

Progress of Cotton Heterosis Expression Mechanisms

XING Chao-zhu, YU Shu-xun*

(*Cotton Research Institute, CAAS; Key Laboratory of Cotton Genetic Improvement, Ministry of Agriculture, Anyang, Henan 455112, China*)

Abstract: Heterosis is a common phenomenon in biology kingdom. Since the concept "heterosis" was put forward by Shull in 1914, many scientists had studied and discussed utilization of crop heterosis. After maize hybrid was first utilized in field on a large scale in USA in 1930s, heterosis of other crops such as rice, sorghum, rape,

and vegetable etc began to be widely used in production, and had made great achievements in crop breeding by the end of last century, mainly contributed to notable increasing of crop yield. In this paper, expression mechanisms of cotton heterosis were summarized in relation to character heterosis, combining ability analysis, physiological and biochemical study as well as relations between genetic distance and heterosis. The paper also expressed that heterosis expression mechanisms should be studied in gene level.

Key words: cotton; heterosis; expression mechanisms