716-4 Genetic Improvement of Castor in the Western Hemisphere.

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George R. Brown Convention Center, 370B

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Abstract:

Castor (*Ricinus communis* L.) has the potential to become a premier energy crop across much of the Western Hemisphere. This crop produces seed yields which can range from 1,000 to 3,360 kg/ha that contain from 515 to 1,870 l/ha of oil. The oil of castor contains up to 85% of the unique hydroxy fatty acid, ricinoleic acid, which can be processed to make high value industrial polymers and second generation renewable fuels. With appropriate genotypes, castor can be grown as a high value, cash crop in subsistence agricultural settings across Latin America and as a fully mechanized crop in more developed production areas. However, wide spread commercial production of this crop has been historically limited by toxins found in the seed as well as the need to develop drought tolerant, determinate, disease resistance, and semi-dwarf cultivars. Over the past year, a group of six scientists have developed a collaborative program to address the genetic enhancement of castor. Scientists at Embrapa in Northern Brazil have initiated studies to improve drought tolerance while in Southern Brazil at the Sao Paulo University researchers are developing determinate genotypes with multiple disease tolerance. The research team at Corpoica in Columbia has begun to screen introduced germplasm for high altitude adaptation and improved oil content. Research at Texas A&M has concentrated on introducing castor production as a cash and energy crop in low income regions of Guatemala and as a mechanized oilseed crop in Texas. The team at Texas Tech University has been working for several years to reduce the concentration of ricin and other toxins found in castor seed using both conventional genetics and mutagenesis. This International collaboration between these programs will increase both the efficiency and speed of research in developing Castor as a biofuel feedstock.

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