

CULTURAL AND AGRONOMIC MANAGEMENT OF HERBICIDE-RESISTANT KOCHIA IN SASKATCHEWAN

INVESTIGATE IF GROWING ANNUAL CROPS AND CUTTING THEM FOR GREEN FEED REDUCES WEED PRESSURE

Introduction

Herbicide-resistant kochia (*Bassia scoparia*) continues to cause substantial yield losses across Saskatchewan, with resistance to multiple herbicide groups limiting chemical control options. With Group 14 resistance now confirmed in Saskatchewan, producers must increasingly rely on integrated weed management strategies. This Strategic Field Program project evaluates practical cultural and agronomic tools to reduce kochia pressure. Field trials that included 3 objectives were conducted from 2024–2025 at Swift Current (Light Brown soil zone) and Redvers (Dark Grey soil zone).

Methods

Lentils were grown for grain in year 1, followed by annual forages (spring and winter triticale, barley, pea/oat mix) harvested at soft dough or late milk stage for green feed in year 2. Select treatments were mowed post-harvest. Weed density, forage yield, kochia biomass, and feed quality were evaluated.

Results

At Swift Current, severe kochia infestations in 2024 reduced lentil yields by ~70%. Following fall herbicide, kochia populations entering 2025 were reduced by 90–98%. Annual forages further suppressed kochia to very low levels (2 plants m⁻² before harvest). Pea/oat mix produced the highest forage yield (1,173 kg ha⁻¹), followed by barley (981 kg ha⁻¹). Winter triticale demonstrated strong competitive ability and high crude protein (22–24%), producing nutritionally suitable feed.

Mowing after forage harvest did not consistently reduce late-season kochia flushes; crop competitiveness appeared more influential than mowing alone.

At Redvers, green feed systems reduced kochia populations by over 90% within one season. Barley yielded highest (8,176–8,302 kg ha⁻¹). Feed analysis indicated acceptable protein and energy levels across treatments, with mineral profiles reflecting environmental conditions rather than kochia contamination.

Green feed systems were highly effective, reducing kochia by >90% and producing marketable forage. Across sites and objectives, environmental conditions were the dominant driver of crop yield and an integrated approach combining light tillage, fall herbicide, competitive crops and annual forage harvest systems provides the greatest potential to reduce reliance on herbicides and manage herbicide-resistant kochia sustainably. The project will continue through 2027 to evaluate cumulative multi-year impacts. A full project progress report can be found on wheatlandconservation.ca

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