

Jintana Junjerm 2012: Heterosis and Combining Ability for Alpha-tocopherol and Oil Content in Sunflower. Master of Science (Agronomy), Major Field: Agronomy, Department of Agronomy. Thesis Advisor: Miss Buppa Kongsamai, Ph.D. 57 pages.

Hybrid vigor and combining ability for alpha-tocopherol and seed-oil content in sunflower were determined. The 26 hybrid combinations were constructed from 11 parental lines in a diallel mating design II manner. The resultant hybrids were evaluated along with their parents and two standard checks with augmented RCB design at the experimental field of department of Agronomy, Kasetsart University, Kamphaeng Saen, Nakhon Pathom in 2010-2011 growing season. It showed that the general combining ability and specific combining ability effects were significant for both alpha-tocopherol and oil content. The cross HA292xPK101 had the highest in mid parent heterosis and higher parent heterosis of 153 and 91.85%, respectively. PI589886 had the highest general combining ability (GCA) and the cross#13xRHA852 had the highest specific combining ability (SCA). For oil content, it was found that the cross PI564xPI589886 had the highest mid parent heterosis of 16.53% and the cross HA208xPI539905 had the best SCA and higher parent heterosis (12.64%). The highest GCA for oil content had obtained from the HA208. Moreover, it was also found that alpha-tocopherol content had positive correlation with seed oil content ($r=0.49$) but it had negative correlation with 100 seed weight, seed yield, plant height, disc diameter, flowering date and harvesting date. In the same manner, seed oil content was negatively correlated to seed yield and flowering date. It indicates that sunflower breeding for increasing alpha-tocopherol and oil content might affect on the decrease of seed yield.

Student's signature

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