

The Impact of Peanut Maturity

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Why is Maturity Important?

- Yield and Grade
 - economic return



- Seed Quality
 - germination and emergence



- Immature vs Mature Pods
 - early/late harvest can negatively impact maturity
 - optimum DAP associated optimum # mature pods



- Digging a week early or late can make 500 lbs/A difference or more in yield and several points in grade.

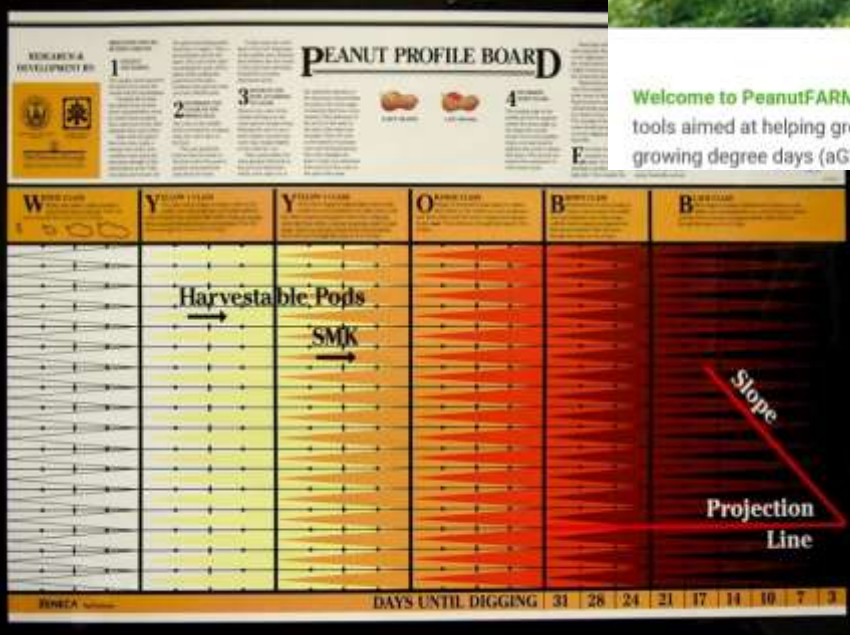
Maturity Classes

- 1) White
- 2) Yellow
- 3) Orange
- 4) Brown
- 5) Black



How Is Maturity Evaluated?

Yield
+
Quality



Welcome to PeanutFARM – Field Agronomic Resource Manager. PeanutFARM is a growth tools aimed at helping growers manage peanut development and maturity by tracking growing degree days (aGDD). aGDD's use upper and lower daily air temperatures, plus

- Maturity profile board
- Growing degree days
- Days after planting
- Shellout method



Harvest Timing is Tricky

- Indeterminate growth
- Pest pressure
- Weather
- Logistics



Is Harvesting by Maturity Worth It?

- **Yield** = accumulation of seed biomass; biochemical changes – flavor impacts
- **Quality** = seed physiology & functioning of the embryo and subsequent plant

Yes!

Field Study

Sheller Study



Photo credit: Eve Rowland

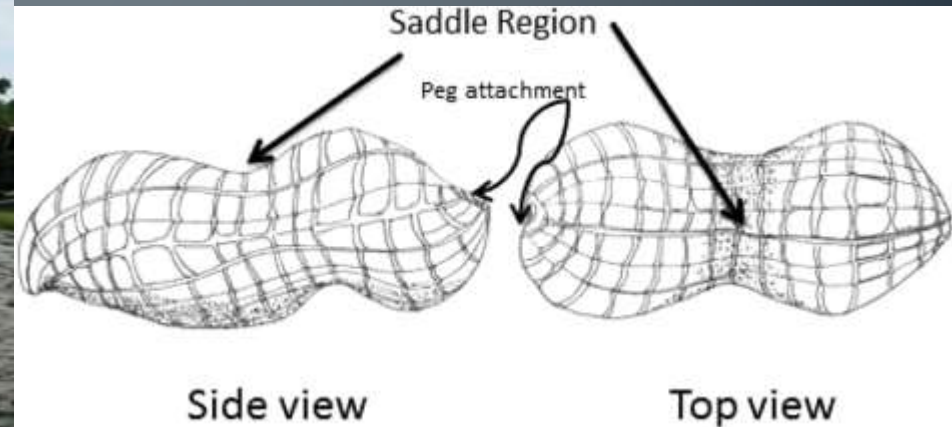
Design and Methods

Location: Teaching Farm on UF campus, Gainesville, FL

RCBD with 4 replications, irrigated sparingly

2 cultivars: FloRun™ '107' and TUFRunner™ '727'

2 maturity groups: Brown/Black, and Yellow; hand separated



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Shelled Seed



Brown/Black

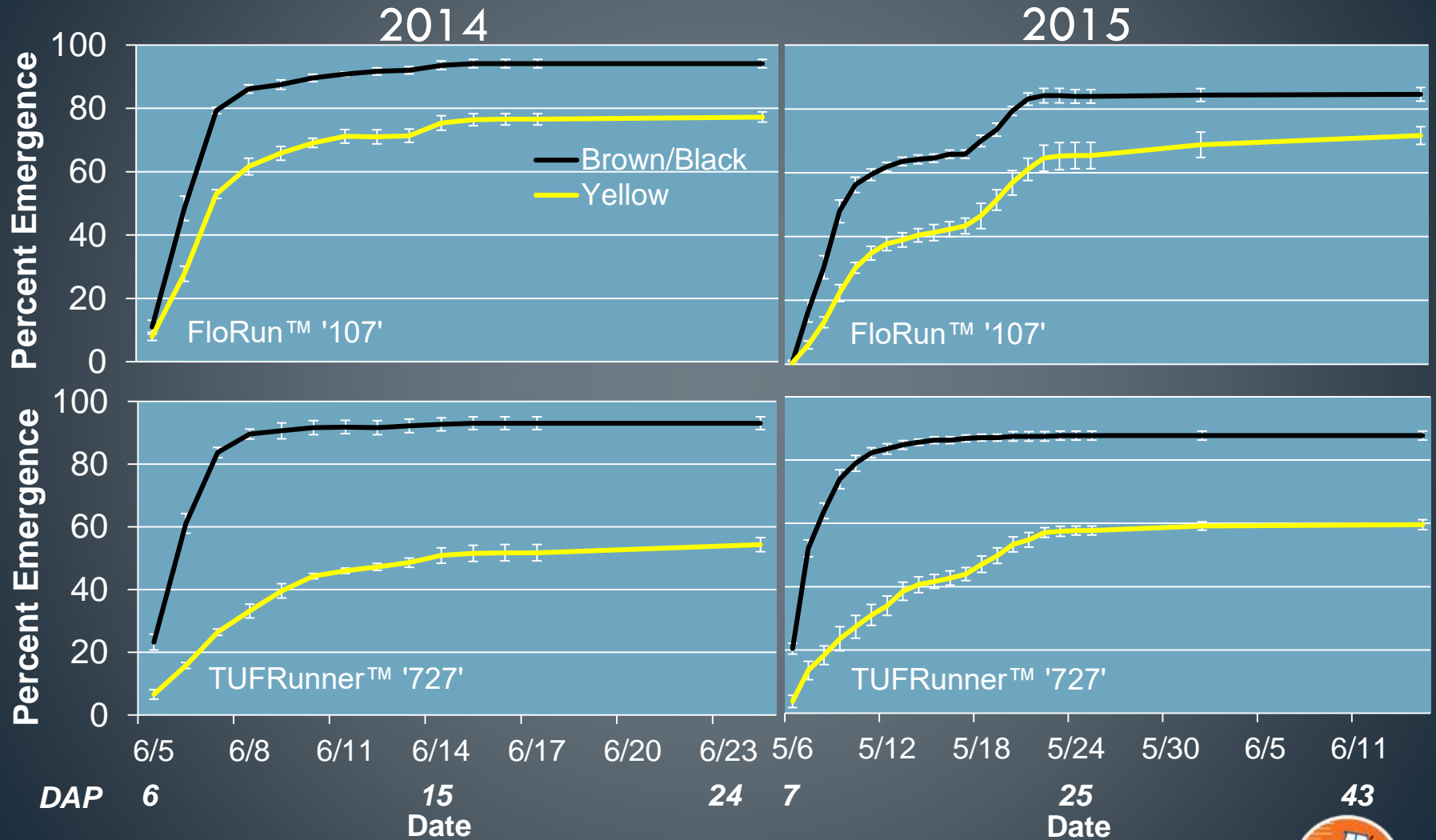
Yellow



Emergence

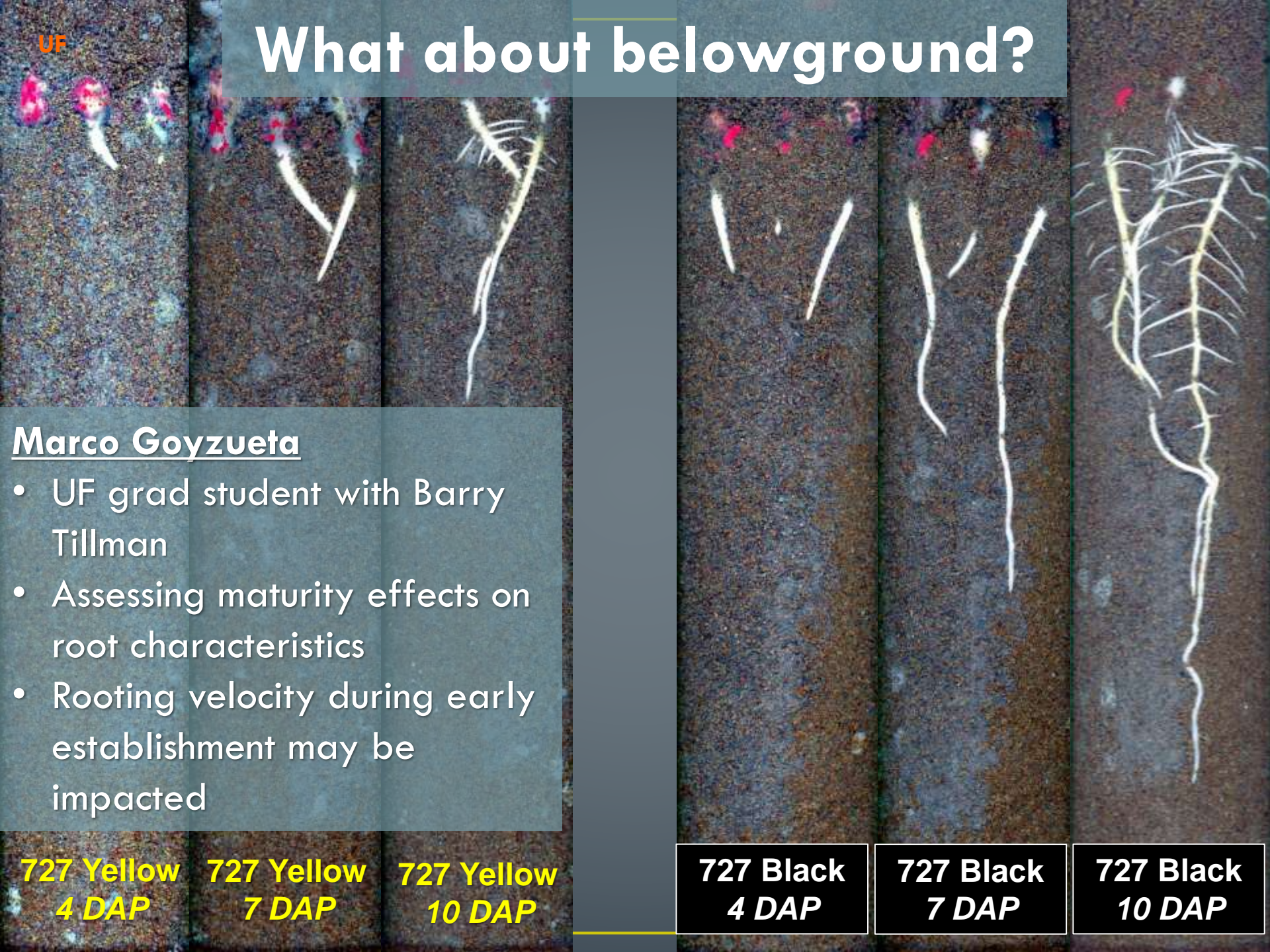


Emergence



What about belowground?

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Marco Goyzueta

- UF grad student with Barry Tillman
- Assessing maturity effects on root characteristics
- Rooting velocity during early establishment may be impacted

727 Yellow
4 DAP

727 Yellow
7 DAP

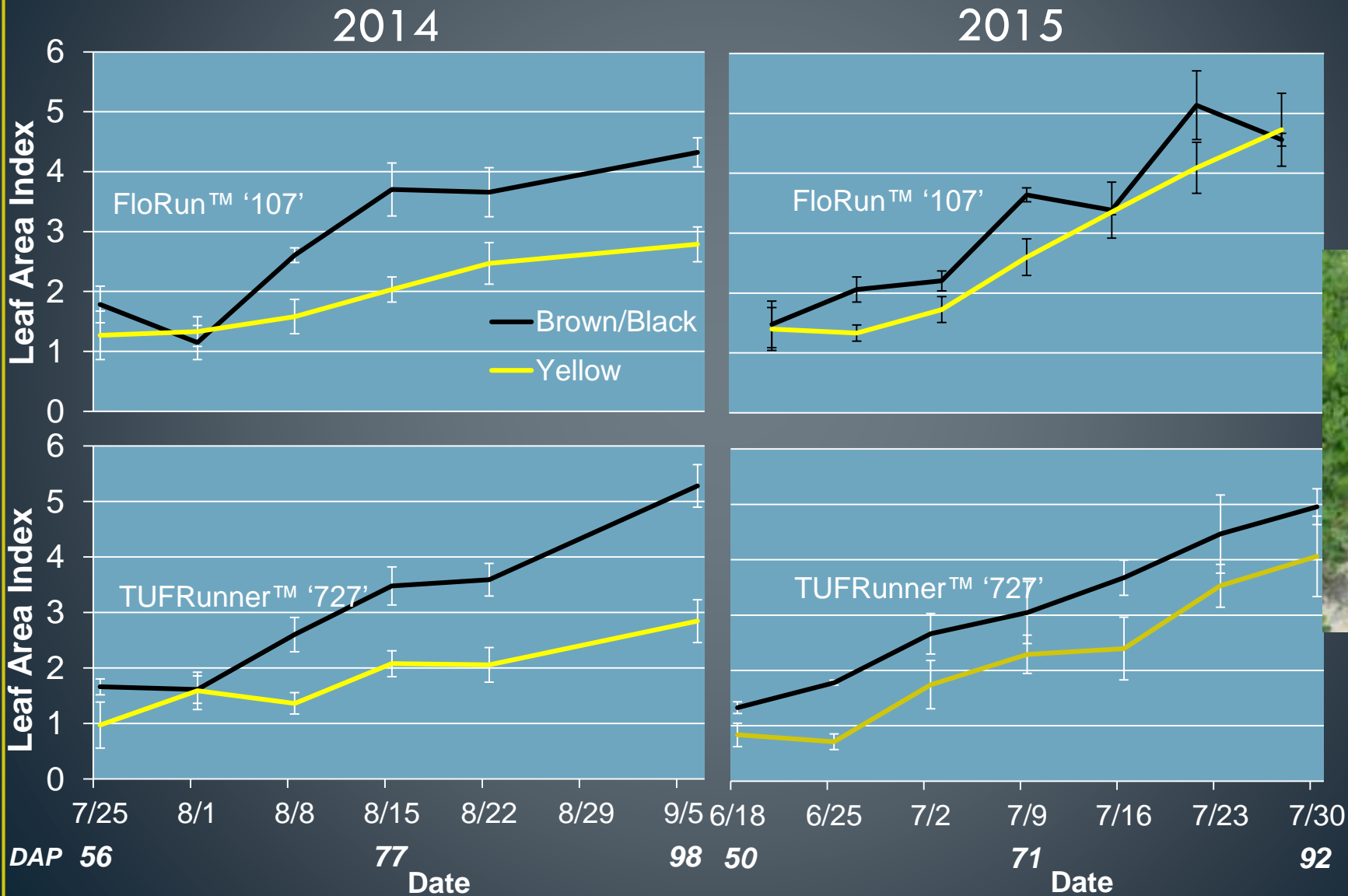
727 Yellow
10 DAP

727 Black
4 DAP

727 Black
7 DAP

727 Black
10 DAP

Leaf Area Index



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Canopy Comparisons 2014

TUFRunner™ '727'
Yellow Black

FloRun™ '107'
Yellow Black



35
DAP



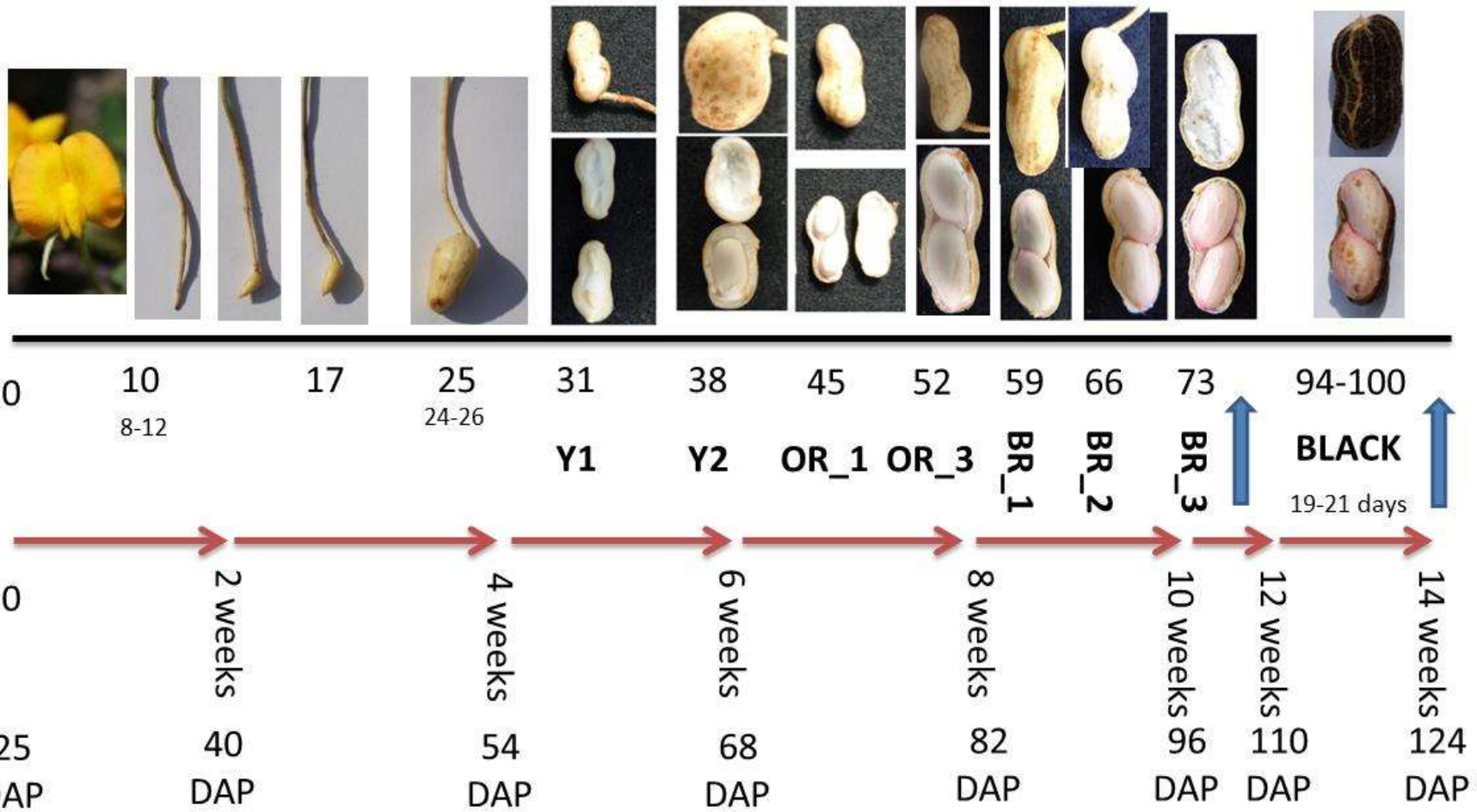
66
DAP



100
DAP

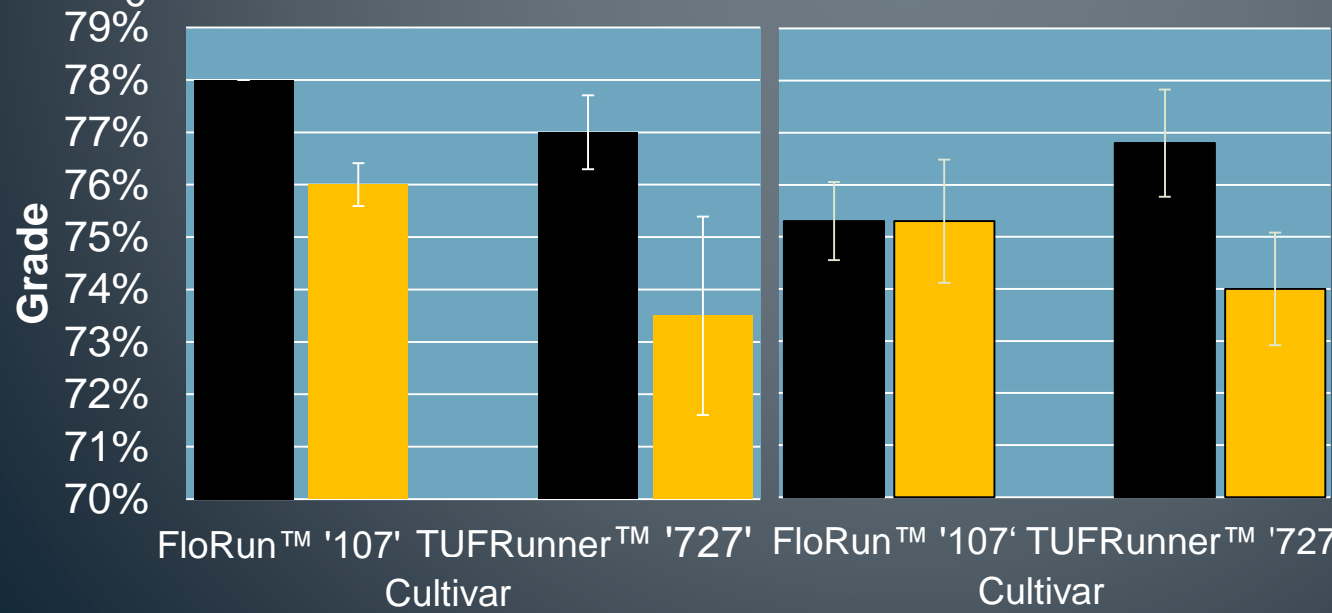


Pod Development



Credit- Eddie McGriff, University of Georgia Extension and Diane Rowland, University of Florida

Final Effects



1 pt TSMK% = \$4.82/ton
 Loan value of \$354.51
 -grade about 73%

$73 * 4.82 = \$351.86/\text{ton}$
 $78 * 4.82 = \$375.96/\text{ton}$

\$24.10/ton difference



Summary of Field Study

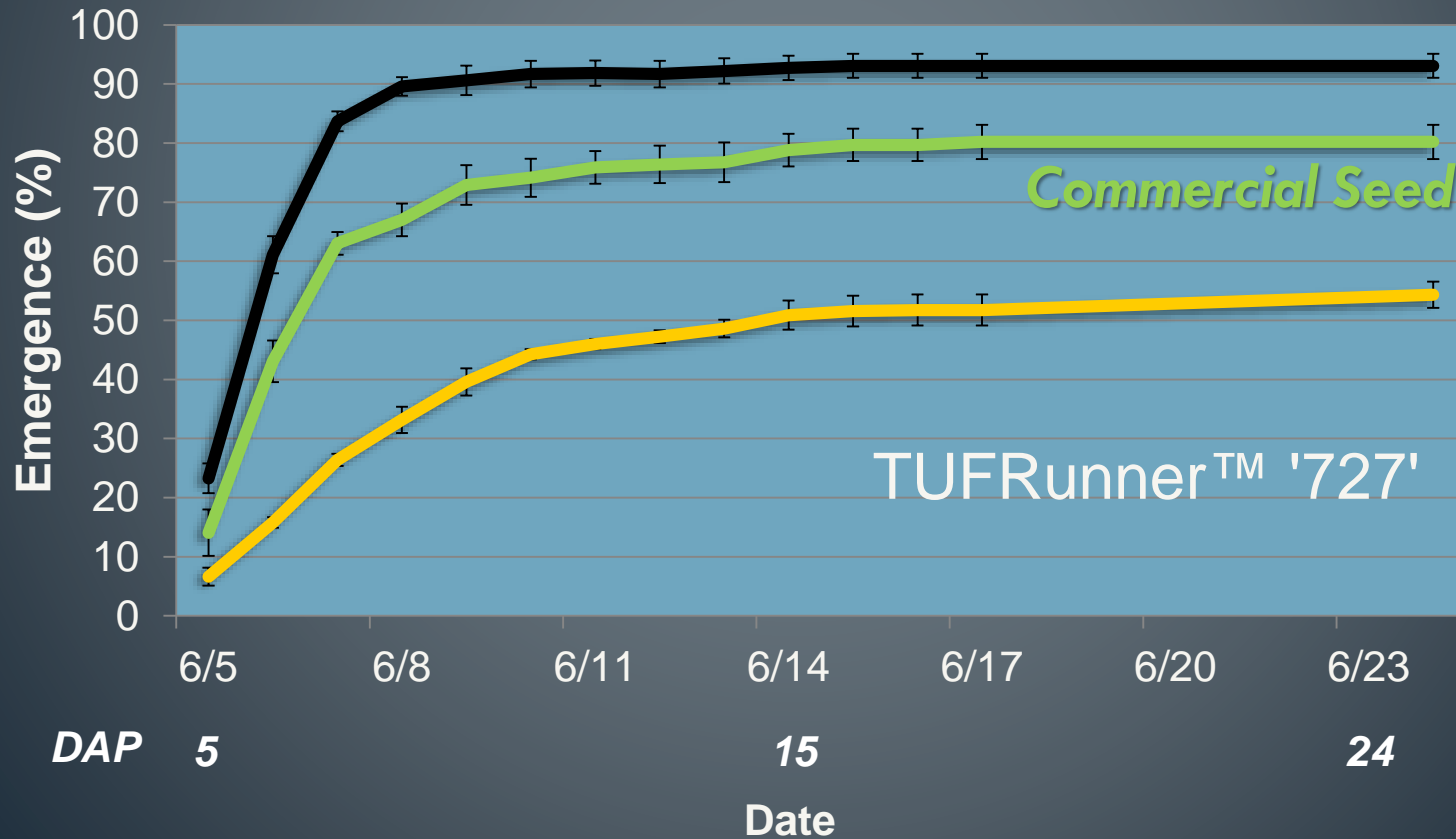
Idea disproved: Plants from immature seed do not catch up to those from mature seed

- Had delayed and decreased emergence
- Lower leaf area and delayed flowering
- Plants from Immature pods produced more immature pods than plants from mature pods

*Cultivar success



- What does commercial seed look like?
- Can the shelling process be used to “improve” the maturity level of seed?



Study 2: Sheller Study

Idea: Commercial seed contains a high percentage of immature seed and can be improved through the shelling process by pinpointing stages that remove immatures

Stages- Harvest, cleaning, in-shell sizing (large/small/nubs)

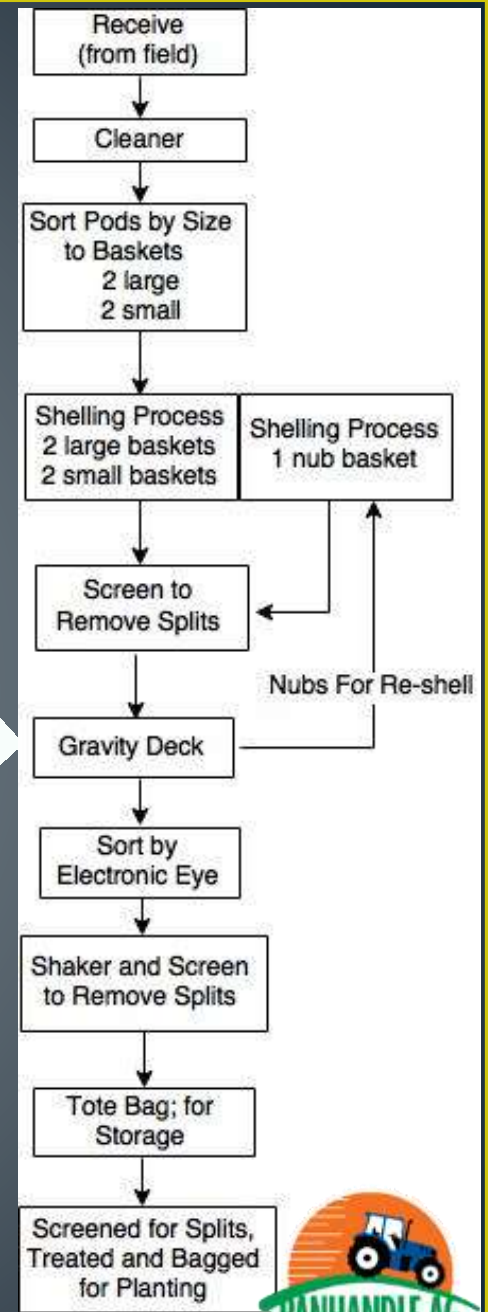
Does grade accurately reflect maturity?



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Samples Were Collected From Five Stages:

1. Field*
2. Cleaner
3. Large Basket
4. Small Basket
5. Nub Basket



The Shelling Process for Seed



Design and Methods

- ✓ Sampling
- ✓ Blasting
- ✓ Sorting/counting
- ✓ Drying
- ✓ Grading

Cleaner Large Basket Small Basket Nubs



Visual Classification

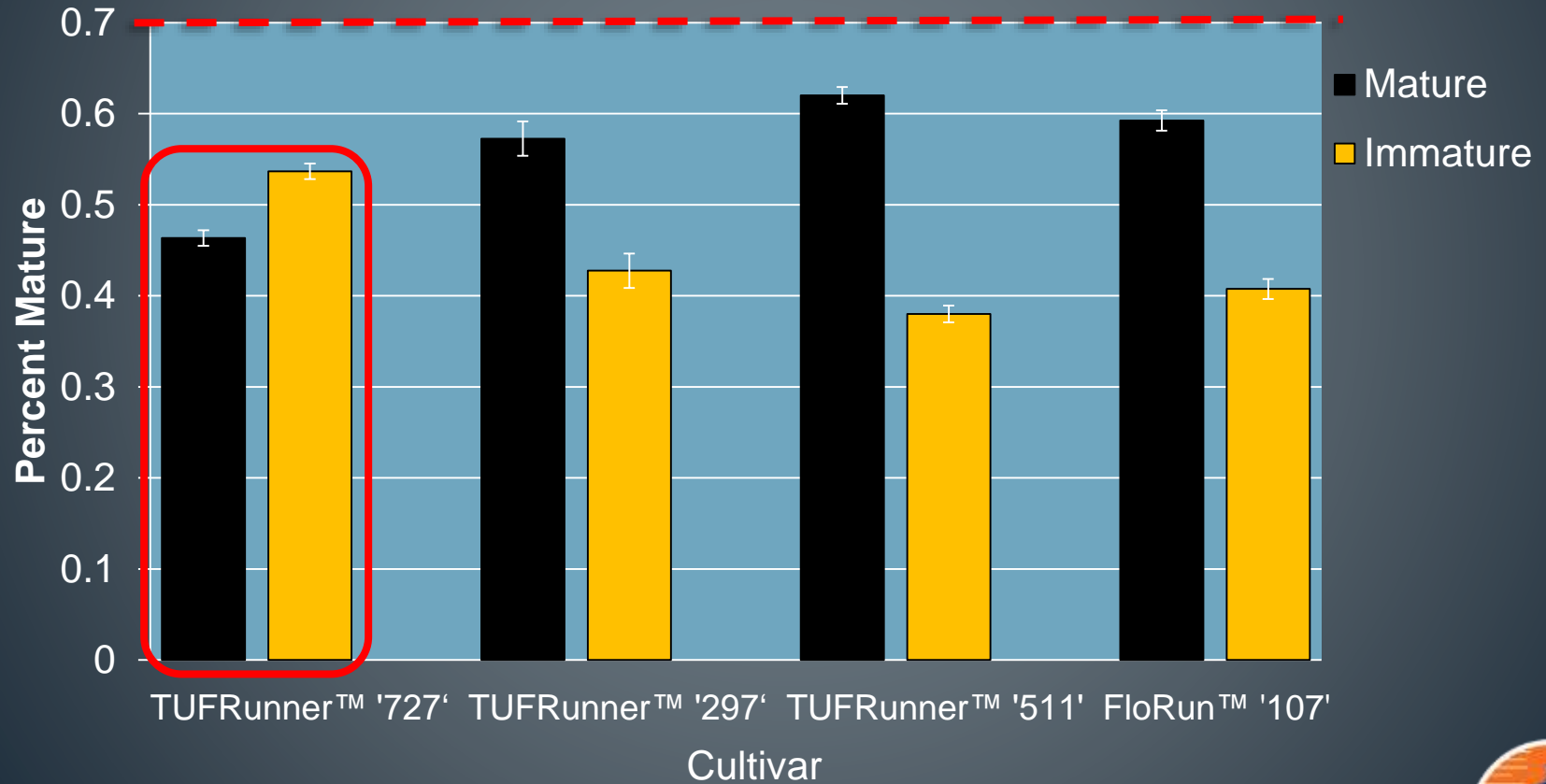
Mature

Orange (?)

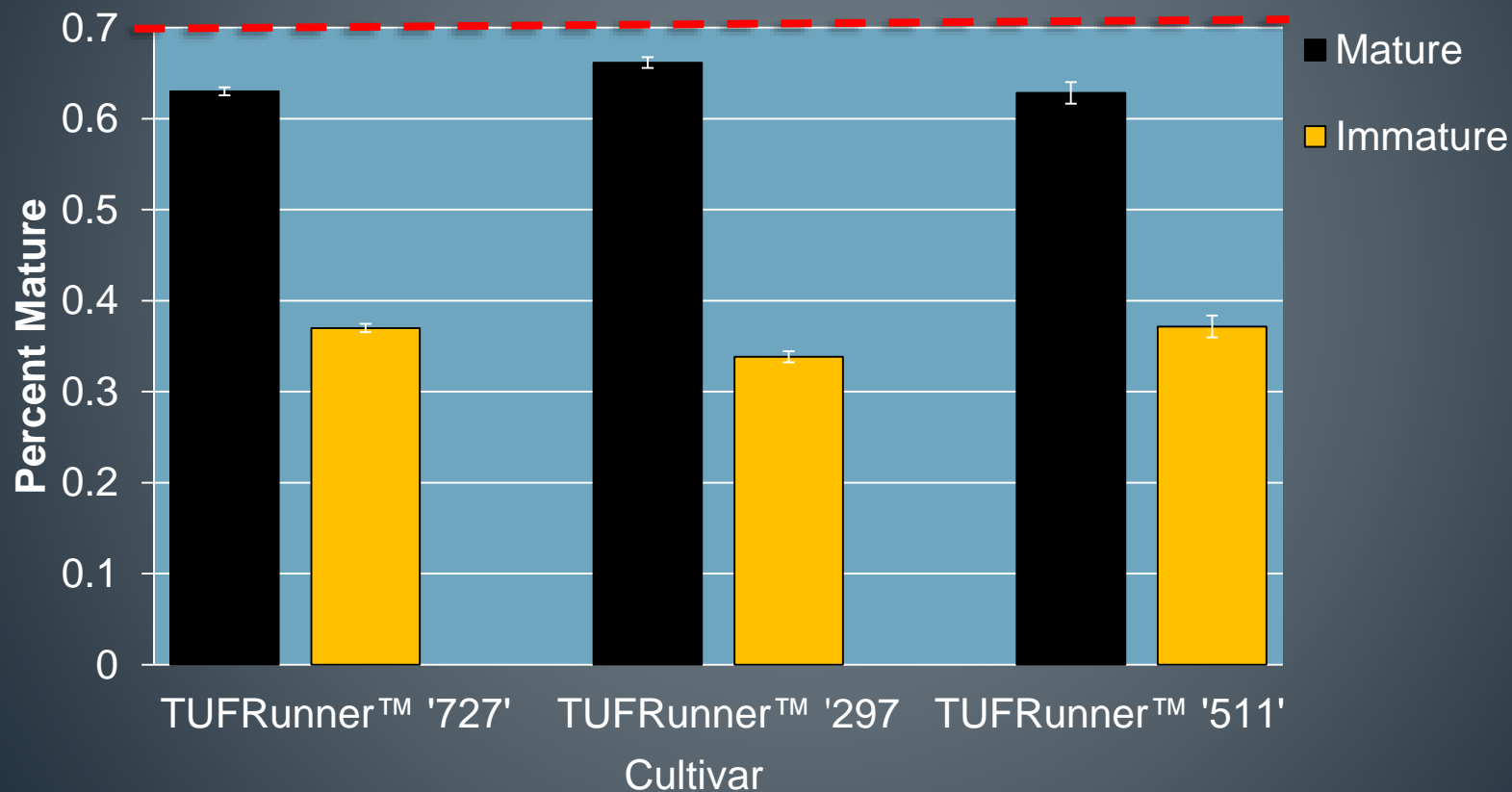
Immature



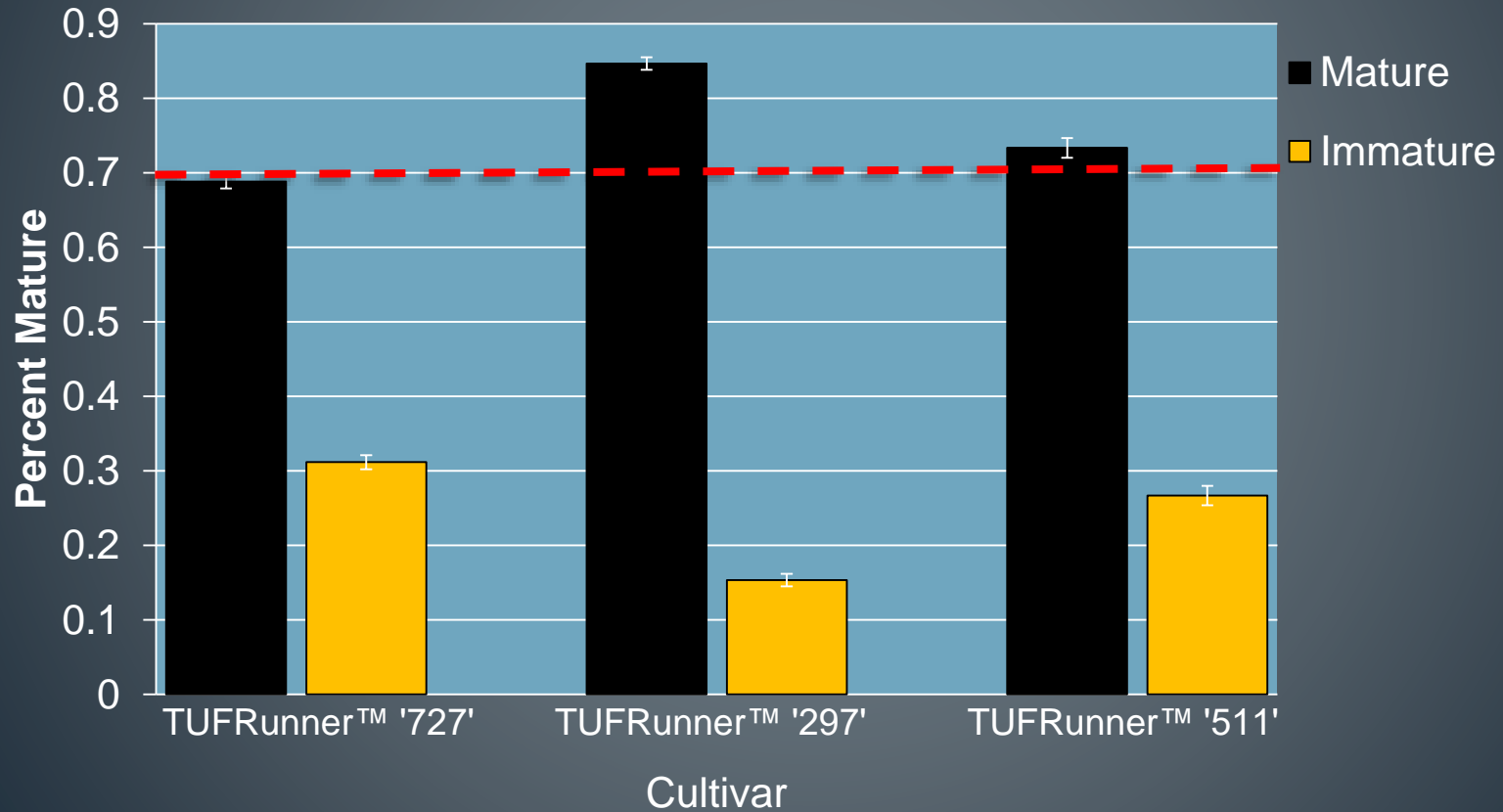
Stage 1- Field



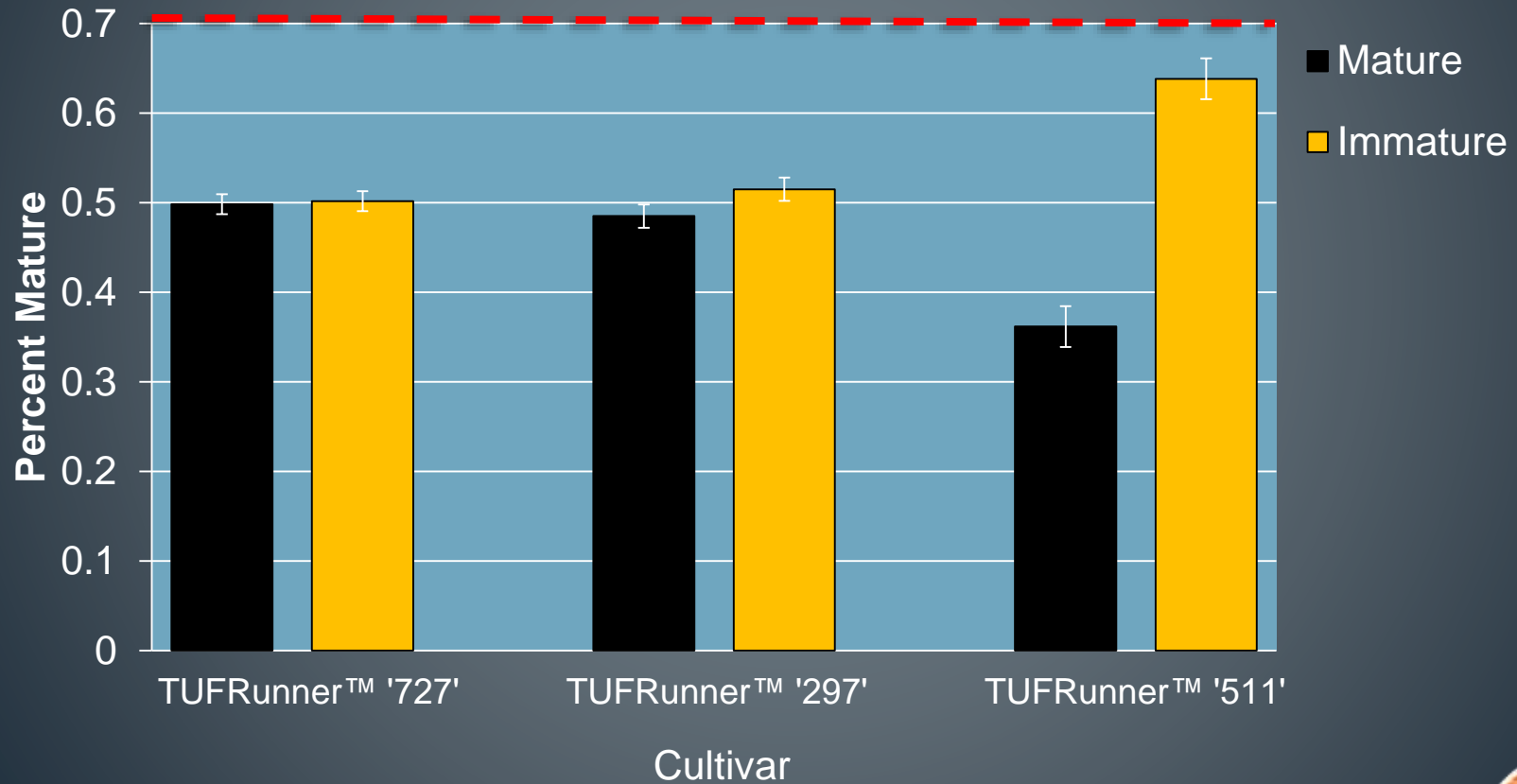
Stage 2- Cleaner



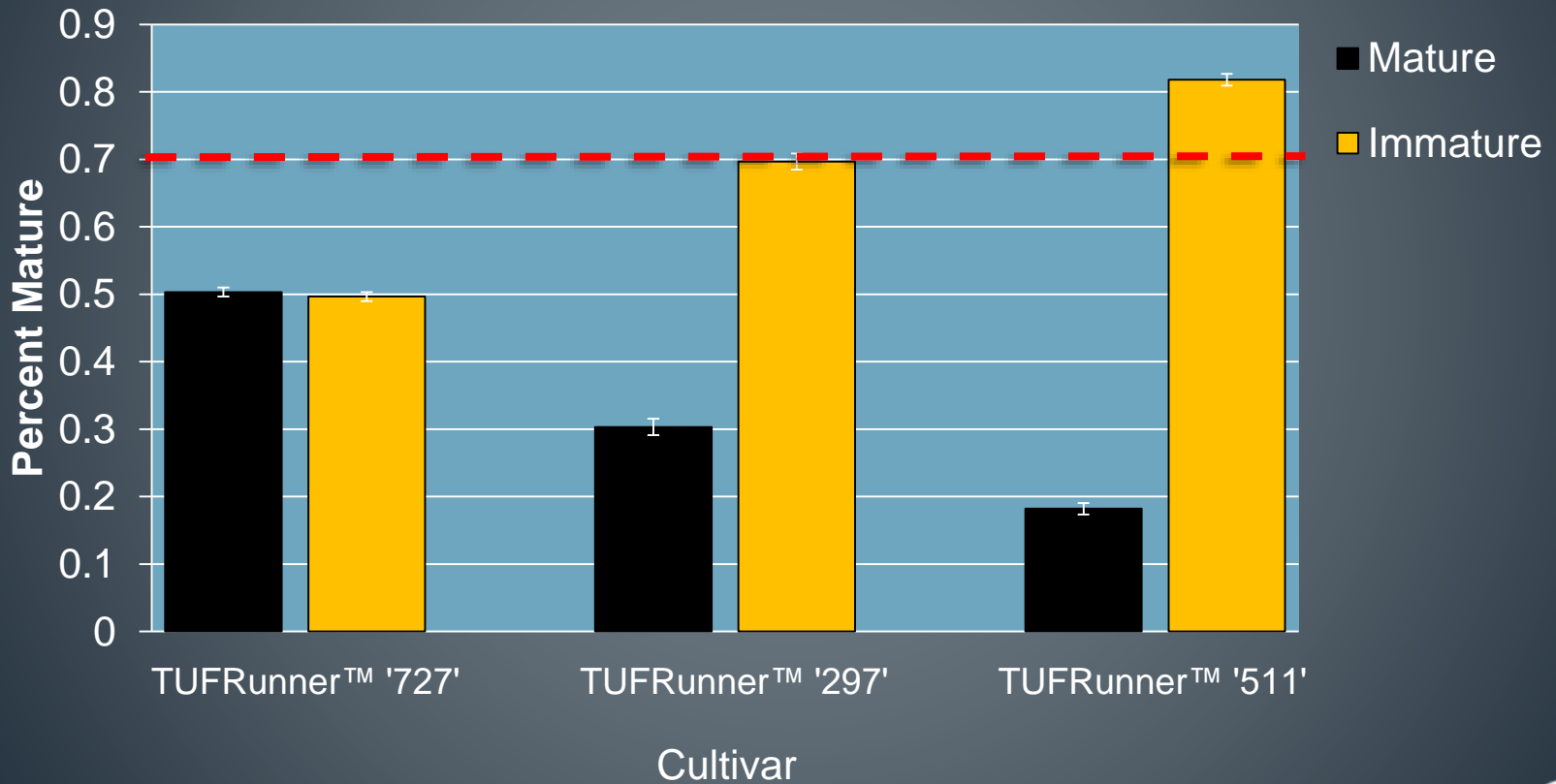
Stage 3- Large Basket



Stage 4- Small Basket



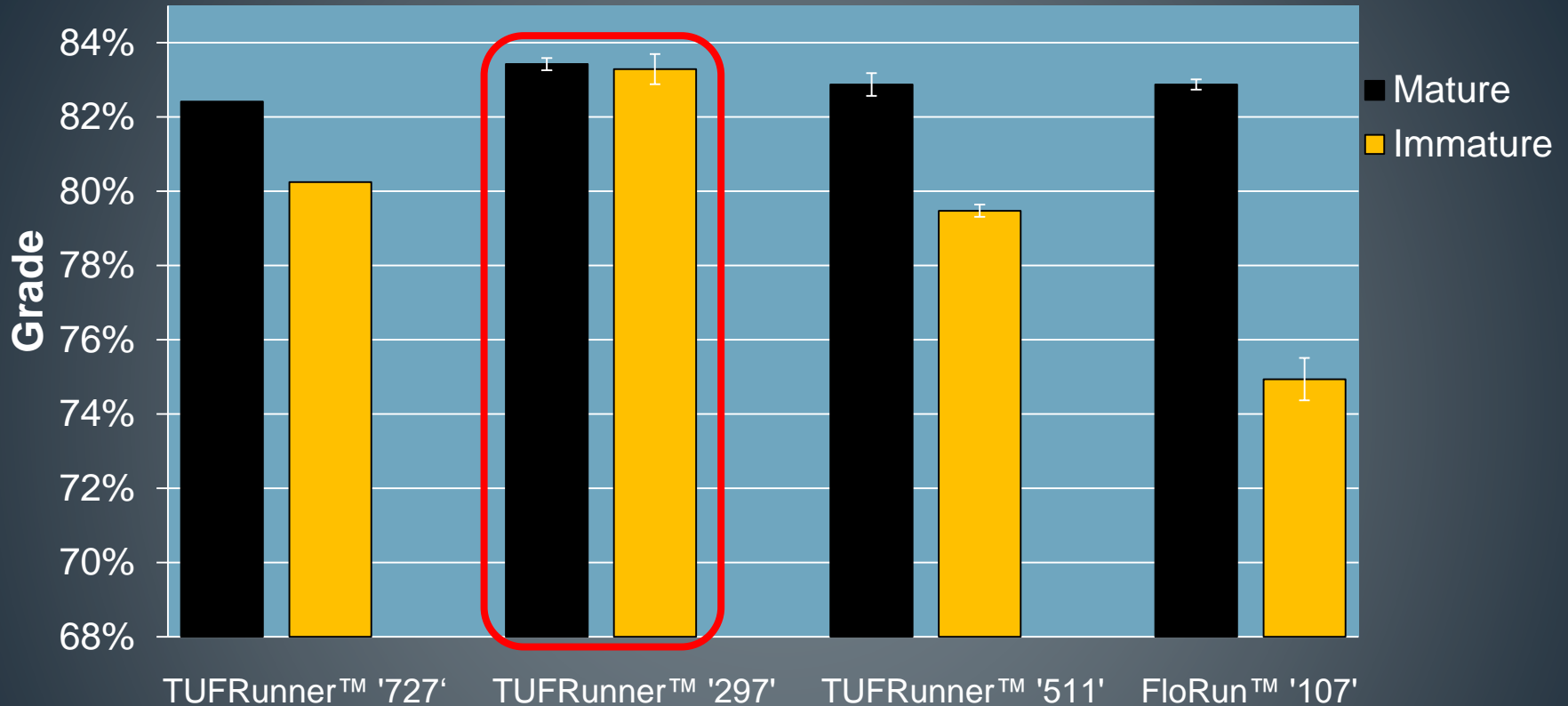
Stage 5- Nubs Basket



Does Grade Accurately Reflect Maturity?



Grade- Stage 1 Field



Cultivar

Δ\$ \$9.64/ton

\$0/ton

\$19.28/ton

\$38.56/ton

1 pt TSMK% = \$4.82/ton

Loan value was \$354.51

-grade 73%



Summary of Sheller Study

Idea supported: Commercial shellers have a high percentage of immature seed and that certain stages can pinpoint and remove them

- The cleaner removes some of the immature pods
- In-shell sizing is beneficial for sorting out mature pods
- Grading at the buying point does not reflect maturity for every cultivar
- Failure to harvest at an optimal time adds more immature seed into the shelling process, which may be returned to growers as planting seed



Maturity Impacts It All



Seed → Harvest



Questions?

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