National Peanut Research Laboratory

Peanut Oil: Fuel for Survival

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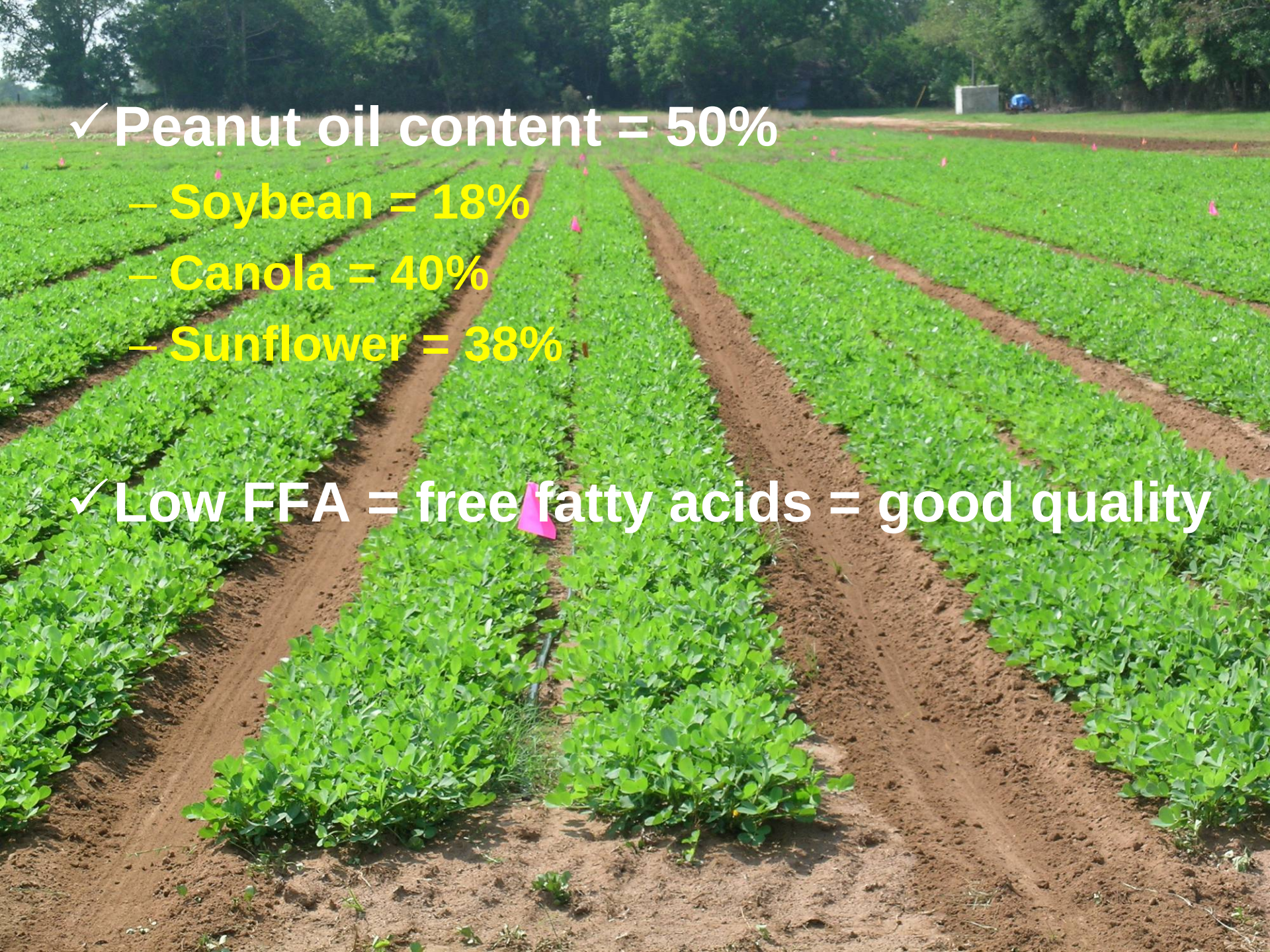

✓Peanut oil content = 50%
– Soybean = 18%
– Canola = 40%
– Sunflower = 38%
✓Low FFA = free fatty acids = good quality

Oil production potential of selected crops in Southeastern US

Crop	Gallons fuel per acre
Peanut	100++
Canola	75
Soybean/Sunflower	65
Pecans	190

How will it work?

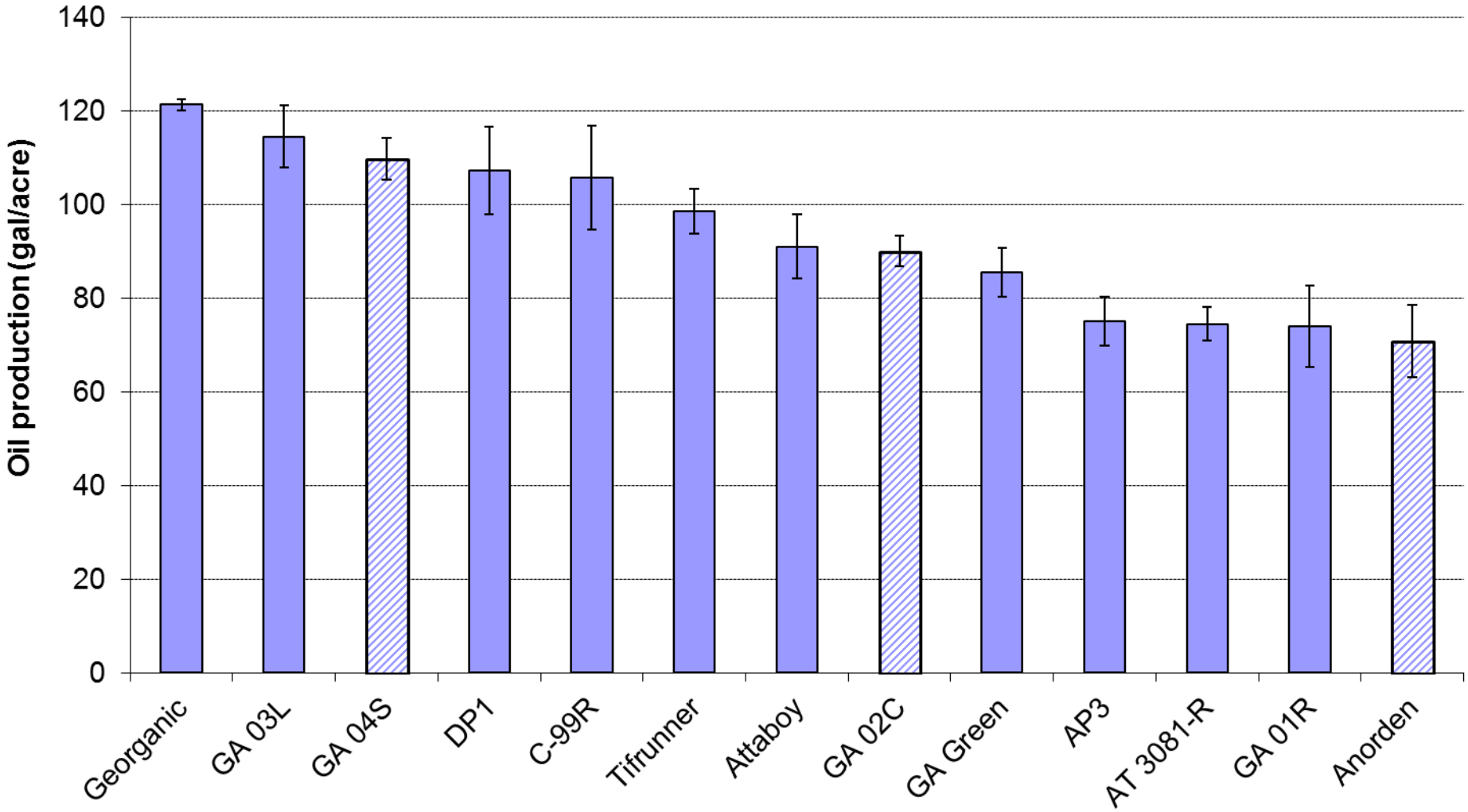
- ✓ If the peanuts never leave the farm, then they never gain value
  - – You control how much the peanuts are worth, by the way you grow them
  - – What if you could grow 1 ton for $175?
    - 1 ton = 100 gal oil = *$1.75/gal* + drying + shelling + conversion

How will it work?

- ✓ A new production system
  - Selection of the most suitable cultivars
    - Quality (flavor, appearance, etc..) do not matter
    - High resistance to multiple disease
    - Oil content/characteristics
  - Conservation techniques like strip tillage
  - Minimal use of herbicides & fungicides
  - A new way of thinking!!

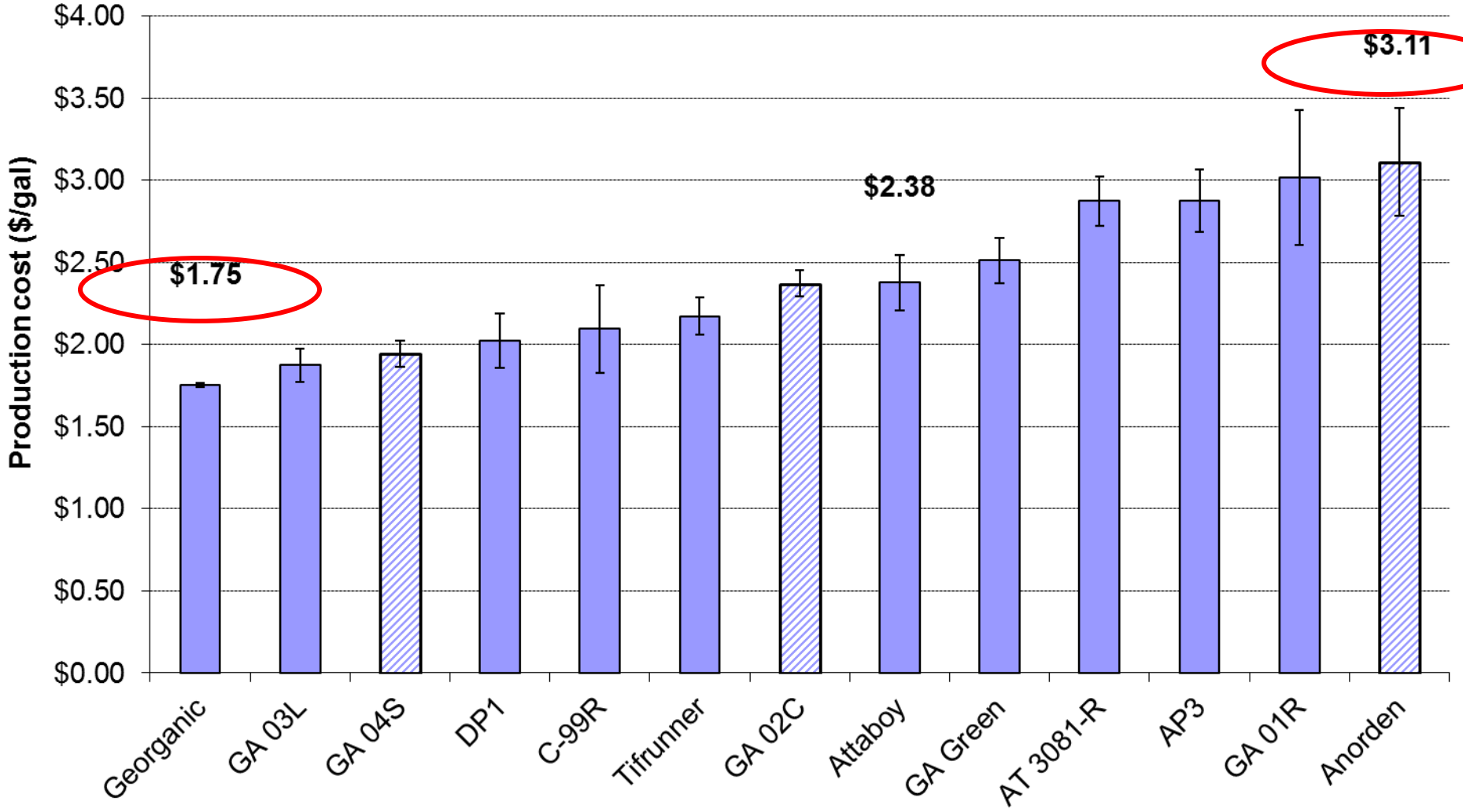
2006 biodiesel evaluation

peanut oil production



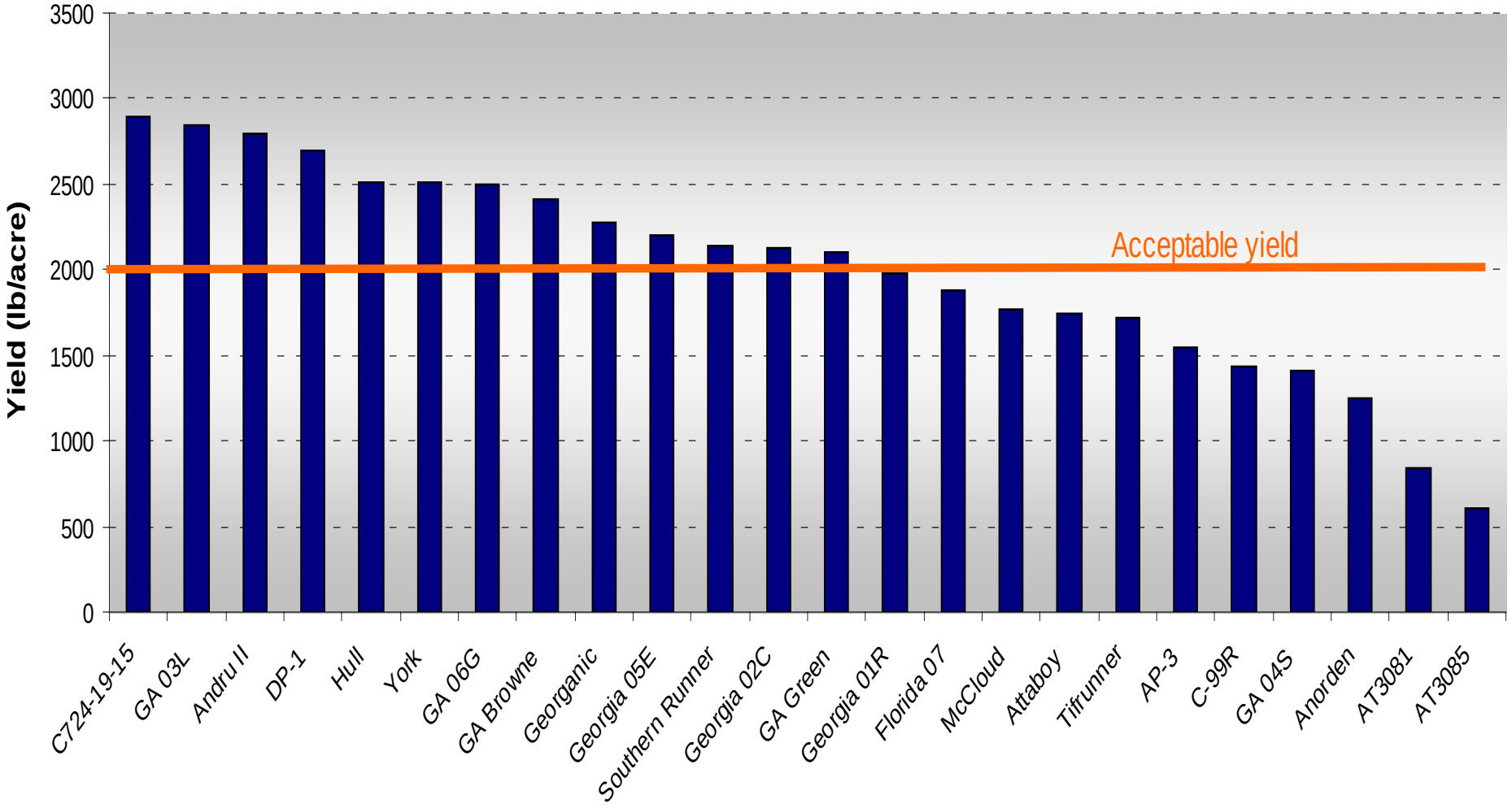
2006 biodiesel evaluation

production costs/gallon



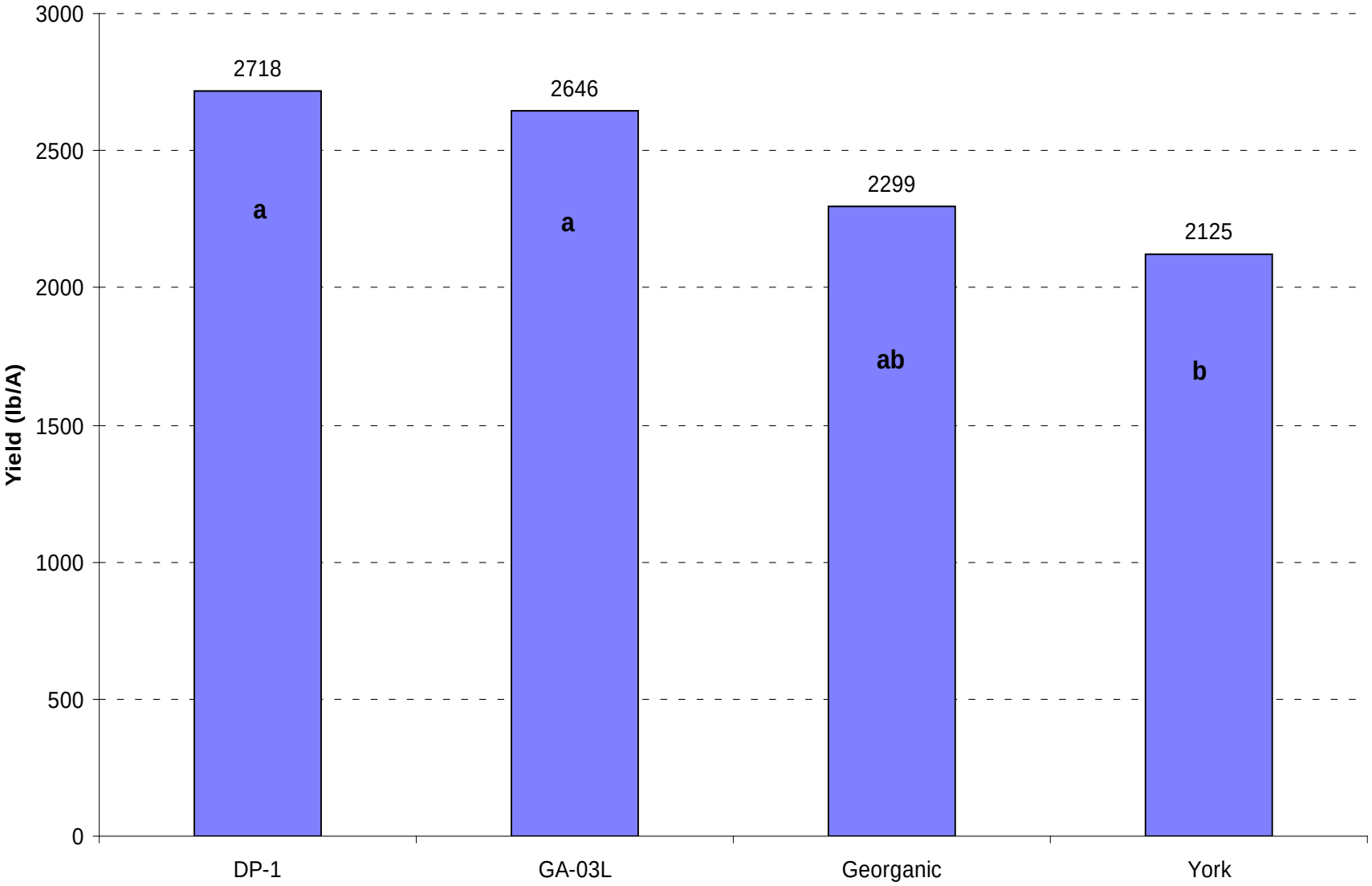
2007 Biodiesel Evaluation

Dawson, GA

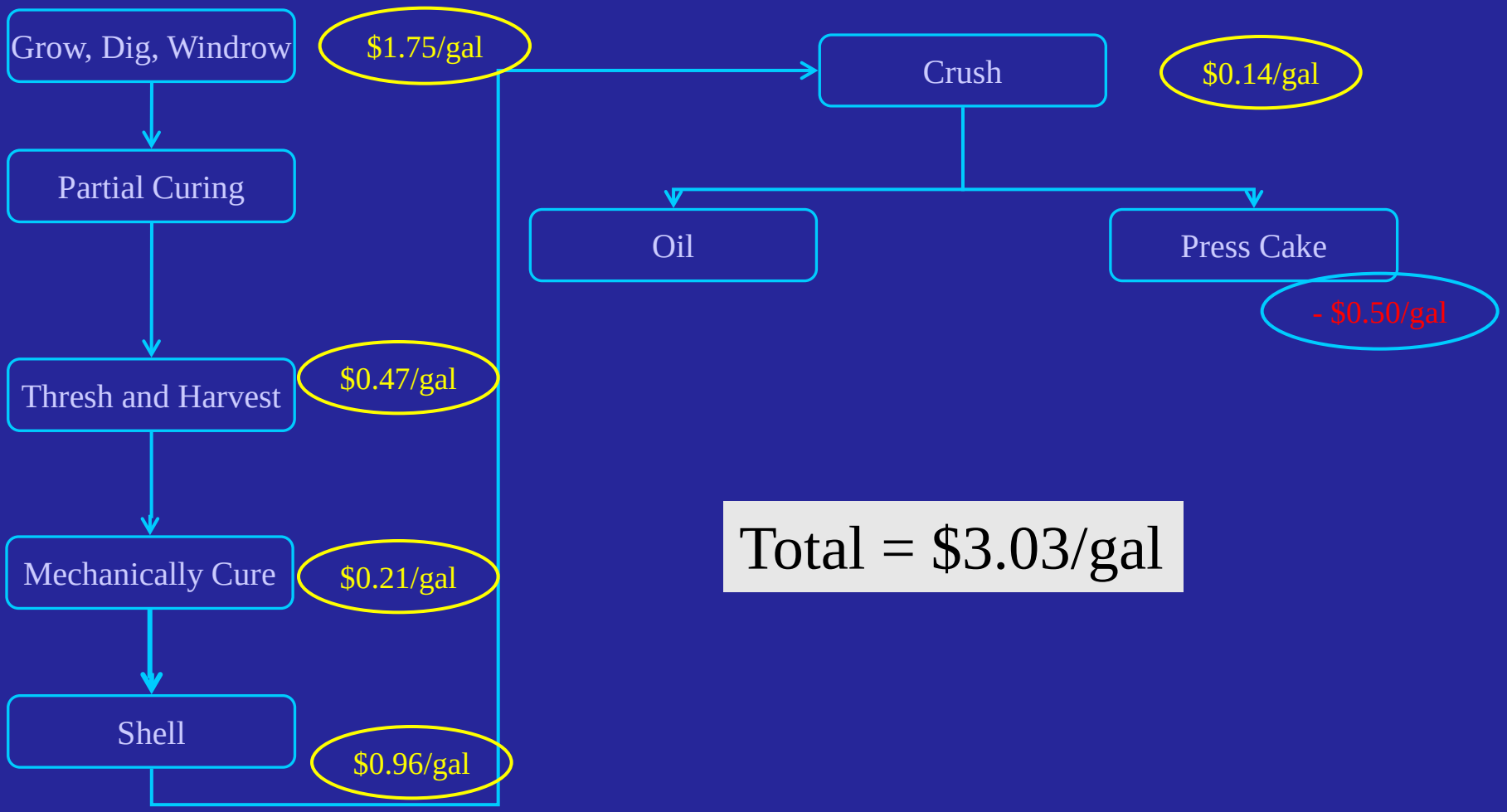


Low-input biodiesel production test

Headland, AL 2007

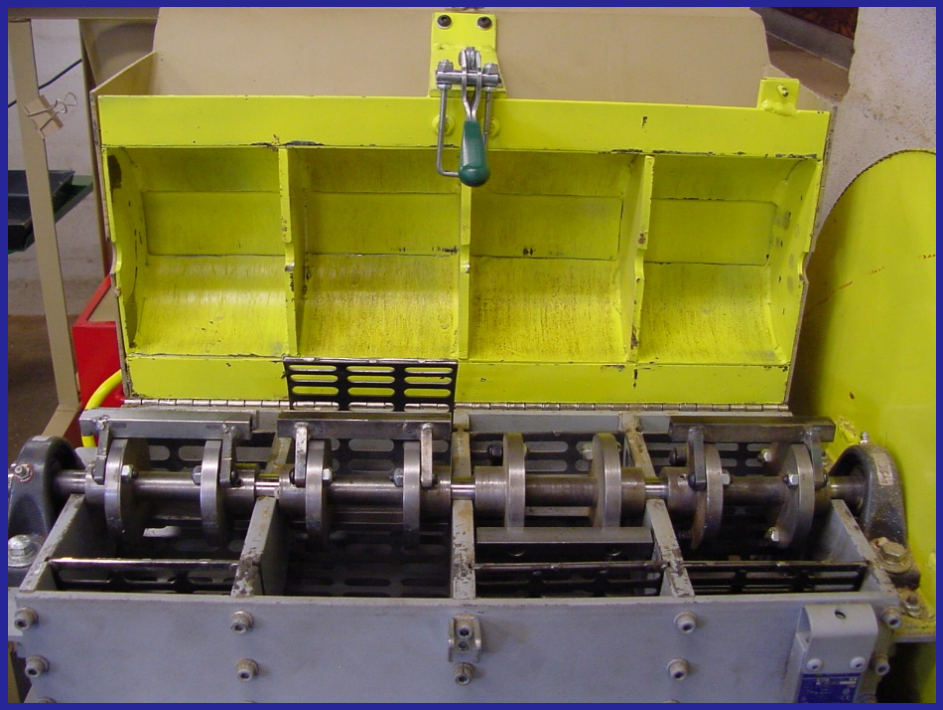


Farm to Conversion Tank: Current Method



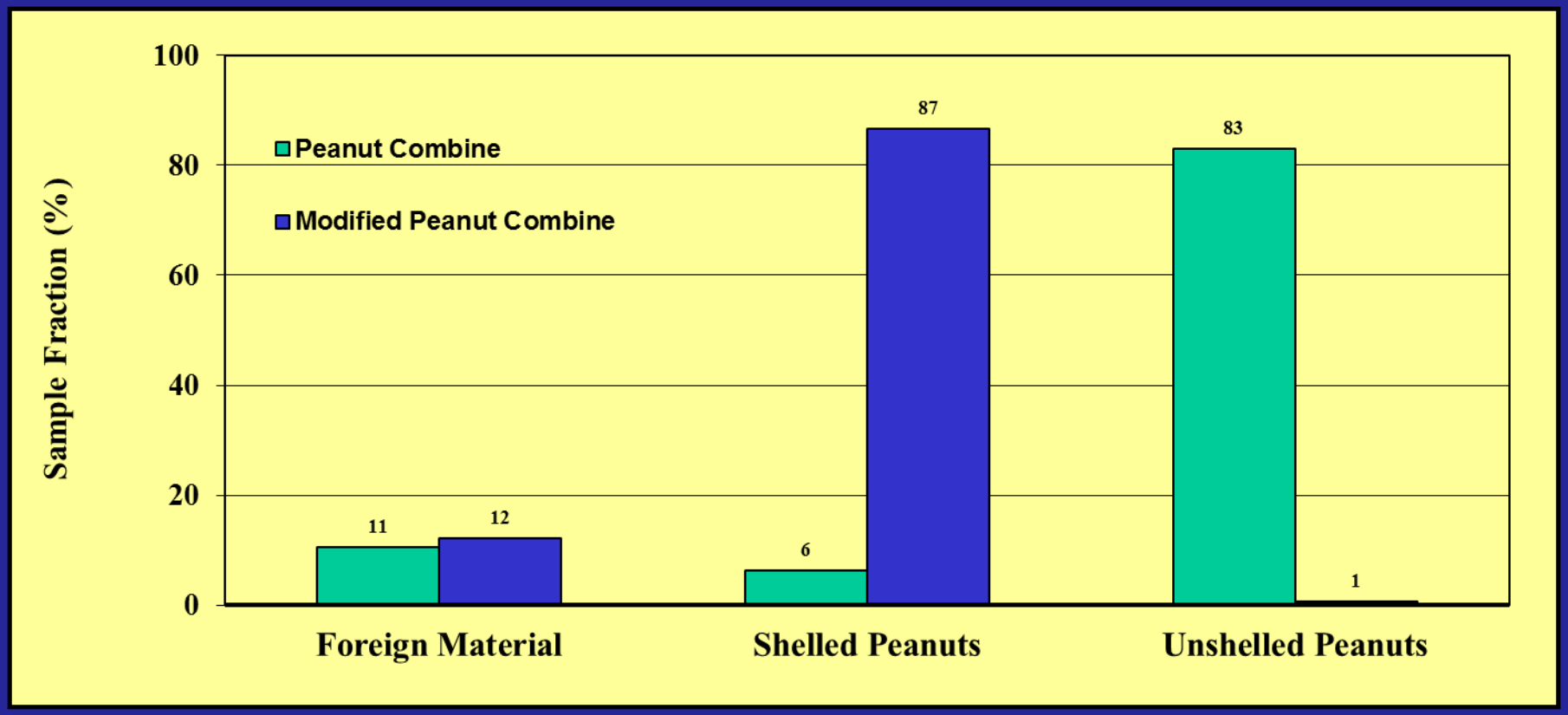
Total = $3.03/gal

Can post harvest costs be reduced by curing in the windrow and shelling while harvesting?

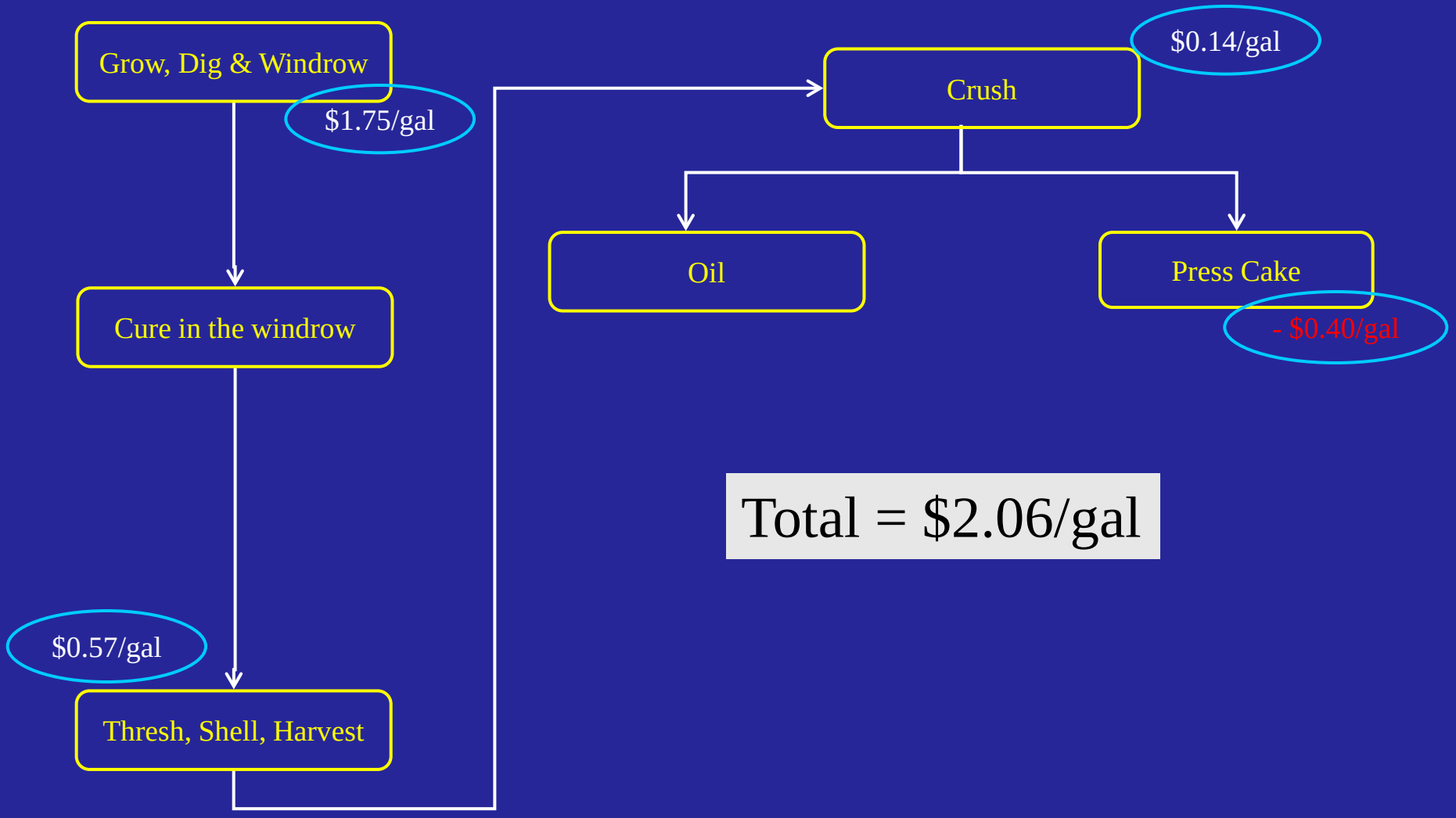


Peanut Combine Modifications

- Removed original surge bin
- Modifications to surplus peanut sheller included:
  - Drive line modifications
  - Added aspiration chamber for hull removal from shelled kernels
  - Added transfer auger to move shelled peanuts to bagging attachment
- Modified combine drive train to power sheller, transfer auger, and hull aspiration fans
- Installed surge hopper to feed sheller


Sample Fraction (%)
100
80
60
40
20
0
Peanut Combine
Modified Peanut Combine
11
12
6
87
83
1
Foreign Material
Shelled Peanuts
Unshelled Peanuts

Farm to Conversion Tank: In-field sheller



Total = $2.06/gal

Will it work?

- ✓ Current System – NO. Just not cost effective.
- ✓ Modified System – More cost effective.
- ✓ Others to consider (farm level capture of LSK and oil stock: use of excess peanuts (forfeitures))
- ✓ New cultivars with higher oil levels or yields at same production cost

Will it work?

- ✓ Within our control
  - We can produce and deliver peanut oil for a reasonable price per gallon.
  - We will have to partner with other feedstocks (i.e., carinata) to reduce costs in processing of oil.

- ✓ Outside of our control
  - The price of alternatives competing for land (peanuts, corn, cotton, soy)
  - The price of petroleum and biofuel from competing sources

Will it work?

We need to have a comprehensive region wide feasibility analysis of oil-based bioenergy options

But – it needs to be inclusive of alternatives (carinata, soy, canola,…) and their production potential for economies of scale

Markets always change – the feasibility analysis will let us know where we are under different market conditions