# Basis for Modeling Genetic Control of Pod Addition Duration in Soybean. (A03-messina133022-Poster)

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## Abstract:

Crop models have the potential to assist plant breeding and crop management. However, genotypic differences in crop models are paradoxically phenotypic in nature limiting their applicability. The first conceptual attempt to overcome the problem was published in GeneGro, a gene-based modeling approach to predict dry bean growth and development. An E-loci based model that predicts time to flowering in soybeans followed. E-loci also regulate soybean development during the reproductive period; however, it is not known which phases are under E-loci control and their effects on yield components. We provide experimental evidence of genetic control of pod addition duration response to photoperiod in soybean and their effects on pod number. Experimental results were used to develop a gene-based module for CROPGRO-Soybean to predict responses of pod addition duration to photoperiod. The model is being used to discuss the potential effects of E-loci on yield under different environments.

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Soybean, crop modeling, E loci, photoperiod