NEW PRINCIPLE FOR HARVESTER HEADS FOR HARDWOOD

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Brașov, September 2017
fuelwood feller units
more than 25 different models on market

harvester heads
more than 60 different models on market
made for softwood
Softwood vs. hardwood in Central Europe
**softwood: spruce**

- straight round stem with low taper
- soft, thin, dead branches, rectangular to the stem
- thick, grippy bark

**hardwood: beech**

- curved, tight tapering, unround stem
- hard and thick branches, acute-angled and irregular to the stem
- forked growth
- thin, unstable bark
Saw log
needs high quality in cutting and deliming

Pulpwood, energy wood
needs less quality in cutting and deliming
Criticism

- rigid body is not stressed
- whole mass is hanging in the knifes and feeding rollers
- deliming on the tips of the knifes results huge overturning moments in the bearing
- rigid body is stiff and long
Demands for a harvester head for hardwood

- for saw log and pulpwood: needs high quality in cutting and delimbing

- saw log = moderate to heavy timber, no competition with the cheap fuelwood feller units:
  - felling diameter 500 mm
  - delimbing diameter 450 mm
  - ability to delimb branches up to 200 mm thick

- allows a maximum on value at crosscutting a tree: huge topsaw, small body of the fell saw

- integrated grapple loader, ability to grapple parts of a stem

- ability to feed curved stems
Delimbing geometry

• Keto 100 supreme
Delimbing geometry

- short knifes, short lever arms to bearing
- small „bags“
- bearings and hydraulic cylinders in protected zone
- minimum of overlaps
Specification of knives - state of the art

- delimming by impulse
- knives ends in plate / rigid body
Specification of knifes

- small branches by impuls, bigger branches by statical or pulsative delimbing with internal telescope cylinder
- possibility of feed up stroke for bigger branches
Feeding geometry

- Keto 100 supreme

- adverse strain to the feeding rollers
- curved stems causes huge side forces
- rigid backyard is unstressed
- to grapple segments is disadvantageous
Feeding geometry

- 3-Point bending to realise feeding of curved stems
- side forces are absorbed in the backyard
- one main roller at the bottom
feeding geometry

Keto 100 supreme 

adverse strain to the feeding rollers 

curved stems causes huge side forces 

rigid backyard is unstressed 

to grapple segments is disadvantageous
Specification of mechanism of diameter adaption
Part of the BMBF-project HIPHAR
High-Precision Harvesting