EXPLOITABLE FOREGROUND

New Sweet Sorghum Female Line – POTRANCA

Explanation and Purpose

The lack of parental female lines (lines "A"), specifically selected for characteristics such as high juice and ºBrix, has limited the formation of top hybrids that facilitate seed production and increase the raw material base for bioethanol production. After a previous selection in Marín, México, during spring 2009, Rox Orange was used as source of "B" reaction genes, due to the relative high ºBrix values and sterility performance in different environments.

In spring 2009, Rox Orange was crossed with FAUANL-33, grain sorghum "A" line that was used as source of genetic-cytoplasmic sterility. The backcross was using Rox Orange as a recurrent parent. After the RC_6 backcrossing generation, the new "A" line was identified as POTRANCA. Some characteristics of this A-B pair are: 285 and 246 ml for juice; stem weight 1309 and 1211 g; head weight 144 and 112 g, and 20.3 and 20.0 ºBrix, respectively (data on 0.8 m^2).

Exploitation Strategy

In México, the opportunity of sweet sorghum to produce bioethanol is high. This is because sorghum is already planted on close to 2 million ha and there are potential areas not being used effectively. On the other hand, sugar cane and corn are not possible to be considered to produce bioethanol because the social aspects involved. Therefore, good sweet sorghum hybrids are important and POTRANCA A/B is an option to produce hybrid seeds, as currently commercial female lines, specifically selected for juice and brix, are not available.

IPR Measures

Patent application was initiated at SERVICIO NACIONAL DE INSPECCION Y CERTIFICACION DE SEMILLAS (SNICS), the Mexican National System for registration and certification of seeds.

Further Research

Rox Orange is a variety and the backcrossing process may lead to form lines which are not a hundred percent homozygous. Therefore it may be necessary to evaluate experimental hybrids to measure the variability that may be exist by using different male parents. On the other hand, Rox Orange produces heads that are not big, and the amount of seeds produced is low. Therefore, it is necessary to select large heads from the Rox Orange population and investigate the impact on seed production.

Impact of Exploitation

The commercial use of this POTRANCA A/B pair to produce sweet sorghum hybrids will increase the probability to produce hybrids with higher expression of the characteristics associated with bioethanol production and improve the opportunities to be more productive in a system focused on bioethanol production.

SWEETFUEL

Sweet Sorghum: an alternative energy crop

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