Winter Survival –
Survival of the Fittest?

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Factors affecting survival

• Variety
  – Adapted vs. un-adapted
  – Freeze tolerance
  – Acclimation ability
  – Fall growth characteristics
    • Prostrate vs. upright growth habit
• Traits
  • Avoids fall stem elongation
  • Semi-dwarfing gene
Factors affecting survival

- Management
  - Planting date
  - Planting rate
    - Plant spacing?
    - Pound basis vs. pure live seed basis
  - Residue management in no till
  - Land preparation
Factors affecting survival

Low Temperatures – Manhattan, KS

How plants respond depends upon the growth stage, timing of cold, and ultimate low temperature.
New Varieties, New Traits

Mercedes
- Rubisco Seeds
- Winter hardy hybrid

DK Sensei
- Monsanto
- Semi-dwarf hybrid
## Winter Survival

### Head-to-head means for winter survival (1-5) across 5 Great Plains sites, 2013/14.

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Canola Establishment Study
Clark Woodworth Farm – Sterling, KS
Residue management and early season frost tolerance
October 6, 2014
Extreme lengthening of the hypocotyl
November 24, 2014 – “fall” kill of canola
- Excessive seeding rate
- Extreme cold temperatures
- Inadequate residue management
November 24, 2014
- Green stem, still alive?
Planted September 22, 2014

Photo taken November 25, 2014

Over 8” stem elongation

Flower buds present = bolting!
elevated crown = winterkill or delayed maturity & weak stems & lodging & reduced yield
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