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Spraying roadside grass
No harm to humans

USDA's Ned Bayley
More research data

HEW, USDA HOLD FIRM; 2,4,5-T RULING POSTPONED

The Nixon Administration apparently gave notice last week that while it is insensitive to the needs to protect human health from potential chemical hazards, as some leading spokesmen in the "ban pesticides now" movement have charged, neither is it about to be stampeded into overreacting on the basis of sketchy and/or questionable returns. The issue at hand: 2,4,5-T, a herbicide indicted as a possible cause of birth defects in laboratory animals.

The notice came in the form of a letter from Dr. Ned Bayley, Director of Science and Education for Agriculture, to Rep. Richard McCarthy (D.-N.Y.) explaining why registration of 2,4,5-T for domestic use had not been accelerated as earlier statements promised.

Last October, White House science adviser Lee F. DuBridge announced that Agriculture would cancel registration of 2,4,5-T for use on food crops and that HEW would "complete action on the petition requesting a finite tolerance for 2,4,5-T residues" by Jan. 1970.

HEW and Agriculture were visibly uneasy over what appeared to be precipitate entry into foreign territory by DuBridge. Considerable jockeying for position between the agencies led to the confusion. The inter-

agency squabbles apparently have been resolved, however.

Earlier this month, Rep. McCarthy assailed Agriculture and HEW when he learned the herbicide was still in use. Rep. McCarthy charged the departments with "insensitivity to the need to protect human health" and announced that he would visit Globe, Ariz., to investigate allegations that accidental drifting of Silvex-2-(2,4,5-trichlorophenoxy) propionic acid—used by the Forest Service in a brush control program resulted in damage to crops, birth defects in animals, and health problems for local residents.

In a letter to Rep. McCarthy last week, Dr. Bayley said that the 2,4,5-T used in the Bionetics study contained 27 p.p.m. of a highly biologically active contaminant, whereas 2,4,5-T of current manufacture contains only about 1 p.p.m. "HEW believes that the public interest would best be served by waiting for additional research data which will be available shortly," Dr. Bayley said. "We concur in their judgment." Dr. Bayley added that other polychlorophenolic pesticides would be examined for traces of the contaminant.

The additional evidence, according to Dr. Jesse L. Steinfeld, Surgeon General for the Public Health Service,



was submitted by Dow Chemical Co. and confirmed by the National Institute of Environmental Health Science.

Dow, the nation's largest producer of 2,4,5-T, flatly denies that the herbicide is responsible for the multitude of ill effects ascribed to it by the Bionetics report. The culprit, Dow thinks, is 2,3,7,8-tetrachlorodibenzo-p-dioxin.

That dioxin is a troublesome contaminant of 2,4,5-T is not news. As early as 1940 an unknown toxic component associated with the production of 2,4,5-trichlorophenol (one of the components involved in the manufacture of 2,4,5-T) was observed to cause chloroacne among factory workers.

By 1955, a group of German chemists had tentatively identified the chloroacnogen as a polychlorobenzofuran. In 1961 Dr. H. Bauer, Dr. K. Schulz, and Dr. U. Spiegelberg pinned the

blame on tetrachlorinated dibenzodioxins, which result from the alkaline hydrolysis of 1,2,4,5-tetrachlorobenzene to 2,4,5-trichlorophenol. They observed that synthetically produced 2,3,6,7-tetrachlorodibenzodioxin produced follicular hyperkeratosis and comedones on the inner surfaces of rabbit ears when applied in concentrations of 0.01 to 0.005% in polyglycol solution. To prove that the substance could cause chloroacne on human skin, Dr. Schulz applied a 0.01% solution to a small area on his forearm. He was eminently successful.

Although dioxin has long been recognized as a chloroacnogen, the Biogenetics study was the first to suggest its possible teratogenicity. Dow emphasizes that there is no direct proof yet that dioxin is teratogenic, but experiments are under way to settle the issue.

Preliminary tests conducted at Dow's Zionsville, Ind., human health laboratories indicate that standard production 2,4,5-T (containing less than 1 p.p.m. chloroacnogen) is not teratogenic. Sprague-Dawley rat fetuses exposed to various concentrations of 2,4,5-T during organogenesis showed no anatomical defects. Dow expects that more involved staining and skeleton clearing processes will be completed within two weeks. Dow's preliminary studies have been confirmed by HEW.

Studies attempting to establish a direct link between dioxin and birth defects are, however, complicated by the fact that the pure substance is not readily available. Dow has begun preliminary "range-finding" experiments with both rabbits and rats, but the results are not expected for several weeks. If Dow is able to establish that dioxin is the teratogen, new environmental pollution questions arise.

Dioxins may be liberated from trichlorophenols or pentachlorophenols subjected to excessive heat. The polychlorophenols find diverse application as fungicides, disinfectants, and anti-slime agents in the paint and paper industries.

It is not immediately apparent what conditions would need to be satisfied to release dioxin from the polychlorophenols. Nor is it known whether or not dioxins accumulate in the environment.

Preliminary work by Dow shows that spectral absorption characteristics of dioxin undergo marked change when exposed to light from a sunlamp. Dow speculates that dioxin may photodegrade in the environment in a short period of time, but further studies will be necessary to identify the degradation product.

ENVIRONMENT: Nixon Sets Program

President Nixon's eagerly awaited environmental program has turned out to be as tough as it is comprehensive. And it's expensive. Spending for new and updated municipal waste treatment plants alone will be \$10 billion.

Almost half of the program is directed at water pollution. Technology and resources, the President said last week, are now available for swift action on industrial and municipal wastes. But for agricultural wastes, "the most troublesome to control," the President calls for intensified research. Included in his water pollution program are proposals requiring cities to charge user fees for treating industrial wastes and extending federal-state water quality standards to impose precise effluent standards for all industrial and municipal sources.

Commenting that about one half of U.S. air pollution stems from motor vehicles, the President called for legislation authorizing the Health, Education, and Welfare Secretary to regulate fuel composition and additives.

With an eye toward ending auto pollution altogether, President Nixon said that he has ordered an extensive federal R&D program to develop an unconventionally powered, low-pollution auto within five years. To spur private efforts, the Government will purchase privately produced vehicles for testing and evaluation and offers a market carrot of fleet size purchases.

The President proposes setting nationwide air quality standards, accelerating designation of air quality control regions, and setting national emission standards for facilities that emit pollutants extremely hazardous to health and for certain new facilities. He would extend federal authority to inter- and intrastate situations where

air quality violates national standards, or where emissions standards or implementation timetables are not met.

Failure to meet water and air quality standards or implementation guidelines by an industry or a city could prompt court imposed fines of up to \$10,000 per day.

For solid wastes, the President ordered research to be redirected toward techniques for recycling materials and called for development and use of easily degradable materials. For some solid wastes, such as auto hulks, he suggests a bounty or other payment, perhaps an excise tax, to pay for scrapping.

To ensure a measure of success for his proposals, the President did not hinge his program entirely on Congressional approval. Fourteen of the program's 37 points can be effected by Administration action or executive order.

POLLUTION: To the Courts

The Federal Government, states, cities, and citizens are taking the pollution issue to the courts in a rapidly spreading rash of lawsuits. In recent anti-pollution actions:

- The Justice Department filed criminal charges against 11 companies and one individual in the Chicago area.

- New York state filed suit against 18 major airlines.

- The city of Philadelphia filed suit against 13 auto makers and the Automobile Manufacturers Association (AMA).

A bill presently before the Massachusetts Legislature would allow private citizens to bring suit against anyone polluting the environment.

In the federal case in Chicago, Attorney General John N. Mitchell authorized U.S. Attorney Thomas A. Foran to initiate a grand jury investigation into the deposit of unusual amounts of solid waste materials into the Calumet River and Lake Michigan. Mr. Foran filed the water pollution charges, alleging violation of an 1899 law which makes the deposit of refuse into the navigable waters of the U.S. a misdemeanor subject to a maximum penalty of one year in prison and a fine of \$2500 for each offense.

All but one of the alleged violations were said to have occurred in 1969. The cases were referred to the Justice Department by the Army Corps of Engineers.

The state of New York suit, similar to previous suits by Illinois and New Jersey, asks the state supreme court to order 18 airlines serving Kennedy and La Guardia airports either to halt the emission of pollutants from jet engines



President Nixon
Tough and expensive