From the Ground Up: Soil Best Management Practices for Vegetable Production on a Rooftop Farm

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NEED
As the demand for high quality, local produce rises, urban farming has become an attractive option. With limited space in cities, many are turning to rooftops. But factors like a lack of soil, water supply and roof-bearing capacity and managing nutrient leachate from soil must be addressed for rooftop farming to succeed. Once a fertile soil mix is placed on the roof, it can create a potential problem for downstream waters. An optimal soil mix is key to maintaining yield and quality, minimizing leachate and optimizing efficient inputs of irrigation and fertilizer.

APPROACH
Thomas Whitlow and his team partnered with the Brooklyn Grange, a rooftop farming operation that currently raises vegetables on two roofs in New York City. The team installed equipment to monitor precipitation, drainage and water quality of the leachate. The team also compared novel soil mixes with the mix currently used by the Brooklyn Grange. This mix was originally developed for extensive green roofs which use drought-tolerant plants and was not intended for agricultural production. It drains rapidly and requires frequent irrigation.

IMPACT
This study has made substantial improvements in the efficiency and sustainability of rooftop farming. The team’s monitoring system allowed the Grange to reduce its water use by 20 percent, with parallel reductions in leachate and drainage to storm sewers. The team’s new soil mix increased yield dramatically while maintaining quality. This new soil will be used on a new farm slated to begin production in the 2018-19 production cycle.

Related information: Brooklyn Grange Rooftop Farms