

New Decision-Making Tool to Estimate the Net Benefit of Bt Corn in Wisconsin

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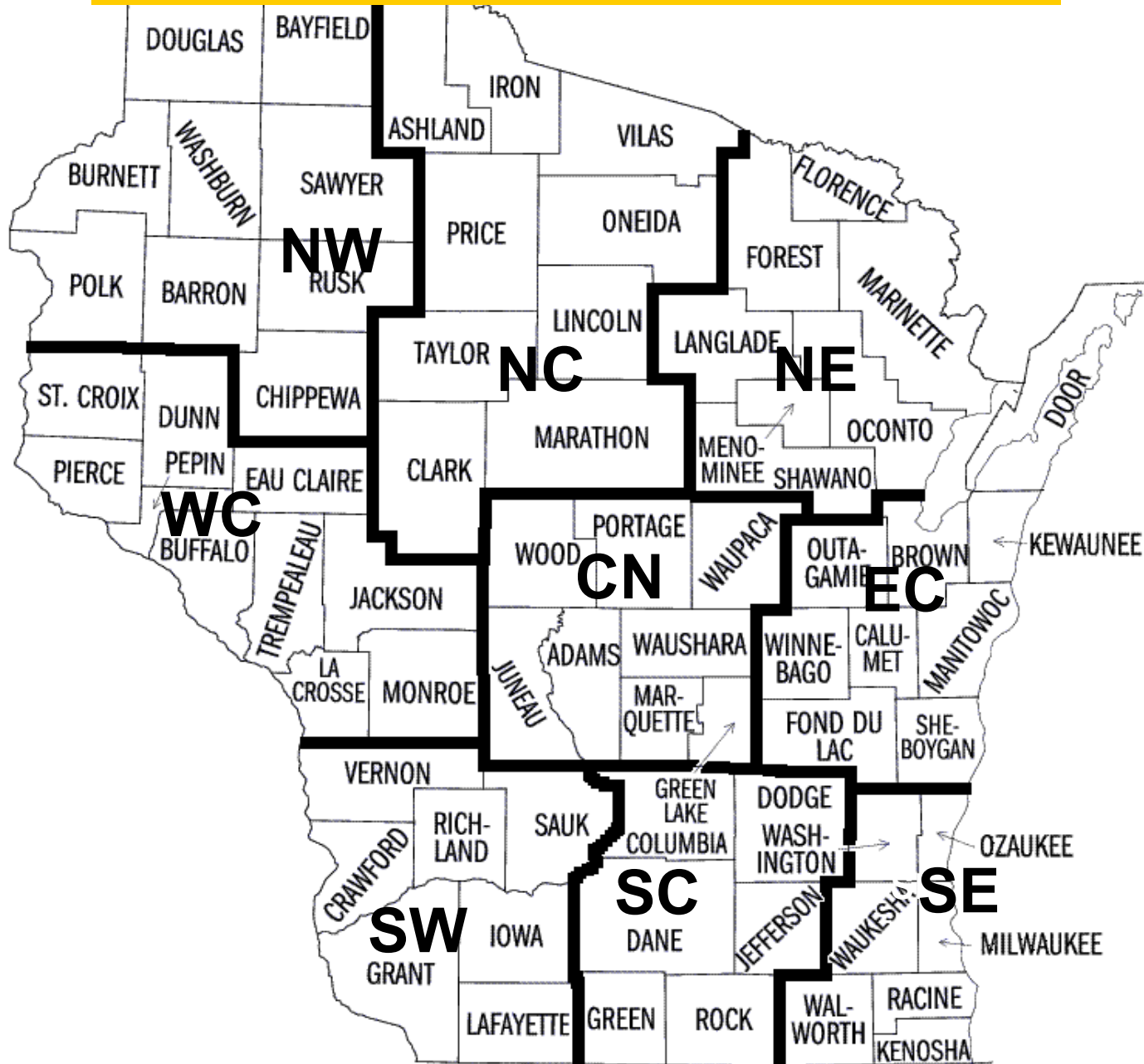
Overview

- Explain new decision aid for Bt corn
 - Farm specific net benefit (\$/ac)
 - Farm specific break-even probability
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- Bulletin with worksheet
 - Excel spreadsheet

ECB Analysis Summary

- DATCP annual fall survey of 2nd generation ECB populations in corn fields
- Mitchell et al. (2002) to estimate distribution of stalk tunneling as function of ECB population distribution
- Hurley, Mitchell, and Rice (2004) to estimate distribution of % yield loss as function of stalk tunneling distribution
- Final Result: Distribution of % Yield Loss from ECB for each WI crop reporting district

WI Crop Reporting Districts



Farm Specific Economics

Farmer uses Own

- Expected/Average Yield (bu/ac)
- Expected Price (\$/bu)
- Bt Corn Cost/Technology Fee (\$/bag)
- Planting Density (seeds/ac)

Decision Aid estimates

- Expected Net Benefit of Bt Corn (\$/ac)
- Break-Even Probability (%)

Expected (Average) Net Benefit

- Expected increase in net returns (\$/ac) if plant Bt corn
- Estimate of the average increase of net returns if planted Bt corn over many years
- $E[NB] = \text{price} \times \text{yield} \times \% \text{ yield saved}$
 - cost of Bt corn
- Depends on assumed price, yield, and cost

Break-Even Probability

- Net Returns to Bt corn are not certain because the actual yield loss prevented by Bt corn is not certain: ECB population and damage are unknown when you plant
- If the average net benefit is \$5/ac does not mean the actual net benefit will always be \$5/ac
- Break-Even Probability: Probability that the value of the yield saved by Bt corn will equal or exceed the extra cost of Bt corn

Go to Spreadsheet

<http://www.aae.wisc.edu/mitchell/Economics%20of%20Bt%20Corn%20in%20WI.xls>

Where to get the Decision Aid

- My Extension web page
www.aae.wisc.edu/mitchell/extension.htm
- Contact me: Paul D. Mitchell
(608) 265-6514 pdmitchell@wisc.edu
- I will mail you bulletin & spreadsheet
- I will email you bulletin & spreadsheet