A survey was conducted in 2021 to determine the initial job placement of new plant breeding Ph.D. graduates. The primary objective was to determine the distribution of new graduates accepting employment in private industry vs. the public sector. Briefly a request was distributed initially to “agronomy and horticultural” department heads at 1862 Land Grant Universities (LGU), 1890 LGU, and other universities that grant graduate degrees pertaining to plant breeding. A total of 120 departments at 87 universities were contacted. Of those, 68 responded with 53 having a Ph.D. degree in plant breeding (or a generic name with a plant breeding emphasis) and 36 of the 53 having awarded Ph.D. degrees in plant breeding during the five-year time frame of the survey, academic year (AY) 2015–2016 through AY 2019–2020.

A total of 477 Ph.D. degrees were awarded by these 36 universities during this time frame with 210 accepting employment in private industry, 228 accepting employment in the public sector, and 39 either unknown or not having employment at the time of graduation. Note that post-doc positions were to be identified as public sector since most, if not all, would be at universities or with USDA-ARS. Thus, 44% of the new Ph.D. plant breeders went to private industry, 48% went to public employment, and 8% were either unknown or unemployed at graduation. There was no attempt to determine if the graduates entered the workforce in a plant breeding position or in a related position.

Value Recognized, but with Unequal Education Distribution

Concern has been expressed for several years that LGU and other agricultural universities were not replacing retiring plant breeders.

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The data also suggests that university education in plant breeding is not equally distributed across these universities. The 10 universities producing the most Ph.D. plant breeding graduates produced 60% of all Ph.D.’s (288 of 477—Table 1) while 17 of the 53 institutions with a Ph.D. in plant breeding produced 40% of the total Ph.D.’s (191 of 477). The data also suggests that U.S. universities do recognize the value of plant breeders in educating the next generation in this cornerstone arena of American agriculture and in cultivar/germplasm development. It must be noted, however, that the definition of plant breeder is evolving; today it includes not only the traditional phenotypic plant breeders who utilize Mendelian principles and classical genetics in crop improvement, but also molecular geneticists whose contributions extend the profession of plant breeding into genomics, genotyping, gene editing, etc. The advent of high-throughput phenotyping, artificial intelligence, and drone technology will further expand the areas of expertise that will fit under the umbrella of plant breeding.

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(continued on page 38)
“One benefit of improving your science communication is that it helps you write grants that are easier to understand for your funding bodies. Even including some of your photographic comparisons can liven up a grant and get it more attention.”

—Susan Fisk, Director of Public and Science Communications for ACSESS

Even though science communication is considered extension or outreach, one of the foundational pillars of land grant institutions, graduate students might feel unprepared to communicate to the public or do not see it as their responsibility. In a somewhat cyclical relationship, what the media covers will reflect what the public typically perceives as important. There is not a one-size-fits-all way to translate our research. We invite our fellow graduate students to use these insights as a starting point to actively place their research on the media's agenda to deliver accurate findings, increase research's saliency, and in the long term, increase public interest, support, and government funds.

Initial Employment of Plant Breeding Ph.D. Graduates, 2015–2020
(continued from page 33)

plant breeding degree available graduated no Ph.D.’s in plant breeding during the five-year time frame. Fourteen of the 36 universities granting plant breeding Ph.D.’s averaged one or fewer Ph.D. plant breeding graduates per year from AY 2015–2016 through AY 2019–2020. If one assumes that universities that graduated several plant breeding Ph.D.’s had more plant breeding teaching faculty than universities that graduated none or few Ph.D.’s in this survey, then one could assume that the subject matter breadth and depth of plant breeding courses vary considerably across the United States. The PBCC continues to explore ways to share teaching expertise across universities.