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SYMPOSIUM ON AEROSOLS

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Foreign Technology Division
Wright-Patterson Air Force Base, Ohio

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by

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SYMPOSIUM ON AEROSOLS

Professor V. F. Dunskiy, Doctor
of Technical Sciences

A symposium on the application of aerosols in agriculture took place in Moscow on 3-4 November 1970. It was organized by the Scientific Council of the State Committee of the USSR Council of Ministers for Science and Engineering and the Department for the Protection of Plants of the VASKhNIL [All-Union Academy of Agricultural Sciences im. V. I. Lenin]. More than 100 specialists from 35 different institutions took part in it.

The president of the scientific Council on Aerosols Professor A. G. Amelin opened the symposium and spoke of the exceptional importance of the problem of eliminating losses in the harvest which are caused by pests, diseases, and weeds, and, consequently, of the necessity of increasing the methods of application of pesticides. Often due to their imperfection large quantities of preparations which are in acute short supply are lost; when carried by the wind they sometimes cause damage to neighboring fields.

Professor N. A. Fuks acquainted the members of the symposium with the current state of development of the science of aerosols

and noted the promise in the use of self-propelled sprayers "on an air cushion."

Professors S. I. Eydel'shteyn, A. A. Zakomyrdin, and V. M. Tsetlin discussed the use of aerosols in medicine, veterinary work, and sanitation. They stressed that it is necessary to increase the production of hand aerosol tanks. Packings of this type can also be used in plant growing for the insect extermination in hothouses, warehouses, stores, and small sectors.

Mathematical methods for the calculation of wind drift of a pesticide to neighboring fields have been developed and can find wide application (report by the author). They help to determine the optimum dimensions of the protective bands when herbicides are applied from ground and airborne equipment. These methods should be checked by the leading scientific-research institutes.

Problems of automation of the spraying processes were reflected in the reports by V. A. Shumilov, Zh. M. Sudit, N. F. Molchanov and M. I. Shterental, and M. D. Didukha and A. L. Radovitskiy. In spite of the fact that work in this area is only beginning, successful tests are being conducted on models of equipment which make it possible to economize considerable quantities of pesticides. K. A. Krishtof shed light on the state of development of an electrostatic sprayer, which due to the unipolar charging of the droplets and the creation of an external electric field ensures the uniform treatment of the upper and under sides of leaves with small amounts of liquid without its being carried by the wind and practically without its settling on the ground under the plants. Experimental models have already been developed and are undergoing tests.

A. I. Sidorov, K. I. Kazakova, S. F. Bezuglyy, I. D. Pil'menshteyn, and V. P. Trapin discussed the development of the new "gamma" pesticide house pots for insect extermination in warehouses

and liquid preparations - reverse and thickened emulsions - for reducing the drift of pesticides during aerial spraying.

In the reports by L. M. Mondrus, Ya. A. Meysakhovin, Yu. P. Nagirnyy, V. P. Chalyy, Zh. M. Sudit, V. F. Yenar'yev, V. S. Burd, and V. G. Tanin the problems of the theory, calculation, design, and use of orchard and vineyard sprayers were expounded.

N. V. Nikitin and V. A. Sanin communicated on the calculation, design, and use of experimental microvolumetric sprayers which pulverize a liquid into identical droplets with regulated dimensions. These machines (and sprinkling units) are already being used in laboratory and plot tests and production models are undergoing tests.

Yu. G. Logachev, V. N. Florentsev, and Ye. S. Baryshev acquainted the participants with the results of the testing of airborne equipment for the application of granulated chemicals. For moistening the air or the chemical treatment of closed premises the usual process in highly dispersed sprayers is replaced by a reverse process - the main droplets settle out inside the device and only the very fine "companion-drops" are used.

A great deal of interest was caused by the report of K. P. Kutsenyy on the investigation of the mechanism of the toxic effect of a highly dispersed condensed aerosol on insects. This work has been carried on for a number of years at the Institute of Kinetics and Combustion of the Siberian Branc [SO] of the USSR Academy of Sciences (Novosibirsk).

The participants of the symposium adopted resolutions in which the most important tasks were noted.