TACTICAL SCIENCE ASSESSMENT: WORKFORCE DEVELOPMENT AND SUCCESSION PLANNING

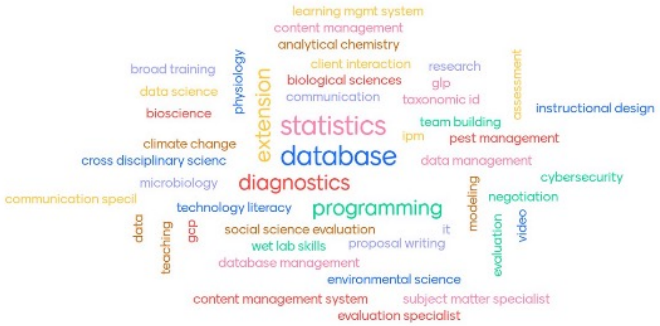
PROGRAMS WITH SHARED CONCERNS:

- *National Plant Diagnostic Network (NPDN)*
- *National Animal Health Laboratory Network (NAHLN)*
- *Inter-Regional Project #4 (IR-4)*
- *Minor Use Animal Drug Program (MUADP)*
- *Crop Protection and Pest Management Programs – Extension Implementation Program (EIP)*
- *Regional Integrated Pest Management Centers (RIPMC)*
- *Extension Disaster and Education Network (EDEN)*

A panel of program representatives expressed deep concern about the future pipeline of scientists and leaders in tactical sciences. They noted that tactical sciences — fields critical to addressing real-world challenges — receive limited emphasis in undergraduate and graduate education. This lack of visibility raises questions about where the next generation of experts and program leaders will come from, especially as current leadership consists largely of those who helped build these programs from the ground up.

Tactical science programs are closely aligned with Extension activities, serving the public, producers, industry, and other stakeholders through applied research and outreach. To address emerging needs, a focus group explored key priorities, illustrated in the following word clouds. One major recommendation was to create opportunities for students and early-career professionals to engage directly with tactical science labs and programs — ideally through internships. These experiences, they argued, foster a sense of purpose and satisfaction by allowing participants to contribute meaningfully to the public good.

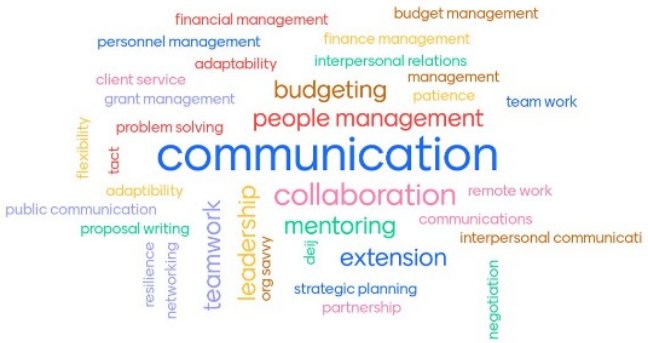
When asked, "What technical skills will be essential for the next generation," data management stood out as the



Skills identified as needs for the next generation to work in biosecurity.

top priority. Other vital skills included diagnostics, analytical chemistry, pest biology, and pest management — each tied to the specific scientific domains within tactical programs. Equally important were cross-cutting competencies such as communication, social science literacy, and proposal writing. In the information age, scientists must not only generate data but also curate and analyze it for biological and economic relevance.

Among the most critical non-technical skills, Communication emerged soundly as most important — interestingly, it was also rated as a technical skill. Participants emphasized that success in tactical sciences hinges on the ability to manage teams, mentor others, budget effectively, and lead with vision. Collaboration is essential. As one participant noted, "We can know everything about a biosecurity threat, but if we can't mobilize our team or inspire the public to act, we've already failed."

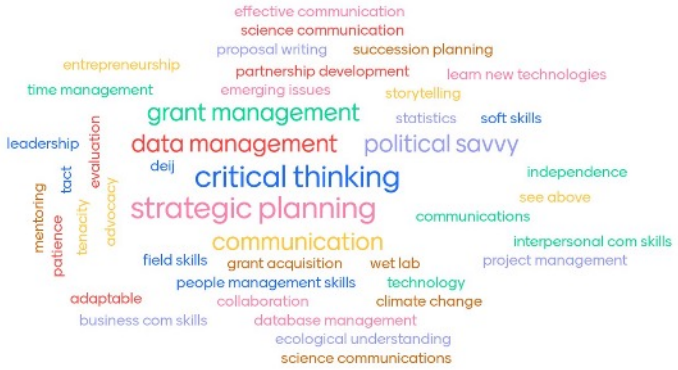


The most critical non-technical skills needed from the next generation to work in biosecurity.

The focus group identified critical thinking and strategic planning as the most essential competencies for future scientists. In a world of limited resources and unpredictable challenges, the ability to evaluate options, anticipate contingencies, and prioritize effectively is indispensable. Poor planning could lead to costly miscalculations.

Leadership was consistently ranked above technical expertise as a priority for the next generation. Decision-making will be paramount. Yet participants voiced skepticism about their ability to cultivate future leaders. Opinions were split on the urgency of succession planning — some saw it as critically important, others as only somewhat so. Programs that felt less urgency had already begun transitioning leadership responsibilities to emerging leaders. However, most participants agreed they lacked the time, personnel, and funding to adequately prepare successors or implement a robust succession strategy.

Few examples exist where leadership is effectively shared across programs. Most leaders juggle both technical and managerial responsibilities. In some cases, collaboration is already underway — such as between state IPM programs (EIP) and Regional IPM Centers (RIPMC) — with coordination facilitated by the National IPM Coordinating Committee.



The most essential competencies for the next generation to work in biosecurity.

RECOMMENDATIONS FOR NIFA:

- Develop competitive programs that train the next generation of tactical scientists in laboratory settings.
- Consider explicitly incorporating biosecurity internships into the "Developing Pathways" section of the AFRI Education and Workforce Development Program.

TACTICAL SCIENCES NETWORK

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