

## Impact of a Leptin SNP and Zilpaterol Hydrochloride on Growth and Carcass Characteristics of Finishing Steers

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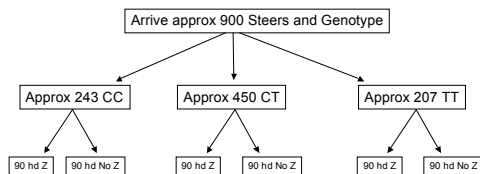
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## Trial Objectives

- Determine whether different leptin genotypes (3) exhibit the same carcass characteristics when killed on the same day
- Determine whether genotype interacts with zilpaterol response in terms of growth and carcass characteristics
- 2 x 3 Factorial Randomized Block Design

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### Method for Building Blocks



• Back fat was measured by ultrasound at:

- 1) Arrival
- 2) 65 days on feed
- 3) 1 week prior to zilpaterol initiation
- 4) 2-3 days prior to slaughter

• 8 total blocks, 6 treatment pens per block, and 4,179 head total (avg initial wt = 875 lb)

• Within a block, all treatments were killed on the same day (avg days on feed = 129)

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## Differences in Several Carcass Traits Were Detected Among Leptin Genotypes

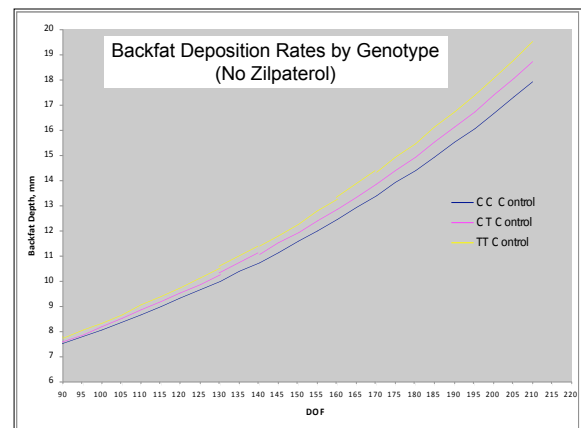
- Some differences observed did not depend on zilpaterol status
- Some differences tended to depend on zilpaterol status (i.e. interactions)

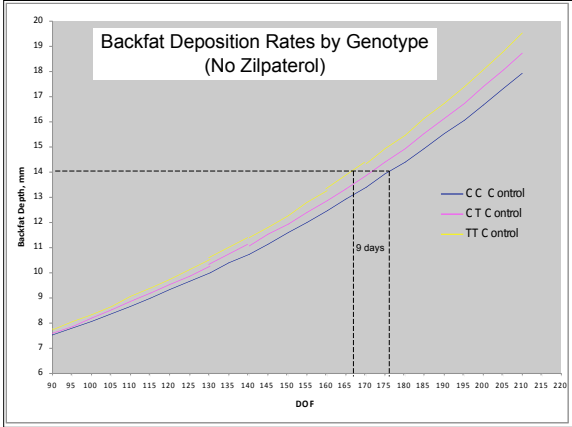
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## Main Effect Differences Observed

- **Backfat Depth** (Leptin Main Effect Overall  $P = 0.01$ )
  - CC = 0.47"
  - CT = 0.48"
  - TT = 0.50"
- **Backfat Depth** (Zilpaterol Main Effect  $P < 0.01$ )
  - Zilpaterol = 0.47"
  - No Zilpaterol = 0.50"

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### Main Effect Differences Observed

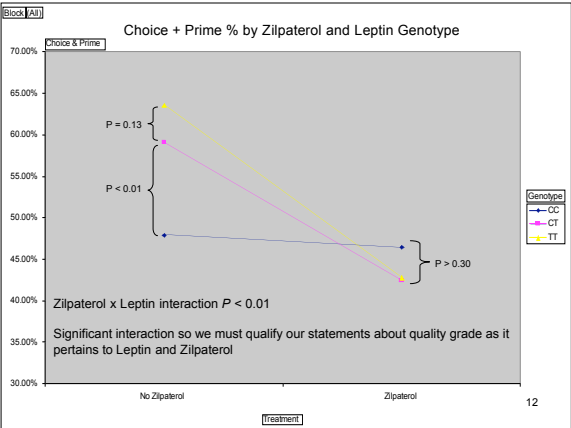
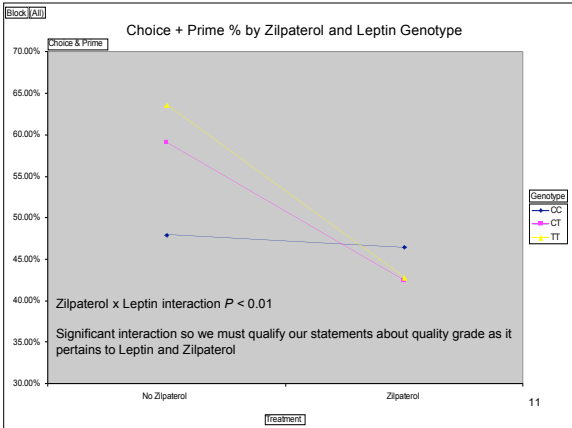
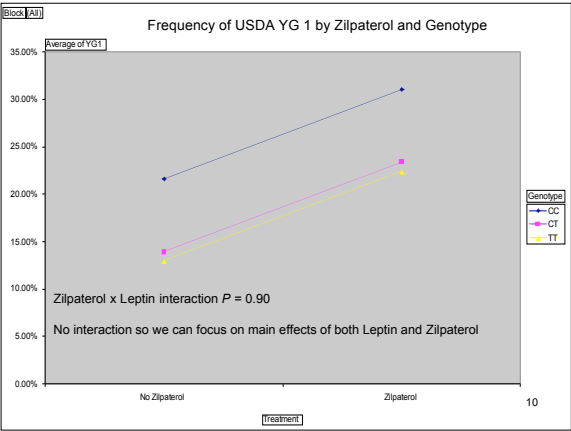
- YG 4 Frequency (Leptin Main Effect Overall  $P = 0.015$ )
  - CC = 2.7%
  - CT = 3.0%
  - TT = 5.3%
- YG 4 Frequency (Zilpaterol Main Effect  $P < 0.01$ )
  - Zilpaterol = 1.6%
  - No Zilpaterol = 5.7%

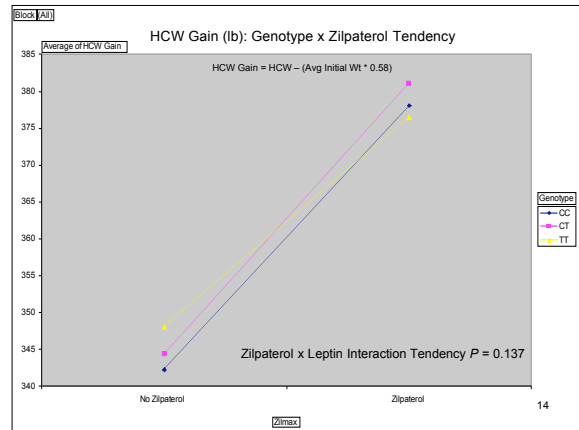
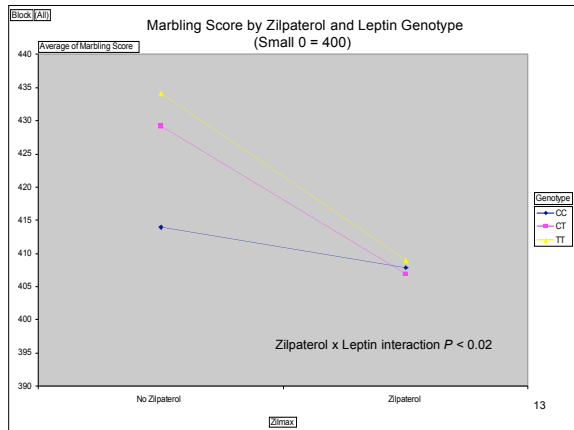
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### Main Effect Differences Observed

- YG 1 Frequency (Leptin Main Effect Overall  $P < 0.01$ )
  - CC = 26.4%
  - CT = 18.7%
  - TT = 17.7%
- YG 1 Frequency (Zilpaterol Main Effect  $P < 0.01$ )
  - Zilpaterol = 25.6%
  - No Zilpaterol = 16.2%

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### Nature of the HCW Interaction Tendency

- Response to Zilpaterol varied by genotype with TT having the lowest response:
  - TT 28.4 lb vs 36.3 lb for CC and CT
  - 7.4 lb HCW response difference between CC and TT

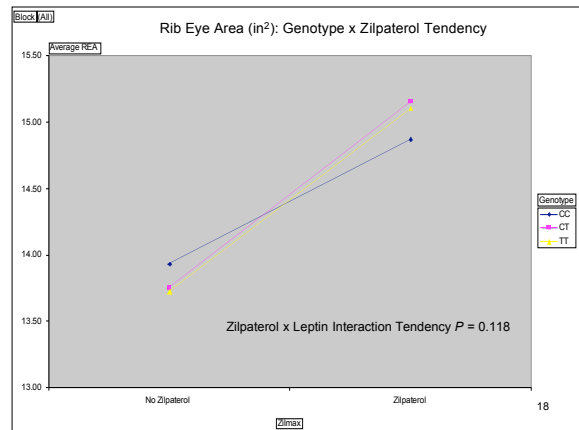
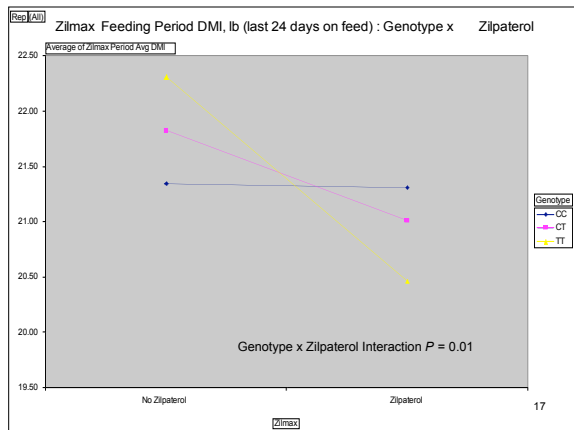
Zilmax

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### Why did we see interactions in quality grade, and tendencies for interactions in HCW gain?

Zilmax

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## Conclusions

*These data indicate that leptin genotype, zilpaterol, and in some cases their interactions are all significant factors affecting carcass outcomes...*

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*Management Is  
As Management Does...*

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## Management

- Two Main Carcass Characteristics to Manage:
  - *Weight*
  - *Fat*
- Two Manageable Drivers of Those Characteristics:
  - *Time (DOF)*
  - *Technology (Beta Agonists etc.)*
- There is financial opportunity in the precise application of these drivers:
  - *genotyping can facilitate this precision*

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## Acknowledgements

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