Quality of the United States Soybean Crop: 2010

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2010 Soybean Growing Season

- Planting conditions were very good to excellent in most areas of the US
- Spring and summer temperature and rainfall tended to be greater than normal across the Midwest
- Southern states were greatly affected by drought and high temperatures throughout the summer
- Drought conditions extended into the SE Cornbelt (Indiana and Ohio) in late August and through September
The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

http://drought.unl.edu/dm
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Author: Brad Rippey, U.S. Department of Agriculture
The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

http://drought.unl.edu/dm

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Author: Richard Heim/Liz Love-Brotak, NOAA/NESDIS/NCDC
2010 Harvest

- Heavy rains fell across some Northern states in late September.
- In general, October tended to be significantly dryer than normal. This allowed harvest to proceed at a record pace. By October 31, 2010, 96% of the US soybean crop had been harvested.
US Soybean Planting and Harvest Progress

Day of the Year

% of US Crop Planted or Harvested by date

2010 Planting Progress

'05-'09 Average

2010 Harvest Progress

'05-'09 Average
2010: Soybean pest summary

The common soybean insect pest **soybean aphid** (*Aphis glycines*) caused relatively little damage to the 2010 US crop because of above normal temperatures and abundant rainfall in the Midwest.
Soybean aphids (*Aphis glycines*)
2010: Soybean pest summary

The much discussed soybean disease, **soybean rust** (*Phakopsora pachyrhizi*), was confined to small areas in extreme southern ranges of the US due to dry conditions during the second half of the growing season throughout the south.
Soybean rust (caused by *Phakopsora pachyrhizi*)

Lesions with rust pustules

Soybean rust on leaves
Soybean Rust – September 2009

SB Rust Observation - 2009-09-30

Last Update: 09/30/09

Recently scouted, not found  Scouted, confirmed  Confirmed, no longer found
2010: Soybean pest summary

- The fungal disease **Sudden Death Syndrome (SDS)** (*Fusarium virguliforme*) heavily infected fields throughout the Midwest, due to warmer and wetter conditions there.
Initial and well-developed symptoms of SDS (caused by \textit{Fusarium virguliforme}) on soybean leaves
Soybean field affected by SDS
2010 Survey Methods

In late August, sample kits were mailed to 9,325 US soybean producers, based on soybean production by state.

By October 25, 1850 samples were returned for analysis.
2010 Survey Methods: Protein and Oil

- Samples were analyzed for protein and oil concentration by Near Infrared Spectroscopy (NIRS) using a Perten diode array instrument.
- Average protein and oil values were determined by state.
- Regional and US average values were determined by weighting averages based on estimated 2010 production.
Methods:
Seed size and FM

- **Seed size** was determined by counting and weighing 1000 seeds from each sample
  - Seed size is expressed on a grams per 100 seeds basis
- **FM** was hand picked and expressed as a % of total sample weight
- Split soybeans are not counted as FM
Methods: Foreign Material
## Results: Protein and Oil

<table>
<thead>
<tr>
<th>Year or Region</th>
<th>Protein (%) (13% basis)</th>
<th>Oil (%) (13% basis)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td>34.9</td>
<td>18.7</td>
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<tr>
<td>1986-2010</td>
<td>35.3</td>
<td>18.7</td>
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<tr>
<td>Western Corn Belt</td>
<td>34.5</td>
<td>18.6</td>
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<tr>
<td>Eastern Corn Belt</td>
<td>35.2</td>
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<tr>
<td>Midsouth</td>
<td>35.5</td>
<td>18.8</td>
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<tr>
<td>Southeast</td>
<td>35.6</td>
<td>19.5</td>
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<tr>
<td>East Coast</td>
<td>35.8</td>
<td>18.6</td>
</tr>
</tbody>
</table>
Results: Seed size

Seed size was smaller in 2010 than in 2009

- 14.3 g/100 seeds in 2010
- 16.0 g/100 seeds in 2009
Results: Foreign material (FM)

- Foreign material (FM) averaged 0.4% across all samples
  - 94% (1741) of samples had FM below 1%
  - 98% (1818) of samples had FM below 2%
Summary

- The US will produce a record crop due to good to excellent weather throughout the major soybean production regions.
- The quality of the US crop appears to be very similar to that of the 2009 crop and the long term average.
- Seed size is slightly smaller than in 2009.
- Despite a few samples with very high FM, average FM remains very small (0.4%) at the farm level.