Expanding Rotational Options Using New and Novel Pulse Crops

Objective:

To provide producers with basic economic and agronomic information on non-traditional pulse crops that may be adapted to various regions of Saskatchewan, specifically fenugreek and lupin.

Trial Design:

- Sites included Swift Current, Indian Head, Prince Albert, Outlook, Melfort, Scott, Redvers, and Yorkton.
- Pulses included in the study were Fenugreek (CDC Canafen), White Lupin (Dieta), Blue Lupin (Boregine), Small Red Lentil (CDC Impulse), Yellow Field Pea (AAC Profit).
- Each pulse was seeded at the current recommended seeding rate and an increased rate.

Results:

- All pulse crop plant populations increased with seed rate.
- Weed control was not a limiting factor for these crops. Peas and lentils generally had the best weed control, likely due good emergence and canopy closure.
- Fenugreek is also quite competitive provided that emergence is adequate, as fenugreek also has good weed control options.
- Herbicide injury was noted from an in-crop Metribuzin application to white lupin. However, as symptoms disappeared it was not thought to have caused any yield loss.
- There was moderate to high blister beetle and grasshopper pressure and an early insecticide application is recommended.
- No crop outyielded the yellow pea pulse reference crop. Seed rate effect on yield varied by site for peas.
- Lentil seed rate had a varied effect on yield. Lentil reference crops were the highest yielding treatments at Prince Albert (no seed rate effect) and Scott (increased seed rate resulted in significantly higher yield). At Swift Current lentil yields were not affected by seed rate and did not result in a significantly different yield than white lupin seeded at the recommended rate. White lupin, as well as fenugreek seeded at the increased rate, out yielded the lentil reference crop at Redvers. At Indian Head, fenugreek seeded at the recommended rate yielded similar to the lentil reference crop. Lentil seed rate at Indian Head had no effect on lentil yield.

Conclusions:

Crop diversity cannot be understated, as we need to mitigate root rots in peas and lentils through new and diversified pulse crop acres. It is already known that it is important to have pulses in your rotations for diversity, but diversity within your pulse crops themselves helps break up cycles of disease, pest, and weed cycles. Adapting new crops to each growing region and processing infrastructure is just a small portion of ongoing efforts in the pulse industry.

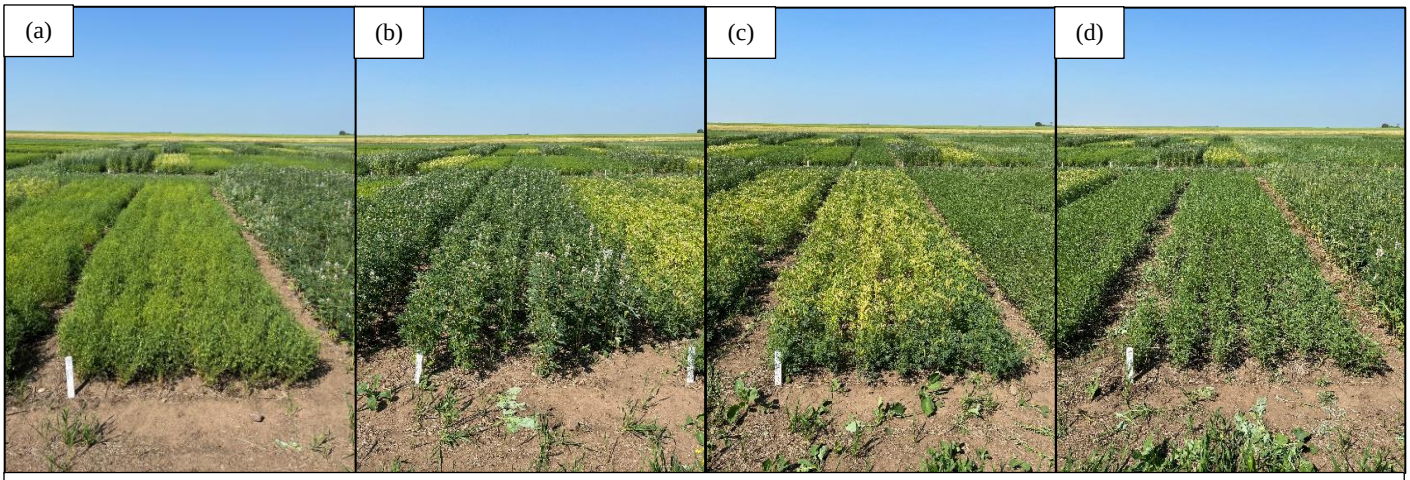

Figure 1. Lentil seeded at 190 plants/m^2 (a), White Lupin seeded at 56 plants/m^2 (b), Blue Lupin seeded at 56 plants/m^2 (c), Fenugreek seeded at 250 plants/m^2 (d) at Scott, SK on July 24, 2023.

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