

Grain Quality Testing

New services offered through UVM
Extension

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Grain Evaluation (Grain

% Moisture

- Moisture content is the essential first step.
- Determines time of harvest.
 - Subsample (minibatt)
 - Bite test



Moisture



- * % moisture is used for other grain quality tests.
- * Moisture content is crucial in grain storability.
- Wheat or flour with a moisture content higher than 14.5% attracts mold, bacteria, and insects.

Test Weight



- Test weight is recorded as pounds per bushel.

Standard bushel weights:

Wheat = 60 lbs/bu

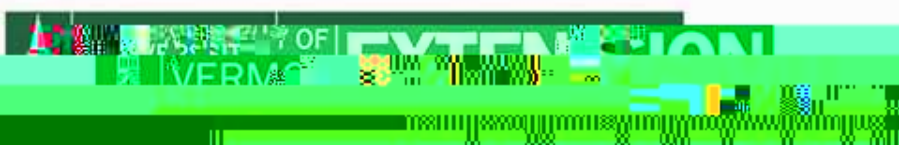
Barley = 48 lbs/bu

Oats = 32 lbs/bu

Rye = 56 lbs/bu

- Test weight gives an indication of the milling yield
- A low test weight = lower volume of usable flour
- A high test weight = high flour extraction

HOW THE FALLING NUMBER MACHINE WORKS



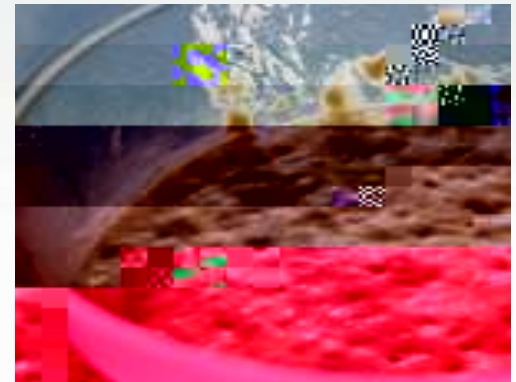
Effects of a Low Falling Number:

Bread

- It can reduce mixing strength
- Cause sticky dough
- Affect loaf volume and shelf life

Pasta

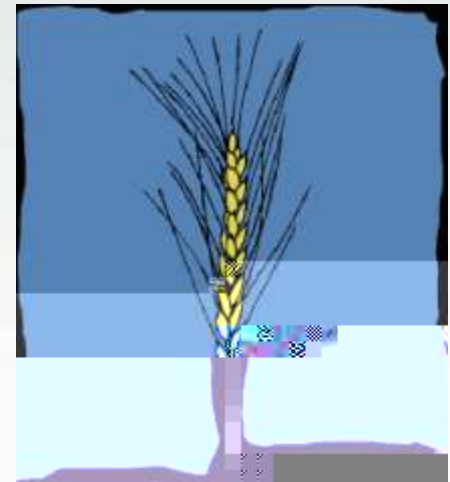
- Reduce shelf life
- Increase cooking loss
- Produce softer cooked pasta



Importance of Crude Protein

Protein content is a **KEY** specification for wheat and flour purchasers.

- Affects processing properties:
 - Water absorption
 - Gluten strength
 - Texture
 - Appearance



Testing Equipment

Elemental Analyzer (CHN)

Near Infrared Reflectance
(NIR) Spectroscopy



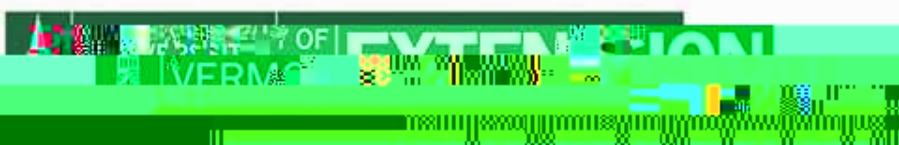
Grain Crude Protein (CP)

* 8.5 - 10% CP = pastry & crackers

Soft wheat varieties

* 10 - 15% CP = pan & hearth breads

Hard wheat varieties



Sample Submission Form

**Cereal Grain Quality Evaluation
Sample Submission Form**

University of Vermont
James M. Jeffords Building
101 Morgan Dr.
Burlington, VT 05405

*** Testing period: July 1, 2010 thru Dec 31, 2010.**
*Please submit samples to the lab by **July 1, 2010**.

Send this form with each sample to be analyzed.

Phone: _____
Fax: _____
E-mail: _____
Zip Code: _____

Are you a member of the Northern Grains Association? Yes No

Sample Description (circle one):
Spring Wheat _____ Winter Wheat _____
Barley _____ Oats _____ Triticale _____
Other (please specify): _____

NGGA Member (circle one):
 Yes No

Cost per Sample (USD):
\$5.00
\$5.00
\$10.00
\$15.00
\$20.00
\$35.00

Grain Moisture (%) \$0.00
Whole Grain Protein by NIR (%) \$0.00
Ash Content (%) \$0.00
Falling Number \$0.00
All of the above \$0.00
Mycotoxin (DON) \$20.00

* Please submit 1 quart of whole grain for each sample submitted. Please do not submit flour.
**Prices are based on analyzing a clean sample. Grain samples with stones and special instructions or comments:

Please make checks payable to UVV*
Become a NGGA member today! www.northerngrains.org for more information on becoming a member check out

QUESTIONS???