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REDUCING THE DISPERSION OF SEED COATING PARTICLES CONTAINING NEONICOTINOIDS IN MAIZE SEEDING

DOMENICO PESSINA¹, DAVIDE FACCHINETTI¹

¹D. PESSINA, Department of Ingegneria Agraria – UNIMI, Italy, domenico.pessina@unimi.it

¹D. FACCHINETTI, davide.facchinetti@unimi.it

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ABSTRACT In recent years, especially in Italy, France and Germany, the dust detached during the vacuum seeding from the maize seeds coating (and that of some other crop) based on neonicotinoids caused a wide bee devastation, due to their very high neurotoxicity. The dust had a fallout on vegetation along the field borders; bees fly on to grass and flowers to gather nectar, pollen and morning dew and become poisoned, going basically mad and become lost. Among the different solutions proposed, one of them was to re-direct the air flow coming out of the seeder fan towards the soil surface, in order to limit the dust dispersion. A further improvement was to divide the flow into two parts, by creating a “dual-pipe deflector”, in order to decrease the air velocity, and so to reduce its turbulence. Unfortunately, this solution was found to have a poor result and leading to the adoption of filters. Paper filters seem to be an effective solution, but the right type in terms of density must be accurately selected; moreover, once worn-out, the filters have to be suitably disposed. Based on these findings, water filters seems to be an adequate solution, because they do not require disposal and the effluent material, adequately diluted, could be used in the soil as a pesticide, avoiding any dispersion into the air. Collaboration with the vacuum seeders manufacturers have enabled the elaboration of suitable solutions and are presently being researched under study.

Keywords: bee, neonicotinoids, seeder, water filter.