

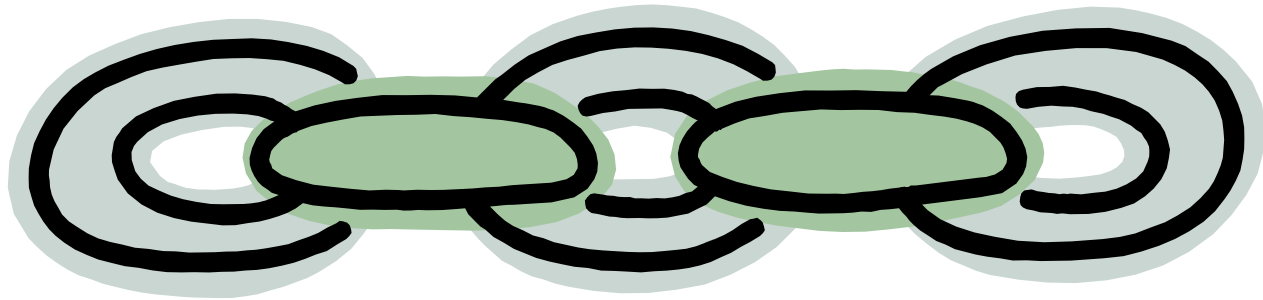
Building the Flax Straw Value Chain

Presented by
Alvin Ulrich

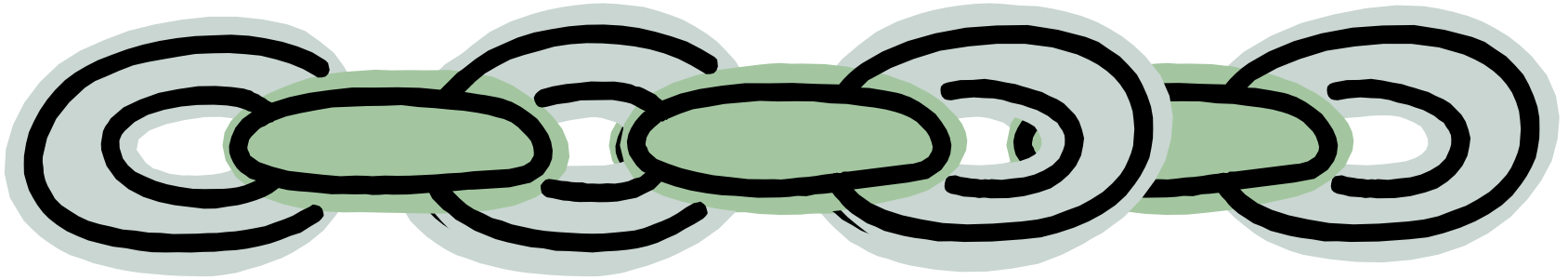
at
“Whole Crop
Utilization
Workshop”
Innovation Place
March 9, 2006



A value chain can have many links, with each link having activities and results that affect neighboring links and the whole chain

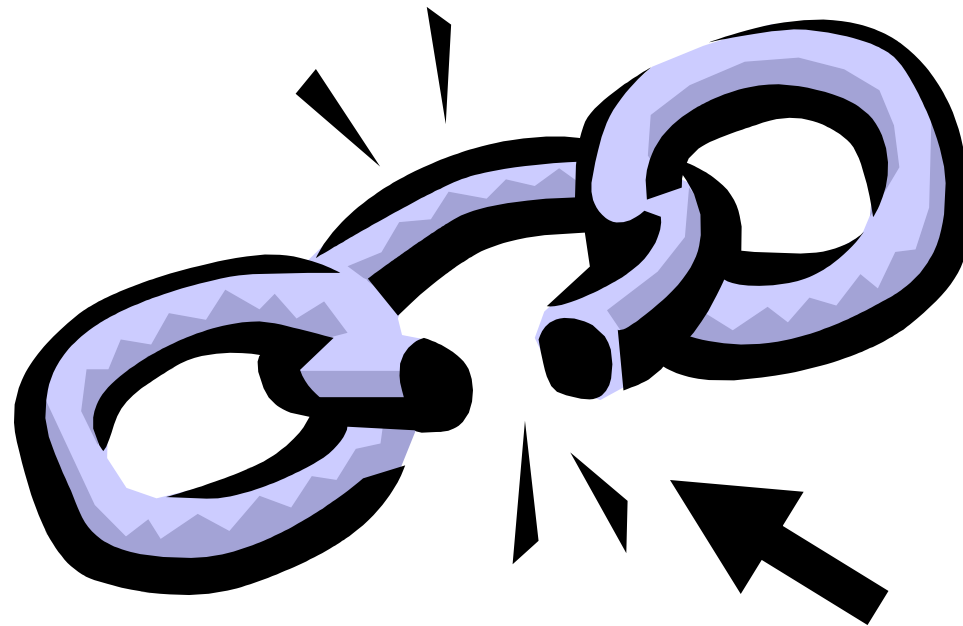


What limits the length of a value chain?



The potential built by each link!

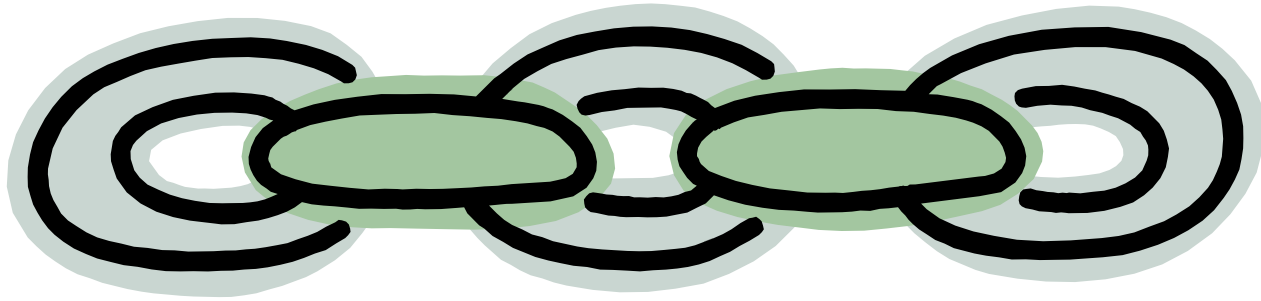
What limits the strength of a value chain?



Weak Link

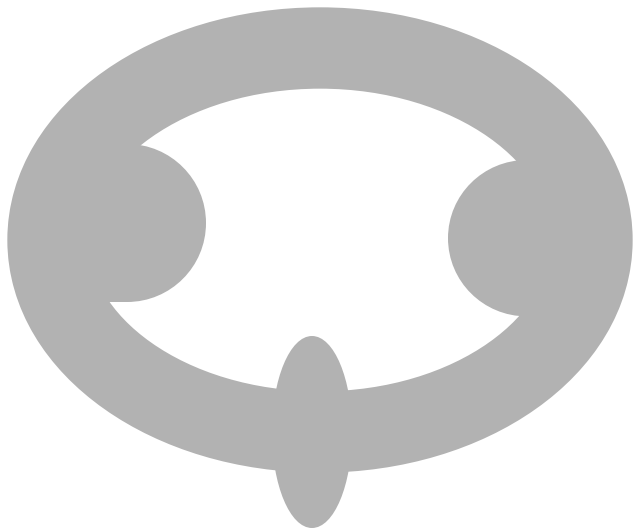
A value detracting activity!

What limits the worth of a value chain?

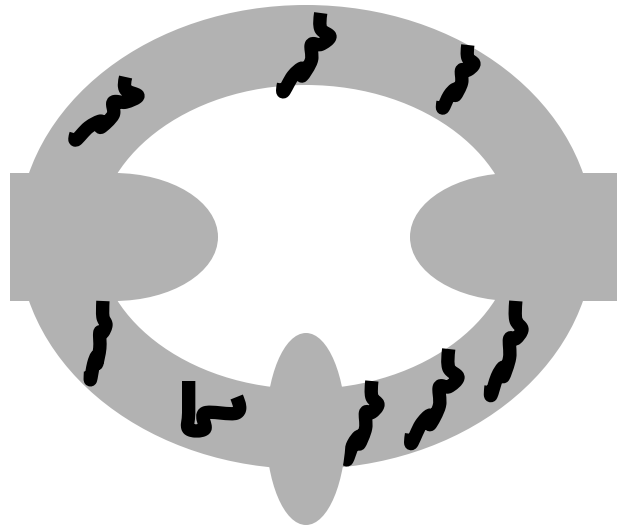


The sum total of each of its links!

longer and stronger = more value



= **Strong link**



= Weak link

Seedbed Link.....

- Evenly spread residue
- Low weed population
- Firm and/or small clay smooth seed bed
 - Sandy loam, loam, clay loam soils
 - Level topography
- Near other flax fields

Seeding Link....

- Higher seeding rate (>70kg/ha)
- Even depth of seeding
- Shallow seeding



Good



Good





....Seeding Link

- Wide “ribbon” seed placement
- Higher fiber content varieties
- Taller straw varieties

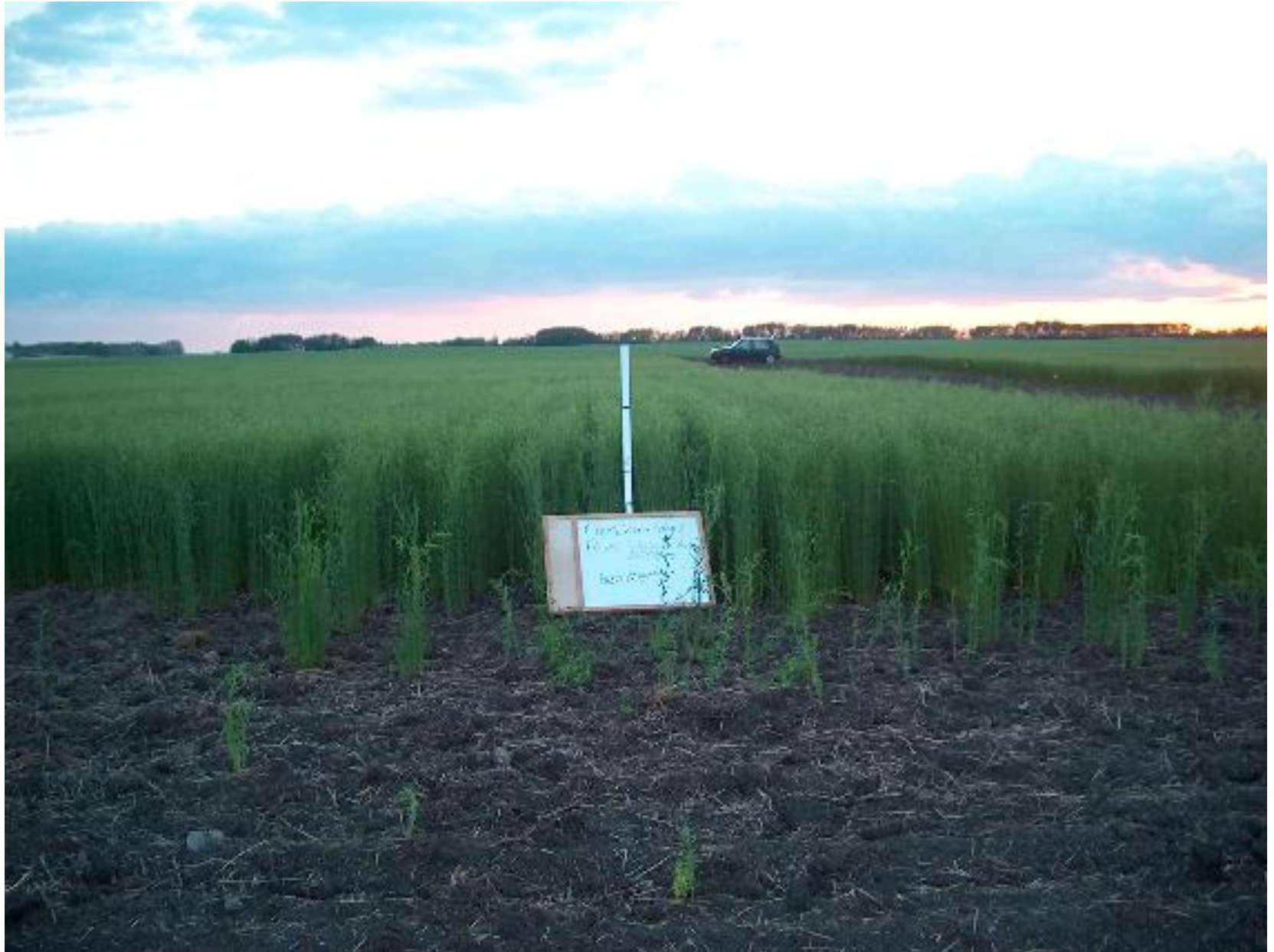






Growing Season Link....

- Good weed control
- No herbicide damage
- Moderate weather conditions



Good



Bad

Harvest Link....

- Tall plants
- High fiber content straw
- No weed infestation
- No plastic and other litter

....Harvest Link

- Straw not put through combine
- No seedholders mixed with straw
- Straw in thin even layer touching ground



Bad

Don't Want....



Badly broken,
unretted straw
with seed holders
mixed in the
straw

Don't Want...



Seed
Holders











Good



Straw Collection Link....

- Retted straw (or possibly to ret latter on)
- Even cutting, rolling, raking and or baling techniques
- Uncontaminated bales



....Straw Collection Link

- Use of sisal, flax or hemp twine
- High and even density of bales

Straw Storage Link....

- Bales stacked loosely
- Bales stacked indirectly on ground
- Bale stacks with sloped waterproof cover
- Bale stacks widely separated(fire)



Good



Bad

....Straw Storage Link

- Bale stacks in raised area
- Bale stacks not on clay soil
- Bale stacks not near urban areas

Bale Transport Link....

- Careful loading, unloading
- No loader, grapple hook or forklift damage
- Even truck loading



....Bale Transport Link

- Sufficient bale tie-downs

- No bale contamination

First Stage Processing....

- Optimum (<14%; >8%) moisture straw
- Consistent moisture content straw
 - Stone and dirt lump traps
- Sequential gentle decortication





....First Stage Processing

- Low dust production
- All processing dust removed
- Collection of broken pieces of machinery
- No rust, oil, grease contamination

....**First Stage Processing**

- Even, consistent length of fibers
 - No clumps of fiber
- Very good separation of fiber from shive
 - High throughput per hour

....**First Stage Processing**

- Low capital and/or operating cost per unit of output(relative to end use)
- Grade all batches of straw
- Process batches of straw differently
- Grade resultant fiber & shive

First Stage Process Handling....

- Identified grades of fiber & shive
- Low humidity, short term storage
- Not contaminated with water, rodents
- Blending facilities

....First Stage Process Handling

- Relatively small compression or baling systems (i.e., capacity to make small compressed packages)
- Ability to test for additional properties



....First Stage Process Handling

- Ability to store small batches of different fiber and shive until used or blended with other batches



Straw and Shive Bales in Warehouse



Warning

Links in Value Chains
Break when the Benefit
Received is Less than the Cost

Any Questions?

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