Yaowaman Phakphum 2011: Comparison of Molecular Marker from Different Primer Pairs in Fiber Percentage and Diameter of Sugarcane. Master of Science (Agronomy), Major Field: Agronomy, Department of Agronomy. Thesis Advisor: Associate Professor Rewat Lersrutaiyotin, D.Agr. 68 pages.

Molecular markers of sugarcane were evaluated using AFLP in fiber percentage and stem diameter. Four pairs of primer namely: E-ACT and M-CGG, E-ACT and M-CAT, E-ACC and M-CAG and E-ACT and M-CAA were studied. The 10 high correlation coefficient molecular markers were selected from each primer pair and evaluated by using multiple regression. The total 40 molecular markers from 4 primer pairs were evaluated by using multiple regression. The 10 highest partial regression were selected and evaluated by multiple regression again. The suitable multiple regression equation for fiber percentage were the equation with 1 and 4 marker having 7.80 and 25.00% of R^2 and for stem diameter were the equation with 2 marker having 9.90% of R^2 . Moreover, selection of molecular marker from multiple regression of total molecular marker from all primer pair were the more effective compared to selection of molecular marker from multiple regression of molecular marker from each primer pair and selection of molecular marker from simple regression of each molecular marker.

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