

Bridging IPM research, education and practice through on-farm demonstrations

AT A GLANCE

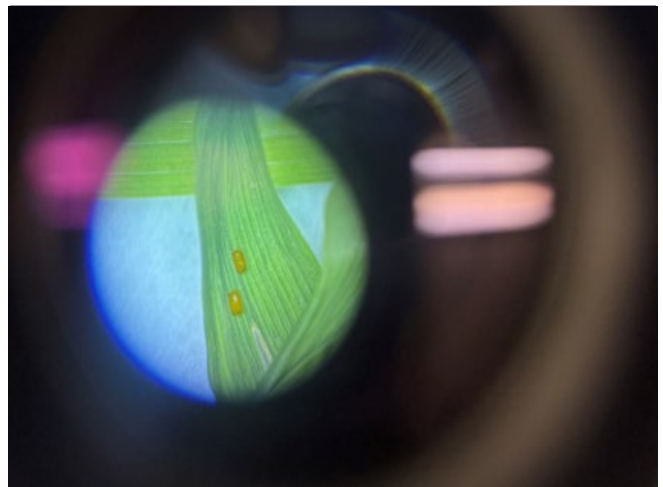
Extension-led IPM education improved cereal leaf beetle management in barley. Growers reduced pesticide use by 80%, while maintaining yields and conserving beneficials in cereal cropping systems.

The Situation

In November 2023, a Payette County barley grower contacted University of Idaho Extension after noticing silvery leaves and yield loss initially attributed to frost but later confirmed as cereal leaf beetle (CLB) damage. Once largely suppressed by the parasitoid wasp *Tetrastichus julis*, the pest's reappearance highlighted the need for renewed integrated pest management (IPM) education and early detection. Post-harvest soil tests revealed low fertility and uneven irrigation, suggesting crop stress may have increased vulnerability to pest injury. The situation required an Extension response focused on accurate diagnosis, monitoring and sustainable management.

Our Response

A feasibility study was conducted in Payette County during 2024-2025 to strengthen grower adoption of IPM through field-based education. Seven barley fields (two fall-seeded and five spring-seeded) were scouted weekly and CLB development was tracked using AgriMet temperature data and growing degree-day (GDD) models. Rather than a traditional research trial, the project demonstrated practical IPM implementa-



Cereal leaf beetle eggs are the best indicator of adult activity and the optimal time to begin scouting.

tion under commercial production conditions. Through field visits and hands-on observations, the Extension educator guided the grower in applying the IPM pyramid by:

- Accurately identifying cereal leaf beetles and distinguishing life stages.
- Implementing routine field scouting and using degree-day models to monitor pest development.
- Assessing pest populations against economic thresholds before intervention.
- Making management decisions based on field observations, risk assessment and evidence rather than assumptions.

Program Outcomes

Field observations confirmed the activity of biocontrol wasps and ladybird beetles, reinforcing the value of conserving beneficial insects within IPM programs. The demonstration also highlighted how soil fertility and irrigation management support crop vigor, resilience and IPM success.

Table 1. Pest pressure summary

Field ID/ Planting time	Soil organic matter (%)/nitrate-N (ppm)/ irrigation uniformity	CLB larva(ft ²)	Action taken
A (Late Oct 2024)	1.2/8/low	>3	Treated before adult peak
B (Early Nov 2024)	1.5/10/moderate	≈1	No spray- below threshold
C-G	1.8-2.0/12-18/high	≤1/leaf	No spray

Growers used GDD models and field scouting to identify a local CLB larval activity window of approximately 360-420 GDD, improving intervention timing. As a result, growers transitioned from calendar-based pesticide applications to threshold-based, data-driven IPM approaches, reducing insecticide applications by more than 80% without yield loss. Project observations and the CLB GDD model were incorporated into the PNW Pest Alert Network [GDD Calculator](#), expanding access to locally relevant decision-support tools. This also strengthened Idaho-Oregon collaborations and demonstrated Extension's role in connecting grower experience with science-based decision-making.

In May 2026, a participating grower applied knowledge gained through this project to help another producer identify cereal leaf beetle and access IPM resources, demonstrating peer-to-peer adoption of Extension education and science-based management practices.

FOR MORE INFORMATION

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Table 2. GDD and pest activity timeline

GDD range	CLB life stage	Observed period (2025)	Recommended action
200-300	Adult emergence	Late April	Begin scouting for adults and egg laying
360-420	Larval feeding peak	Early May	Assess thresholds; consider management
500-900	Pupal stage	May-June	Cease insecticide use; monitor soil pupation
>900	New adults	June	No management needed; record observations

Table 3. Relationship between soil health, irrigation practices and cereal leaf beetle pressure in Payette County barley fields, 2025

Indicator	Before project	After Extension intervention	Change/impact
Pest identification accuracy	Low	High	Improved through Extension scouting training
Field sprayed prophylactically	7/7	1/7	>80% reduction
Natural enemies documented	None	<i>T. julis</i> , lady beetles	Confirmed active biocontrol
Fertility and irrigation practices	Inconsistent	Resources and recommendations	Advised to enhance soil resilience
Decision-making method	Calendar-based	GDD/threshold-based	Data-driven, evidence based

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