**In 200 words, describe the contribution of your manuscript to the research field. You should frame the research question(s) addressed in your work in the context of current knowledge, highlighting how the findings contribute to progress in your research discipline.**

We are pleased to submit our manuscript “Characterization of the USDA *Cucurbita pepo*, *C. moschata*, and *C. maxima* Germplasm Collections” for publishing in Frontiers Plant Science – Functional and Applied Plant Genomics for the research topic New Germplasm Resources, Biotechnologies, and Their Applications in Vegetable Research. This paper presents work from the analysis of three *Cucurbita* ssp. USDA germplasm collections. Findings include new insights into *Cucurbita* diversity such as geographical sources of diversity and the role of secondary centers of diversity. Genome-wide association studies (GWAS) were conducted using both historical and contemporary data, which confirmed the role of the bush (*Bu*) gene in diverse accessions of *C. pepo*. Synteny analysis in *C. pepo* and *C. maxima* demonstrated the power of cross-species comparisons in *Cucurbita*. Analysis of genomic heritability, together with population structure and GWAS results, was used to demonstrate a close alignment of seed size in *C. pepo*, maturity in *C. moschata*, and plant habit in *C. maxima* with genetic subgroups. These data represent a large, valuable collection of sequenced *Cucurbita.* More generally, our work highlights the opportunities and pitfalls, along with solutions, to utilizing crop diversity panels.