



Removing the flowers?!  
Are you sure about this?!!

Why and how I use my Darwin  
mechanical thinner.

# Me and my orchard...

- 3rd gen. Apple grower
- Located in Rougemont, Quebec
- Family owned since 1955
- Bought it in 2004
- We sell in 4 farmers market and U-pick 90% of our crop
- Rent and own 145 acres (80 acres of apples, mostly tall spindle training)
- We transform everything(cider, etc...)



# The Machine

- First saw it in Germany in 2007
- Not much information about it's use in North America
- Fruit-Tec told me they were planning things for North America in 2009-2010. (Bartlett) I bought it in 2010.
- Decided to modify some parts of the orchard for best use of the machine during that time. (shorter limbs)
- Easy because we already use a picking/pruning platform. (Munchkof)





# How does it work?



- Anzeige Spindeldrehzahl
- Spindeldrehzahl erhöhen
- Kurzzeitiges Stoppen der Spindel
- Start-Stopp-Taste
- Spindeldrehzahl verringern



- Vertical Spinning rod with removable horizontal plastic strings
- Mine is attached to the front 3 pt. hitch but there are other ways (loader, forklift, etc...)
- Hydraulic tilt and side shift to follow the shape of the tree
- Rotates from 150 to 400 rpm controlled by a computer from the driver seat (no relation to engine rpm)

# Why do you want to buy this?!

- Wanted to lower my use of pesticide
- Thinning results were inconsistent over the years.
- Thinning period is sometime short in my area, (lots of rain, it can be cold or really hot) all factors that will affect your thinning
- I wanted to lower the cost of hand thinning
- I want to convert to a system of fruiting wall (more mechanized operations) so I could lower my labor cost.
- Less to none chemical use
- The company and some research claim the use of the Darwin to have more consistent thinning results over the years.
- You can use the machine no matter what the wheather is.
- Little to no hand thinning at all .
- Works well in the fruiting wall concept. (we already owned a picking platform and we fabricated a hedger the year before)

# How I use it.

- Start with a baseline (speed of tractor, spindle rpm)
- Stage: King Bloom is a good starting point for most variety (20% bloom). I've used it at 50% with no damage.
- Identify a certain number of limbs and count the flowers (16 branches; 4 sections with 4 branches each)
- Run through the first section and count the flowers that are left on the identified limbs.
- You want to achieve at least 50% flower removal for good result.
- I use Streptomycin! (depending on the conditions)
- Pruning and/or hedging! The length of the limbs (6 in. Longer than the strings) No suckers...
- We will use it to remove the flowers on the very young trees, to maximise growth.



Date							
Block	112	Rootstock	M26				
Variety	Empire						
		# flowers before	# flowers after	% removal	average %		
<b>Spindle rpm</b>	170						
<b>MPH</b>	3,4						
<b>Section 1</b>							
Limb 1		65	50	23%			
limb 2		45	34	24%			
Limb 3		36	28	22%			
Limb 4		40	31	23%	<b>23%</b>		
<b>Spindle rpm</b>	180						
<b>Tractor speed</b>	3,4						
<b>Section 2</b>							
Limb 5		34	22	35%			
Limb 6		80	60	25%			
Limb7		98	72	27%			
Limb 8		48	31	35%	<b>31%</b>		
<b>Spindle rpm</b>	210						
<b>Tractor speed</b>	3,4						
<b>Section 2</b>							
Limb 5		31	14	55%			
Limb 6		61	32	48%			
Limb7		55	27	51%			
Limb 8		47	28	40%	<b>48%</b>		



You have to see it to believe...





# Why it works for me

- I use it on almost all variety with good, consistent results everytime.
- Size of apple is bigger (much more energy, sooner, for the apple to grow, up to 1/2")
- Less bees, still very good pollination
- Easier to pick for the workers
- More yield
- Fireblight... could it be less?! (removal of the flowers, then less infections?)
- Hand thinning (if needed) is greatly reduced!
- Biennial bearing