An analysis of yield trends in Saskatchewan for various major crops have shown that although yields of barley and flax have been continuously increasing from the 1960’s through to 1999, canola yields have remained stagnant between 1991 and 1999. To try to determine why, researchers looked at historical trends as well as agronomic factors across Saskatchewan. Although the study did not find conclusive evidence for the yield decline, the results show evidence that a canola yield problem did exist in Saskatchewan.

With improvements in technology and cultural practices, researchers expected canola yields to continue to increase over the years. However, an analysis of yield trends in Saskatchewan for various major crops have shown that yields of barley and flax have been continuously increasing from the 1960’s through to 1999, but canola yields have remained stagnant since 1991. In comparison, canola yields in Manitoba increased by 27% from the 1980’s through the 90’s, and similarly in Alberta, but in Saskatchewan, yields decreased by 1%.

Based on this significant difference in canola production, researchers wanted to determine whether the problem was generalized across Saskatchewan or localized, and if so, why the yields were not increasing. In 1999, factors such as crop rotations and diseases, fertilizer use, weather, and agronomic factors were compared across 5 regions and 20 canola fields in Saskatchewan.

Using the Management Plus Program data from Sask Crop Insurance Corp, researchers compared average canola yields in the 80’s and 90’s across Saskatchewan crop districts, and found that in crop districts 1 and 2 yields increased from 19 to 45% but decreased by 6 and 12% in crop districts 9A and 9B respectively. Canola yields had increased in the more non-traditional canola areas such as crop districts 1, 2, 6, and 7A, while the more traditional canola areas had the modest yield increases and in crop districts 9A and 9B yields decreased.

This study did not find any significant differences in crop rotation data among crop districts. Nor did the study find enough evidence to indicate that disease incidence was responsible for the decreased yields in crop districts 5B, 9A and 9B, or the general yield decrease in Saskatchewan during the 90’s.
Based on a prairie-wide fertilizer survey, Saskatchewan canola growers were applying significantly less nitrogen than Manitoba farmers, however the sulphur rate was 29% higher in Saskatchewan. Although fertilizer rates were variable across regions, the study did not find any significant differences in plant nutrient status among the regions. The study also did not find any unfavorable trends in the weather, or any changes in temperature that could explain a declining yield trend in the 90’s. Precipitation is usually the most critical weather variable affecting yields, and adequate July precipitation is critical for optimum yield potential, due to the critical stages of flowering and seed set. Although the study did not find conclusive evidence for the yield decline, the results show evidence that a canola yield problem does exist in Saskatchewan. Overall, researchers believe that it is important to continue to gather and analyze all of the data, including more agronomic, weather and production data to be able to try to understand this existing yield problem. Researchers recommend using extensive analyses of historic canola production along with associated agronomic and weather data to take the long term trend of declining yields into account.