USDA SARE
Improving Small Ruminant Parasite Control in New England
The Effect of Vitamin E Supplementation on an Experimental *Haemonchus Contortus* Infection in Lambs

Evaluate the effects of vitamin E supplementation (10 IU/kg BW/day) on lambs experimentally infected with *Haemonchus contortus*
Results

Abomasal Worm Burden

![Graph showing Abomasal Worm Burden for VE5 and VE10 treatment groups.](image)
Conclusions

• There was a 50% reduction in abomasal worm burden in sheep supplemented with 10 IU/kg bw/day
Anthelmintic effect of cranberry leaf powder and cranberry leaf proanthocyanidin extract on ovine *Haemonchus contortus*
Cranberry Leaf Proanthocyanidin (PAC)

- Cranberry leaves contain high levels of Proanthocyanidin condensed tannin
- Leaves are by-product of harvest
- Wisconsin and Massachusetts

http://viewfromthe14thfloor.com/?p=967
Studies to test anthelmintic efficacy of cranberry leaf extract (PAC) and powder

- Anthelmintic efficacy testing of PAC on
  - adult worms *in vitro*
  - L1/L2 larvae *in vitro*
  - larval development *ex vivo*

- Anthelmintic efficacy of cranberry leaf powder on eggs *in vivo*
Effect of Cranberry PAC on Adult *H. contortus*

![Bar graph showing the percent viability of *H. contortus* at different PAC concentrations.](image)

- **P ≤ 0.001 versus 0 PAC**
- **P ≤ 0.05 versus TBZ**
Effect of cranberry leaf powder on *H. contortus* fecal egg count reduction

- Two groups of 9 lambs were infected with *H. contortus* L3 larvae.

- One group was orally drenched with 26 grams of cranberry leaf powder for 3 days and control group not drenched.

- Fecal egg counts were processed weekly.
Effect of cranberry leaf powder on *H. contortus* fecal egg count reduction

![Graph showing the reduction in fecal egg count (FEC) after different weeks of treatment with cranberry leaf powder. The graph compares the control group (white bars) with the cranberry treatment group (black bars).](image)

Control

Cranberry

\[ P \leq 0.02 \text{ trt vs wk} \]
Conclusions

- Cranberry leaf powder PAC exhibited anthelmintic activity against larval and adult *H. contortus*
- Cranberry leaf powder reduced fecal egg counts for two weeks after treatment
- Next step - Recently funded NESARE graduate student grant will examine anthelmintic effect of varying concentrations of cranberry leaf powder incorporated into a supplemental pellet.
USDA OREI
Forage-based Parasite Control in Sheep and Goats in the Northeast U.S.

West Virginia University
Cornell University
University of Rhode Island
University of Wisconsin
Virginia Tech
Project Objectives

• Evaluation of birdsfoot trefoil (BFT) cultivars – Analysis of the condensed tannin profiles

• Assess the anthelmintic effect of BFT cultivars

• Assess the effect of BFT on immune function

• Evaluate herd health and economic outcomes of BFT pasture mixes for GIN suppression
## Condensed Tannin Analysis of Several Varieties of Birdsfoot Trefoil

<table>
<thead>
<tr>
<th>Variety</th>
<th>DMAC PAC A2 dimer standard (mg/g)</th>
<th>DMAC PAC Cranberry PAC standard (mg/g)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Empire BFT</td>
<td>1.5</td>
<td>5.3</td>
</tr>
<tr>
<td>Bull BFT</td>
<td>1.4</td>
<td>4.8</td>
</tr>
<tr>
<td>NY BFT</td>
<td>1.8</td>
<td>6.1</td>
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<tr>
<td>Bruce BFT</td>
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<td>40.9</td>
</tr>
<tr>
<td>Norcen BFT</td>
<td>ND</td>
<td>ND</td>
</tr>
<tr>
<td>Pardee BFT</td>
<td>3.9</td>
<td>13.2</td>
</tr>
<tr>
<td>Leo BFT</td>
<td>2.3</td>
<td>7.7</td>
</tr>
</tbody>
</table>
On-Farm BFT Studies

• Coordinate on-farm studies with participating farmers who will investigate how to best utilize BFT in the field.

• Are there practical ways to incorporate BFT into grazing systems and control parasites?
  o Variety differences in terms of effectiveness and suitability?
  o Amount needed? Sustainability?
QUESTIONS?