

Maythem AL-Amery, Watchareewan Jamboonsri, Chad Lee, James Hammond †,
 Tim Phillips, Xi-Le Li and David Hildebrand University of Kentucky ,Lexington KY, †North Dakota State Univ.

Summary

There is renewed interest in flax or linseed, *Linum usitatissimum* L., since it contains high omega ω -3 oils which are important in healthy diets. A study was conducted to determine the seed yield and seed fatty acid content of different flax varieties in Kentucky for three years (2006, 2007 and 2008),. There were large differences among the varieties in yield. Carter and Rahab resulted in the greatest seed yield in 2006. Seed yields were highly variable year to year.

The major fatty acids in flax seeds ranged from 4.7-5.7% palmitic, 3.6–6.2% stearic, 19.5-30.3% oleic, 15–19.1% linoleic and 42.7 – 55.3% linolenic acids. The fatty acid profiles from the tested flax varieties showed some interesting differences, compare with the same variety planted in North Dakota, Carter variety had more omega ω -3 in ND 5.3% compare with KY 41.8%.

The highest performing variety in Kentucky, Carter, had a maximum yield of 1.4 kg/ha.

Objective

The objective of this research was to identify the adaptability of current flax varieties to a Kentucky climate and to examine the impact of that climate on flax seeds fatty acid profile.

Methods

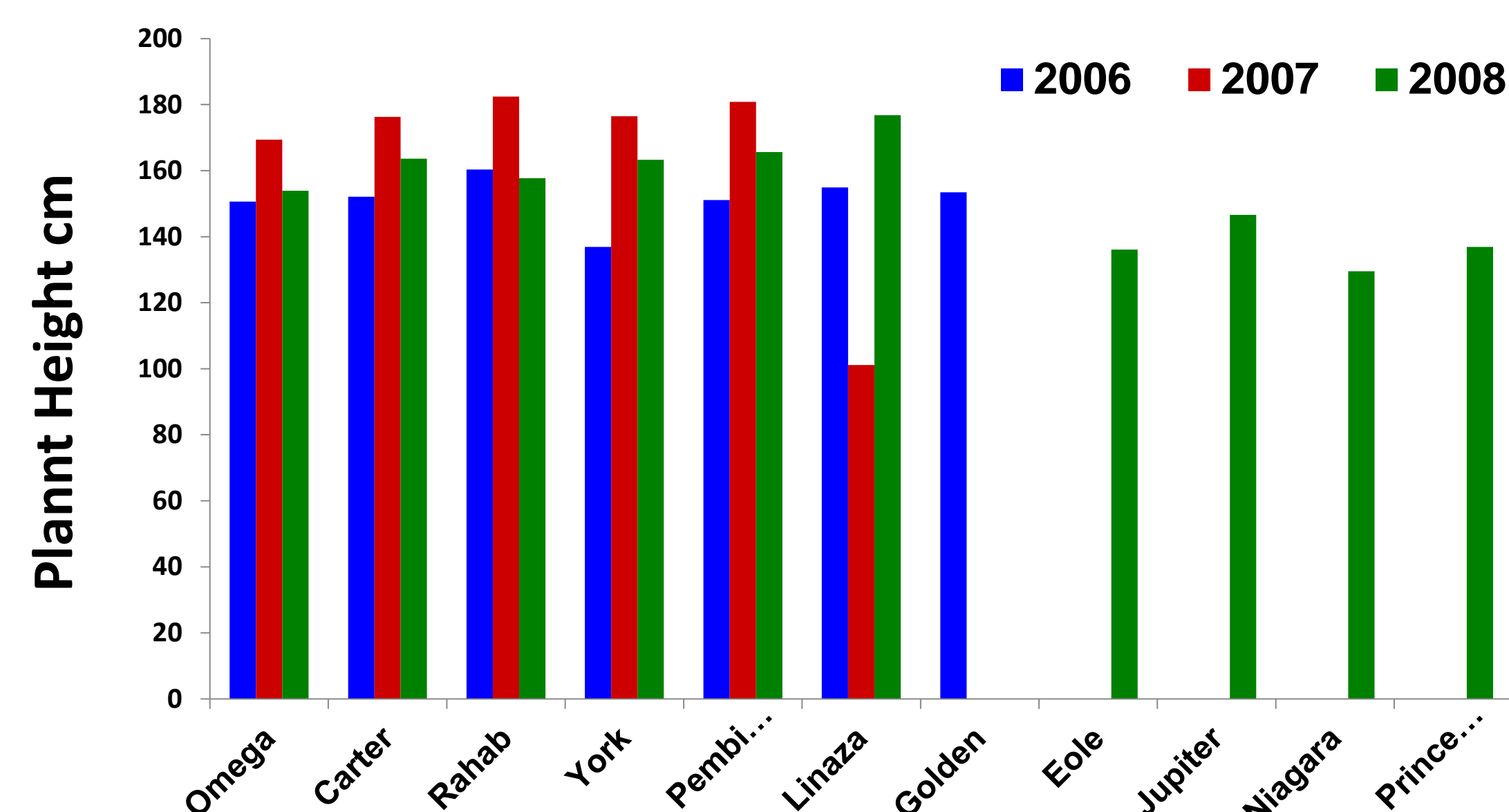
Seven, six and ten cultivars were tested for yield and other agronomic characteristics in 2006, 2007 and 2008 at Lexington, KY.

The oil contents and fatty acid compositions of

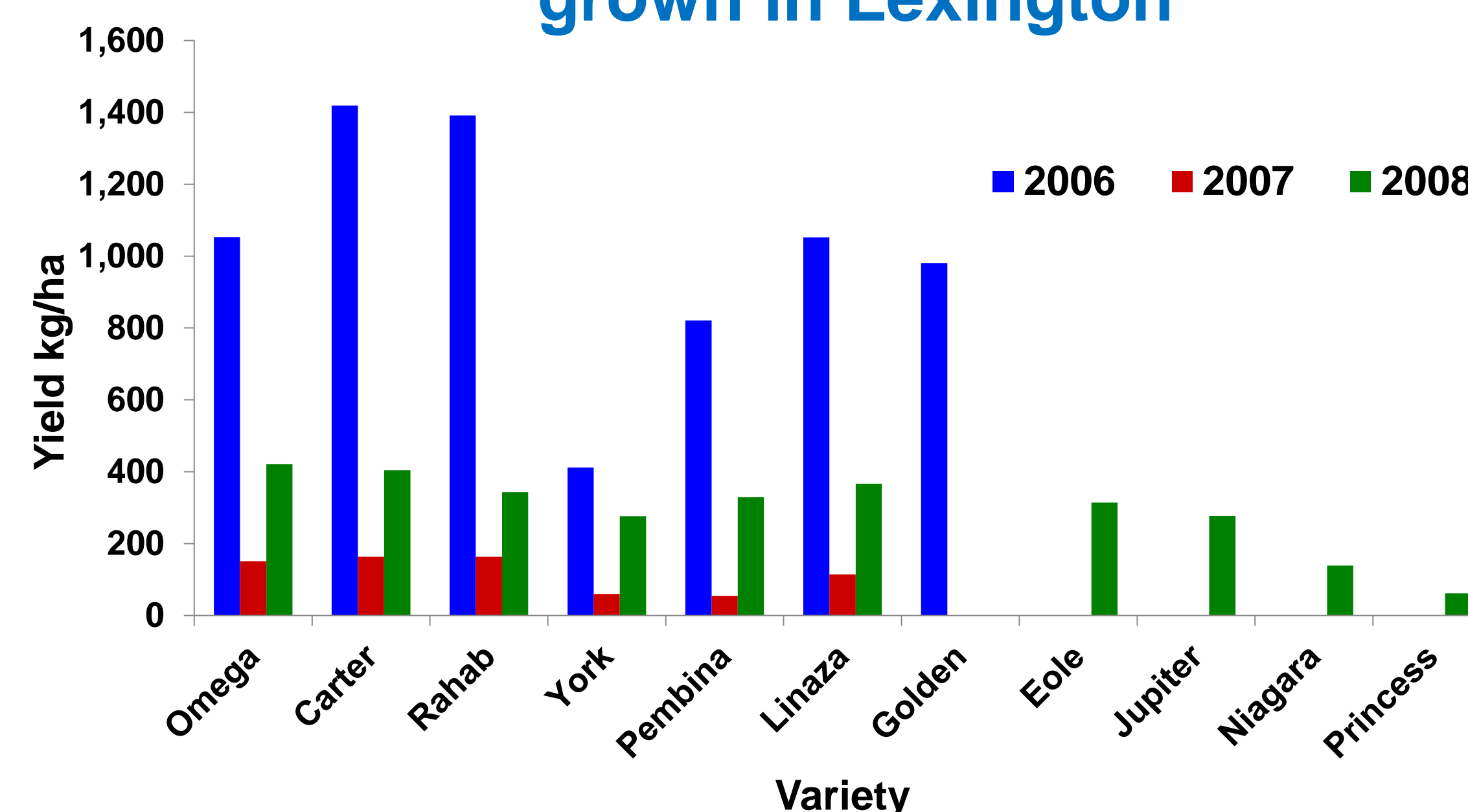
the flax seeds produced in KY and ND were analyzed by NIRS and gas chromatography.

Results

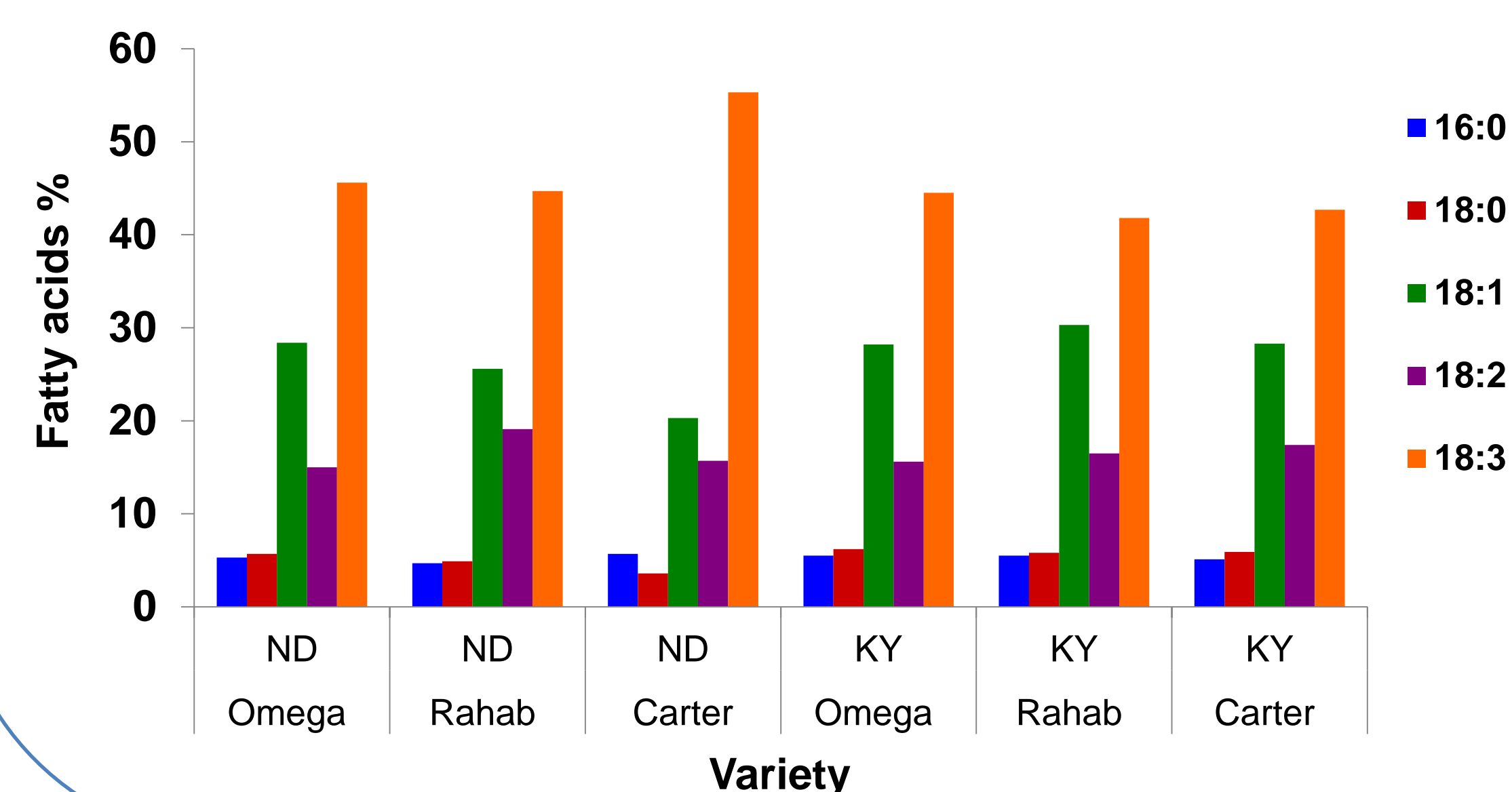
Plant heights of flax grown in KY



Yield of different flax cultivars grown in Lexington



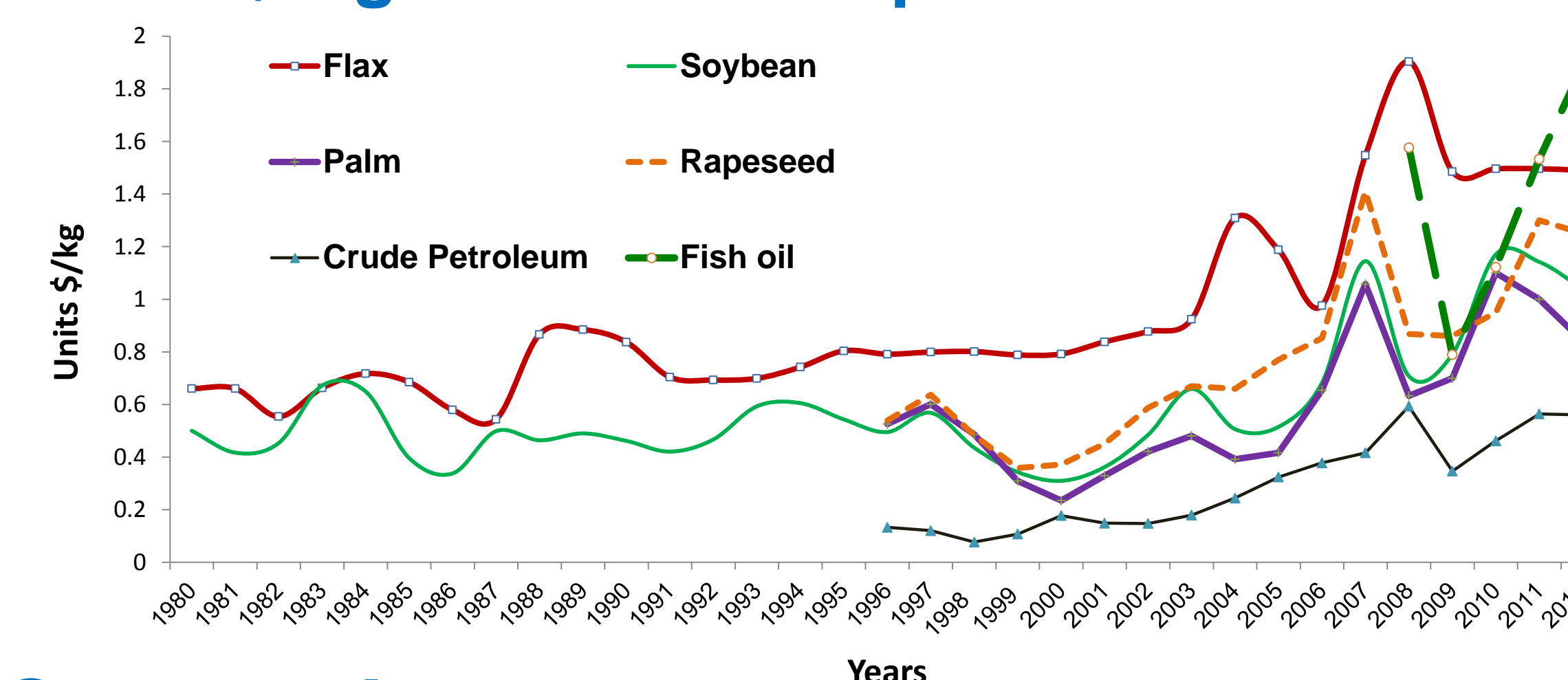
Fatty acid profiles of flax grown in KY and ND



Economic trends

The figure below illustrated the world Flax seeds trend compared with other oil crops, which have got increased consistently in the last three decades. The United States for example export flax seed valued almost \$16 million in 2012, and that up to 6% more than the previous year. The largest market was Belgium, followed by Canada the two countries purchased 80% of the flax seeds exports.

\$/Kg flax vs. other plant and fish oil



Conclusion

Flax can be grown in Kentucky but it does not give competitive yields compared with North Dakota and Canada, and that could be due to the higher temperatures in KY during the growing season. However, it might be profitable to grow flax outside the northern Great Plains for local markets such as health food stores.

References

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