



# How Should We Really Define Flour Quality?

IAOM - Guatemala  
November 2011

# Greetings from Kansas



# The Goal In Flour Milling

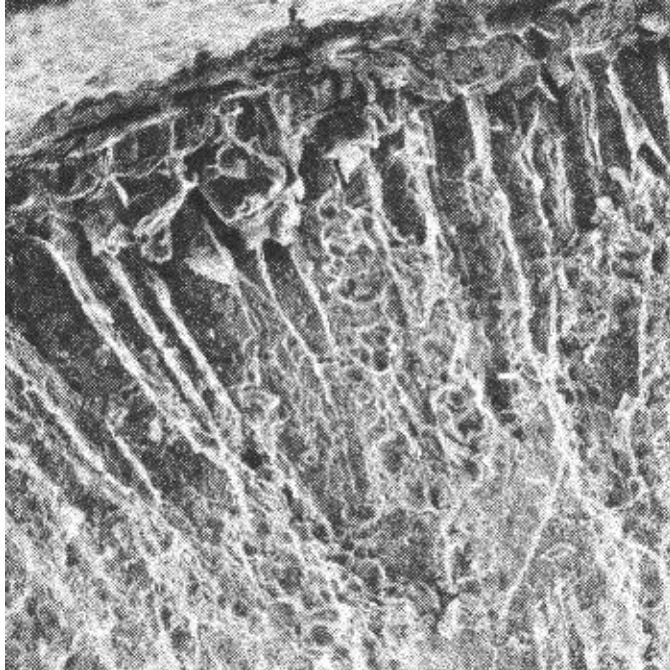
To Make ~~High Quality~~ Flour

To Make Money!!

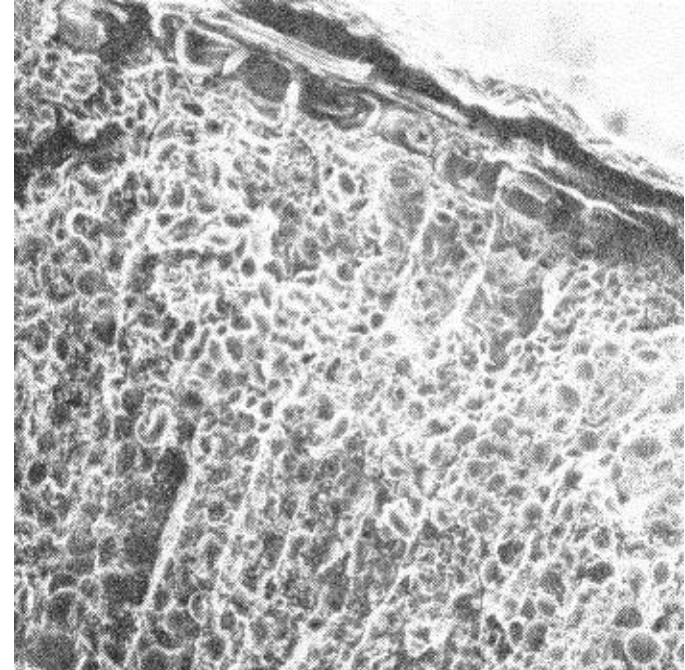
# A New Paradigm Exists?

- Wheat protein is no longer the best determination of value
- Cost spreads between classes and geographic source are too big to ignore and must be exploited
- New additive technologies open up an entirely new realm of possibilities
- Following the old line of thinking will make you uncompetitive in the future

# Fiber Structure

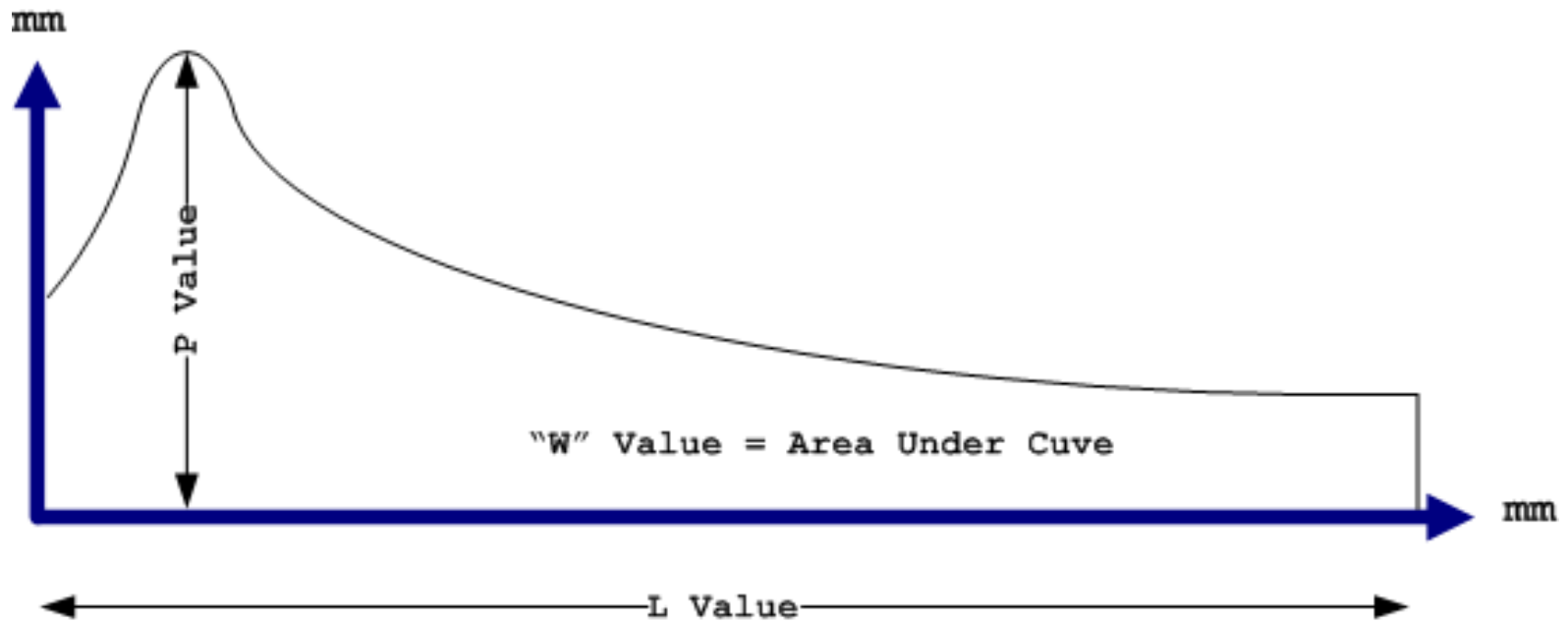


HRW

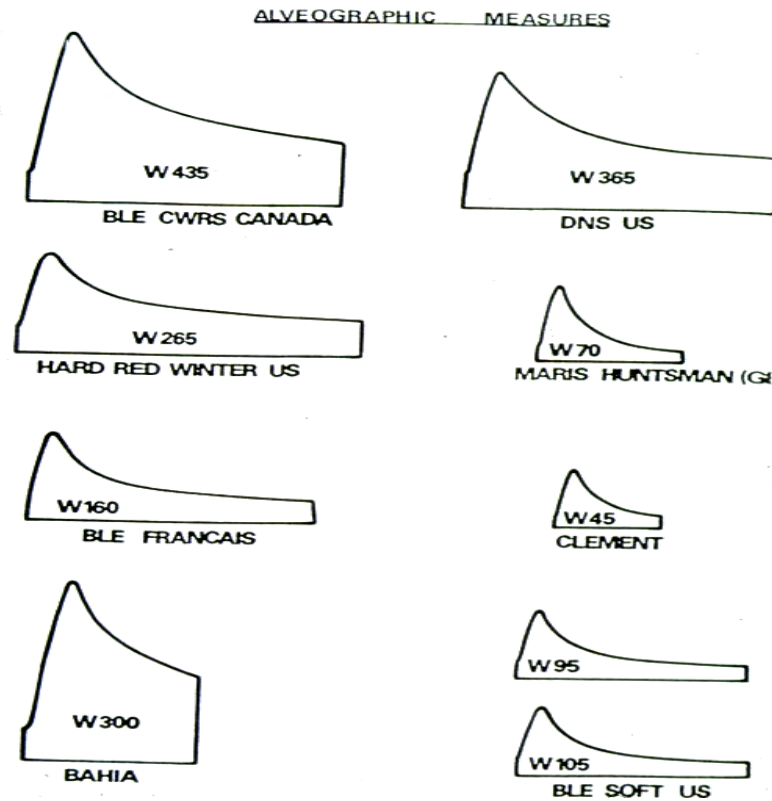


SRW

# Measuring Flour Performance: Alveograph



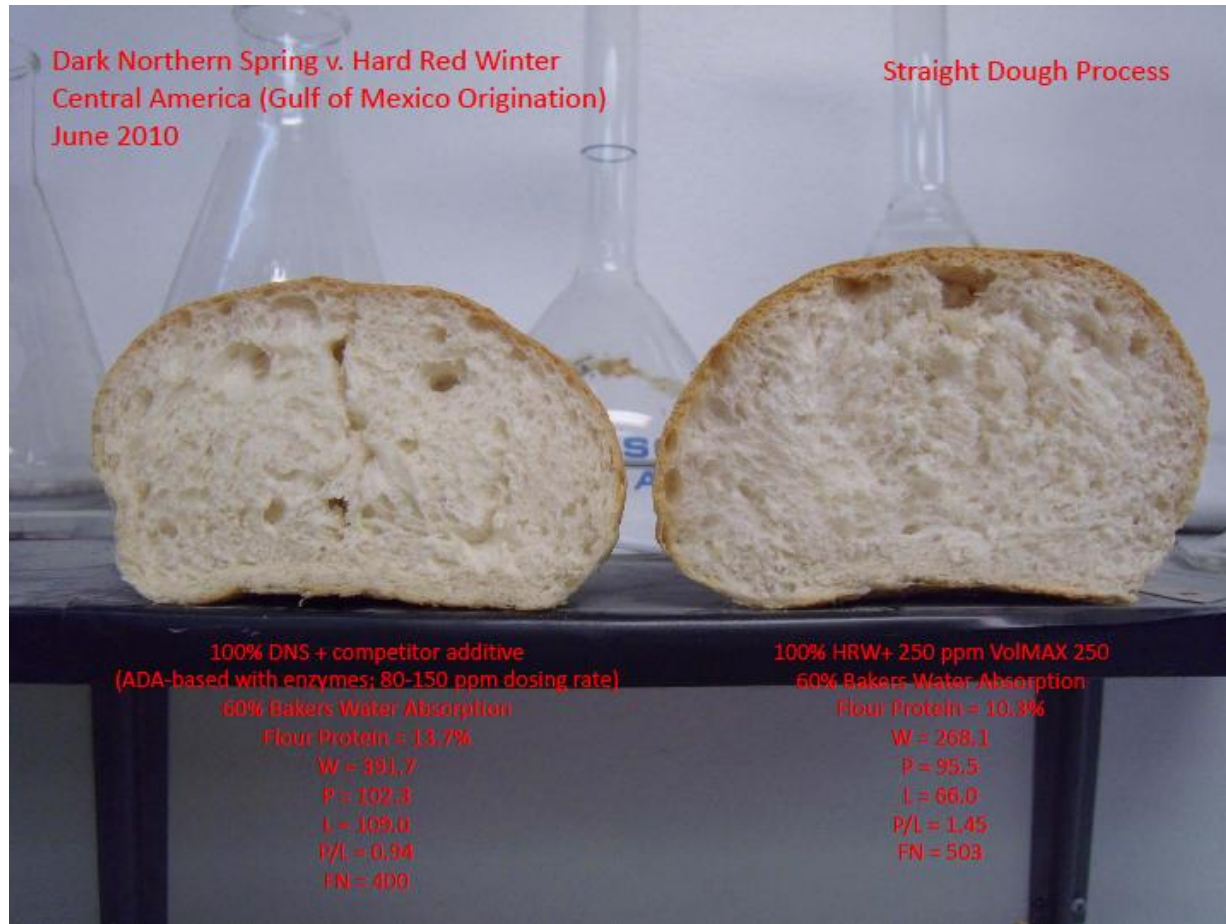
# Variability By Class/Source



# Real Measure of Quality

- Loaf Volume
  - ✓ Measure of specific volume (cc/g)
  - ✓ Oven-spring
  - ✓ Maintain volume during cooling (pan bread)
- Water absorption
  - ✓ 52-56% in soft (pastry) flour » 60-64 in hard (bread) flour
- Crumb quality

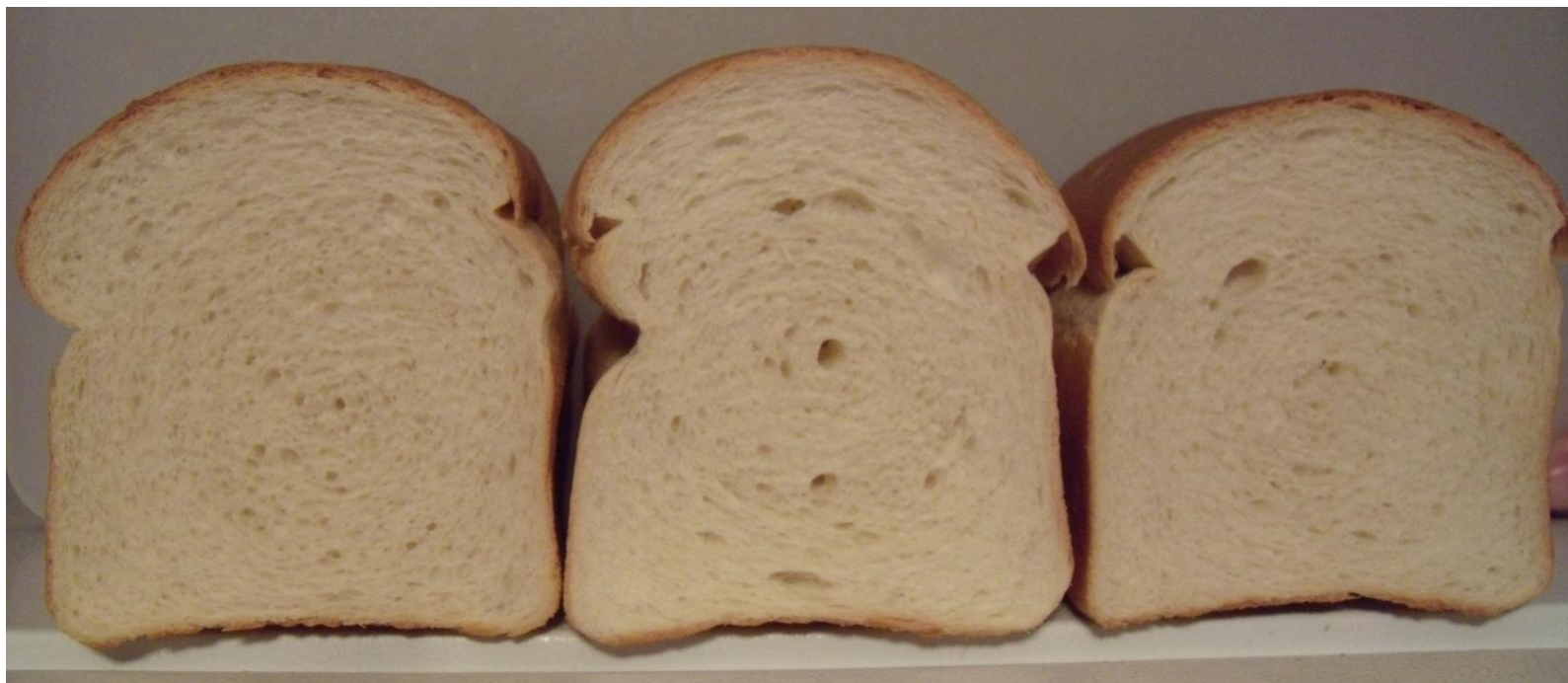
# Premium for DNS?



# Additives + Blending

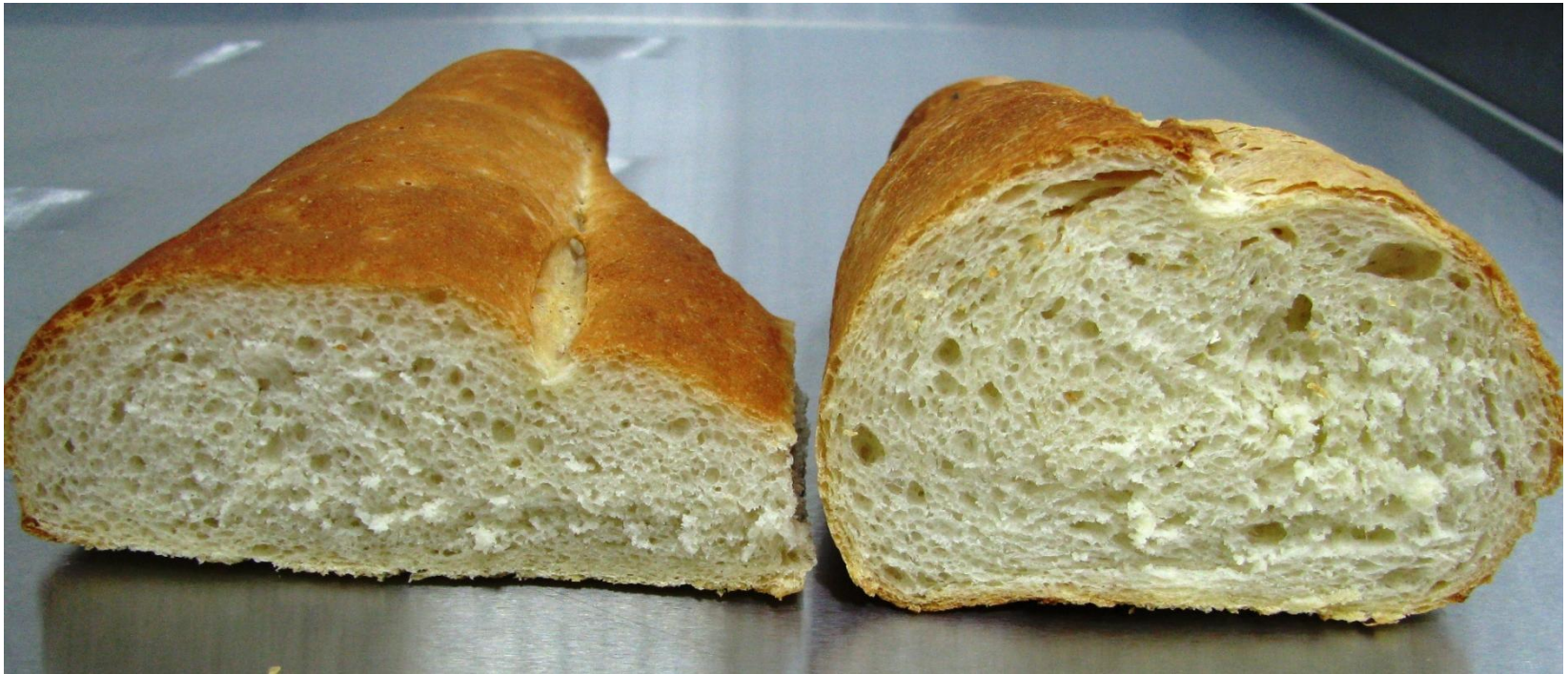


# Black Sea Opportunities?



Left to right: 100% Russian flour with 250 ppm of volMAX 300, 100% Hard Red Winter flour with 175 ppm of volMAX 250, 100% Russian flour with 175 ppm of volMAX 250. Water absorption was 63%, 62%, 61%, respectively. Mix times were constant.

# The Unthinkable Is Reality!



Typical Turkish Bread Flour  
9.7% Protein

50:50 Blend of Typical Turkish  
Bread Flour (9.7% Protein) and  
Lowest Available Quality Local  
Flour (6.7% Protein) – result 8.2%  
protein with Engrain Technology

# Key Considerations

- What I look for
  - ✓ High P/L ratio ( $>1.5$ )
  - ✓ Mid-range wet gluten (24-26)
- What I avoid
  - ✓ Low falling number ( $<275$ )
  - ✓ Insect (Suni) damage

# How Should We Really Define Flour Quality?

- 85% percent of the miller's cost is in raw material purchase, so that is where the greatest attention should be paid
- Additive tools exist today to change flour performance in virtually every aspect
- Blending programs allow further optimization
- So, your “highest quality” wheat may likely be the cheapest you can purchase

# Thank You

Questions and comments?

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