In this three-year study, researchers wanted to better understand the levels of inputs required to optimize yields of newer open pollinated (OP) and hybrid canola varieties and to enhance producers ability to maximize return on their investment. Generally, the study concluded that higher yielding canola varieties should be receiving more fertilizer to maximize yield and optimize net economic return than is currently being applied by many producers. Greater N use efficiency by the hybrid compared with the open-pollinated variety increased yield and economic return despite higher seed costs.

Newer open pollinated (OP) and hybrid canola varieties provide higher yield potential but the management strategies necessary to achieve optimum yield are not well understood. To better understand the levels of inputs required to optimize yield and to enhance producers ability to maximize return on their investment, field research trials were conducted over a three year period from 1998 to 2001 at Melfort, Indian Head and Scott.

The objectives of the study were to evaluate the effect of seeding rate, fertilizer rates and fungicides on the optimal yield potential of hybrid and open pollinated canola in the Thick Black, Thin Black and Dark Brown soil zones. A second objective was to determine if more nitrogen (N) was required to optimize yield of hybrid than OP cultivars because of the higher yield potential of hybrids. Quantum and Invigor canola varieties were used in the study.

A combined analysis of yields revealed a consistent response among the two cultivars to seed rate, nutrient level, and fungicides. The hybrid averaged 865 kg/ha more biomass and 194 kg/ha more seed than the open-pollinated variety. Fungicides generally failed to cause a yield response, as levels of sclerotinia were low. At the low fertility level, yield was unaffected by fungicide, while at the mid and high fertility levels, a small yield increase was noted where fungicides were applied. This suggests that enhanced growth with higher fertility likely created an environment more conducive to sclerotinia infection and development. The study showed that the full economic value of higher yielding canola cultivars can only be realized when fertilizer and seed rates are at or above the maximum recommended rate.

An economic evaluation of the data was also performed using production costs from the 2001 Saskatchewan Crop Planner published by Saskatchewan Agriculture and Food. Combined analysis showed net returns were maximized for both varieties near 112 kg/ha.
(100 lb/ac) of applied N when canola was priced between $220 and $352/tonne and N costs ranged from $0.51 to $0.75/kg. When maximizing net returns, higher hybrid yields translate into an additional $15.20/ha for every $50.00/tonne increase in the price of canola above $147.00/tonne. The N required to maximize returns for both cultivars decreased as moisture decreased. However, even when moisture and canola prices fall short of expectations, many producers are setting lower target N levels than are required to optimize returns.

Generally, the conclusions were that higher yielding canola varieties should be receiving more fertilizer to maximize yield and optimize net economic return than is currently being applied by many producers. Greater N use efficiency by the hybrid compared with the open-pollinated variety increased yield and economic return despite higher seed costs.

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