2026 Strategic Research Initiative Project

January, 2026

Sustainable Canadian Agricultural Partnership

Saskatchewan

Canada

Strategic Research Initiative (SRI) 2026

- **One** project was funded through SRI for a total of **$2,500,000**.
- **Six** industry partners co-funded the project for a total of **$734,263.**

A Long-term Management Plan for Herbicide-Resistant Kochia and Wild Oat (*20251529*)

Principal Investigator: Shaun M. Sharpe, Agriculture and Agri-Food Canada
Objectives:

- Test whether planting perennial forage crops can help control kochia patches in less productive areas of crop fields.
- Identify the best mix of weed control practices for kochia and wild oat that give farmers the highest return on investment within a single growing season.
- Study how crop rotation and diverse crop lifecycles affect the long-term spread of kochia resistant to multiple herbicides.
- Develop strategies that combine crop competition, tillage, and pre-emergence herbicides to quickly control outbreaks of herbicide-resistant kochia.
- Examine how two herbicides – fenoxaprop and pinoxaden – work together to manage wild oat that is resistant or susceptible to group 1 herbicides.
- Analyze the surface wax of kochia and wild oat to understand how it affects herbicide performance and identify genes that could be targeted to change wax properties.
- Explore the use of RNA interference technology to control wild oat both during the crop season and before planting.
- Analyze the metabolite and protein profiles of herbicide resistant kochia and wild oat to uncover how resistance develops and create a high throughput screening method to monitor non-target site resistance.
- Assess the extent of triallate-resistant wild oat across the Canadian prairies and its link to resistance against another herbicide, pyroxasulfone.
- Develop site-specific, scalable tools including deep learning models using unmanned aerial vehicles and satellite-based methods. These tools will detect HR kochia and wild oat patches and escape during the growing season across different crop types (wheat, canola and lentils) and support site specific weed management.
- Create a decision support system that shows farmers how their management choices affect kochia and wild oat populations and helps reduce the risk of herbicide resistance.
- Investigate mutation rates in the kochia genome to improve management strategies.

Co-funded by: Saskatchewan Wheat Development Commission, Saskatchewan Pulse Growers, Saskatchewan Oilseeds Development Commission, Saskatchewan Barley Development Commission, Results Driven Agriculture Research, and Alberta Grains.
SRI Funding: $2,500,000