide. Many of you present at this meeting deserve sincere thanks for your willingness to work and participate in this endeavor. The sum of everyone's effort resulted in answering positively all of the questions on 2,4,5-T listed in the Federal Register.

With regard to dioxin (TCDD), a new analysis method was developed in 1973 using high resolution mass spectography. This test procedure was claimed to be sensitive to residues as minute as one part per trillion. To date, completed analyses have not produced reliable data on the amounts of TCCD detected, if the residue detected is , in fact TCDD. The compound appearing in spectographic analysis which is now assumed to be TCDD may really be some other impurity. There is also the question of whether the residue, whatever it is, is toxic in such infinitesimal quantities.

I sincerely hope that the tremendous costs these hearings have imposed on the American taxpayer, concerned environmental groups, industry and other interested groups or persons will lead to the betterment of our combined futures. After reviewing my file of data on this subject, I am disappointed but not surprised that news media coverage of the allegations against 2,4,5-T products was in large part confined to the accusation stage. Because of this, it is essential that each of us help make the public aware of the recent EPA decision. We must use this information to prevent passage of legislation by any state or local government that denies the use of this valuable herbicide due to unfounded accusations rather than scientific facts. Our working together can accomplish this.

Earlier this year, Amchem conducted a survey among users of 2,4,5-T-containing herbicides. Individual experience using 2,4,5-T averages 16.24 years. When persons were asked to recall any verified injury to humans, animals, fish or fowl attributed specifically to 2,4,5-T, there were only two affirmative responses. One indicated that decaying aquatic vegetation depleted the oxygen supply in the water and resulted in fish suffocation. While 2,4,5-T is no longer labeled for use on aquatic vegetation, the same situation can occur with other currently available aquatic herbicides. Proper application techniques eliminate this problem. The other reported that a physician had diagnosed light chloracne on men who had made a stem foliage application of a tank mix containing 2,4,5-T ester, oil and water. No recurrence of the problem has been reported for three years.

In closing, I would like to read you the following letter as it was published in the St. Paul Pioneer Press on Tuesday, July 16, 1974:

"The recent National Academy of Science report on Amerian use of chemical herbicides in the Vietnamese war claimed these herbicides causes sickness and death of people, primarily children. In one case 38 children reportedly died. These findings were based on interviews with Montagnard refugees from 12 villages in Pleiku and Kontum provinces by Dr. Gerald C. Hickey, an anthropologist at Cornell University.

No mention was made of medical confirmation of this diagnosis or even consultation with medical authorities, either Vietnamese or American, on this problem.

I'm a veterinarian with 3½ years experience working throughout South Vietnam. In cooperation with the Ministry of Agriculture and the livestock industry, I helped establish two animal disease diagnosis and treatment centers, located in Cantho and Nha Trang. With Vietnamese veterinarians, I investigated hundreds of disease outbreaks, many of them in distant villages and some in recently defoliated areas.

It was very common for the primitive people living in these areas to blame their animal and human disease problems on American herbicides. After careful evaluation of each outbreak, I never established or found any real evidence for a diagnosis of herbicide toxicity. Furthermore, in most cases of alleged toxicity a definite diagnosis of some other disease problem was made. Diseases often blamed on defoliation included rindepest in buffalo, hog cholera in swine and Newcastle disease in poultry.

In some areas, no herbicide had been used for three or four years, but people still blamed it for every disease problem of both man and animal that appeared since then. Vietnamese physicians and veterinarians with good disease diagnostic training rarely if ever see herbicide toxicity.

Although most of the National Academy of Science report is no doubt true, I do seriously doubt the claim on herbicide toxicity and will continue to do so until more scientific evidence is present.

Stephene E. Dille, D.V.M.
University of Minnesota
St. Paul

The comments in Dr. Dille's letter are most timely in that they represent additional support for the decision by the United States Environmental Protection Agency which permits continued label registration and use of 2,4,5-T-containing herbicides for control of undesirable vegetation.

Industrial Products Department
Amchem Products, Inc.
Amchem, Pennsylvania

LABELING AND RESTRICTED PESTICIDES[1]

by Henry B. Pratt

While we are experiencing shortages of toxicants and pesticide formulation components, we are not short of regulations. Our benevolent public servants have worked diligently to protect the environment, the consumers, their jobs, and to keep the industry well stocked with laws, regulations, and interpretations of regulations!

The Federal Environmental Pesticide Control Act of 1972, which is an amendment to the Federal Insecticide, Fungicide and Rodenticide Act, has some 27 Sections. The EPA's promulgation of regulations interpreting the 27 Sections of the Law has required a great deal of industry's time and expertise since the Law now encompasses the users and handlers of pesticides. Many trade groups, such as the National Pest Control Association, have also contributed constructive criticism on the various drafts of the regulations. The ISTC Pesticide Committee, headed by Hyland Johns, has participated in your behalf.

The classification of all pesticide formulations is scheduled to become effective October 21, 1974. However, it now appears that a final classification system, or standards, might become law by that date and the actual assigning of classification category for each label registration will follow over a period of time.

Many of you are now operating in states that require permits for purchasing those materials which the State has declared restricted. Some of you operate in states requiring testing for such permits or licenses. This testing will become more formalized and, we hope, more standardized. The same is true of the lists of restricted pesticides, although most states will be far more restrictive on formulations than the Federal Government. Section 3 of the new Act deals with registration of pesticide labels, the criteria for classification, the data required for the registration of new products, and the continued registration of old products.

The efficacy and toxicity data required on each formulation as the regulation is now proposed would dry up all pesticides registered for anything other than corn, cotton, and soybeans.

From an economic necessity, new pesticide materials are screened and developed by a few basic agricultural chemical companies. The material must have large-volume potential use to warrant the costs of developing production techniques, toxicology and efficacy data, residue studies, and environmental studies. Most of the materials you use today were developed for crop or agricultural commodity uses. Efficacy data and phytotoxicity data were

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