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INTA Segovia, A New Sorghum Variety for the Dry Zones of Nicaragua



INTA Segovia is changing the economic and food security landscape of Nicaragua's dry zones.



The Sandanista Government through the Instituto Nicaraguense de Tecnologia (INTA) officially released the new improved sorghum variety, INTA Segovia on January 14, 2011. This improved variety will benefit the resource-poor farmers that grow sorghum on the hillsides (see photo) in dry zones (40 percent of the land area in Nicaragua). This variety will have a significant economic impact in Nicaragua and in neighboring countries as it produces well in drought prone areas which lack sufficient rainfall for growing maize. INTA Segovia, under drought conditions, produces higher yields than currently grown sorghum varieties. Drought tolerance is due to the large root system and the fact that leaves roll up during dry periods to reduce transpiration.

INTA Segovia as a Key to Food Security in the Nicaraguan 'Zona Seca'

INTA Segovia is a sorgo millón (improved) Maicillo Criollo (native sorghum) photosensitive variety grown in intercropping systems with maize on small, steeply sloping farms where maize matures before the Maicillos begin to flower. Because they are drought tolerant, Maicillos are grown primarily as a food security crop where the grain is used extensively to produce tortillas. The forage and excess grain are valued as animal feed. Due to the limited availability of seed of the improved sorgo millón varieties farmers have been growing varieties that are low yielding, lack seed quality, produce weak plants that are susceptible to insects and diseases and have low drought tolerance. INTA Segovia will solve these problems.

The panicle of sorgo millón produces white grain (center photo left) that serves as a base for nutritious human food products such as tortillas, atole (thin porridge), pan (bread), turrón (nougat) and as a substitute for expensive imported maize. The grain and forage are used as a feed for domestic animals (beef cattle, pigs and poultry).

Research data presented by INTA scientists to farmers at the field day (photo left) indicate that INTA Segovia is



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Rene Clara displays sorghum height



Eva Acevedo, INTA Director

a high yielding grain and forage variety that produces 4,678 kg/ha of grain and 13 tons/ha of forage.

INTA Segovia reaches more than three meters in height (see photo above), produces abundant foliage that is utilized as fresh silage and as hay to feed dairy and beef cattle.

Sorghum is commonly grown as an intercrop with maize in this region and studies indicate that planting sorghum in association with maize had little effect on the yield of maize whereas the locally grown sorghum variety depressed maize yield when grown in association with maize.

INTA Segovia was officially released by Eva Acevedo, INTA Director (see photo above) on January 14, 2011 in a field day at Esteli, Las Segovia Region, Nicaragua.

A Collaborative Effort

In 2001, through a collaborative agreement between INTA, INTSORMIL, Texas A&M University and CENTA (Centro Nacional de Tecnologías Agropecuarias) a sorghum nursery of improved cultivars was evaluated in the 'zona seca' sorghum production areas of Nicaragua by INTA Sorghum breeders Rafael Obando and Nury Gutierrez (photo). The nursery was provided by the



INTSORMIL program and managed by Rene Clara, INTSORMIL Central America Host Country Regional Coordinator based at CENTA in El Salvador. From this nursery a variety EIME 119 (International Test of Dwarf Sorghum) was derived from a sorgo millón variety named "Peloton." EIME 119 was then evaluated in 40 farmers' fields in the municipalities of Esteli, Madriz and Nueva Segovia in Nicaragua.



Atole, a sorghum based porridge



Field day participants clamoring for atole

Diffusion of INTA Segovia

In 2011, certified seed of INTA Segovia will be provided to collaborating farmers in the municipalities of Esteli and Somoto for multiplication. Silverio Rios (photo right) is the leader of an association of farmers who will multiply and diffuse INTA Segovia seed. Since INTA Segovia is a self



pollinated variety farmers can produce their own seed. INTA will train the farmers in the scientific methods of certified seed production. Farmers will plant 2 manzana plots. Seed produced by the farmers will be saved to plant their own fields in 2012 and the excess seed will be sold to other farmers who will continue the diffusion process.

Economic Impact

INTA Segovia has the potential to have a significant impact on the rural economies of the 'zona seca' or dry zones of Nicaragua and the surrounding Central American countries. Sorghum is an important crop in Nicaragua where there are 59,000 ha of sorghum grown by 48,000 producers. Sorghum hectareage occupies 16 percent of the area seeded to basic grains and is considered as a crop of high importance as a food for humans and as a feed for beef and dairy cattle (both as a grain and forage) and for poultry and pigs as a grain. Fifty six percent of the sorghum produced is used as a feed for domestic animals and the remaining 44 percent is used as human food.

INTA scientists report that the economic analysis for INTA Segovia indicates a marginal return of 76 percent over the best current local variety planted by farmers. Thanks to the INTA Sorghum Program, the economic and food security future is bright for the sorghum farmers in the Nicaragua 'zona seca'.

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