ANAIS
XXXI Congresso Brasileiro da Ciência das Plantas Daninhas 2018 | Rio de Janeiro
DESAFIOS E SUSTENTABILIDADE NO MANEJO DE PLANTAS DANINHAS
27 a 31 de agosto - Riocentro

2,4-D and dicamba drift reduce seed physiological quality on soybean

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The introduction of dicamba and 2,4-D-resistant soybean will increase the use of auxin herbicides for management of the herbicide-resistant weeds, increasing the risk of drift in non-target crops. The field experiment was carried out in 2016/17 to evaluate simulated drift of 2,4-D and dicamba applied at vegetative and reproductive growth stages on soybean (BMX GARRA IPRO). The herbicides 2,4-D and dicamba were applied at 0, 0.77, 1.55, 3.11 and 6.2% of the recommended rate (806 and 480 g ha^{-1}) when soybean was at V_5 and R_2 growth stage. Seed germination and vigor tests were performed, using the paper towel method. The application of auxin herbicides had a negative impact on the germination and vigor of soybean seeds being variable according to the stage of development. 2,4-D applied at high rate in V_5 and R_2 stage resulted in average 9% in germination reduction. The germination averaged 15% lower when treated with high rate of dicamba at V_5 and R_2 stage. Dicamba reduced the soybean vigor seed roughly 19% when applied at R_2 stage and only 8% when applied at V_5 stage. There was no effect on vigor seed observed to 2,4-D applied at V_5 stage, nevertheless, when applies in R_2 stage was reduced by 8% compared to control. The effect of auxin herbicides on the physiological quality of soybean seeds may be related to changes in hormone levels in the seeds.

Palavras-chave: seed germination, seed vigor, growth stages, auxin herbicides

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