



**Science
Societies**

From field data to better decisions: A new certificate in on-farm precision experimentation

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Better recommendations start with better evidence. The new Applied On-Farm Precision Experimentation certificate equips growers, CCAs, and precision ag professionals with the skills to design valid field trials, interpret results, and make more

confident management decisions.

In addition to the certificate, those who complete the seven-module course will earn 7.0 CEUs (Precision Agriculture for CCA/CPAg and Professional Meetings for CPSS/CPSC).

The future of precision agriculture depends on more than collecting data. It depends on asking the right questions, designing meaningful trials, and turning field-level results into decisions growers can use. The new *Applied Principles of On-Farm Precision Experimentation (OFPE)* certificate program provides a practical pathway for building those skills.

Learning through the entire trial cycle

Across seven modules, the course teaches participants how to design, implement, and interpret scientifically valid on-farm trials using the free, USDA–NRCS–funded DIFM (Data–Intensive Farm Management) platform. Learners move through the complete workflow: understanding variable–rate machinery and file types; comparing strip and checkerboard designs; accounting for randomization, replication, field variability, and equipment constraints; and creating machine–ready trial designs in DIFM.

The learning then follows the trial into the field. Participants practice uploading prescriptions to equipment monitors, calibrating harvesters, tagging yield data correctly, and extracting and cleaning post–harvest data. The modules also focus on verifying as–applied maps, reading yield response curves, interpreting outcomes, and translating findings into actionable, return–on–investment recommendations for growers.

Why this course matters

Precision agriculture tools can generate large volumes of information, but useful decisions require reliable experiments and high–quality data. Poor trial design, equipment setup, calibration, or data handling can make results difficult to trust. This course connects agronomic principles, statistical validity, machinery, software, and economic interpretation so participants can evaluate practices under real farm conditions rather than relying only on generalized recommendations.

“Agricultural trials aren’t new, but using them well still isn’t automatic,” says Aaron Sundquist, Project Coordinator and Field Trials Supervisor for OFPE/DIFM. “This course closes that gap. Across the modules, participants learn how to use DIFM from design through harvest on the equipment they already run and how to turn those results into ROI

decisions on their own fields. The course offers a complete process, not just another layer of data, an end-to-end path to an actionable insight.”



Aaron Sundquist



Replicated strip trials allow you to compare management practices under real-world field conditions, generating field-specific data that can support more confident agronomic and economic decisions.

Photo courtesy of Corteva Agriscience.

That capability matters for questions involving input rates, management strategies, field variability, and return on investment.

Well-designed on-farm trials can help growers and their advisers understand what works, where it works, and whether the outcome justifies a change in practice. The

OFPE certificate equips learners to make that process more rigorous, repeatable, and useful.

Who the course is for

The certificate is designed for growers who want to test management decisions with their own fields and equipment; agronomists and Certified Crop Advisers who support data-informed recommendations; precision agriculture specialists and ag industry professionals who work with machinery, prescriptions, and field data; and students or educators seeking applied experience with on-farm research methods.

"The technology to test a rate or practice is already in the cab," says Devon Russell, Project Director for OFPE, Mitchell Technical College. "Growers use it every day to apply a prescription; they can also use it to run a real experiment on their own acres. This course is for growers, CCAs, and students who need a repeatable way to test a decision on their own ground—not a regional average, but what's best on *this* field. Precision ag can tell you what happened. A well-designed trial can tell you what to do next and whether the change pays."

What participants will be able to do



Devon Russell

- Configure variable-rate equipment and troubleshoot common file-transfer issues
- Design replicated, statistically valid on-farm trials
- Build machine-executable trial designs in DIFM
- Calibrate equipment and capture accurate harvest data
- Clean and process raw yield data
- Interpret results and communicate ROI-based recommendations

Accessible professional development

Participants who complete the seven-module course earn a certificate in Applied On-Farm Precision Experimentation. The course provides 7.0 Precision Agriculture CEUs for CCA/CPAg professionals and 7.0 Professional Meetings CEUs for CPSS/CPSC professionals. It is free for all members and certified professionals.

The instructional team brings experience in field trials, precision agriculture, and agricultural education: Aaron Sundquist, Project Coordinator and Field Trials Supervisor for OFPE/DIFM; Devon Russell, Project Director for OFPE at Mitchell Technical College; Andrew Leggett, Agriculture Instructor at Blue Mountain Community College; Jim Uphaus, Agriculture Instructor at Rhodes State College; and Charlie Mitsdarfer, Agriculture Faculty at Parkland College.

For professionals who want to move from collecting field data to conducting defensible experiments and making clearer recommendations, the OFPE certificate offers an applied, end-to-end learning experience. [Explore the course and enroll today!](#)

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