

# Organic Crop Production: High Tunnel Production- Year 1: Lessons Learned

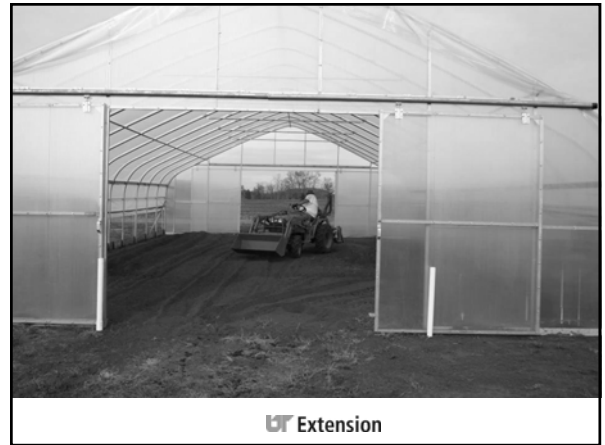
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Vegetable Specialist and Organic Research Associate



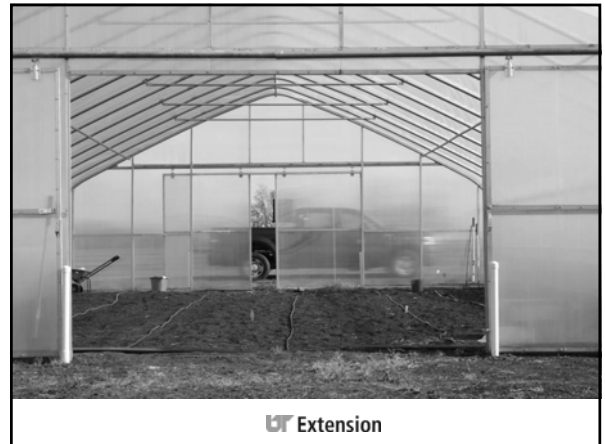
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### Cool Season Crops Project

- Conducted fall/winter 2008-2009
- 3 varieties of 11 crops grown in high tunnels and in low tunnels, replicated 3 times
- Growth measurements and harvest data were collected
- Experiment started 28-Oct-08, ended 13-Mar-09

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### Cool Season Crop Varieties

<ul style="list-style-type: none"> <li>• Broccoli:               <ul style="list-style-type: none"> <li>- 'DeCicco'</li> <li>- 'Waltham'</li> <li>- 'Belstar'</li> </ul> </li> <li>• Spinach:               <ul style="list-style-type: none"> <li>- 'Butterflay'</li> <li>- 'Bloomsdale'</li> <li>- 'Matador'</li> </ul> </li> <li>• Kale:               <ul style="list-style-type: none"> <li>- 'Lacinato'</li> <li>- 'Red Russian'</li> <li>- 'True Siberian'</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Lettuce:               <ul style="list-style-type: none"> <li>- 'Kweik'</li> <li>- 'Winter Density'</li> <li>- 'Brune D'Hiver'</li> <li>- 'Ruben's Red Romaine'</li> <li>- 'Drunken Woman Frizzy Headed'</li> <li>- 'Red Oakleaf'</li> </ul> </li> <li>• Swiss chard:               <ul style="list-style-type: none"> <li>- 'Chadwick's Choice'</li> <li>- 'Glattersilber'</li> </ul> </li> </ul>
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## Cool Season Crop Varieties

- Leeks:
  - ‘Varna’
  - ‘Longfall’
  - ‘Blaugruner’
- Radish:
  - ‘Round Black Spanish’
  - ‘Cherry Belle’
  - ‘Miyashige White Daikon’
- Cauliflower:
  - ‘Graffiti’
  - ‘Odysseus’
  - ‘Cassius’
- Kohlrabi:
  - ‘Dyna’
  - ‘Kolibri’
  - ‘Superschmelz’
- Beets:
  - ‘Moneta’
  - ‘Golden Detroit’
  - ‘Chioggia’
- Sweet peas:
  - ‘Mammoth Melting’
  - ‘Cascadia’
  - ‘Sugarsnap’



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## Cool Season Crop Varieties

- Carrots:
  - ‘Red Core Chantenay’
  - ‘St. Valery’
  - ‘Oxheart’
- Onions:
  - ‘Mini Purplette’
  - ‘Evergreen’
  - ‘Parade’



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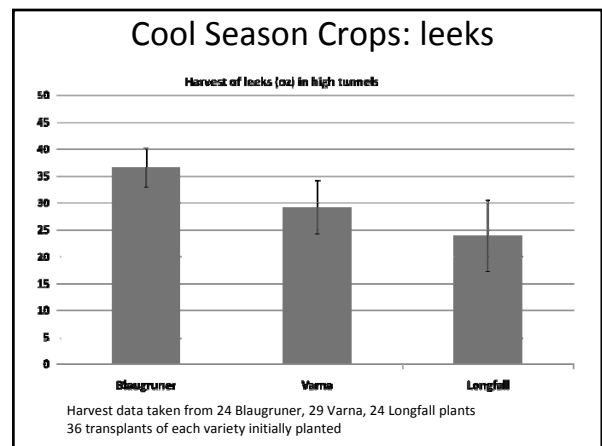
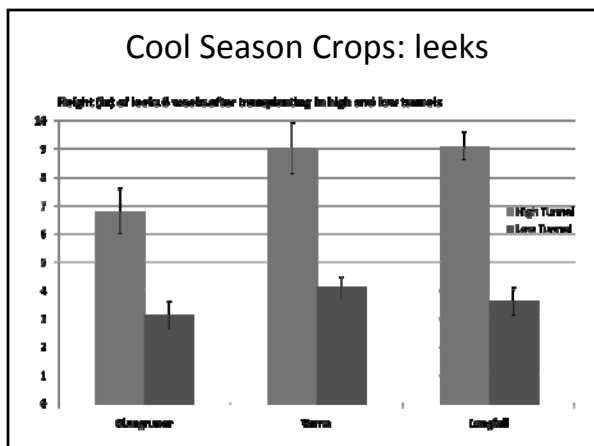
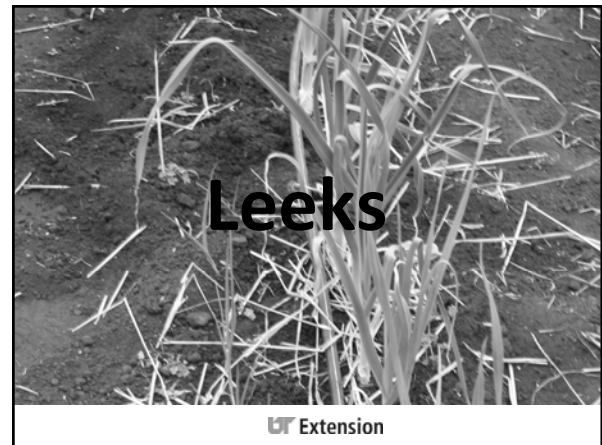
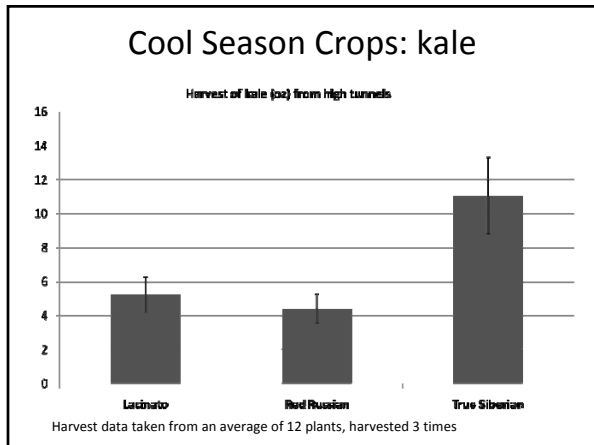
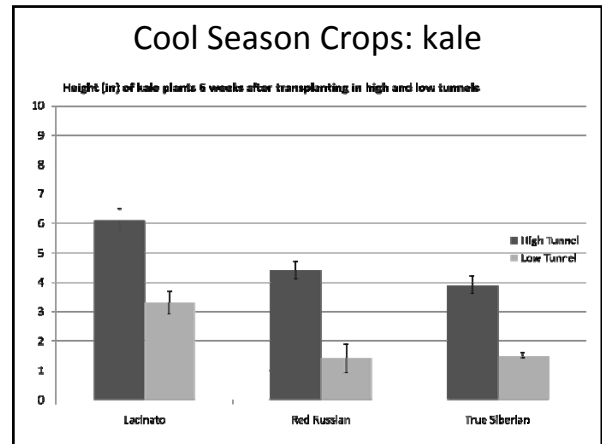
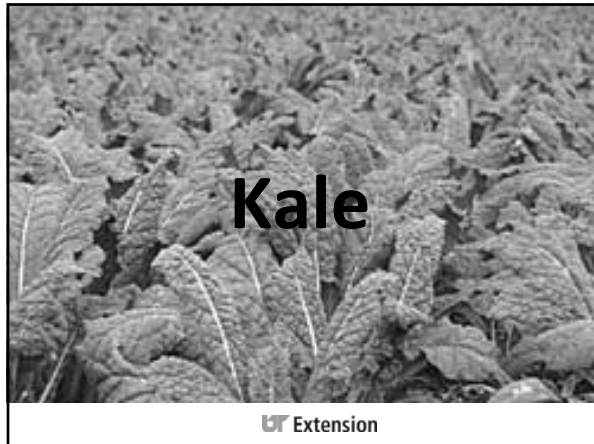


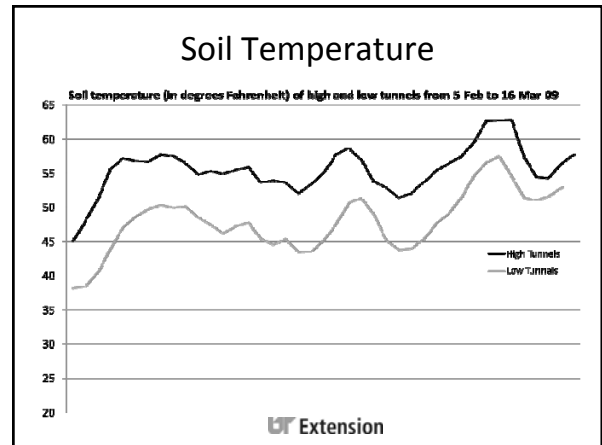
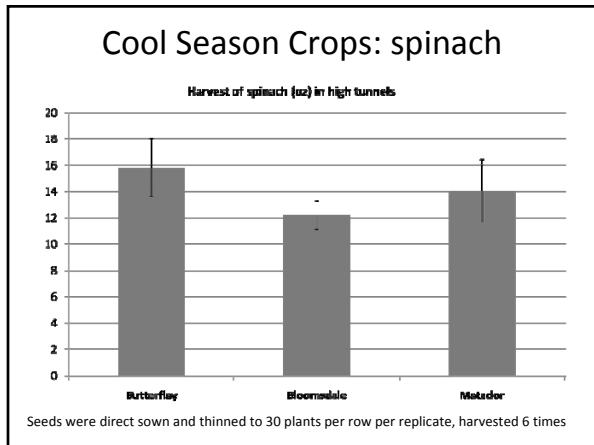
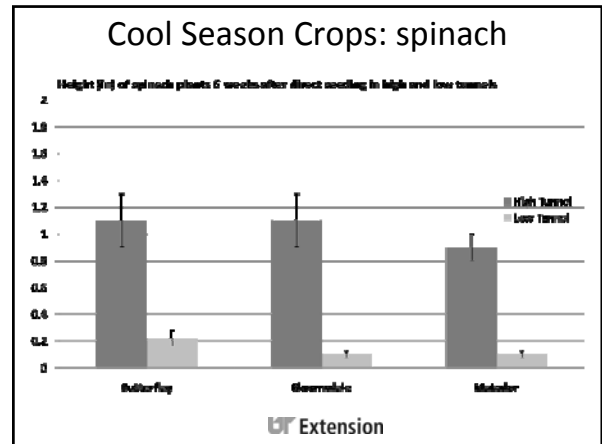
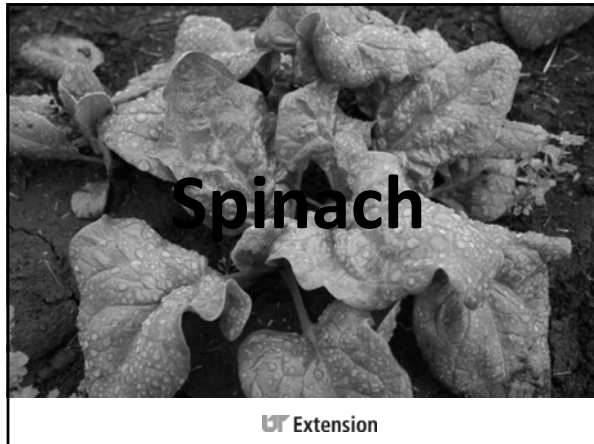
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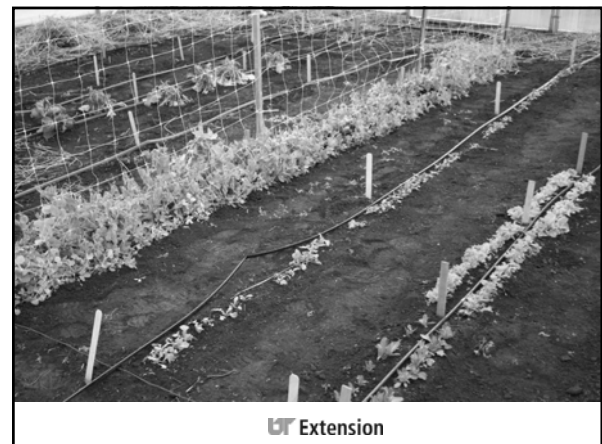
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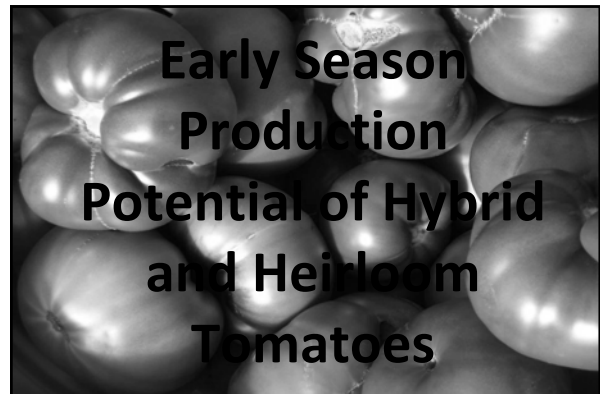
- ### Results
- Soil temperatures in high tunnels were 5-10 degrees warmer than in low tunnels
  - High tunnel crops out-performed those in low tunnels—no plants in low tunnels were harvested
  - Crops that performed well were kale, leeks, spinach, radish and lettuces
  - Crops that did not perform well were sweet peas, broccoli, cauliflower, beets, carrots, onions
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## Lessons Learned

- Harvest times are lengthened in high tunnels over winter
- Timing is key: plant late-maturing crops and transplants earlier
- Keeping high tunnels air-tight is important
- Also, cover inside with row cover on below-freezing days

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## High Tunnel Tomato Project Summary

- Potential for early-season tomatoes
- Conducted spring/summer 2009
- 3 heirloom, indeterminate varieties: 'Cherokee Purple', 'Arkansas Traveler', 'Valencia'
- 3 hybrid, determinate varieties: 'Fletcher', 'Primo Red', 'BHN 598'
- 3 planting dates: 27-March, 17-Apr, 8-May
- 3 replicates

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## High Tunnel Tomato Project

- Low tunnel fabric was removed from tomatoes in mid-April, leaving plants uncovered
- Tomatoes were harvested twice a week for a 7 wk period
- Yield, disease and insect occurrence, growth and development, fruit texture, color and sugars were measured

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June 4, 2009

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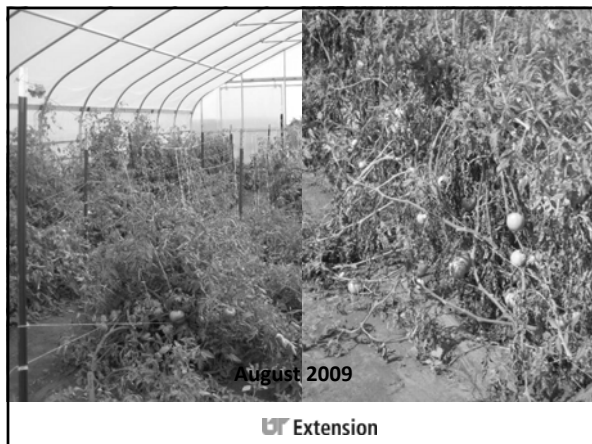
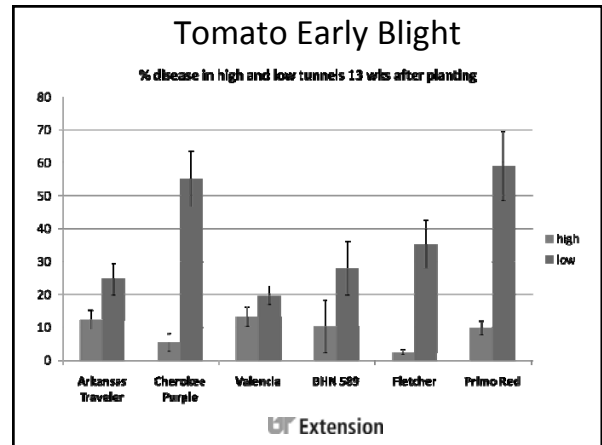
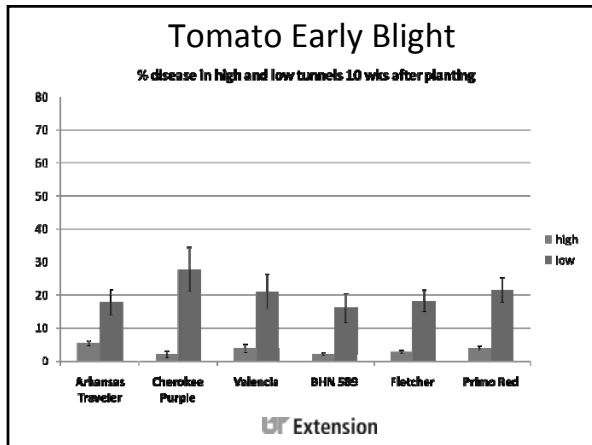
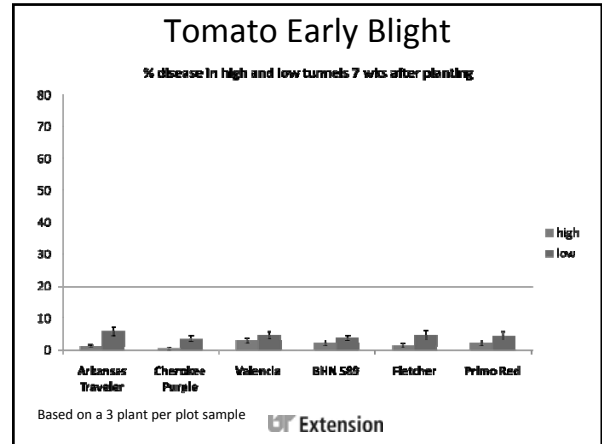
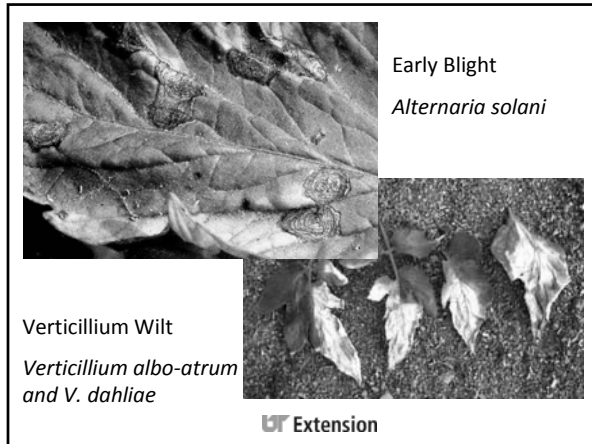


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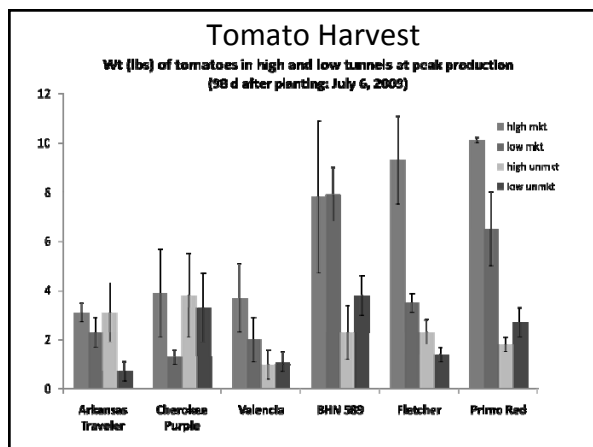
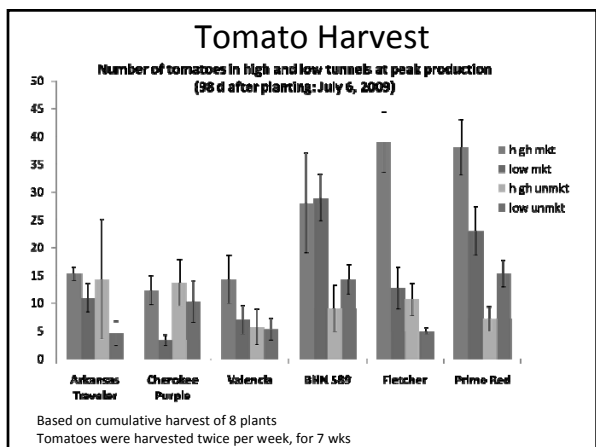


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### Preliminary Results

- Plants in low tunnel/uncovered were more susceptible to diseases than those in high tunnels
- Uncovered 'Cherokee Purple' and 'Primo Red' were most susceptible to early blight

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### Preliminary Results

- 'Fletcher' and 'Primo Red' grown inside high tunnels had higher yields than low tunnel/uncovered plants during peak production on July 6
- Hybrid tomato plants had greater yields than heirloom plants both in high tunnels and low tunnel/uncovered
- 'Arkansas Traveler', 'Valencia' and 'BHN 589' had equal yields in high tunnels and low tunnels

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## Future Workshops

- ✓ **September 14:**  
**Identifying and Managing Diseases**
- ✓ **October 12:**  
**Developing an Organic System Plan**
- ✓ **November 9:**  
**Marketing Organic**

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## Organic Farming in Tennessee- Growing Opportunities

- Workshops will cover the organic certification process, organic farming & conservation, farm loans & program assistance for certification
- August 20- UT Martin McNairy County Center/Selmer
  - Contact Debra Blankenship ([debbie.blankenship@tn.usda.gov](mailto:debbie.blankenship@tn.usda.gov); 731.668.7770 ext. 100)
- August 27- McDonalds Farm, Sale Creek, TN (Hamilton Co.)
  - Contact Todd Trew ([todd.trew@tn.usda.gov](mailto:todd.trew@tn.usda.gov); 423.775.2272)
- September 2- HRREC, Springfield, TN (Robertson Co.)
  - Contact Phillip Wilson ([phillip.wilson@tn.usda.gov](mailto:phillip.wilson@tn.usda.gov); 615.382.98.63)

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## Questions?



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