

NUMERICAL SIMULATION AND EXPERIMENTAL TEST OF SEEDS FLOW IN A DISTRIBUTOR HEAD

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Abstract. In “air drill” planters, the transport of grains is delivered by means of air currents. On these equipments, flexible hoses are used to convey seeds from the hopper to the distributor head, and from there to each sowing bodies. A key component of these systems is the distributor head. With the aim of improving seeds conveying, air-seeds flow behavior is studied in a commercial distributor head. Numerical test are performed using COMSOL®, modelling the fluid through the Navier Stokes equations. Seeds are considered as rigid spheres of uniform size, and its position is computed by using Newtonian second law. The mixing air-particles is considered as a dilute phase flow, where a one way coupling is used. Numerical results are contrasted with tests carried out in laboratory, on a test bench of “air drill” distributors heads. The test bench is placed at the EIM (FCEIA – UNR). This equipment has a seeds hopper, an air blower, and a distributor head with its respective outlet hoses.