COMPANY: Tropicana

(PepsiCo's principal orange juice brand in the US)

PRACTICE

Better application of fertilizer reduces costs, reduces greenhouse gas

Tropicana is working with suppliers to transition fertilizer inputs toward less greenhouse gas-intensive alternatives, aiming to lower footprint of growing oranges by 50%.

PROBLEM

Conventional fertilizers are responsible for a big portion of the carbon footprint of most juices.

- Manufacturing conventional fertilizers uses a great deal of energy.
- Conventional fertilizers release nitrous oxide, a greenhouse gas that has about 300 times the warming power of CO_2.

Also, because fertilizer prices are closely linked to natural-gas costs, farmers are vulnerable to huge price swings, especially if gas begins to be used more frequently for electricity.

DESCRIPTION

Tropicana first understood where the opportunity was through a carbon footprint analysis in conjunction with Columbia University's Earth Institute. The Carbon Trust, a UK government-backed independent organization established to address climate change, certified the footprint, giving PepsiCo a verifiable benchmark against which the company could measure greenhouse gas reduction progress going forward. Tropicana became the first consumer brand in North America to receive this certification.

Tropicana estimated the carbon footprint of its 64-ounce carton of Tropicana Pure Premium Orange Juice to be 1.7 kilograms. Almost 60 percent of the carbon footprint came from growing the oranges—in particular, the manufacture of standard fertilizers used on crops. Transportation and distribution accounted for another 22 percent, packaging accounted for 15 percent, and consumer use and disposal accounted for the remaining three percent. The impacts during the growing stage are mostly a result of grove management and the energy required to process oranges.

In 2010, Tropicana began to collaborate with suppliers to launch a three-year, 7,200-tree pilot project in Florida, which is designed to compare less-carbon intensive fertilizers with standard fertilizer, and measure the impact on tree and soil health and juice quality. The goal was to find out whether the switch could cut Tropicana's carbon footprint without losing crop yield, which would raise overall costs.

Working with a pair of agricultural companies — Yara International and Colorado-based Outlook Resources — PepsiCo tested low-carbon fertilizers at one of its producer farms in Bradenton, Fla. Yara and Outlook Resources are trying to cut carbon by reducing the need for natural gas in their fertilizer.

Yara, the world's largest fertilizer company, is experimenting with calcium-based fertilizer that would almost completely eliminate nitrous oxide emissions, cutting its overall greenhouse-gas impact. The company is also working on improving the energy efficiency of its production plants, which further cuts the carbon attributed to its fertilizer.

Outlook Resources, by contrast, looks to make fertilizer through more renewable resources, eschewing imported natural gas in favor of organic, locally sourced feedstocks. The local sourcing helps cut the carbon emissions associated with transport, while the use of organic and renewable feedstocks like biofuels cuts carbon emissions further. Outlook also

claims that its fertilizer is more efficient, so less of it has to be used — which helps prevent the water pollution associated with fertilizer runoff.

RESULTS

Tropicana expects to have the results of this pilot study soon and plans to deploy an optimized fertilizer solution across its Florida supply base, and globally to citrus and other crop production. If successful, the project could lower the emissions footprint of PepsiCo's citrus growers by as much as 50 percent and reduce the total carbon footprint of Tropicana Pure Premium Orange Juice by up to 20 percent. PepsiCo is also experimenting with the use of low-nitrogen, slow-release fertilizer on potatoes, which will not only reduce the company's footprint, but may also produce potatoes that are more uniform in size and yield more chips per acre.

Other interesting practices at Tropicana:

In 2007, approximately 10 percent of the thermal energy demands at Tropicana's juice manufacturing plant in Ft. Pierce, Florida were derived from landfill gas.

- Tropicana transports a large portion of product across the U.S. using fuel-efficient rail transportation, including 514 refrigerated railcars which are 3 times more fuel efficient than other transportation alternatives.
- Tropicana recycles peel and seeds into cattle feed, preventing more than 700,000 tons of raw peel from entering the landfill waste stream every year.

Tropicana recently launched a recycling initiative with Waste Management and its carton suppliers; this team is working towards increasing the number of cities accepting cartons for recycling.

RESOURCES

Columbia University's Earth Institute, an organization that works with companies to solve big environmental challenges: *http://www.earth.columbia.edu/articles/view/3011*

Time Magazine article on Tropicana's work:
http://www.time.com/time/magazine/article/0,9171,1978783,00.html#ixzz2KRvCYFJN

Vendors:
YaraLiva calcium nitrate is a more efficient fertilizer, requiring less to achieve equal or higher yield and has the potential to decrease the carbon footprint of orange juice production by 50 percent.
http://www.yara.com/products_services/fertilizers/global_brands/yaraliva.aspx.