2019 PEST MANAGEMENT UPDATE
MEETING SERIES ANNOUNCED

The schedule for the 2019 Wisconsin Pest Management Update meeting series has been set. Presentations will include agronomic pest management information for Wisconsin field and forage crops. Speakers include Mark Renz and Rodrigo Werle, weed scientists, Damon Smith, plant pathologist, and Bryan Jensen, entomologist.

The format will be the same as in recent years. Meetings will either be in the morning or afternoon on November 4-8, 2019. Simply choose a day/location to attend with each meeting running 3 hours. Note that several locations and contacts have changed since 2018 (marked with * in the meeting flier). Please read the informational flier carefully and make sure you contact the appropriate person at your desired location.

2019 Pest Management Update Highlights:

- Integrated Pest Management Updates in corn, soybeans, alfalfa, and small grains
- Update on new products and/or use of existing products as well as brief highlights of the 2019 pest situations in each crop.

Please make your reservation with the host contact at least one week prior to the scheduled meeting date.

Three hours of Certified Crop Advisor CEU credits in pest management are requested for each session.

The announcement flyer and agenda is attached at the end of this newsletter.

To see a 5-minute video about tar spot (shown above), click the picture or link.

https://www.youtube.com/watch?v=ULygYjMkXQF
A “POST-MORTEM” OF THE 2019 CORN PLANTING SEASON AND WHAT WE CAN DO ABOUT IT NOW

DR. JOE LAUER, UW-MADISON AGRONOMY AND EXTENSION STATE CORN SPECIALIST

The Kernels:

- The 2019 planting season was “unprecedented.”
- Harvest season will be extended this year. Corn maturity is all over the board due to late planting, and within field variability is equally as great.
- Dairy farmers will have to work closely with their custom choppers and let them know when the field was planted, when it silked, the current stage of development, and what the moisture is.
- Note silking dates to project calendar days to when a field will mature.
- Note order that fields silk to plan the harvest queue. It will take approximately 42 to 47 days to get to 50% kernel milk, and 55 to 60 days to get to black layer.

(The two page Agronomy Advice fact sheet is attached at the end of this newsletter.)

THE “NORMAL” PATTERN OF CORN FORAGE AND GRAIN DEVELOPMENT

DR. JOE LAUER, UW-MADISON AGRONOMY AND EXTENSION STATE CORN SPECIALIST

The Kernels

- Corn exhibits a “double peak” for corn silage quality during its life cycle with the first NDFD peak at R1 and the second starch content peak at R5.5.
- Corn as a forage crop reaches maximum yield and quality values at nearly the same time (R5.5).
- At harvest (R5.5), the wettest plant part is the lower stalk, while the driest plant part is the grain. Adjusting the cutter bar can change forage mois-
ture 3 to 4% points to better target the recommended moisture for the storage structure.

(The three page Agronomy Advice fact sheet is attached at the end of this newsletter.)

WISCONSIN PEST BULLETIN #18, AUG 29

KRISTA HAMILTON, ENTOMOLOGIST, WISCONSIN DEPARTMENT OF AGRICULTURE, TRADE AND CONSUMER PROTECTION

Volume 64 Issue No. 18 of the Wisconsin Pest Bulletin is now available at:

View full PDF here

LOOKING AHEAD: Brown marmorated stink bug swarms expected this fall

FORAGES & GRAINS: Locally high pea aphid populations found in alfalfa

CORN: Final results of DATCP’s annual corn rootworm beetle survey

SOYBEAN: Soybean aphid pressure generally very low this season

FRUITS: Spotted wing drosophila infestations likely to persist in September

VEGETABLES: Late blight reports confirmed in 12 counties so far

NURSERY & FOREST: Assorted observations from recent inspections

DEGREE DAYS: Growing degree day accumulations as of August 28, 2019
## 2019 Wisconsin Pest Management Update Meetings

Three hours of Certified Crop Advisor CEU credits in pest management are requested for each session.

<table>
<thead>
<tr>
<th>Date</th>
<th>Location</th>
<th>Contact</th>
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<tbody>
<tr>
<td>Monday, November 4</td>
<td><strong>Marshfield</strong>&lt;br&gt;Marshfield Agricultural Research Station&lt;br&gt;2611 Yellowstone Drive Marshfield, WI 54449</td>
<td>Richard Halopka&lt;br&gt;Clark County Extension Courthouse&lt;br&gt;Room 104, 517 Court Street Neillsville, WI 54456&lt;br&gt;(715) 743-5121</td>
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<tr>
<td>Tuesday, November 5</td>
<td><strong>Chippewa Falls</strong>&lt;br&gt;Lake Hallie Eagles Club, 2588 Hallie Road&lt;br&gt;Chippewa Falls, WI 54729</td>
<td>Jerry Clark&lt;br&gt;Chippewa County Extension&lt;br&gt;711 N. Bridge Street Chippewa Falls, WI 54729&lt;br&gt;(715) 726-7950</td>
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<td>Wednesday, November 6</td>
<td><strong>Darlington</strong>&lt;br&gt;Lafayette County Hilltop Center&lt;br&gt;11974 Ames Road&lt;br&gt;Darlington, WI 53530</td>
<td>Josh Kamps&lt;br&gt;Lafayette County Extension 627 Washington Street Darlington, WI 53530&lt;br&gt;(608) 776-4820</td>
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<td>Wednesday, November 6</td>
<td><strong>Janesville</strong>&lt;br&gt; Holiday Inn Express Janesville&lt;br&gt;3100 Wellington Place Janesville, Wisconsin 53546&lt;br&gt;(I-90 and US Highway 14, West on 14)</td>
<td>Nick Baker&lt;br&gt;Rock County Extension&lt;br&gt;51 S. Main Street Janesville, WI 53545&lt;br&gt;(608) 757-5698</td>
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<td>Thursday, November 7</td>
<td><strong>Fond du Lac</strong>&lt;br&gt;University of Wisconsin – Fond du Lac&lt;br&gt;Rm 113 University Center&lt;br&gt;400 University Drive Fond du Lac, WI 54935</td>
<td>Joe Zimbric *&lt;br&gt;Fond du Lac County Extension&lt;br&gt;227 Admin/Extension Bldg. 400 University Dr. Fond du Lac, WI 54935&lt;br&gt;920-929-3173</td>
</tr>
<tr>
<td>Thursday, November 7</td>
<td><strong>Appleton</strong>&lt;br&gt;The Grand Meridian, 2621 N Oneida Street, Appleton, Wisconsin 54911</td>
<td>Kevin Jarek&lt;br&gt;Outagamie County UW Extension&lt;br&gt;3365 W. Brewster St. Appleton, WI 54914&lt;br&gt;(920) 832-5128</td>
</tr>
<tr>
<td>Friday, November 8</td>
<td><strong>Bangor</strong>&lt;br&gt;Log Cabin, Jones Road, Bangor, WI 54614</td>
<td>Kaitlyn Lance&lt;br&gt;La Crosse County UW Extension&lt;br&gt;212 6th Street North La Crosse, WI 54601&lt;br&gt;(608) 785-9593</td>
</tr>
</tbody>
</table>

The schedule for the Wisconsin Pest Management Update meeting series is listed below. Presentations will include pest management information for Wisconsin field and forage crops. Speakers will include Mark Renz and Rodrigo Werle, weed scientists, Damon Smith, plant pathologist, and Bryan Jensen, entomologist.

The format will be the same as in recent years. Meetings will either be in the morning or afternoon and will run for 3 hours. Morning meetings will begin promptly at 9 am and run to 12 pm. Afternoon meetings will begin at 1 pm and conclude at 4 pm. Please read carefully and make sure you contact the appropriate person at your desired location.

Locations with an asterisk have changed since last year.

*Please make your reservation with the host agent at least one week prior to the scheduled meeting date.*
A “Post-Mortem” of the 2019 Planting Season and What We Can Do About It

Joe Lauer, Corn Agronomist

The Kernels

• The 2019 planting season was “unprecedented.”
• Harvest season will be extended this year. Corn maturity is all over the board due to late planting, and within field variability is equally as great.
• Dairy farmers will have to work closely with their custom choppers and let them know when the field was planted, when it silked, the current stage of development, and what the moisture is.
• Note silking dates to project calendar days to when a field will mature. Note order that fields silk to plan the harvest queue. It will take approximately 42 to 47 days to get to 50% kernel milk, and 55 to 60 days to get to black layer.

Who can forget the “Drought of 1988” or the “Father’s Day Frost of 1992” or the “Flood of 2008.” The 2019 corn planting season in Wisconsin will have a similar notoriety and be remembered for a long time. Corn planting progress records have been kept by USDA since the 1979 growing season. The 2019 planting season was “unprecedented.”

Farmers in Wisconsin typically plant about 50% of the corn acreage by May 7 (Figure 1). The earliest we have hit the 50% planted acreage level was during 2010 by Week 16. Other early years were 2016, 2006, 2005, 2000, and 1999. The slowest we have hit the 50% mark was 1996 and 2014 at Week 20. That is until 2019 when we hit the 50% mark at Week 21 and what subsequently happened during June.

Significant corn acres were planted in July this year. Planting date sets up your season. If you are delayed or planting is extended then workload is delayed or extended as well. Some corn will not make grain or be too expensive to dry. Some corn will not make good corn silage due to lack of grain development prior to a killing frost.

Corn as a Cover Crop

Who would have thought that corn could be grown as a cover crop? Yet, due to low forage inventories and the relaxing of USDA-RMA rules, corn was allowed as a cover crop to be harvested as an emergency forage. To be sure, corn is deep-rooted and by the end of the growing season can produce significant residue even when planted in July. A number of management guidelines needed to be considered to qualify including: increased plant population, narrower row spacing, crop rotation, planting into residue, lower nitrogen rate, and good weed control.

Figure 1. Wisconsin Corn Planting Progress. The average consists of data from 1979 to 2018. Years shown are ± 1 standard deviation from the average. Data derived from USDA-NASS.
Will the Corn Crop Make It?

Corn maturity is all over the board due to late planting, and within field variability is equally as great. An early frost could spell doom for a lot of cornfields. Most late-planted corn will likely be immature and killed by frost. **Patience** will be required to allow the corn to dry to the proper moisture for storage and preservation. Starch content will be most affected with late-planted corn. However, this can be easily remedied by adding more grain corn into the ration.

Filling bunker and pile silos may also be a challenge where all the corn won’t be ready at the same time. Decisions will need to be made as to whether to start a new pile or risk reopening up an existing pile. Some may choose to just fill a bag with any late-cut corn.

None of this will make life easy for custom chopping operations either. Harvest season will be extended this year, and any information that can be passed along to custom operators will help with planning and proper timing of silage harvest.

**In-season Guidelines for Predicting Corn Silage Harvest Date**

1) Note hybrid maturity and planting date of fields intended for silage.
2) Note tasseling (silking) date. Kernels will be at 50% kernel milk (R5.5) about 42 to 47 days after silking.
3) After milksine moves, use kernel milk triggers to time corn silage harvest. Use a drydown rate of 0.5% per day to predict date when field will be ready for the storage structure. See [http://fyi.uwex.edu/silagedrydown/](http://fyi.uwex.edu/silagedrydown/)
4) Do final check prior to chopping. Adjust cutter height if forage needs are adequate. Raising cutter bar 1 foot, lowers silage moisture 2 to 4 points.

Once corn silks it takes about 55 to 60 days to achieve maturity (R6). Development during grain filling is influenced by temperature, but not as much as during the vegetative leaf emergence stages. Instead the number of days between pollination and a killing frost influence the time to maturity. So, if an average killing frost occurs October 1, then subtracting 55 to 60 days means that the crop must be silking by August 2-7. Silage harvest usually begins around 50% kernel milk which is 42 to 47 days after silking, so silking must occur by August 15-20. However, remember that at some point yield does not matter anymore and that timing of silage harvest is dependent upon achieving the proper moisture for the storage structure.

At the dent stage (R5), corn has accumulated 75-85% of silage yield and 60-75% of grain yield and needs about 27-32 days to avoid significant yield reductions due to frost (Table 1). In order to avoid yield reductions caused by frost, corn intended for silage should be silking by late August, while corn intended for dry grain should reach the dent stage by September 1.

**Management Options for Corn Grain Harvest**

1) Note silking dates to project calendar days to when a field will mature. Note order that field silk to plan the harvest queue. It will take approximately 55 to 60 days to get to R6.
2) Consider selling a greater proportion of your corn acres as silage or high moisture corn.
3) Consider locking in a price for drying fuel.
4) Taking the dock for shrink at the elevator.
5) Fine-tune your dryer so that over- or under-drying does not occur. Over-heating the grain in the dryer or filling the bin too fast for drying to occur will increase costs and decrease grain quality reducing profitability.
6) Hire and train the skilled labor that will be required to monitor dryers, fans, augers, and other equipment during the drying process.
7) Consider some field drying if moisture levels are high, but do not let corn stand in the field too long or snow may increase harvest losses due to ear droppage and stalk breakage from snow.

### Table 1. The relationship between kernel growth stage and yield of corn for normal planting dates.

<table>
<thead>
<tr>
<th>Stage</th>
<th>Calendar days to maturity</th>
<th>GDUs to maturity</th>
<th>Percent of max yield</th>
<th>Moisture content (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Grain</td>
<td>Silage</td>
<td>Grain</td>
<td>Silage</td>
</tr>
<tr>
<td>R1: Silking</td>
<td>55-60</td>
<td>1100-1200</td>
<td>0</td>
<td>45-50</td>
</tr>
<tr>
<td>R2: Blister</td>
<td>45-50</td>
<td>875-975</td>
<td>0-10</td>
<td>55-60</td>
</tr>
<tr>
<td>R3: Milk</td>
<td>35-40</td>
<td>750-850</td>
<td>10-30</td>
<td>60-65</td>
</tr>
<tr>
<td>R4: Dough</td>
<td>30-35</td>
<td>650-750</td>
<td>30-60</td>
<td>65-75</td>
</tr>
<tr>
<td>R5: Dent</td>
<td>27-32</td>
<td>425-525</td>
<td>60-75</td>
<td>75-85</td>
</tr>
<tr>
<td>R5.5: 50% Kernel milk</td>
<td>13-18</td>
<td>200-300</td>
<td>90-95</td>
<td>100</td>
</tr>
<tr>
<td>R6: Black layer</td>
<td>0</td>
<td>0</td>
<td>100</td>
<td>95-100</td>
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</tbody>
</table>
The “Normal” Pattern of Corn Forage and Grain Development
Joe Lauer, Corn Agronomist

The Kernels

- Corn exhibits a “double peak” for corn silage quality during its life cycle with the first NDFD peak at R1 and the second starch content peak at R5.5.
- Corn as a forage crop reaches maximum yield and quality values at nearly the same time (R5.5).
- At harvest (R5.5), the wettest plant part is the lower stalk, while the driest plant part is the grain. Adjusting the cutter bar can change forage moisture 3 to 4% points to better target the recommended moisture for the storage structure.

Corn is a high yielding, high energy, low protein forage commonly used for growing and finishing beef cattle, in cow-calf production systems, for growing dairy heifers, and for lactating dairy cows. Corn grown as a forage and fermented in a storage structure preserves the silage for subsequent feed-out. Understanding yield and quality changes during the life cycle of corn is critical for timing harvest of a field.

The “Double Peak” of Corn Silage Quality

Corn exhibits a “double peak” for corn silage quality during its life cycle (Figure 1). The first peak is related to energy derived from stover fiber (NDFD) and water-soluble carbohydrates, while the second peak is derived from NDFD and starch content of grain. Forage quality as measured by Milk per Ton is at the first quality peak just prior to silking (R1). Like all forages, Milk per Ton decreases following flowering (VT-R1). Unlike other forages, corn silage Milk per Ton after the kernel blister stage (R2), steadily increases to a maximum second quality peak around 50% kernel milkline development (R5.5) due to grain yield development.

Forage yield and Milk per Acre

One of the unique aspects of corn as a forage crop is that yield and quality reach maximum values at nearly the same time. Forage yield increases steadily through its life cycle. At R1 all the plant photosynthetic “machinery” is produced on the plant. For most hybrids grown commercially in Wisconsin the grain filling period (R1-R6) is about 55-60 d. Following pollination, grain develops in a sigmoidal fashion with a 7-10 d lag period, followed by a 40-44 d linear phase, and ending with a 7-10 d maturation phase. Starch content increases as grain develops and matures.

Multiplying corn forage yield by Milk per Ton results in Milk per Acre. Milk per acre peaks at R5.5. Then due to leaf senescence and loss, yield and quality tends to decrease slightly.

Using Forage and Grain Moisture for Harvesting

At some point forage yield is no longer as important as timing harvest at the correct moisture for the storage structure to ensure proper fermentation and preservation. The wettest plant part on corn is the lower stalk, which is also of poor quality (low NDFD) and is high in nitrates. The driest plant part is grain. By raising the chopper cutter bar 12 inches, forage moisture decreases 3-4% points to better target the recommended moisture for the storage structure. About a one-week shift in harvest timing can be achieved (assuming 0.5% per day drydown rate).
Figure 1. Normal Pattern of Corn Forage and Grain Development in Wisconsin.