

Agricultural Teacher Preparation Program Capacity in the AAAE Western Region

Michael Spiess
Professor Emeritus
California State University, Chico
College of Agriculture
Chico, CA 95929-0310
(530) 521-6866
mspiess@csuchico.edu

Rebecca Lawver
Department Head & Professor
Applied Sciences, Technology and Education
Utah State University
1498 N 800 E | ASTE 101C
UMC 2300
Logan, UT 84321
(435) 797-1254
rebecca.lawver@usu.edu

Amy R. Smith
Associate Professor and Program Leader
University of Minnesota
146 Ruttan Hall
St. Paul, MN 55108
(612) 624-6590
arsmith@umn.edu

Daniel Foster
Associate Professor
The Pennsylvania State University
212 Ferguson Building
University Park, PA 16802
(814) 863-0192
foster@psu.edu

Agricultural Teacher Preparation Program Capacity in the AAAE Western Region

Introduction

The U.S. continues to face a shortage of qualified school-based agricultural education (SBAE) teachers. Teacher preparation institutions are a key supplier of SBAE teachers. The ability of teacher preparation institutions to attract students, have the capacity to train them, and place them in teaching positions (yield) are important factors in the supply of new teachers. The capacity to train teachers is a function of faculty resources and the requirements of licensure programs. Teacher training programs are faculty intensive since they commonly contain activity-based classes and supervised internships. Trends in faculty capacity to provide SBAE teachers provide insight into the future supply of SBAE teachers. Since 1965 the American Association for Agricultural Education (AAAE) has been collecting data on SBAE teacher supply and demand. Between 1995 and 2009 nationally agricultural education full-time equivalent faculty (FTEF) decreased 21% and program completers (PC) increased 4% (Camp et.al, 2002, Kantrovich, 2007, 2010). The American Association for Agricultural Education (AAAE) Western Region includes the states of Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming. In the Western Region there are 18 teacher preparation institutions. Twelve are land grant institutions and six are non-land grant institutions. Sources of new hires include PC and alternative licensed teachers. Darling-Hammond & Baratz-Snowden (2007) stress the importance of teacher preparation for successful instruction. When the supply of PC is insufficient to meet demand, more positions are filled with alternatively licensed teachers.

Conceptual Framework

The conceptual framework for the National Supply and Demand (NSD) study (Lawver et.al., 2018) identifies factors contributing to SBAE teacher supply and demand. PC are one component of the supply side of the model. This research explores the changes in the capacity of teacher education programs to fulfill the demand. This analysis in the AAAE Western Region seeks to answer the following questions: 1) What is the trend for hires filled by agricultural teacher preparation program completers (PC)?; 2) What is the trend in full-time equivalent faculty (FTEF) that support teacher preparation programs?; 3) What is the trend in ranked faculty (assistant, associate, and full professors)?; and 4) Are their differences in land grant and non-land grant institutions?

Methods

The NSD study utilizes a census survey of agricultural education state staff and faculty contacts at agricultural education teacher preparation programs. The NSD study annually collects information on the sources of new hires from state staff and every three years on teacher preparation faculty from teacher preparation institutions. Response rates for state staff, providing demand data average 83% and response rates for teacher preparation programs providing supply data average 88% (Foster et. al. 2024). This study examined the data for 2014, 2017, 2020, and 2023. These are the years when faculty data were collected. Data analysis was performed using Microsoft Excel.

Results

As demand increases, the trend in SBAE teacher hiring has been a steady decline in positions filled by PCs (Table 1). PC have increased by 20% over the period and yield (% of PC taking SBAE teaching jobs) is up by 9%, but this has not kept pace with demand which increased over threefold. This has led to more positions being filled with alternatively licensed teachers. FTEF has declined by 24% over the period (Table 2). There has been a notable shift away from ranked faculty as the percentage of ranked faculty declined 10%. The effect of the decrease in faculty and the increase of PC is to raise the PC/Faculty ratios. Overall PC/FTEF has gone up 58% and PC/Ranked Faculty has increased by 81% over the period. In the Western Region, 33% of the preparation institutions are non-land grant. Land grant institutions supplied 53% of the PCs (Table 3).

Table 1. Demand and New Hires

	2014	2017	2020	2023
States Reporting (13 possible)	10	12	11	10
Demand	74	86	155	252
Percent PC of New Hires	71%	56%	69%	49%

Note: Idaho was omitted from Percent PC of New Hires due to bad data.

Table 2. Faculty

	2014	2017	2020	2023
Institutions Reporting (18 possible)	17	14	14	16
PC	112	112	147	135
Yield	69%	75%	74%	78%
FTEF	46.45	31.90	34.96	35.55
% Ranked Faculty	66%	74%	64%	56%
PC/FTEF	2.4	3.5	4.2	3.8
PC/Ranked Faculty	3.7	4.7	6.6	6.7

Table 3. Institution Type

Year	PC/FTEF		% Ranked		PC	
	NLG	Land Grant	NLG	Land Grant	NLG	Land Grant
2014	2.3	2.6	82%	67%	49	63
2017	4.4	3.0	90%	69%	52	60
2020	5.2	3.6	82%	55%	70	77
2023	4.1	3.6	76%	56%	69	66

Conclusions/Implications

PC production is up and yields are increasing providing an increased supply of PC, however, this is not keeping up with demand. PC faculty ratios are climbing. At some point capacity will simply reach maximum as classes fill and the supervision load becomes too large. All types of institutions are moving towards lower ratios of ranked faculty to total FTEF. Land grant institutions are shifting to having less ranked faculty at a faster rate than non-land grant institutions. A reduction in ranked faculty is likely to reduce continuity and increase faculty turnover in teacher preparation programs.

References

- Camp, W. G., Broyles, T., & Skelton, N. S. (2002). *The 34th volume of a national study of the supply and demand for teachers of agricultural education 199-2001*. Blacksburg, VA: Virginia Polytechnic Institute and State University. American Association for Agricultural Education.
- Darling-Hammond, L., & Baratz-Snowden, J. (2007). *A Good Teacher in Every Classroom: Preparing the Highly Qualified Teachers Our Children Deserve*. Educational Horizons, 85(2), 111–132. <http://www.jstor.org/stable/42926597>
- Foster, D. D., Smith, A. R., Lawver, R. G., & Spiess, M. (2024). *National Agricultural Education Supply and Demand Project [data set]*. American Association for Agricultural Education. <http://aaae.agedweb.org/nsd>.
- Kantrovich, A. J. (2007). *The 35th volume of a national study of the supply and demand for teachers of agricultural education 2004-2006*. West Olive, MI: Michigan State University. American Association for Agricultural Education.
- Kantrovich, A. J. (2010). *The 36th volume of a national study of the supply and demand for teachers of agricultural education 2006-2009*. West Olive, MI: Michigan State University. American Association for Agricultural Education
- Lawver, R. G., Foster, D. D., & Smith, A. R. (2018). *Status of the U.S. Supply and Demand for Teachers of Agricultural Education, 2014 - 2016*. <http://aaaeonline.org/Teacher-Supply-and-Demand>