

Production and Evaluation of Hybrid Soybean*

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I. INTRODUCTION

Hybrids, which exploit the phenomenon termed hybrid vigor or heterosis, have proven to be a practical method of crop improvement. Cross-pollinated or often cross-pollinated crops such as maize, sorghum, pearl millet, rapeseed, onion, and tomato have given substantial yield increases due to the superiority of hybrids over traditionally produced plants. Hybrids in autogamous crops such as rice, wheat, tobacco, and soybean were once considered impractical because of the strict self-pollination mechanisms that discourage cross-pollination. Hybrid rice in China covers more than 50% of the area planted to rice (Virmani 1997, 1999). The hybrid wheat area has fluctuated greatly worldwide, but consistent yield increases from many countries have been achieved (Jordaan et al. 1999).

Hybrid autogamous legumes for commercialization have received limited attention. While nuclear and nuclear-cytoplasmic sterility systems are known in legumes, emphasis has been on their application in recurrent selection methods. Recent efforts have resulted in the development of hybrid pigeonpea (Plant Breeding News 1999b).

Soybean [*Glycine max* (L.) Merr.] is an autogamous legume species. Manual cross-pollination to provide large quantities of hybrid seed is difficult and time consuming. In spite of this, hybrid soybean may become commercially available within the next few years (Plant Breeding News 1999a).