

12th International Conference on

AGRICULTURE AND HORTICULTURE

July 09-10, 2018 Sydney, Australia

Yield potential of promising sugarcane lines/varieties in response to whip smut

Zaheer Ahmad Nazar¹, Idrees Ahmad Nasir² and Hafiz Muhammad Walayat Ali Khan²¹University of the Punjab, Pakistan²Ayub Agriculture Research Center, Pakistan

Determining yield potential of sugarcane lines in terms of their cane weight, height, girth and sugar recovery is essential for their selection in future breeding programs. The performance of 103 promising sugarcane lines/varieties was checked over two successive cropping years under high inoculum conditions for whip smut. During first year of cultivation, 84 sugarcane lines were found highly resistant with only five being susceptible to whip smut. However, 80 sugarcane lines were found highly resistant to whip smut in the ratoon crop. Principal component biplot analysis revealed over all best performance of S.2008-FSD-17, S.2003-US-127, S.2008-US-704 and S.2008-FSD-19 against all the yield traits during both years of plantation while S.2003-US-618 and SPSG-27 showed least performance. Maximum sugar recovery (13%) was recorded in S.2003-US-127, cane weight in S.2011-SL-209 (16.65%), cane height in S. 2008-AUS-190 (3.5 m) and cane girth in SPSG-24 (3.6 cm) while S.2003-US-618 was found highly affected by the whip smut with 74% disease incidence rate among all the studies sugarcane lines/varieties. Further statistical analysis revealed higher estimations of broad sense heritability and genetic advance for the yield traits i.e., cane weight and sugar recovery, which indicated rich potential of using these traits for the development of hybrid and synthetic varieties. These traits were also found more genetically controlled with little to moderate environmental impacts. Moreover, the LSD based ranking of all the sugarcane lines/varieties for their performance against yield traits and smut resistance may help cane breeders in revealing true potential of these sugarcane lines.

Biography

Zaheer Ahmad Nazar is a PhD Scholar at University of the Punjab, Lahore, Pakistan. His thesis entitled "Genetic diversity studies for whip smut tolerance in sugarcane germplasm". He has three research publications to his credit.

zaheerahmadnazar@gmail.com

Notes: