

European Journal of Plant Pathology



XIII INTERNATIONAL PLANT PROTECTION CONGRESS

THE HAGUE — THE NETHERLANDS — 2-7 JULY 1995

ABSTRACTS

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The effective aerosol treatments against a few kinds of locust and grasshopper have been performed in the 80-s and 90-s in the different regions of the former USSR. The main peculiarity of these treatments was that insecticide aerosols of adjustable sizes (1-30 μm) have been used. The treatments were part of the so-called Optimum Aerosol Technology (OAT) of insecticide application. The technology is based on physical processes of wind turbulent diffusion of aerosol cloud in atmospheric layer near the surface of a treated area. The spatial diffusion is accompanied by inertial and gravitational precipitation of aerosols on insects, on plant leaves, on soil. The efficiencies of the above processes are strongly dependent on aerosol sizes, meteorological parameters of atmosphere, kinds of plants and pest insects, etc. It is possible to provide relatively selective hit of aerosols on insect bodies, but not on leaves or soil. The direct hit of aerosols of optimal sizes just on insects characterizes the fundamental distinction of OAT against aerial and ground spraying.

Special powerful aerosol generators are designed. The generators are installed on trucks and hence are travelling. The generators move on roads along the up-wind edges of the treated areas. The effective widths of treatments vary from 200 to 2000 m, the working rates vary from 200 to 3000 hectares per night. Aerosol treatments are performed at stable or neutral stratification of atmosphere which exist usually at night.

The treatments have been performed against *Calliptamus italicus* (L.), *Chorthippus albomarginatus* (Deg.), *Euchorthippus pulvinatus* (Deg.), *Pararcyptera microptera* (F.d.W.) in Northern Kazakhstan and in West Siberia (60,000 hectares, 1980-82 ,89-92), in Southern Tadjikistan (*Aiolopus thalassinus* (F.), *Acrotyfus insubnicus* (Scop.), *Sphingonotus rubescens* (Walk), 3, 000 hectares, 1983-84), in Yakutia

(*Chorthippus albomarginatus* (Deg.), *Euchorthippus pulvinatus* (Deg.), *Pararcyptera microptera* (F.d.W.), 30,000 hectares, 1992-93). The organophosphorous and pyrethroids (methylparathion, fenvalerate, fluovalinate, etc) have been used. It is obvious that OAT may be used for locust management in the different parts of the world. However it would be desirable to investigate the potentiality of its application against locust before and during their migration. The locusts usually settle on land at night. Taking into account the mobility of aerosol generators and the high working rates of aerosol treatments just at night , one may suppose their effective usage.