Flax in Your Crop Rotation

Flax is a broadleaved crop and does best when grown after specific crops due to reduction in weed, disease, insect pressures and accessing soil moisture from specific soil depths. As well, research has shown flax performs poorly specifically after canola and/or mustard. The poorer performance of flax on canola stubble is attributed to mycorrhizae fungi which do not associate as strongly with canola and decreasing during the growing season producing canola. When flax is grown on canola stubble the following year, the mycorrhizae populations are lower, which leads to poorer early season nutrient uptake, especially phosphorus, a relatively immobile nutrient in the soil and is crucial to early flax development.

Flax does well after cereals or corn. It also does well after legume crops and alfalfa, but Rhizoctonia disease may be a problem. Flax does not do well after potatoes due to loose seedbed and potentially Rhizoctonia.

Research at the Melfort Research Farm has demonstrated that flax will perform well on spring wheat and field pea stubble relative to canola stubble (see Table 1).

Table 1: Effects of Preceding Crop on Flax Yield at Melfort, SK (1994-97)

Preceding Crop	Yield Index (% of spring wheat)
Spring wheat	100
Canola	88
Field pea	103

From: A.M.Johnnston

Crop rotation of at least three years between flax crops is recommended for controlling various soil-borne or stubble-borne diseases of flax, such as pasmo.

Information from Manitoba Agricultural Services Corporation (MASC) based on “Harvested Acreage Reports” has shown that crops like spring wheat will yield well on flax stubble (see Table 2).

Table 2: Yield Response (% 1998-2007 average) of Manitoba Crops Sown of Previous Crop Stubble

	Crop Planted					
Previous Crop	**Spring Wheat**	**Barley**	**Oat**	**Canola**	**Flax**	**Field Pea**
Spring Wheat	90	101	101	103	102	102
Barley	92	88	91	100	99	97
Oat	93	91	85	95	97	93
Canola	103	105	104	83	90	93
Flax	98	104	102	98	81	79
Field Pea	100	104	105	101	111	–

Source: MASC Harvested Acreage Reports 1998-2007.

Flax is adapted and fits into rotation in all the soil zones across Manitoba. With adequate weed control, the major factor influencing the yield of flax in a rotation is the availability of moisture. Because of its shallow rooting character, flax extracts 95% or more of its water from the top 71 cm (28 in.) of soil.

Flax grows well on most prairie soils, except on poorly drained soils and sandy soils because of poor water retention. Medium to heavy-textured soils are preferable. These soils may crust in spring, which can inhibit flax emergence.

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