

Flax Fertility Protocol

Fertility management is a critical driver of flax performance, directly influencing stand establishment, root development, straw strength, maturity, and ultimately seed yield and oil quality. Because flax is sensitive to both nutrient deficiencies and excesses—particularly nitrogen, which can increase lodging risk and delay maturity—achieving the right balance of nutrients such as nitrogen, phosphorus, potassium, and sulfur is essential. Soil type, moisture conditions, previous crop, and yield potential can all significantly affect nutrient availability and crop response, making a one-size-fits-all fertility program less effective. Conducting an on-farm trial with differing rates of fertilizer blends allows growers to evaluate how their specific fields respond under real-world conditions. By comparing yield, standability, maturity, and return on investment across multiple blend rates, producers can fine-tune fertility strategies to optimize both agronomic performance and economic returns while reducing unnecessary input costs.

Objective:

To evaluate the agronomic and economic response of flax to varying rates and blends of fertilizer under field-scale conditions, in order to identify the optimal nutrient management strategy that maximizes yield, maintains standability and maturity, and delivers the greatest return on investment for the specific soil and environmental conditions of the trial site.

Project Overview:

Cooperators will implement a replicated field-scale trial comparing fertilizer blend rates, using their own equipment and otherwise normal practices. An agronomist/trial manager will provide support throughout the season, including setting up the trial and collecting data. Statistical analysis of the data will be conducted following harvest, and a report with results including economic analysis will be provided. Data from all on-farm trials will also be pooled to examine the results across different management, soil, and weather conditions. Results from all trials will be publicly available, however individual farm data will be kept anonymous, apart from the location of the trial (nearest town or R.M.). Collaborators will be invited to join a network of producers who are conducting on-farm research through field tours and a year-end wrap up meeting. This program is available to members in good standing.

Study Design:

- 1) Standard Rates
- 2) Enhanced Rates
(+25% of standard)
- 3) Reduced Rates
(-25% of standard)
(Optional)

Rep	1		2		3		4	
Plot	1	2	3	4	5	6	7	8
Trt	1	2	2	1	1	2	2	1
	Standard	Enhanced	Enhanced	Standard	Standard	Enhanced	Enhanced	Standard

An example randomized field plan is shown to the right. Layouts and datasheets will be provided.



The treatments will be replicated four times, for a total of 8-12 plots and randomized within the field. Apart from fertilizer, all strips must be managed the same agronomically including seeding, and pesticide application. Variable rate (VR) seeding applications can be used.

Data Collection:

Agronomists or trial managers will help the cooperator conduct the trial according to the protocol and will complete the following in-season data collection.

- Spring or fall soil sample
- Plant density at the 2-4 leaf stage
- Yield – weighed separately for each treatment strip using weigh wagon or grain cart scale
- Harvest samples for each plot
- Regularly scouting for treatment differences in weed pressure, flowering, maturity, disease pressure, plant health, or plant structure
- Economical breakdown
- Management data
- Weather data

For more information or to participate in the program contact:

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