

Kanas Tangsuriyanon 2012: Improvement of Cytoplasmic and Genetic Male Sterility Lines in Corn. Master of Science (Agronomy), Major Field: Agronomy, Department of Agronomy. Thesis Advisor: Associate Professor Choosak Jompuk, Dr.sc.nat. 59 pages.

Male sterility line (A-line), maintainer line (B-line) and restorer line (R-line) are involved to produce the single cross hybrid corn by 3 lines male sterility system. The objectives of this study were to improve new male sterility line and its maintainer line and restorer line from C-cytoplasmic male sterility (C-cms). Ki28C and Ki28N were used as the source of male sterile line and its maintainer line, respectively and these lines were crossed with 52 Kasetsart inbred lines (Ki). The results showed that there were 32 of B-lines and 17 of-R lines. In the advanced generation, 17 of new A-lines were obtained from the cross of Ki28C and Ki. 51 of F<sub>1</sub> hybrid were obtained from the line x tester design of 17 lines and 3 tester lines, namely, Ki21 Ki46 and Ki48. Yield trial was conducted in randomized complete block design (RCB) with 3 replications. The result showed that <sup>A</sup>Ki4-3 and <sup>A</sup>Ki47-1 had high general combining ability (GCA) for grain yield while <sup>A</sup>Ki3-2 and <sup>A</sup>Ki16-3 had high GCA for shelling percentage. For the tester line or R-line, Ki21 had high GCA for grain yield and shelling percentage and it was completely restorer for these new A-line. Moreover, the cross of <sup>A</sup>Ki18-3 x Ki46, <sup>A</sup>Ki46-2 x Ki21 and <sup>A</sup>Ki47-1 x Ki46 had grain yield about 1068, 1074 and 1101 kg/rai, respectively.

---

Student's signature

---

Thesis Advisor's signature