Canada-Saskatchewan
Irrigation
Diversification
Centre

Date of Seeding, Seed Rate and Row Spacing for Irrigated Flax

Reason for the Study

The effect of seeding rate and row spacing on flax yield has not been determined under irrigated conditions. Research done on dryland under good moisture conditions suggests that row spacing has no effect on flax yield while increasing seeding rates may improve yields. Previous work also suggests a yield loss with late seeding. Seeding rate, row spacing, and seeding date of flax were studied under irrigated conditions in Saskatchewan.

Methods Used in the Experiments

The seeding date experiment ran from 1991 to 1993. The varieties McGregor, Norlin, Flanders, and AC Linora were sown at 30 kg/ha (27 lb/ac) at three dates. The average early date was May 7, the mid date was May 17, and the late date was May 27.

The seed rate and row spacing study ran from 1990 to 1993. McGregor flax was sown at 30, 50 and 70 kg/ha (27, 45, and 62 lb/ac) in 20 cm (8 inch) rows using a hoe drill and a broadcast and incorporated treatment. A comparison was also made between 8 and 16 cm row spacings (3 and 6 inches) using a 3 m (10 ft) Amazone drill.

The studies were conducted on a silt loam soil under centre pivot irrigation. All plots received 112 kg/ha (100 lb/ac) broadcast and incorporated nitrogen. The seeding date trial received 45 kg/ha (40 lb/ac) sidebanded phosphorus. The seeding rate/row spacing trial received 30 kg/ha (25 lb/ac) N and 60 kg/ha (50 lb/ac) P banded prior to seeding in addition to the broadcast incorporated nitrogen. A post-emergent tank mix of grassy and broadleaf herbicide was applied to the tests following label recommendations.

Results

Date of Seeding

Table 1: Average Yield of flax at three seeding dates

Date	Yield (kg/ha)			Height (cm)
	1991	1992	1993	
May 7	1570	2670	2210	73
May 17	1500	2170	2010	77
May 27	1270	1440	1750	81

*2000 kg/ha 32 bu/ac

Seed yields of flax sown at the late date were as much as 20% lower than for the early date (Table 1). Early seeding gave best yields in all 3 years. No one variety yielded consistently better at an early or at a late seeding date.

Late seeded flax tended to lodge more, but the difference was not consistent nor predictable. Early sown flax was always shorter in height, up to 10 cm (4 inches) in some years.

Rate of Seeding and Row Spacing

The low seed rate of 30 kg/ha (27 lb/ac) gave the highest yield of McGregor flax in all years (Table 2).

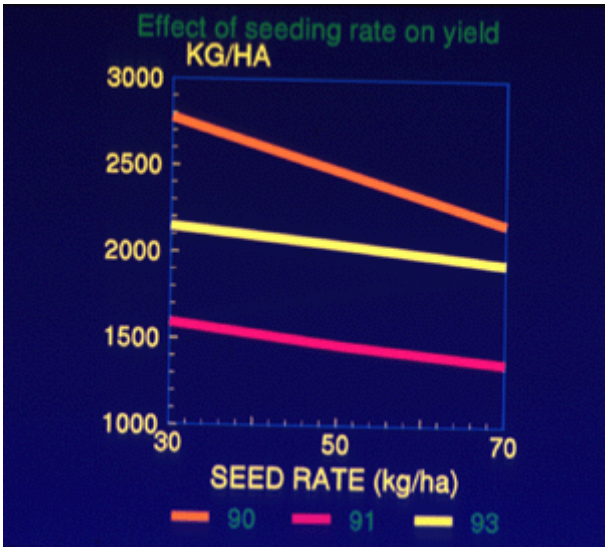
Table 2: Yield of flax for three seeding rates and two seeding methods

	Seed Rate (kg/ha)	Yield (kg/ha)
Broadcast	30	2150
	50	2020
	70	1850
20 cm rows	30	2200
	50	1970
	70	1790

30 kg/ha = 27 lbs/acre

Yields were similar for 20 cm rows as compared to broadcast seeding for all seed rates in all years. Plant emergence was reduced for broadcast sown flax in all years, but this had no effect on final seed yield.

There was no benefit in using narrow row spacings. The three year average yield in 8 cm (3 inch) rows was 2037 kg/ha as compared to 2027 kg/ha in 16 cm (6 inch) rows.



Recommendations:

- Seed early, before May 15
- With good weed control, a seeding rate of 30 kg/ha (25 lbs/ac) is adequate.
- Row spacing is not important; no changes in equipment are needed.

A Word of Caution

Conditions which cause slow crop emergence, such as cool, wet soils, can cause thinning of flax stands on trifluralin treated fields. Seeding flax before May 15 on fields treated with Treflan, Rival, Triflurex, etc. is not recommended. Post-emergent herbicides should be considered.

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