



Non-Confidential Description On-The-Go Sensor Reads Sugar Content During Harvest

Technology Case: RFT-44

Invention Summary

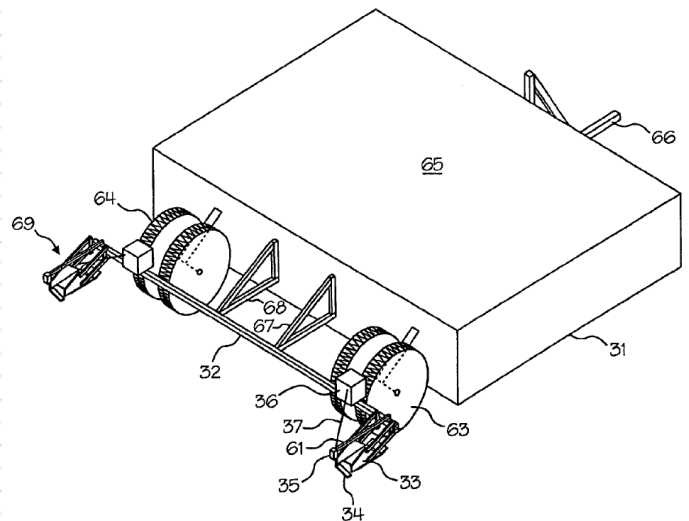
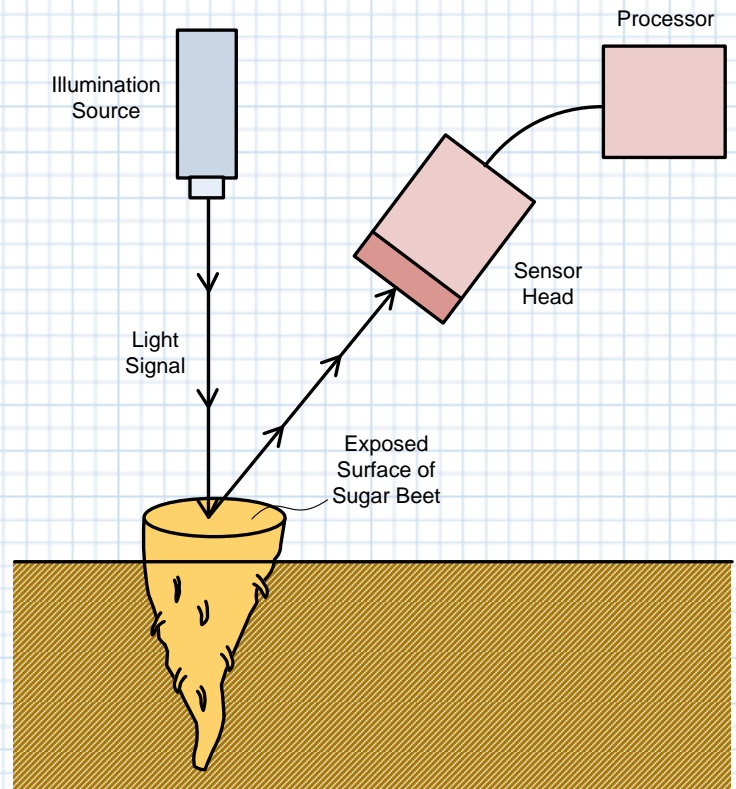
This invention provides a fast, reliable and nondestructive method of determining sugar content during the harvest of sugar beets. This on-the-go sugar content sensor, developed at North Dakota State University, uses optical technology in combination with intelligent information processing techniques to provide sugar content information in real time as the sugar beets are being harvested. By combining the sugar data with the yield information, the producer has unprecedented, site-specific accuracy.

Benefits

- Reliable sugar content readings created as the beets are being harvested.
- Combined with yield mapping techniques, provides accurate site-specific mapping of sugar content.

Invention Premise

- The figure on the right shows a typical sugar beet defoliator used in the harvesting of sugar beets. A knife (34) on the defoliator removes the top or crown of sugar beet roots just before the roots are harvested by a sugar beet lifter. In the present invention, a sensor head (35) and processor (36) are incorporated directly into a sugar beet defoliator mechanism. As shown in the color illustration above, after the knife removes the crown of the sugar beet, a light signal is shown onto the exposed surface and the reflected light signal



is reflected back to the sensor head (35) and the processor (36) processes the signal to determine the sugar content of the beet.

is measured by the sensor head. The quality of the reflected light will be altered based on the amount of sugar present in the sugar beet. Information about the received light signal is sent to the processor, which interprets and processes the signal to determine sugar content information.

Patents

This technology is patented (U.S. Patent No. 6,624,888) and available for exclusive licensing/partnering opportunities.

The Department of Agricultural and Biosystems Engineering at NDSU



This invention was made by Dr. Suranjan Panigrahi, who was a professor for the Department of Agricultural and Biosystems Engineering at NDSU at the time of the invention. The purpose of the Department of Agricultural and Biosystems Engineering at North Dakota State University is to serve as an academic, research, and extension unit engaged in the development and transfer of knowledge or information resulting in usable, economical, and sustainable technologies for enhanced production and utilization of agricultural, food, and other biological products and sustainable management of related environmental resources. The department offers undergraduate programs in Agricultural and Biosystems Engineering (ABEN) and Agricultural Systems Management (ASM). A graduate degree is also offered in the Agricultural and Biosystems Engineering Program.

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