Animal feed from sugarcane bagasse and trash

Global demand for animal products is increasing, with significant growth in demand in Asia, and Australian agriculture is uniquely placed to satisfy these demands. As a result, there is a need to develop new feed ingredients that cost less, are more widely available, and have comparable or enhanced nutritional characteristics relative to existing feed ingredients. Sugar mills burn bagasse to produce heat, steam, and electricity to run their milling operations. Sugarcane trash is left on the paddock. It is possible to feed sugarcane bagasse and trash to animals but this is not done in Australia because they are not very nutritious. The structure and chemistry of the crop residues needs to change to turn bagasse and trash into something that can help an animal grow. This project aims to produce valuable animal feeds from agricultural by-products including bagasse and trash.

Benefits for agriculture: Australian agriculture is set to benefit from the outcomes of the project, with the development of new technologies to enhance the nutritional value of low value crop residues. This will increase the availability and reduce the cost of feed ingredients for animal producers.

Benefits for producers: To produce animal feed, biorefineries will need large quantities of crop residues such as sugarcane, bagasse and trash. Farmers will benefit as sources of these raw ingredients. In turn, this will increase employment opportunities as well as stimulate regional economic development by providing a new income stream for crop producers and processors.
More information about this project

Crop by-products like hay have always been used to feed animals but crop by-products like sugarcane bagasse and trash in their native state are not very nutritious therefore we don’t use them in animal feed. There is also room to improve the nutritional value of crop by-products that we do use for animal feed. We develop the processes to turn these crop by-products into higher value feed ingredients like dietary fiber, sugars, and protein.

The aim is to produce animal feed ingredients from crop by-products like sugarcane bagasse and trash. This happens using three different processes:

(1) Pretreatment to change the structure and chemistry of fibre so that digestibility improves.

(2) Processing to dissolve the sugar polymers in the cell walls and produce a feed syrup with similar properties to molasses.

(3) Solid state and liquid fermentation to produce single cell protein crop by-products and pretreated crop by-products.

Outcomes for industry

- Development of chemical technology to improve fibre digestibility and produce a potential substitute for molasses
- Development of microbial technology for production of high-quality feed protein using cheap feedstocks
- Demonstration of advanced animal feed production at pilot scale
- Development of a new income stream for producers in the Sugar Industry

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Principal partners

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Program partners