BMPs for the Wheat/Soybean Double-crop System
Part 2: Relay Soybean

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Wider Wheat Row Widths

15” wheat 7.5” wheat

Wheat seeding options:

1. **Drill or row-crop planter**
2. **From 10” to 20” rows**
3. **Skip-row in tractor/sprayer tire tracks**

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Other Wheat Management Variables:

- Fertility similar to traditional double crop except more emphasis on avoiding lodging with excessive N fertilizer
- Herbicide restrictions for broadleaf weed control
- Variety selection

Wheat Variety Choice for Relay Cropping?

Considerations:

1. Architecture
2. Maturity
3. Yield
4. Height

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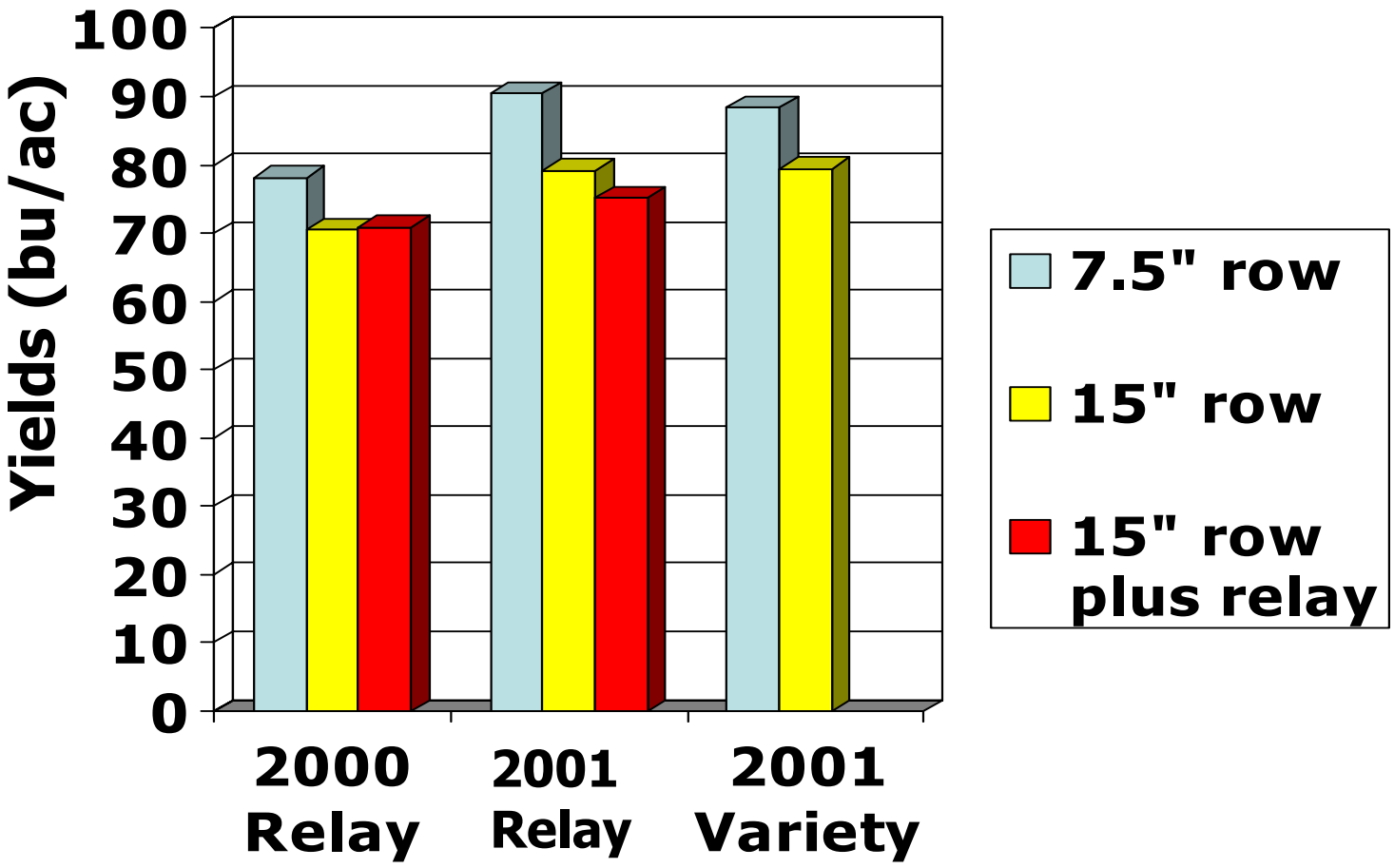
Wheat Yields in Wide Rows



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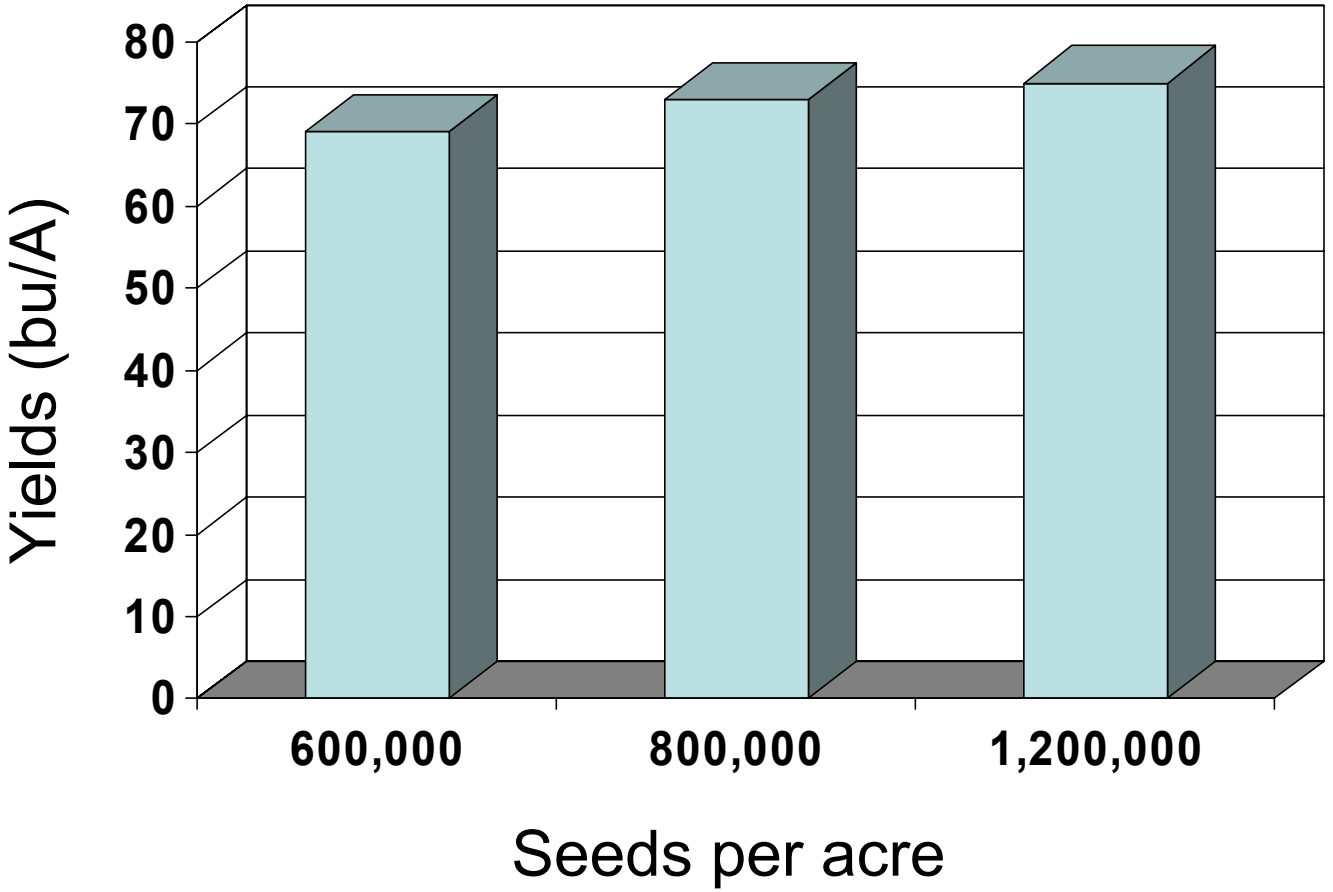
Wheat seeding rate in 15” rows



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Relay Soybean Management

- Variety Selection (disease resistance, stress tolerance, maturity, internode lengths?)
- Seeding rate (intermediate between full season and double-crop)
- Seed treatment beneficial
- Consistent seeding depth
- Weed control

Polymer Coated Soybeans for Relay Cropping?

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Relay Soybean Emergence

Figure 1. 1999 Northern Indiana Soybean Emergence.

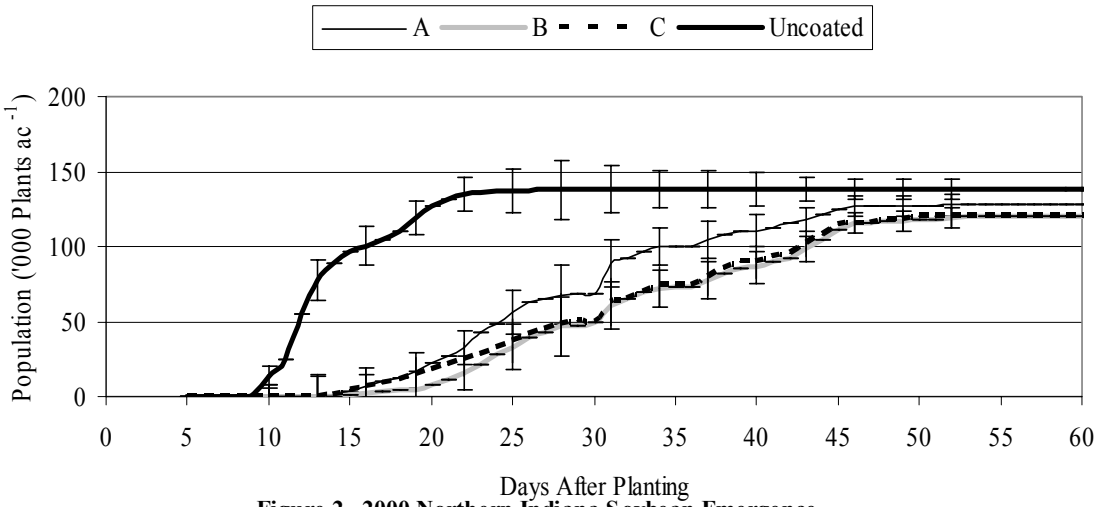
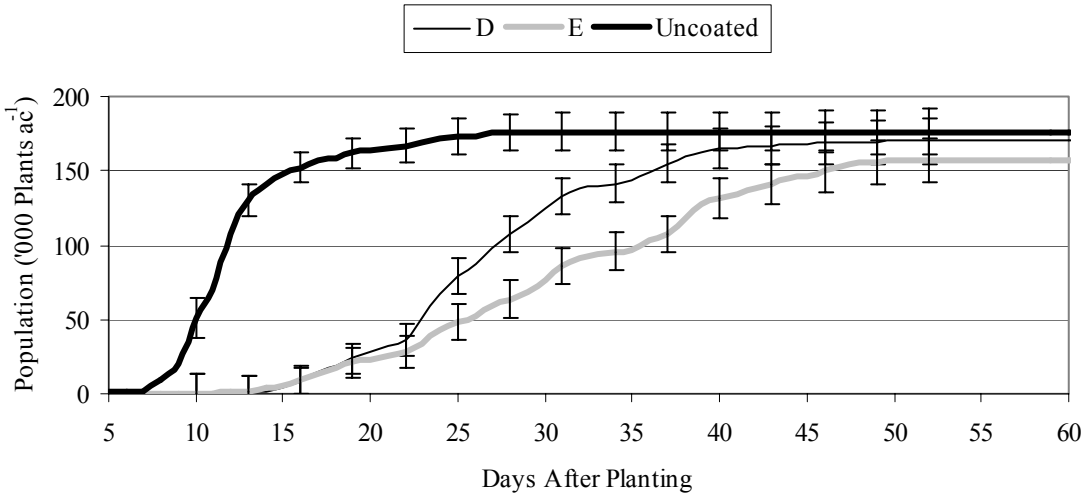


Figure 2. 2000 Northern Indiana Soybean Emergence



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Soybean Heights with Relay Cropping

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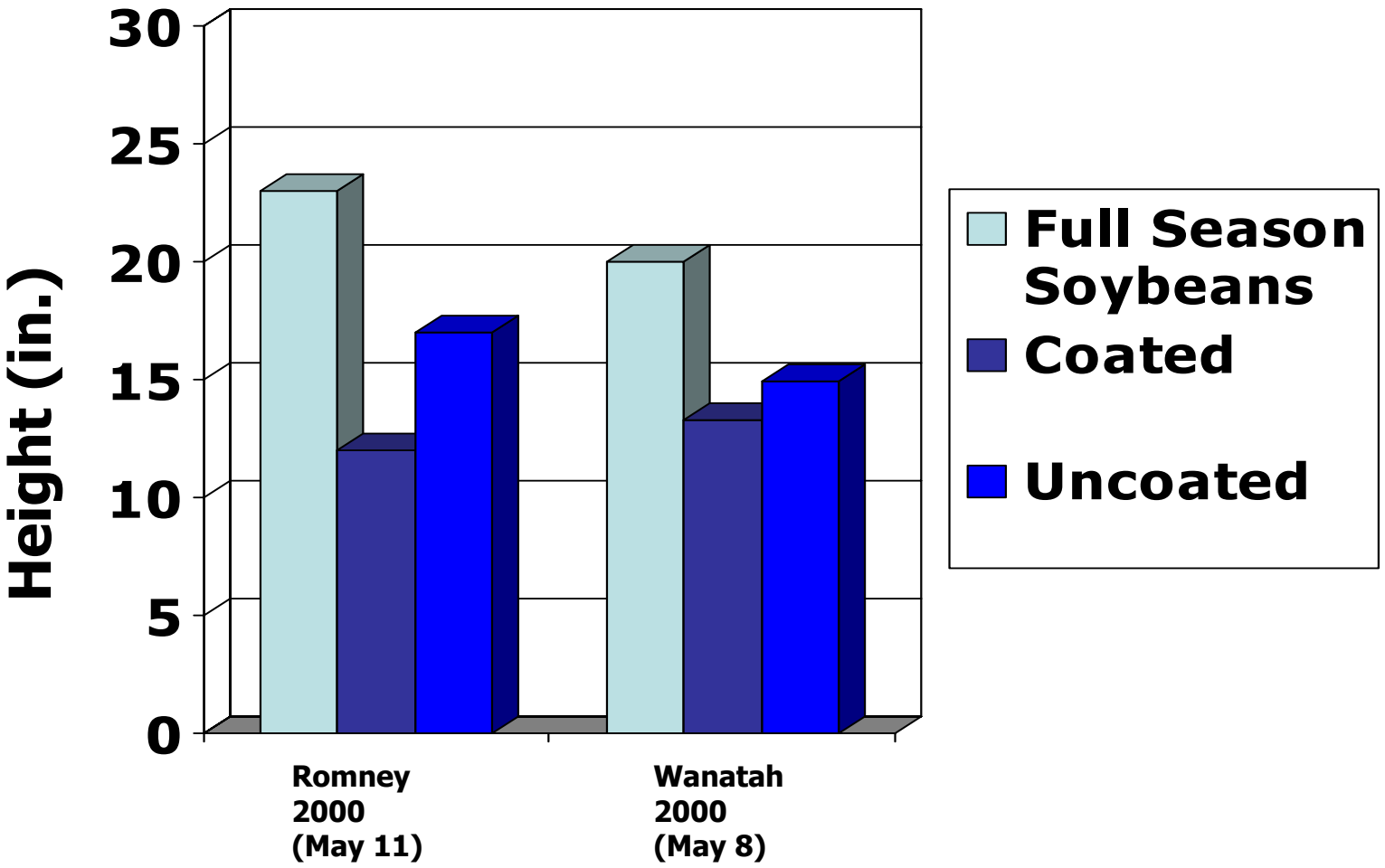
Soybean Heights at Wheat Harvest



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Wheat Harvest Management with Relay Soybeans

Issues:

1. Timing (earlier preferred)
2. Header height
3. Header width and wheel tracks
4. Straw Management
5. Volunteer wheat control

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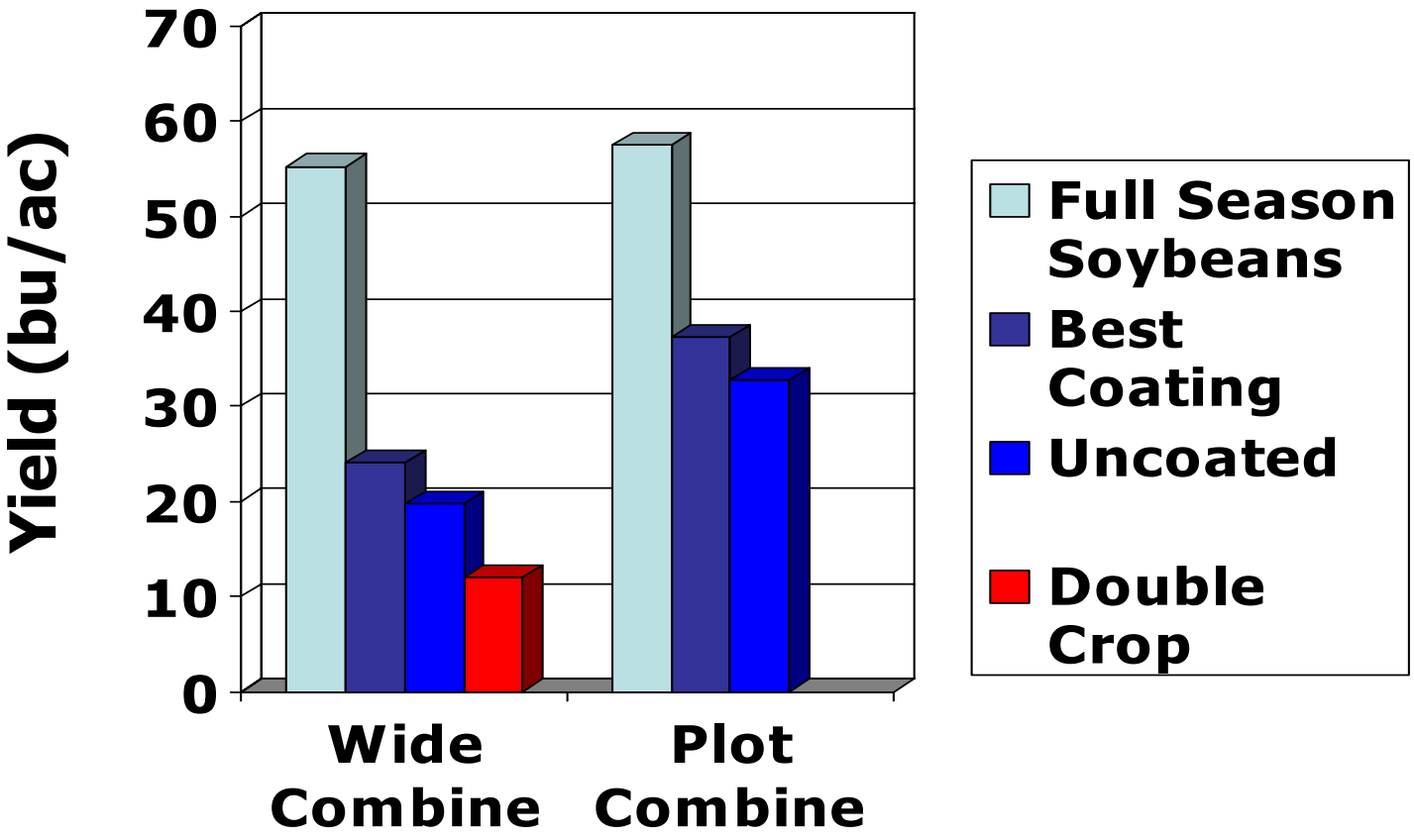
2000 Soybean Yields in Central Indiana



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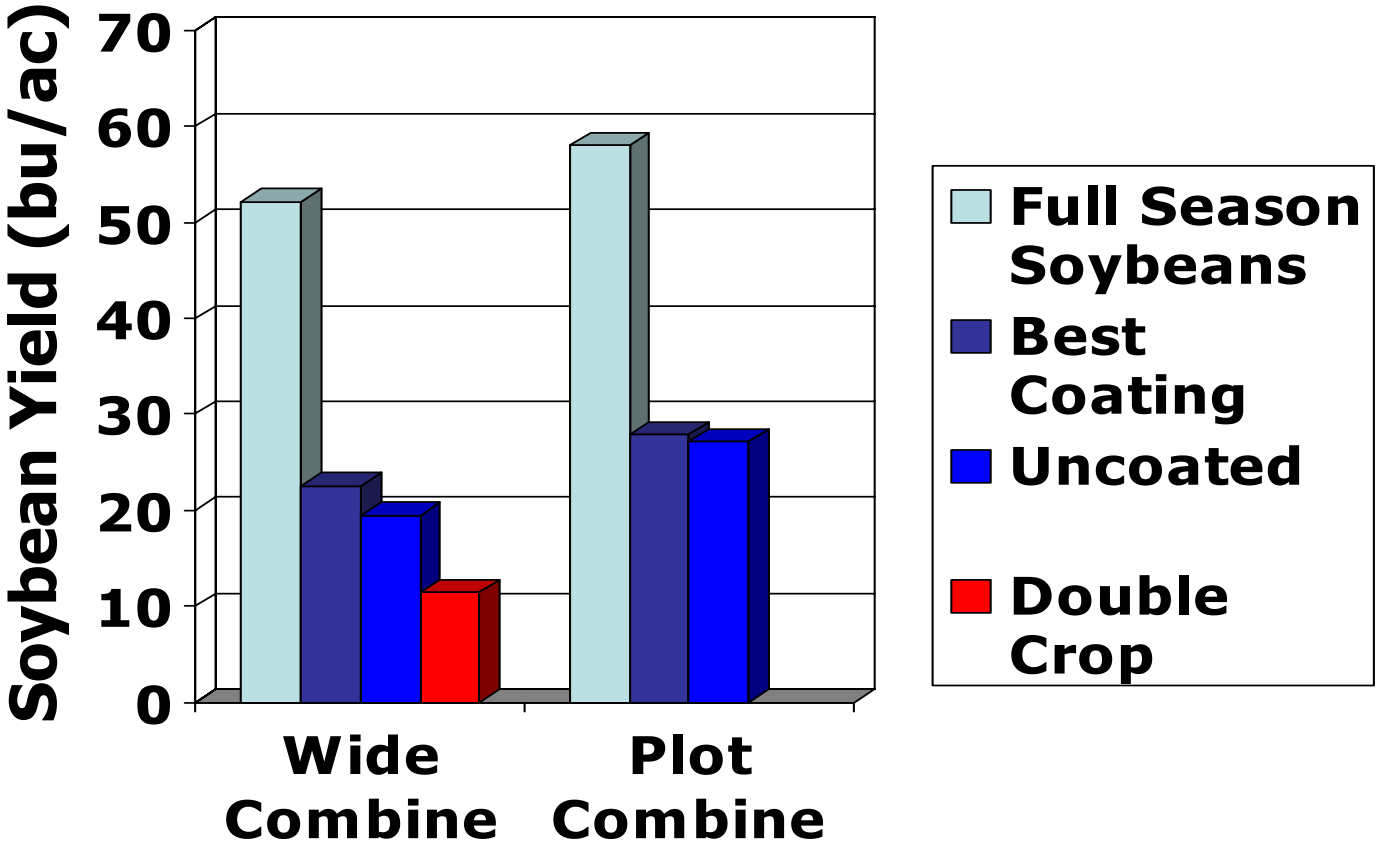
2001 Soybean Yields in Central Indiana



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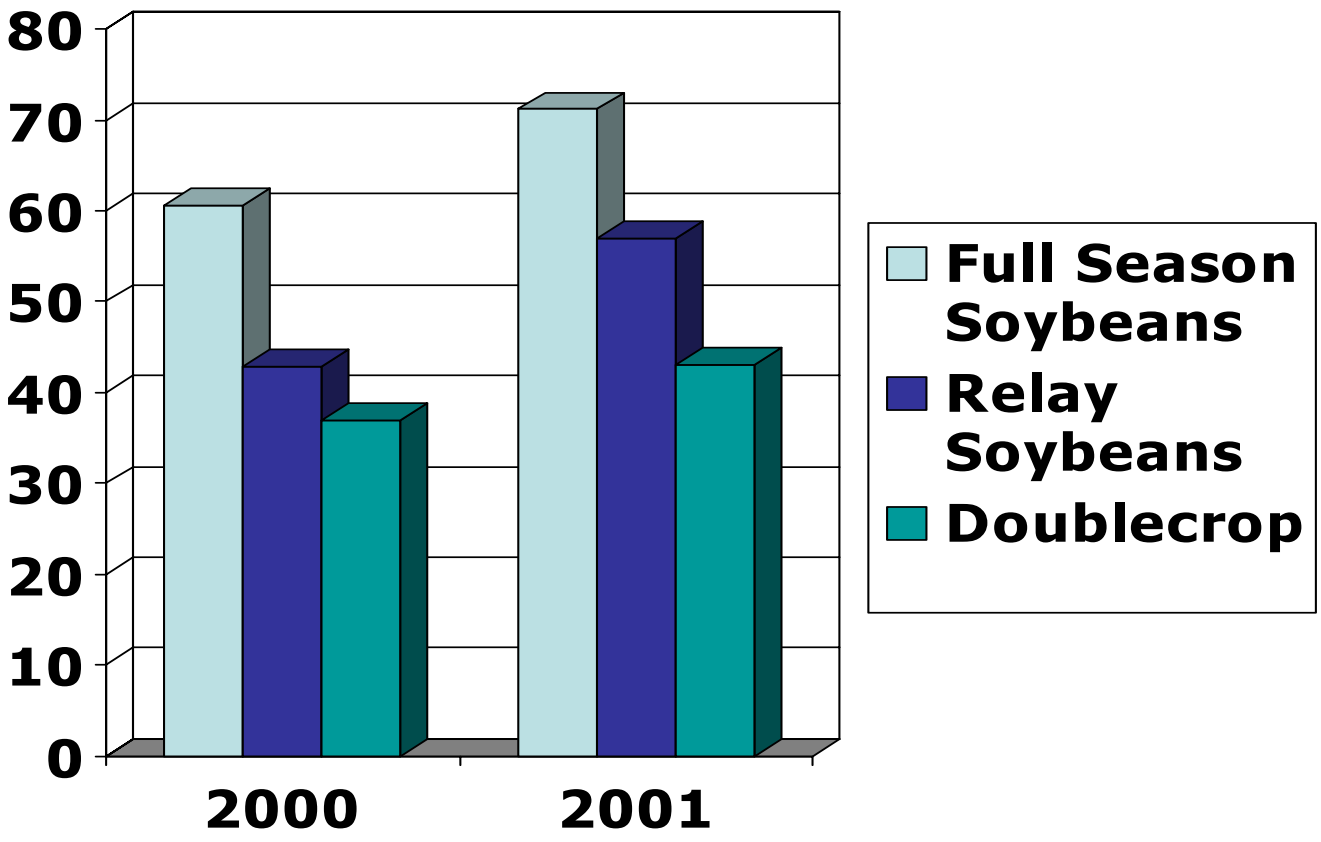
Soybean Yields at SEPAC (Butlerville, IN)



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Relay or Full Season or Double-crop ?

1. Location (relative to I-70)
2. Equipment/Timing Issues
3. Soil Moisture Availability
4. Maturity
5. Relative Yield

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Conclusions:

1. Relay soybean superior to double-crop north of Interstate 70

2. Wide row wheat is surprisingly successful

3. Minimize damage to wheat when relay planting, and to soybean when harvesting wheat

4. Variety selection critical (in both wheat and soybean).

5. More profitable than wheat alone or soybean alone?

Polymer Coatings for Relay Soybeans ?

- Emergence delays with coated seed results in shorter and sturdier soybean plants at wheat harvest.
- Biggest advantage may be for early planting into winter wheat.
- Cost relative to benefit?

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References

- **Kline, A.M., S.M. McCoy, T.J. Vyn, T.D. West and E. P. Christmas. 2003. Management Practices for Relay Intercropping: I. Wheat. AY-315, Purdue University Cooperative Extension Service**
- **McCoy, S.M., T.J. Vyn, A.M. Kline, T.D. West and E. P. Christmas. 2003. Management Practices for Relay Intercropping: II. Soybean. AY-316, Purdue University Cooperative Extension Service**