



Diallel analysis of pod yield and 100 seeds weight in peanut (*Arachis hypogaea* L.) using GRIFFING and HAYMAN methods.

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ABSTRACT

Objectives: The lack of information on yield and yield components are an obstacle in peanut (*Arachis hypogaea* L.) breeding for productivity improvement in BURKINA FASO. This work is to elucidate the mode of heritability of genes that govern 100 seed weight and pod yield, and identify the best parents for recommendation in hybridization programs.

Materials and methods: A 6 x 6 full diallel with breeding lines such as GM656, NAMA, PC79-79, AS, SH470P and CN94C; was conducted. Two models were used, one of GRIFFING (1956) and the second of HAYMAN (1954), to detect the general (GCA) and specific (SCA) combining ability. GCA/SCA < 1 for 100 seed weight and GCA / SCA > 1 for pod yield. D-H1 difference reveals existence of an over dominance for 100 seed weight and partial dominance for pods yield. Heritability in the narrow sense is 48.7% for the pod yield and 55.3% for the weight of 100 seeds.

Conclusion and Application of results: These results show that the pod yield is governed by genes with additive effects and non-additive effects with more additivity effects. However, the weight of 100 seed is essentially governed by genes with additive and non-additive effects with a preponderance of non-additive effects and dominance. HAYMAN graphical analysis indicates that CN94C, SH470P, AS have a lot more genes that control pods yield and 100 seed weight. These breeding lines may be recommended in hybridization for improvement of productivity. The importance of Reciprocal effects (RCE) shows that we must consider maternal effects in hybridization for breeding programs. In these programme

Keys word: *Arachis hypogaea* L. Yield; 100 seed weight, General Combining Ability; Specific Combining Ability.