

genetic engineering and sugarcane — nitrogen efficiency

an update from the Cooperative Research Centre for Sugar Industry Innovation through Biotechnology (CRC SIIB)

GE is giving sugarcane growers new information and options to grow more sugar from better cane

Sugarcane that uses nitrogen efficiently

New research is uncovering just how the sugarcane plant uses nitrogen (N) fertiliser to make protein and grow. The aim is to find the genes responsible. Genes that provided protein efficiently would be used in a conventional breeding program with existing varieties to produce a nitrogen-efficient plant. The new plant would use less N to make the same amount of sugar. Potential benefits for growers include lower N-fertiliser inputs and costs and less N run-off to rivers and streams.

When too much is not enough

Don't add too much inorganic nitrogen fertiliser – it's not the only source of nutrients for sugarcane! According to recent research, the crop uses and even prefers some forms of organic nitrogen. This means that the organic N from trash and other sources such as legumes in rotation should be considered in the N budget of sugarcane farming, since they provide nitrogen in forms available for the plant. Measuring the amount of organic N needed for best cane growth could pave the way for fewer and lower applications of inorganic fertiliser.

Getting sweeter

Research into why some sugarcane plants are better sugar producers than others is uncovering the role sugar transport and storage plays. The eventual aim is to increase the sugar production efficiency of all cane varieties.

Researchers questioned why some sugarcane plants are better sugar producers than others and hypothesised that they transport and store sugar better. To check this, they isolated the genes responsible for transporting and storing sugar in different varieties to see if differences do exist. Early findings suggest they do and now researchers are homing in on just how these genes affect sugar accumulation.

FIND MORE RESEARCH AT CRC SIIB
www.crcsugar.com