

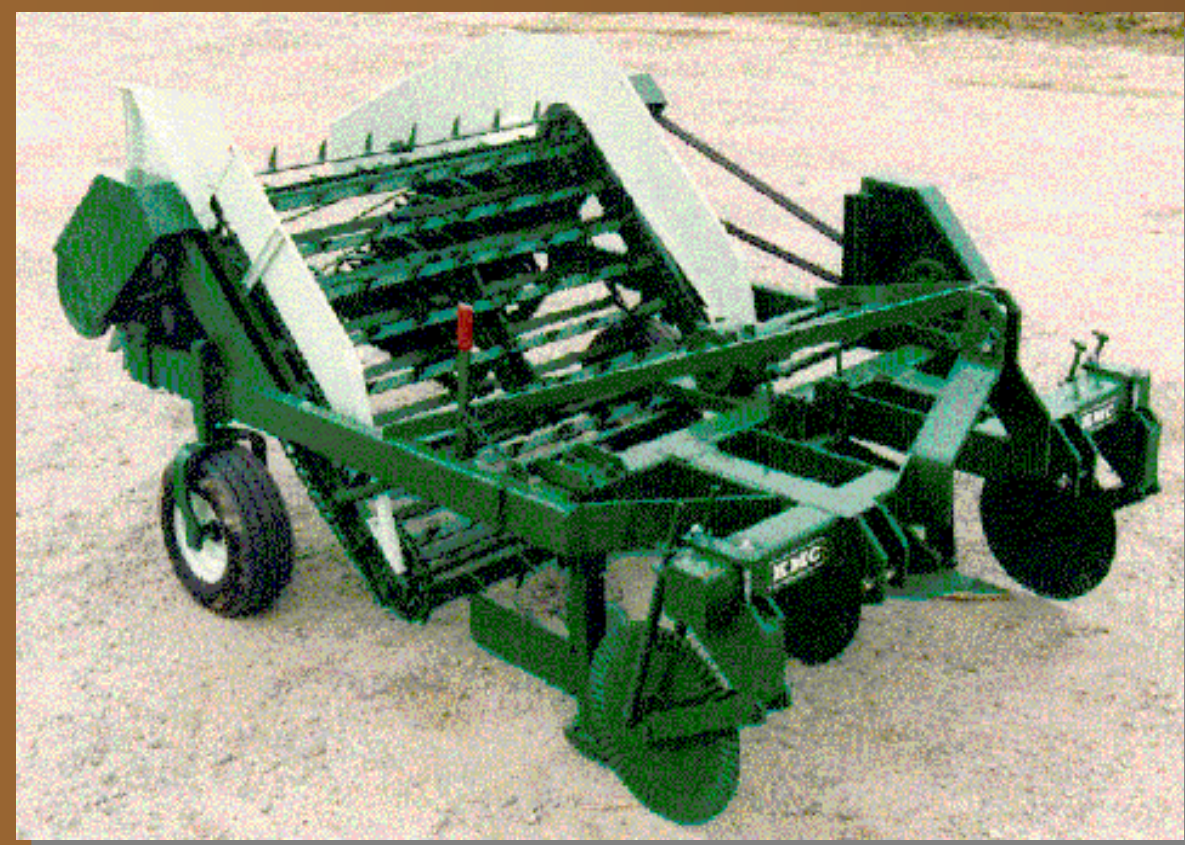
Improving Harvesting Effectiveness for Peanut Diggers

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How to improve it...

Digger Modifications



Digger-Shaker-Inverter

Implement



By adapting a common agricultural rate controller to the shaker chain drive the advantages would be creating of opportunities for automatic control and better monitoring of rates used.

- Shaker chain speed control
 - Adapted a sprayer/spreader control to regulate shaker chain speed
 - Insures chain speed synchronization regardless of ground speed



Sweep angle and the blade action are important factors.

- Alternative standard designs
 - Standard A: Flat sweep angle and sharp blade angle
 - Standard B: sharp sweep angle and flat blade angle

Farm	Above Ground Losses	Below Ground Losses
Standard A FSSB	169 LB/AC	127 LB/AC
Standard B SWFB	81 LB/AC	47 LB/AC

Digger Performance

- Sample area randomly selected in the field
- Area is 43.56 sq. ft. or 1/1000 acre



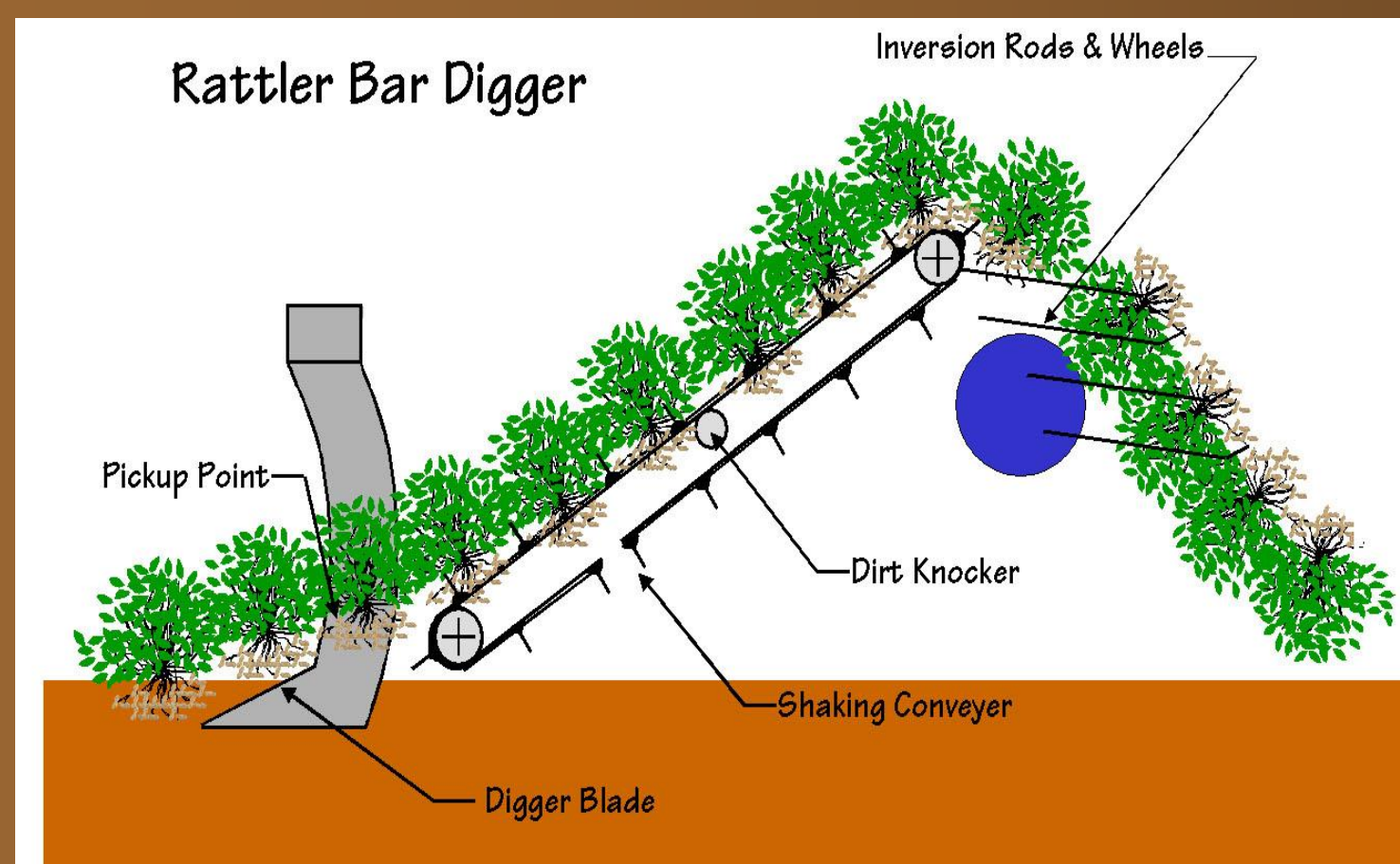
- Loose pods on the surface evaluated for source of loss.
- Loose pods below ground evaluated for source of loss
- Record digger related losses for evaluation.

- Procedure
 - Compare performance of modified digger to conventional digger
 - Evaluate test plots for digger losses
- Field Testing
 - Two farmers in Martin County volunteered to try automatic chain control digger
 - Estimated combined total of 100 acres plowed by digger.

Farm	Above Ground Losses	Below Ground Losses
Farm A ACS Digger	120.5 LB/AC	116.3 LB/AC
Farm B ACS Digger	35.6 LB/AC	35.6 LB/AC
Farm B PTO Digger	52.0 LB/AC	61.2 LB/AC

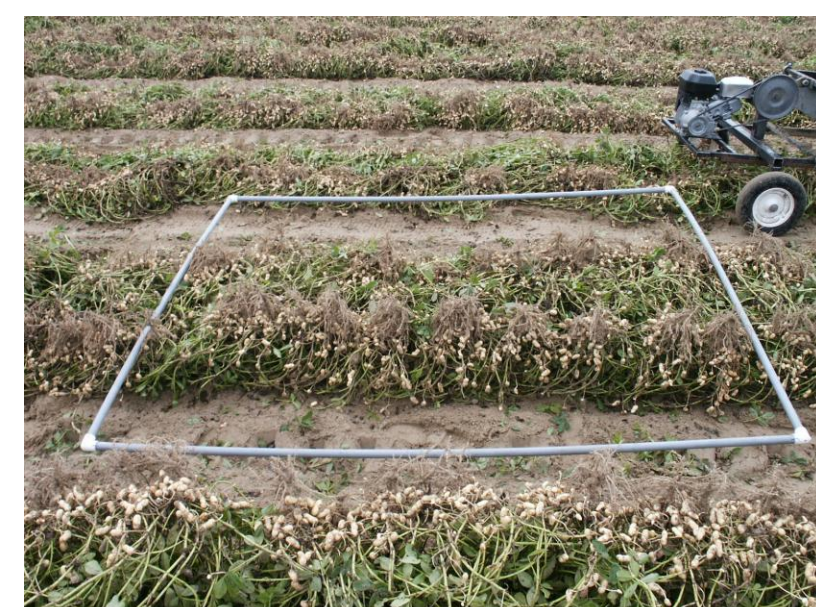
ACS = Automatic Control System
PTO = Conventional Digger

How it works...



- Digger blades to cut tap root and fracture soil
- Shaking mechanism to remove dirt from around pods
- Inverter section to invert vines and form windrow

- Establishment of performance monitoring for peanut diggers
- Improving known sources of harvesting digging losses
- Bring digger performance in-line with combine improvements



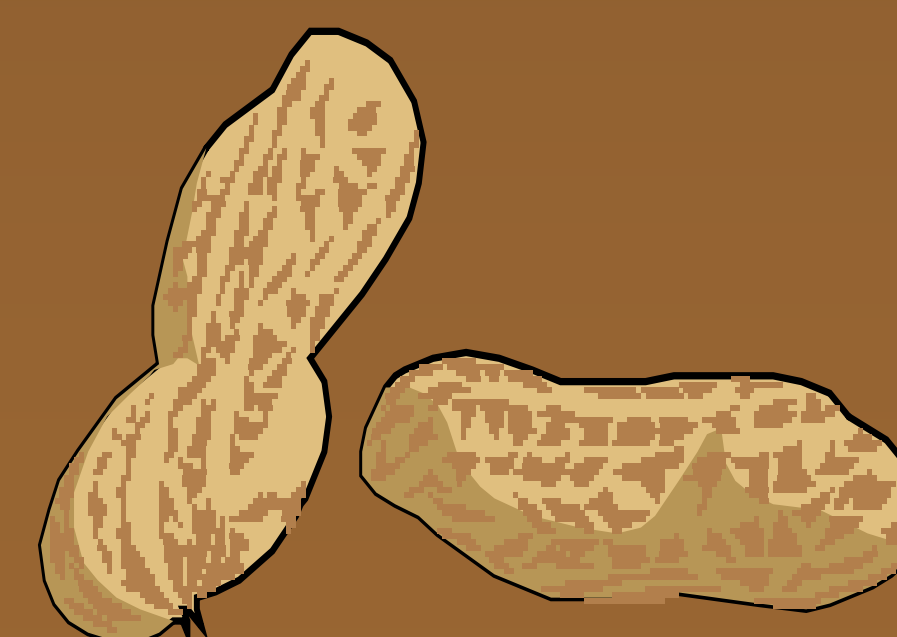
Current problems...

- Digger Blades
 - Dull blades create drag
- Shaker chain
 - Incorrect chain speed results in mishandling as peanuts are lifted onto chain
- Inverter
 - Misadjusted inverter action can strip peanuts from the vines.

What to improve...

Alternative Design Modifications

- New designs under study
 - Shaker arm separator
 - Eliminate the conveyor chain
 - Continued development of shaker mechanism



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