Load Security
Roundwood Timber Haulage

John Lyons
Coillte, Chairperson,FITG.
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Background

- **Timber Haulage COP and GPG (2014) recommend that at least 2 straps on 1st bay and at least 1 strap on other bays be used. This is in line with UK recommendations.**
- **Questions raised by HSA**
- **FITG meeting incl HSA Oct 2014**
- **Subgroup set up (J. Lyons, Des Phelan, Gerry McMorrow, Scott Robinson, HSA)**
- **2 meetings held**

Literature review

- Forestry Codes of Practice in Irl and UK
- Worldwide forestry research reports (SW , NZ)
- International Guidelines on Safe Load Securing for Road Transport
- HSA Load Security Information bulletin, European CSN EN 12 195 Calculation of Load Restraining on Road Vehicles
- UK Dept of Trans COP re Safety of Loads on Vehicles
- UK Transport Research Laboratory report, Load securing Vehicle operator guidance
- UK GOV, 03/2015, European Best Practices guidelines on cargo securing for road transport
- All hauliers and others consulted

Number of Strap numbers required?

- **European formula (Annex a)**

- **Main Variables**
  - **1 = Friction factor**
  - **2 = tension force in strap**

- **Formula put on excel, allows for sensitivity analysis.**
- **(Annex b)**

Friction Factor, Roundwood Logs

- **Sweden, Roundwood logs..... 0.78**
- **New Zealand, Sawlogs..... 0.71**
- **Ireland..... ?????**

Testing Friction factor

(Friction factor = Tan of Angle when slippage occurs)

Calculating Friction Factor

Based on measurements (Ht and log Length) slippage occurred at 32 degrees in this case.

Tan 32 = 0.63 (friction factor)

Wet conditions, some crooked, some bark stripping, March 31st

Best Result achieved, 0.84

Tension Force in strap ?

- **Digital Dynamometer was used to test the tension forces.**

- **Labels on tensioner and associated polyester lashing show; (show examples)**
  Lashing Capacity..... LC (Typically, 2,500 daN)
  Standard Hand Force..... SHF
  Standard Tension Force..... STF

STF is the residual force after physical release of the handle of tensioning device

Older STF, perhaps 200 daN
Upward ratchet tensioning

Newer. Downward tensioning
STF = 300 daN, 400 daN, 500 daN
with
SHF = 50 daN
Longer handled ratchet, more teeth (example)

Further Lashing Possibilities

- **Gr 80 tensile chain, when used with load binder can give very high tension force.**
- **EN 12195-3 refers. (Lashing Chains)**

e.g. STF = 1,900 daN with STF of 50daN

Re-visiting European Formula

Other Load Security Considerations

- **Anchoring points for lashings, and any connectors**
- **Strap rating, condition**
- **Sliding Bunks (no existing guidelines)**
- **Influence of other restraint features? E.g. Timber Specific bunks provide positive restraint, partially chocking.**
- **Crane location**
- **Knowledge of all parties, competency to assess.**
- **Compliance……with standardsds and operational guidelines**

Where is this at?

- **This is 'Work in Progress'**
- **Guidelines are required....**
  realistic and practical, very many variables. (pre-tensioning, load movement, species, quality and lengths of timber, time of year, etc etc.....)
- **Industry experience to date must be taken into account**
- **Additions to current guidelines cannot be overly prescriptive**

Meanwhile, while this is ongoing, the focus should be on compliance with current guidelines and an understanding on the part of all concerned in relation to variability and the need to assess and secure each load as a separate entity.

Competent Person.

- **Designated person, suitably trained qualified by knowledge and practical experience and with the necessary instructions to enable the required tests and examinations to be carried out.**