



Desirable Corn Traits for Ethanol Production

(Wisconsin Aglime Conference)

By: Gary Wietgreffe

NK Brand Syngenta Seeds,

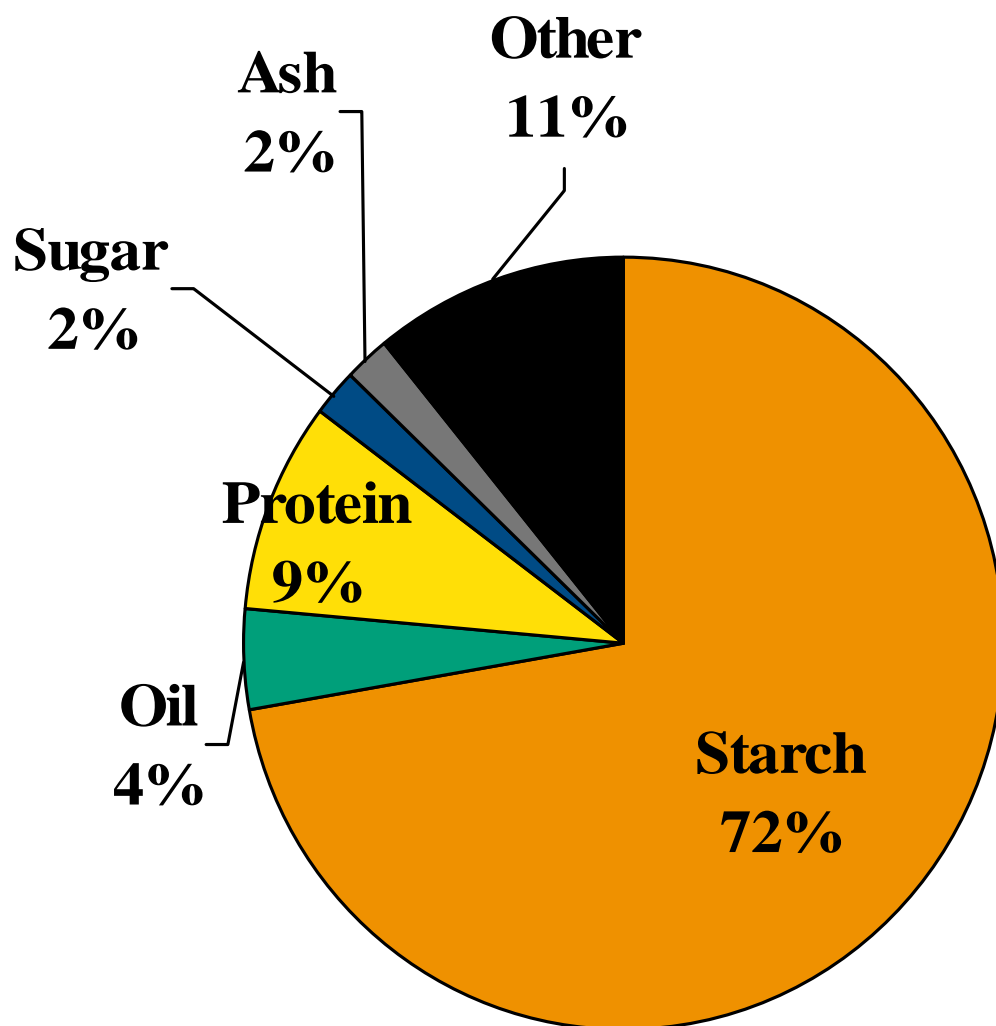
Sioux Falls, SD

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What can farmers do to produce
better corn for ethanol?



Corn Kernel Composition



Composition Affected by:

- ***Moisture***
- ***GDU***s
- ***Fertility***
- ***Soil Type***
- ***Hybrid***



Historical Testing: *(Test Weight, Moisture testers, NIR)*

New U. of I. Testing: *(Unique testing protocol)*

- Dr. Vijay Singh University of Illinois has found:
 - **Wet-Mill:** NIR Extractable Starch test estimates ethanol yield
 - **Dry-Mill:** To determine ethanol yield in a grain sample, ethanol yield must be measured with an appropriate test.
 - No correlation with total starch, extractable starch, protein content, oil content, or kernel density.
 - Organisms, beside yeast, can produce CO₂ in the process so measuring CO₂ is not a good estimate of ethanol yield.
 - More than 20% difference between highest ethanol yielding sample and lowest.
 - Differences found between locations.
 - Differences found between hybrids.
 - Interactions between locations and hybrids also found to have a major effect.
 - Most hybrids above average at some locations.
 - Highest ethanol yielding hybrid for a particular location is not predictable.

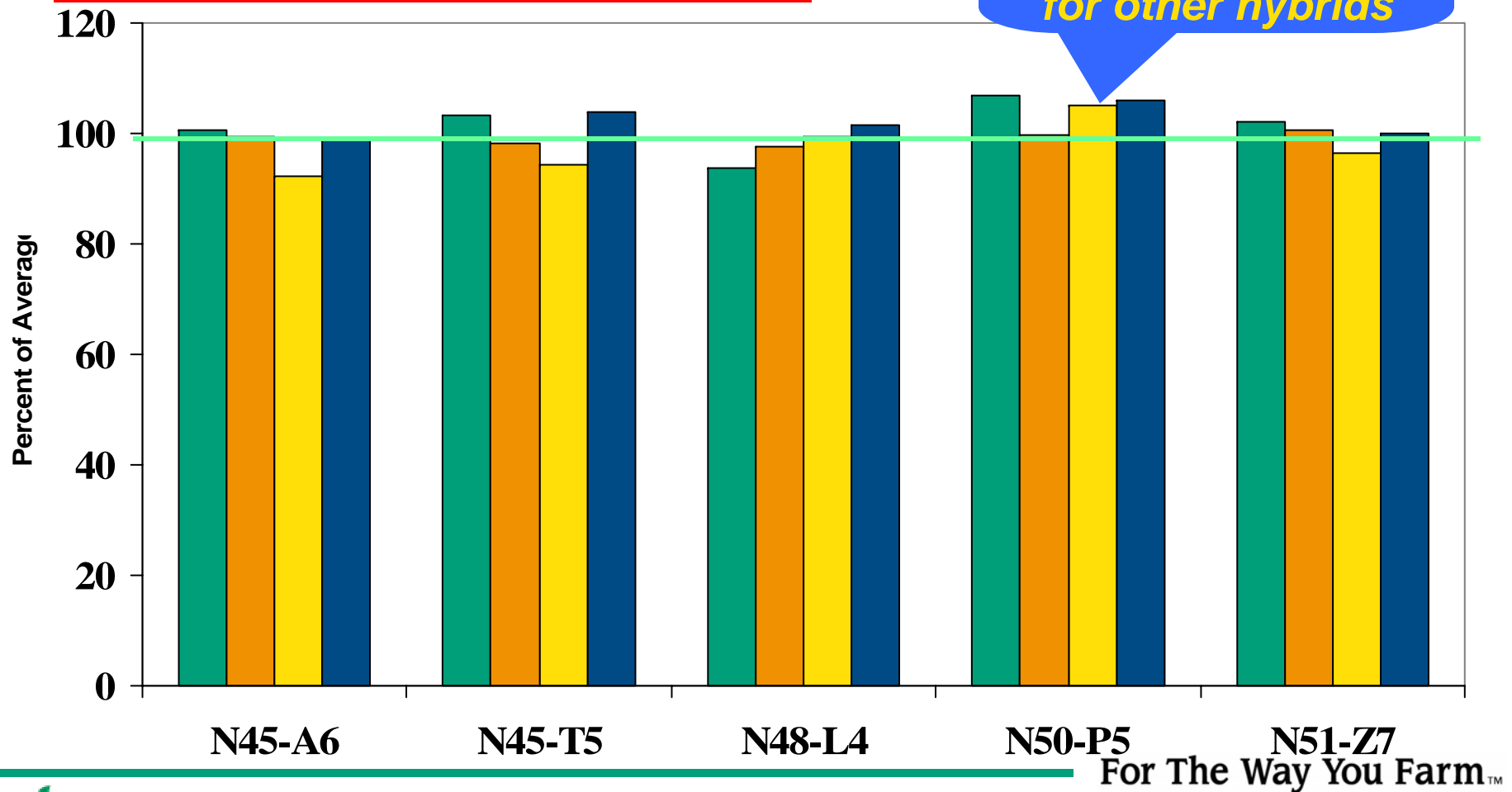


Hybrids Over Four Locations

Vary Location by Location

What location do you want the most ethanol?

Yellow good for N50-P5—not good for other hybrids

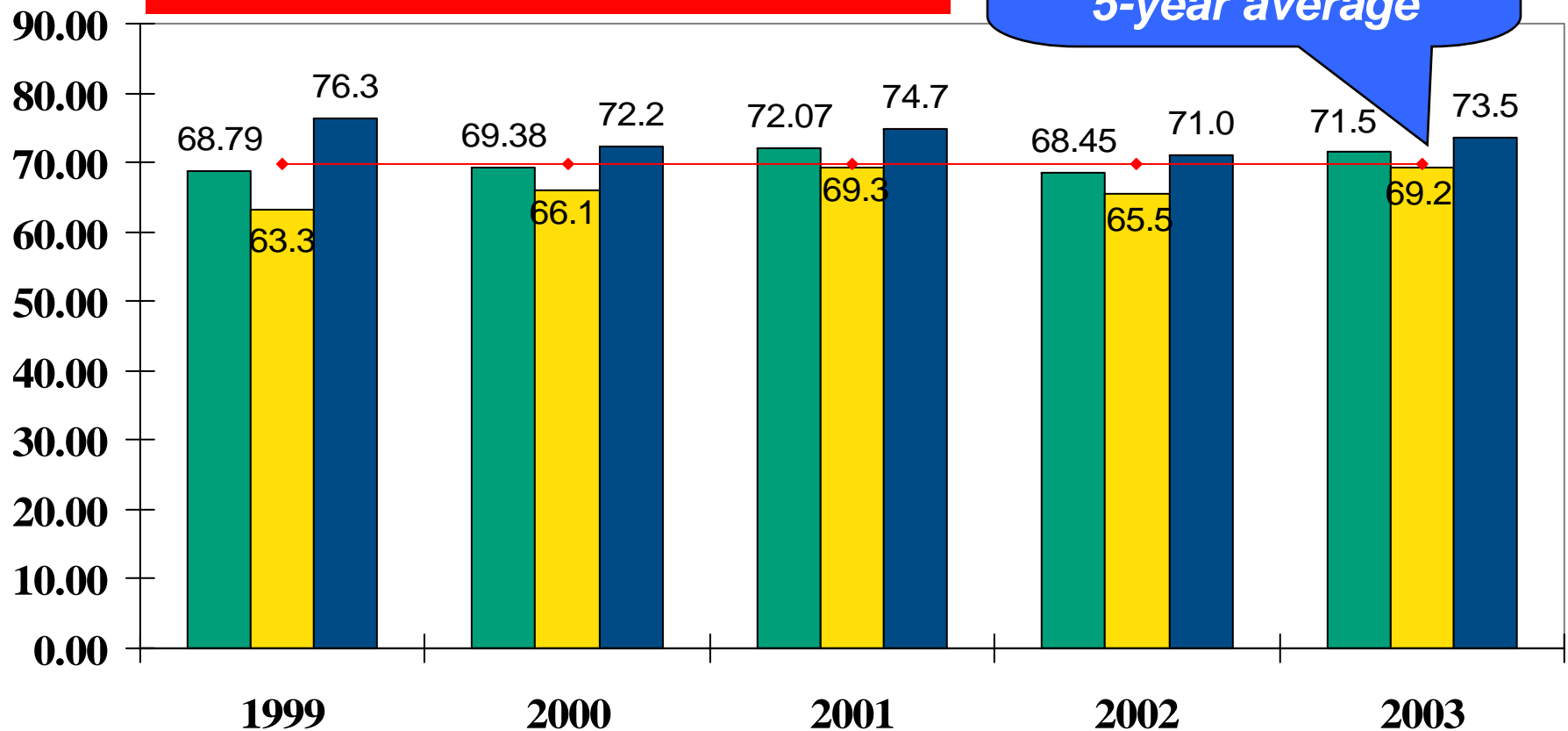




Total Starch Content, All Hybrids Vary Year to Year

What year do you want the most starch?

Note: Lowest starch in 2003 equaled 5-year average



Dry Matter Basis

■ Average ■ Minimum ■ Maximum ◆ 5 Year Ave.

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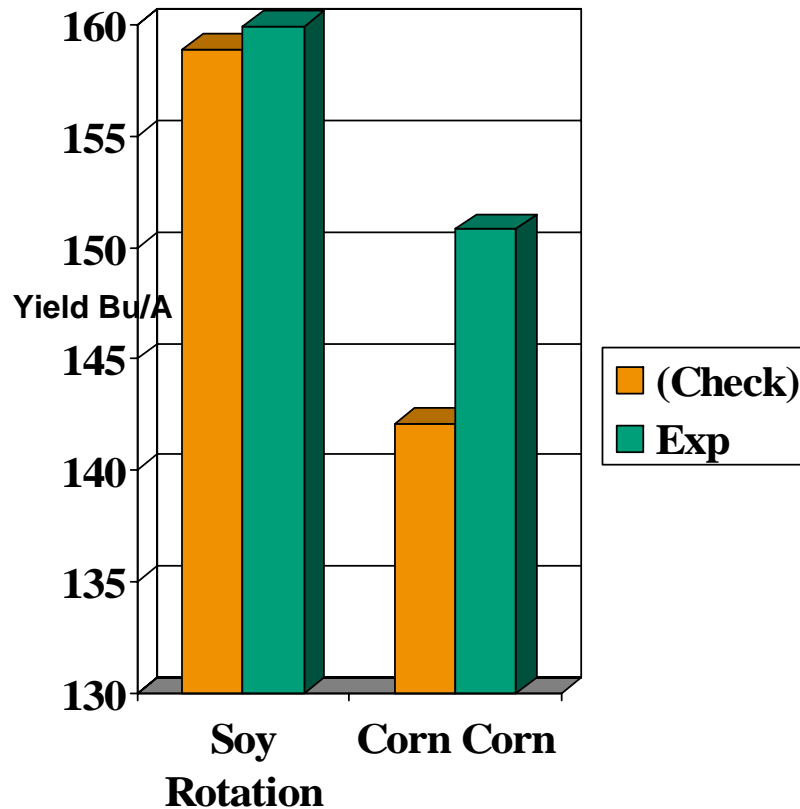
Grower Recommendations

- There are differences in hybrids for ethanol yield, but may be overshadowed by other factors.
- Because of interaction between hybrids and locations, choose hybrids based on yield and agronomics for a particular field.
- Recommend growers plant a portfolio of products to spread risk and provide more consistent profitability.
- Give preference to hybrids “DGE” for Dry-Grind Ethanol; or “HES” wet-milling High Extractable Starch



How can farmers produce more ethanol from corn?

***Chose hybrids
by rotation, by field***



Produce more and better corn

- ***Select best hybrid for field***
- ***Plant Bt hybrids to minimize insect damage & fungal diseases***
- ***Properly fertilize to maximize yields***
- ***Timely harvest to maximize grain quality***
- ***Dry corn to 15% moisture at temps. Below 140° F*** (to minimize starch tie-up from excessive heat)

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Find the best NK Brand hybrids for ethanol

- At the Aglime NK Booth
- In the NK Brand Seed Guide
- www.nk.com** (select US, products, corn, state, view characteristics)