FINZ 2015 Abstract - R.J.Connell – Lincoln Agritech

Modelling the spray drift of the Spray jet under an agricultural nozzle and Computational Fluid Dynamic (CFD) Modelling an area with shelterbelts

This talk will focus on analysis of phase Doppler interferometer measurements under an agricultural nozzle to determine the entrained air and particle velocities under a static agricultural spray nozzle in a laboratory. The analysis looks that the distribution of the spray both lengthwise and across the spray and shows the shear layer across the fan and compares it with existing theory. The turbulence generated by the entrainment is also presented as shown by the velocities of particles under 30 microns.

Also presented are CFD modelling of an agricultural nozzle under various wind and forward movement of the sprayer. It shows that the wind entering the fan passes through most of entrained air jet that forms under the nozzle under typical wind and forward speed conditions.

Also presented are issues with the type of computational fluid dynamics model using in modelling an area enclosed with shelterbelts. This shows that a large eddy simulation or detached eddy simulation is needed.