

## Low Traffic Mechanization for Sugarcane

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Few studies are available on the traffic effect of machinery over some important sustainability factors such as cane yield, soil conservation, trash recovery and fuel consumption. The existing profile of agriculture mechanization has been developed mainly for grain production that covers a worldwide area 25 times larger than sugarcane. The infield logistics of sugarcane production differs largely from grains: the production mass to be handled per hectare over a planting-planting cycle (5 years in Brazil) is about 100 times larger for sugarcane than it is for grains. Tractors and harvesters with narrow axle span travel over 60 % of the soil surface more than 10 times each year on sugarcane whereas on grains the machine traffic is about 15% of that value.

The use of vehicles with wide span axles operating under controlled traffic management is a practical mean of separating the wheeled areas from the cropped (zero traffic) areas. Several 5 to 12 m span vehicles (gantries) have already been used throughout the world for research on crop production. A vehicle, called ETC, having a 9 m axle span was designed by CTBE in partnership with Máquinas Agrícolas Jacto SA, Pedra Agroindustrial and Embrapa for mechanization of the full cycle of sugarcane. The project aims to make no-till farming feasible for sugarcane. The ETC reduces the trafficked area to 15% of present levels and fuel consumption to 60% of present levels. It also involves a new harvesting principle for stalks and trash that would make narrower row spacing feasible and allow for a 5% reduction of harvesting losses. The main resources for precision farming such as auto pilot, yield monitor, precision planting and on-the-go variable rate applicators are also part of the project.

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