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## **Bridging the gap: Integrating practical training in agricultural higher education — A comparative study of Uganda, Germany, and the USA**

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### **Abstract**

In many fields of tertiary education, there has been a clear trend toward increasingly academic and theory-focused curricula, often at the expense of practical, hands-on learning. This shift is particularly evident in agricultural education. While the number of graduates holding bachelor's and master's degrees continues to grow, the availability of skilled, practically trained agricultural workers has diminished significantly. This growing gap between academic training and practical labour force needs poses a serious challenge to the agricultural sector, which relies on operational and scientific knowledge to ensure food security and drive sustainable development. Strengthening the role of applied training within university programmes is therefore essential to align educational outcomes with real-world labour demands.

This study compares agricultural education systems in Uganda, Germany, and the United States, with a specific focus on how farm placements are integrated into university curricula. Surveys were conducted among students at Mountains of the Moon University in Uganda, Weihenstephan-Triesdorf University of Applied Sciences in Germany and the University of California, Davis in the USA. Data collection also included expert interviews and curriculum reviews to evaluate the strengths and weaknesses of each system.

The German model is notable for its integration of practical training, anchored in a long-standing vocational education and training system. This dual approach effectively bridges the gap between academic education and hands-on agricultural practice. In contrast, Uganda is in the process of developing comparable structures through its Technical and Vocational Education and Training reforms. However, major challenges remain, including the establishment of consistent collaboration between universities and farms, consistent student and trainer guidelines and remuneration issues. The United States adopts a different approach, with a strong emphasis on academic instruction and primarily campus-based laboratory work as practical elements. Nevertheless, the presence of a well-developed agricultural extension service facilitates ongoing interaction between universities and farming communities.

The findings suggest that integrating the most effective aspects of each system could significantly enhance agricultural education. A balanced combination of theoretical knowledge and practical skills would not only improve students' employability and career prospects but also strengthen the agricultural sector through applied research, knowledge transfer, and extension services.

**Keywords:** Agricultural higher education, comparative study, curriculum development, practical training, student placements, Uganda, vocational education