Genetic control of inflorescence in common bean

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ABSTRACT. The number of pods per common bean plant is a primary component of grain yield, which depends on the number of flowers produced and on the flower set. Thus, a larger number of flowers per plant would increase yield. Lines with inflorescences that had a large number of flowers compared to common bean plants now under cultivation were identified. We analyzed the genetic control of this trait and its association with grain yield. The cultivar BRSMG Talismã was crossed with 2 lines, L.59583 and L.59692, which have a large number of flowers. The F₁, F₂, and F₃ generations were obtained. These generations were assessed together with the parents in a randomized block experimental design with 2 replications. The traits assessed included length of inflorescence, number of pods per inflorescence, number of pods per plant, number of grains per plant, 100-grain weight, and grain yield per plant. Mean genetic components and variance were estimated. The traits length of inflorescence and number of pods per inflorescence exhibited genetic control with predominance that showed an additive effect. In the 2 crosses, genetic control of grain yield and of its primary components showed that the allelic interaction of dominance was high. The wide variability in the traits assessed may be used to increase yield of the common bean plant by increasing the number of flowers on the plant.

Key words: Compound inflorescence; Genetic components; Heritability; Phaseolus vulgaris; Plant breeding