

RESEARCHES REGARDING THE EFFECT OF AIR FLOW RATE FOR THE RECYCLING OF PESTICIDES ADMINISTERED WITH SPRAYING MACHINE TARAL 200 PITON TURBO-ER

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Abstract

The growth technologies for orchards and vineyards include a large number of treatments for disease and pest control. Without these treatments the production can be reduced by up to 35% or even totally compromised. The pesticides used for performing phytosanitary treatments are toxic substances that can pollute air, water and soil. In addition to their effect on diseases and pests, the pesticides reaching the soil extend their action over microorganisms, leading to quantitative and qualitative changes in both the edaphical population structure and the physiological activities. In the same time the pesticides fallen on the ground can be transferred, without undergoing significant alterations, into plants, fruits, animals and finally humans, causing various diseases. Pest and disease control using phytosanitary treatments is performed by the means of specialized machines, specially designed for this purpose. The treatments are effective when the size of the dispersed droplets is in the range of tens of micrometers, in order to cover as much of the surface of the leaf system as possible. The pneumatic transportation of the droplets is accompanied by the drift phenomenon, which causes a significant amount of toxic substances to land on the soil. One solution to counteract the effect of drift is to recycle the substance that is not retained by plants. Considering this principle a recycling equipment for vineyards was designed and built; the device prevents soil pollution with the substance which is not retained on the surface of the vineyard leaves. The spraying machine was equipped with air entrainment nozzles, which prevent droplets drift due to the fact that large droplets, filled with air bubbles, are transported towards the leaves. The droplets then break easily when coming into contact with the leaves, thus leading to a better covering of the surface. During the experimental tests the effect of the air flow rate over the recycling process was studied; the TARAL 200 PITON TURBO-ER spraying machine, equipped with an axial fan, was used.

Key words: (air flow, air suction nozzles, axial fan, recycling pesticide, spraying machine)