**BRC Science Highlight**

**Improved Genomic Reference Database for Microbes in Soils**

**Background/objective**
Our ability to characterize soil microbiomes relies on having a high-quality reference to compare what we observe to previously characterized microbes. This publication expands a genome reference database that was curated to describe bacteria that were previously isolated from soil environments. Specifically, we describe soil-associated plasmids that can transfer genes, like those associated with nitrogen fixation, from varying host bacteria.

**Approach**
- Plasmid genes associated with soil bacterial genomes were characterized by their sizes, gene content, and distribution in various types of soils.

**Results**
- Many of the organisms in the soil contain plasmids (see figure).
- Soil plasmids are generally larger than other described plasmids.
- We observed a weak relationship between chromosome size and plasmid size, and no relationship between chromosome size and plasmid number, suggesting that genomic traits are independent in soil.

**Significance**
- We provide a specialized resource for soil microbiome studies so that functional content, host associations, and dynamics between soil microbes can be better understood.