Background: Subsurface Water Retention Technology (SWRT)

Benefits

- **Durable and easy to install:** Water-retaining membranes can last at least 40 years and can be installed quickly and cost-effectively.
- **Enhanced plant and food crop production:** The technology has the ability to immediately improve highly permeable marginal soils converting them to much higher production levels of food crops.
- **Better water resource usage:** Subsoil water retention technology is positioned to improve plant water use efficiencies.
- **Better chemical utilization:** Just as water resource efficiencies are improved by SWRT, so can use of fertilizer and other agricultural chemicals become more efficient.

Applications

- **Agriculture industry:** Most field and horticultural crops.
- **Biomass feedstocks:** Cellulosic biomass crops (e.g. miscanthus and switchgrass) specifically grown for biomass conversion to ethanol and diesel fuels.

Implementation

- Initial field tests conducted on water retention technologies installed in sand soils have more than doubled soil water holding capacities and crop production.
- In Michigan, cabbage and cucumber yields were doubled and potato yields rose 50 percent on earlier subsurface water retention technology-treated soils. *These extraordinary yield increases for vegetables enabled farmers to recover the full cost of water retention membrane installation during the first year of production following installation.*
- The long-term investment of this zero-maintenance water conservation technology promises high return on investment for growers using irrigation and/or rain-fed agriculture along with improved soil quality and other ecological benefits.

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