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Companion Cropping Annual Clovers with the Main Rotational Crops in the Peace Region

Companion cropping is the practice of growing a forage crop alongside a grain crop to optimize land-use efficiency so that a field can be used for hay or as a pasture after the main crop is harvested. Using small plots on a research farm in North Star, AB, this trial aims to determine which of three species of annual clover (White Clover, Crimson Clover, or Subterranean Clover) grown alongside a field crop (CWRS wheat or canola). The clovers are either sown by a disc drill or broadcast over the plot, therefore, revealing which seeding method will yield better results for companion cropping. The following results are from Year 3 of the trial.

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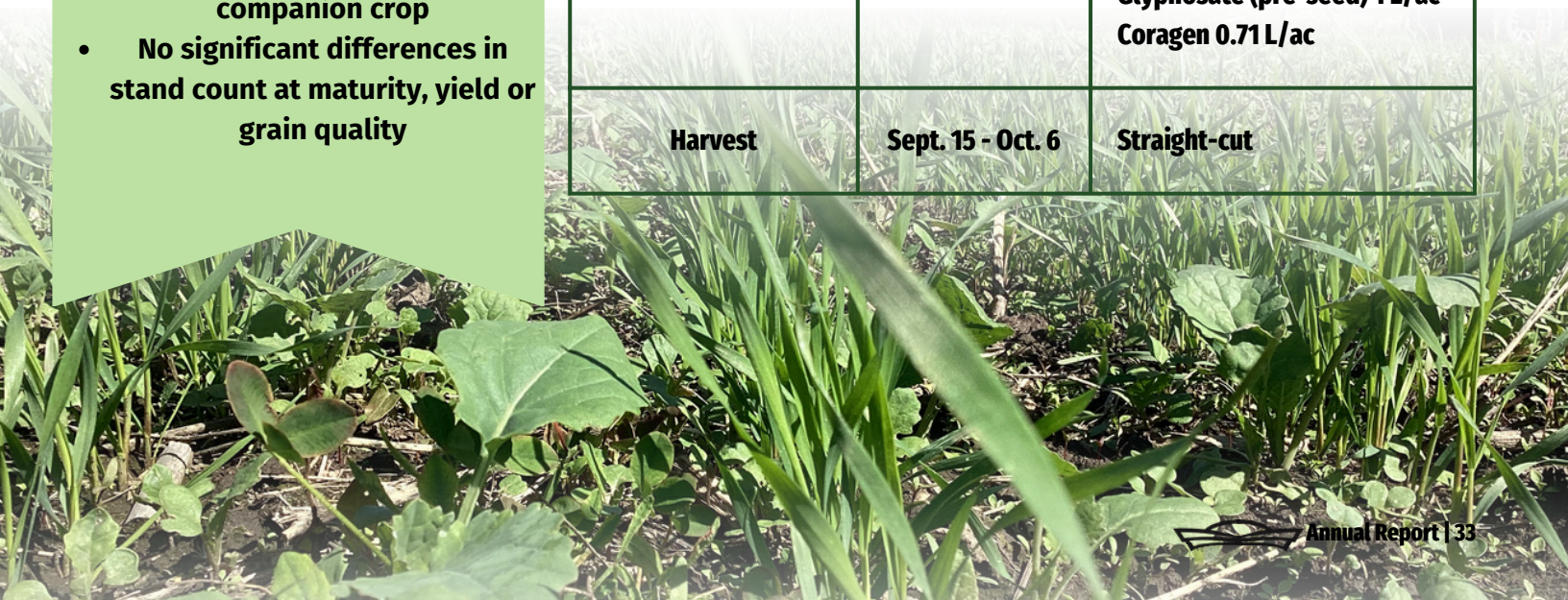
Key Points:

- **Clover establishment is better with drill seeding**
- **Canola emergence is greater with Subterranean Clover as a companion crop**
- **No significant differences in stand count at maturity, yield or grain quality**

Task	Timeline	Details
Seeding	May 22	Canola 4.3 lb/ac Wheat 132 lb/ac Crimson Clover 3 lb/ac White Clover 3 lb/ac Subterranean Clover 20 lb/ac 0.25-1" depth
Maintenance	May 10 - June 24	Urea 100 lb/ac S15 80 lb/ac Glyphosate (pre-seed) 1 L/ac Coragen 0.71 L/ac
Harvest	Sept. 15 - Oct. 6	Straight-cut



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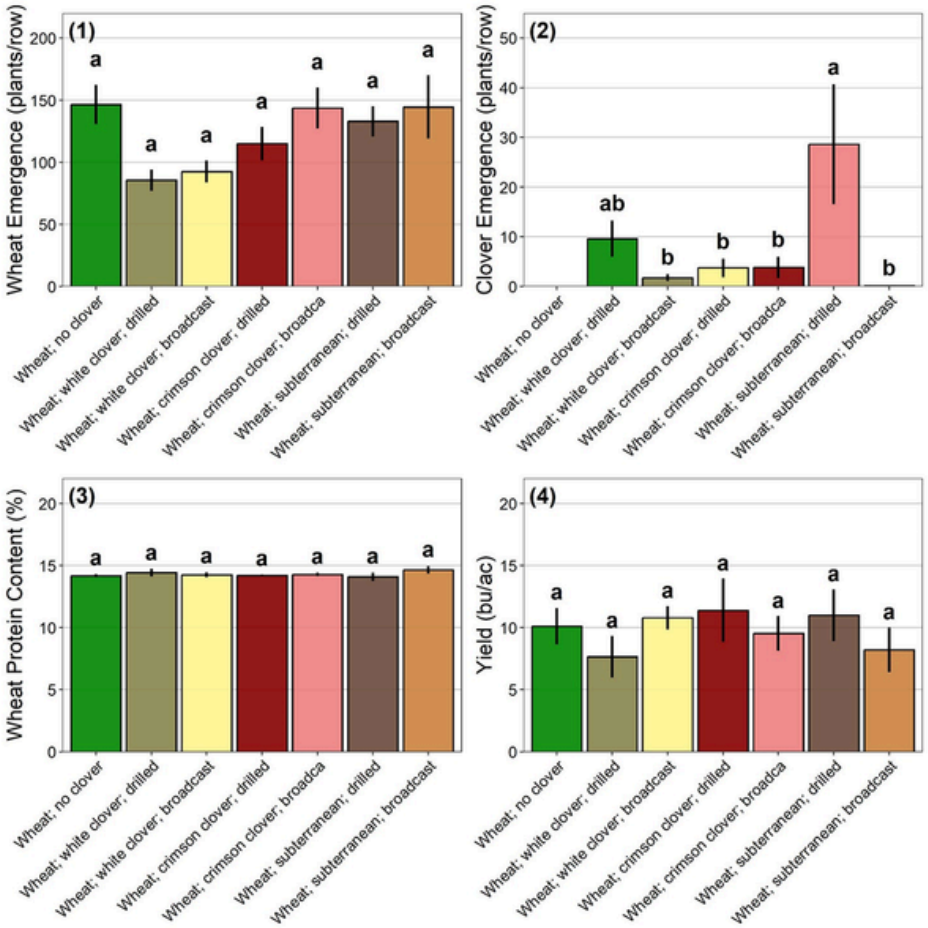
Although the treatments were largely comparable in wheat and canola with no significant differences in stand count, protein content, oil content, yield and weed cover, there were significant differences among the treatments in emergence. Specifically, seeding subterranean clover with a disc drill resulted in significantly higher canola emergence compared to both no-clover and the white clover treatments. This treatment also had the best performance in clover emergence among the wheat + clover plots. Subterranean clovers create a dense canopy and can rapidly establish under cool spring conditions, likely maintaining and conserving more soil moisture for main crop to emerge. Soil moisture after seeding is crucial for plant germination, especially in dry years such as this season.



(1) Emergence of wheat (plants/row) seeded with different clover species under two different seeding methods.
(2) Emergence (plants/row) of clover species seeded with wheat.
(3) Protein content (%) of wheat seeded with different clover species under two different seeding methods.
(4) Yield (bu/ac) of wheat seeded with different clover species under two different seeding methods.

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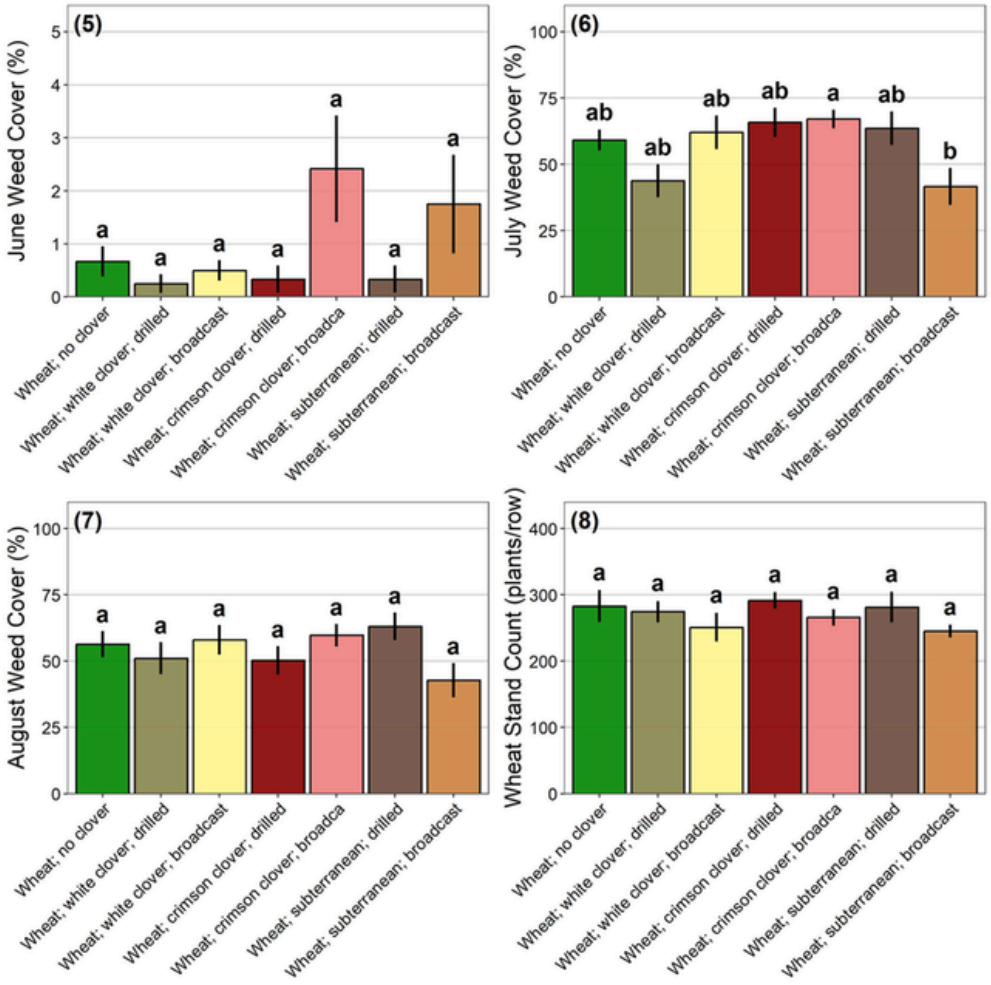

(5) Average weed cover (%) in June of wheat plots seeded with clovers.
(6) Average weed cover (%) in July of wheat plots seeded with clovers.
(7) Average weed cover (%) in August of wheat plots seeded with clovers.
(8) Stand count at maturity (plants/row) of wheat seeded with different clover species under two different seeding methods.

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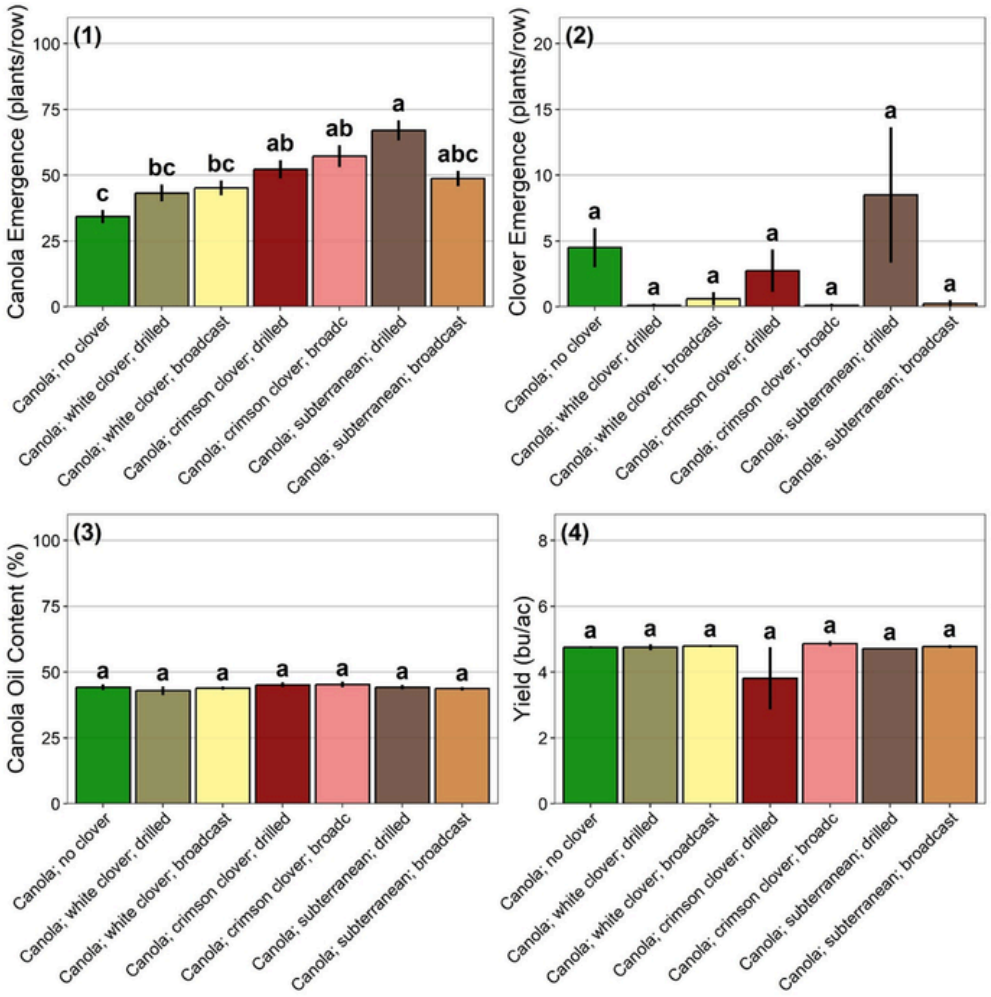

(1) Emergence of canola (plants/row) seeded with different clover species under two different seeding methods.
(2) Emergence of clovers (plants/row) seeded with canola.
(3) Oil content (%) of canola seeded with different clover species under two different seeding methods.
(4) Yield (bu/ac) of canola seeded with different clover species under two different seeding methods.

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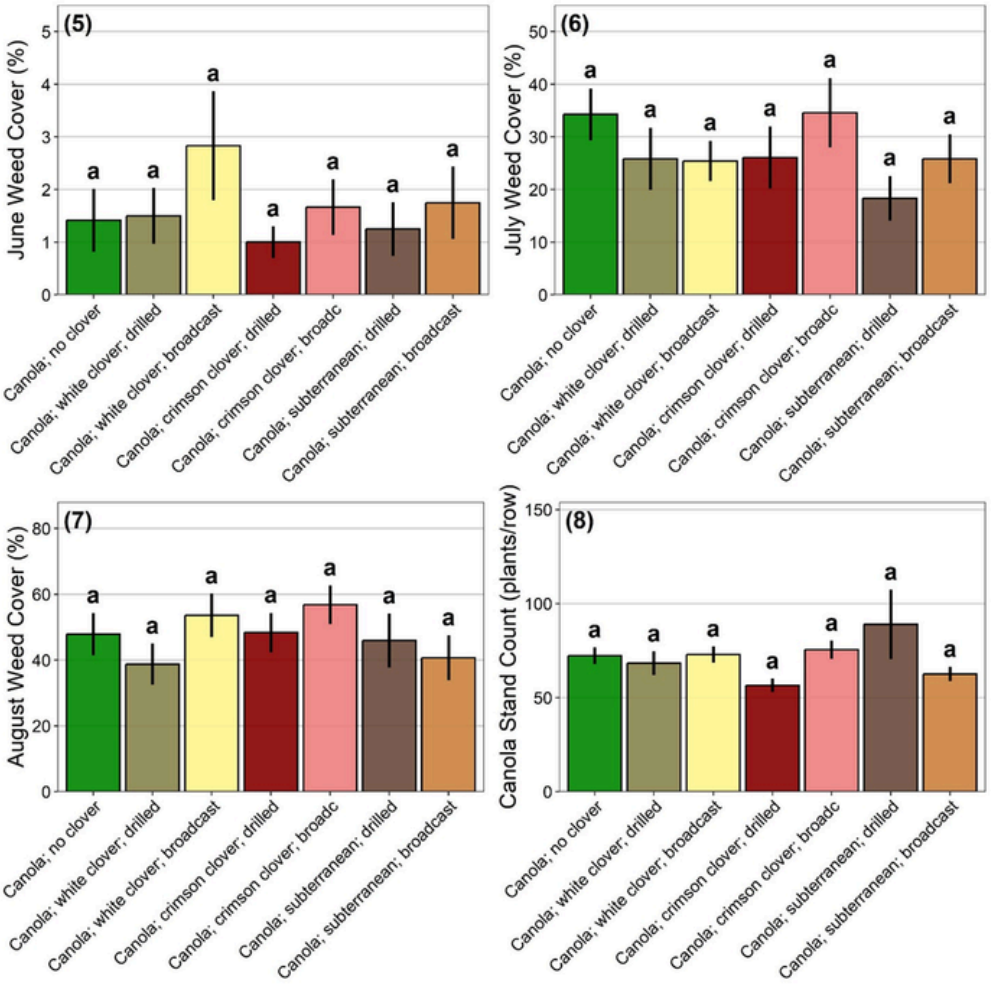

(5) Average weed cover (%) in June of canola plots seeded with clovers.
(6) Average weed cover (%) in July of canola plots seeded with clovers.
(7) Average weed cover (%) in August of canola plots seeded with clovers.
(8) Stand count at maturity (plants/row) of canola seeded with different clover species under two different seeding methods.