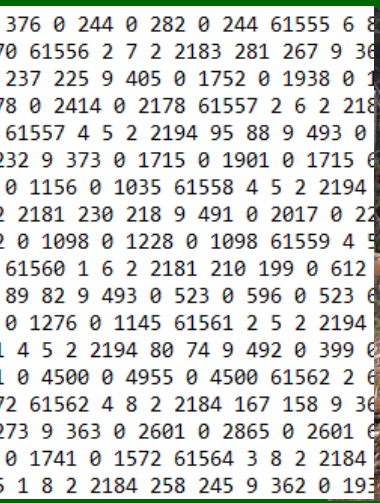
ForestPHD
PLAN | HARVEST | DELIVER

INTERPINE
INNOVATION

# Improving Value Recovery & Production Planning using Harvester Data using STICKS





Jeremy Gibson

David Herries


# defining forest value

**“value”**
is the maximum log value projected to exist in the standing forest

**“value recovery”**
is a measure of the efficiency of the subsequent operations, including harvesting and marketing, to realise that standing log value.

# our view of the standing forest is changing

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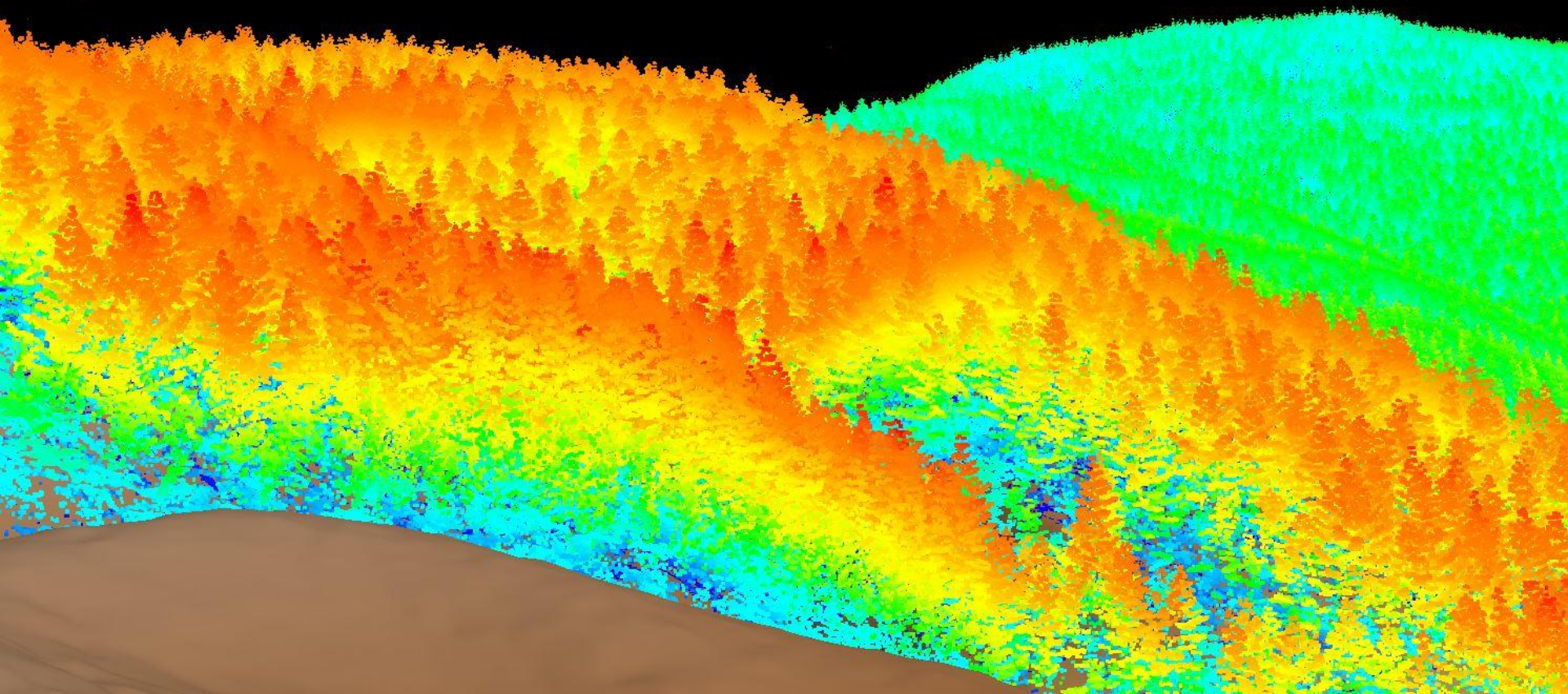

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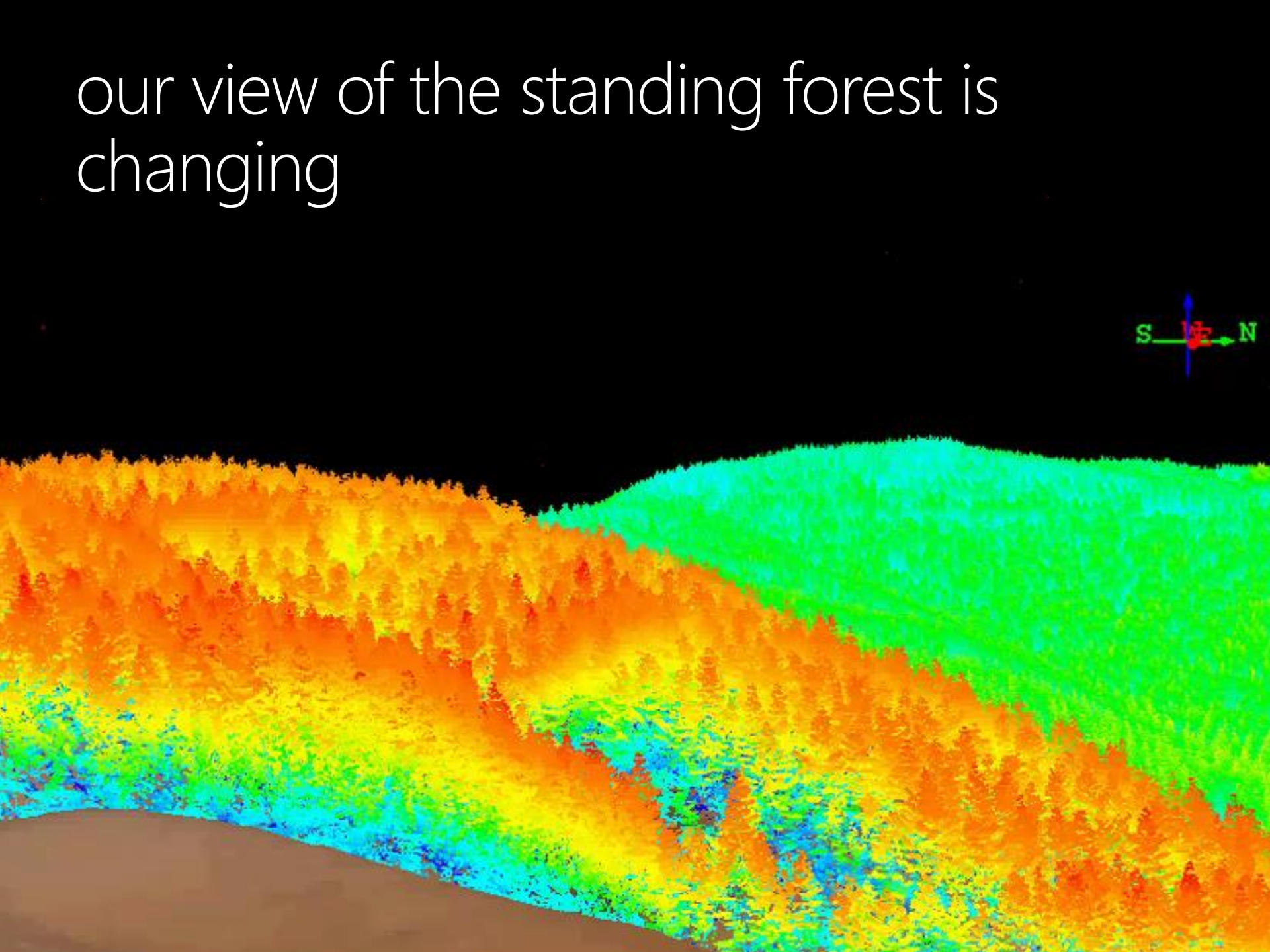


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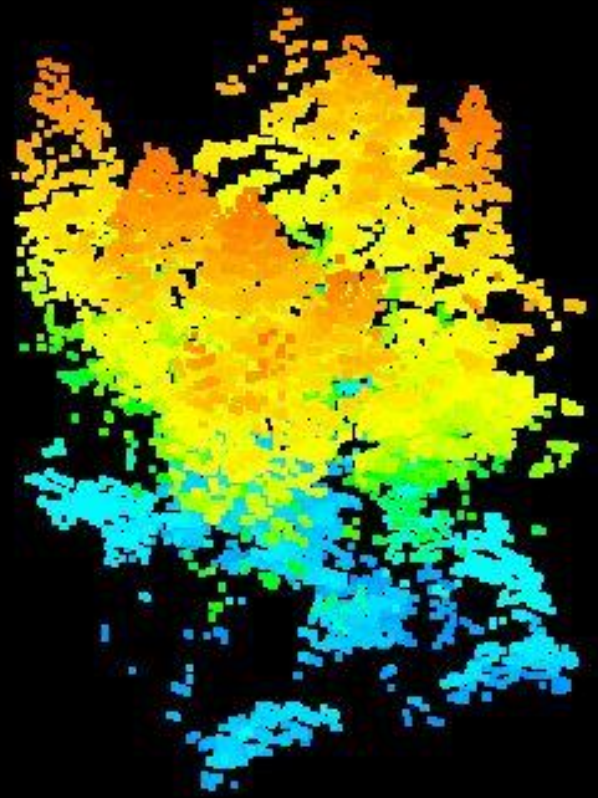
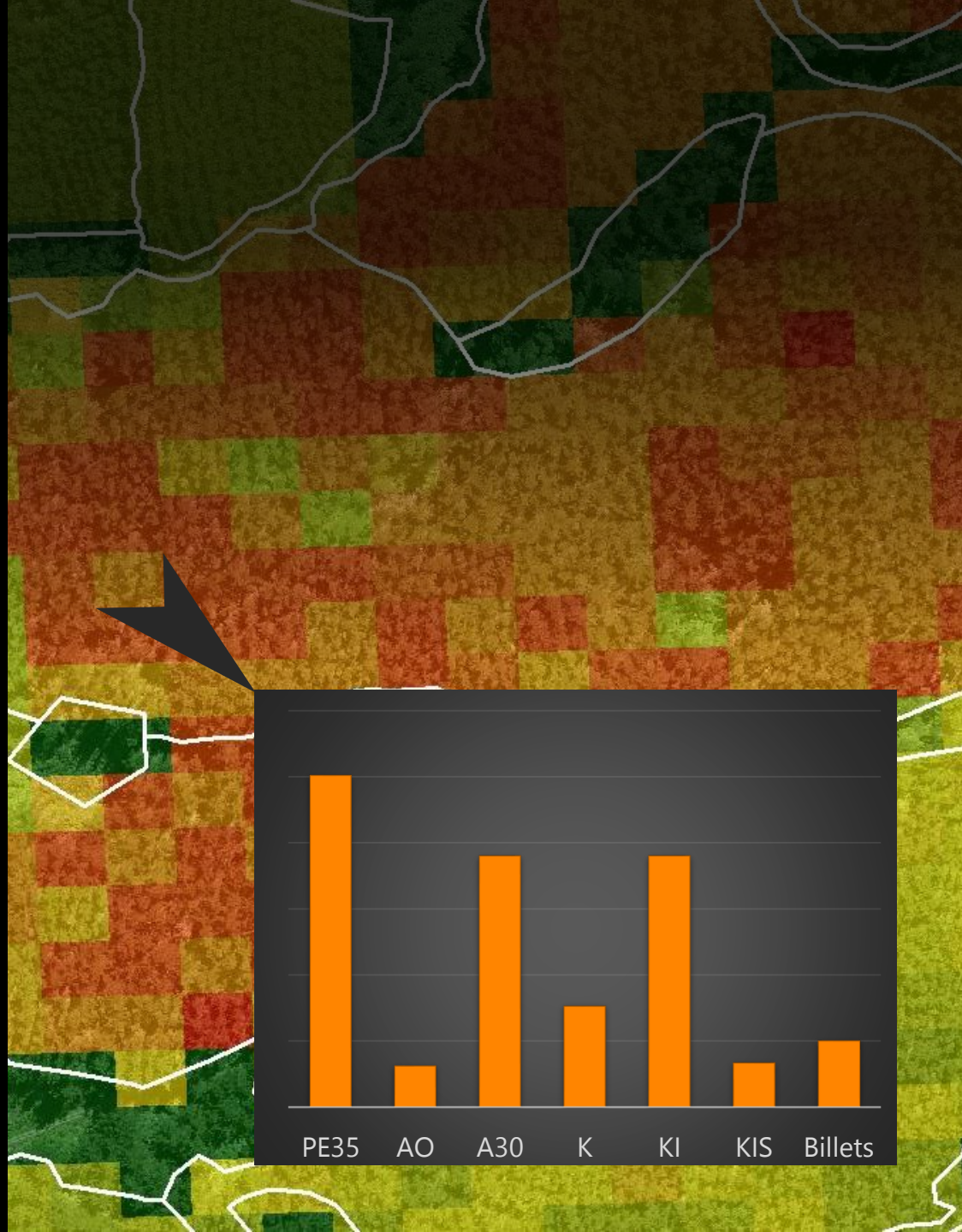
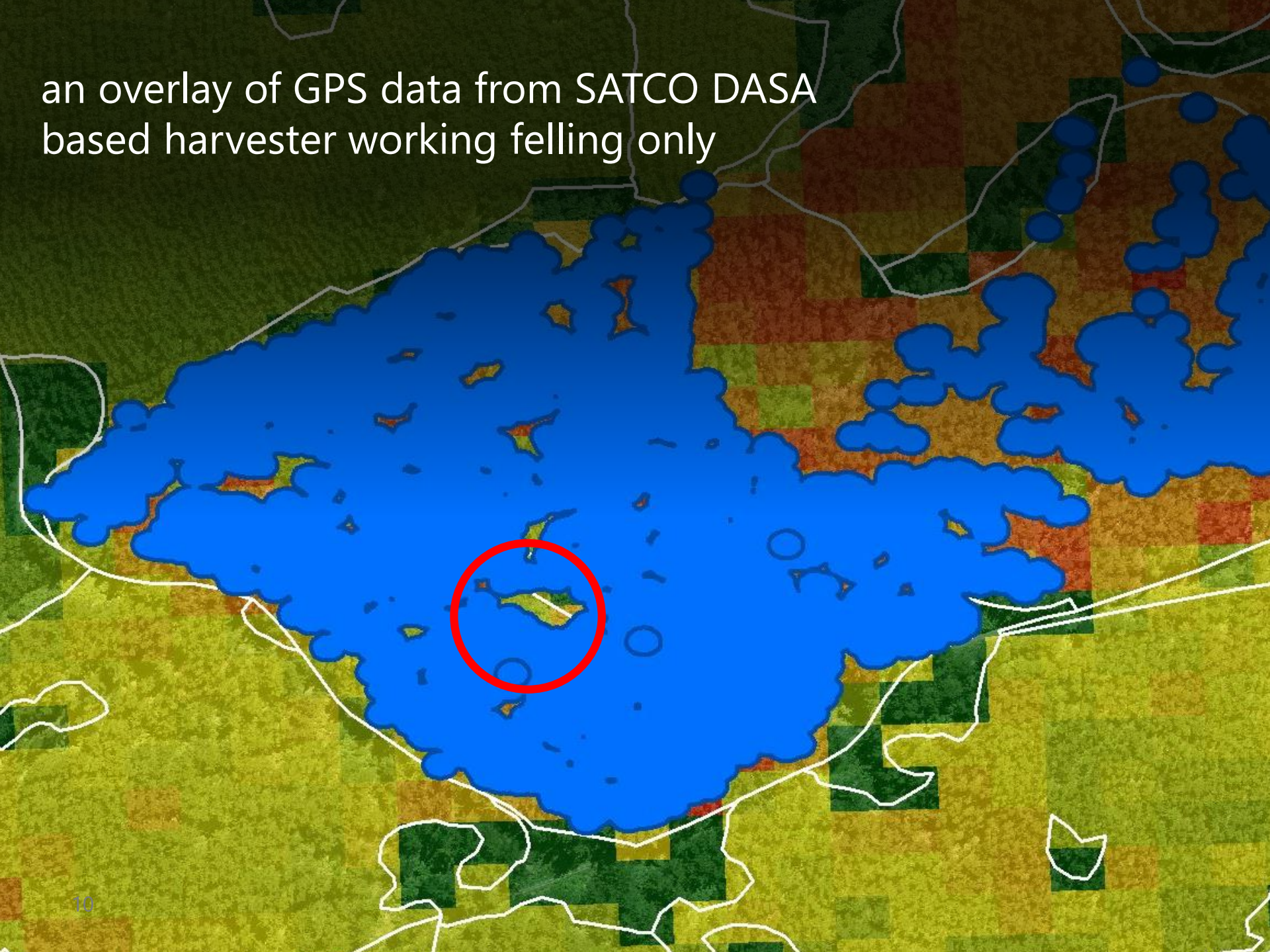




with increasing mechanisation, we change the way we monitor and realise value


# with increasing mechanisation, we change the way we monitor and realise value

an overlay of GPS data from SATCO DASA based harvester working felling only




# Standard for Forest machine Data and communication

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# File types of interest for value recovery

**.APT = cutting instruction**

**.PRI = stem based production files**

**.KTR = control measurement and calibration files**

**.STM = individual stem profiles**

~~.PRD = production summary files~~

# manage and monitor all manufacturers harvester data supporting **StanForD**

in one place

https://sticks.interpine.co.nz

# Interpine Harvester Information

## Sticks by ForestPHD

## Welcome


Planning


Stem Files


Production


Control


Mapping


Users


Mail Watcher

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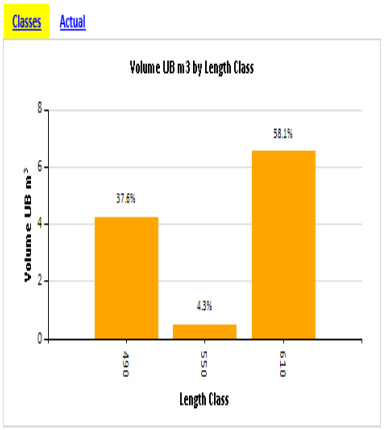
# case study: utilising harvester data

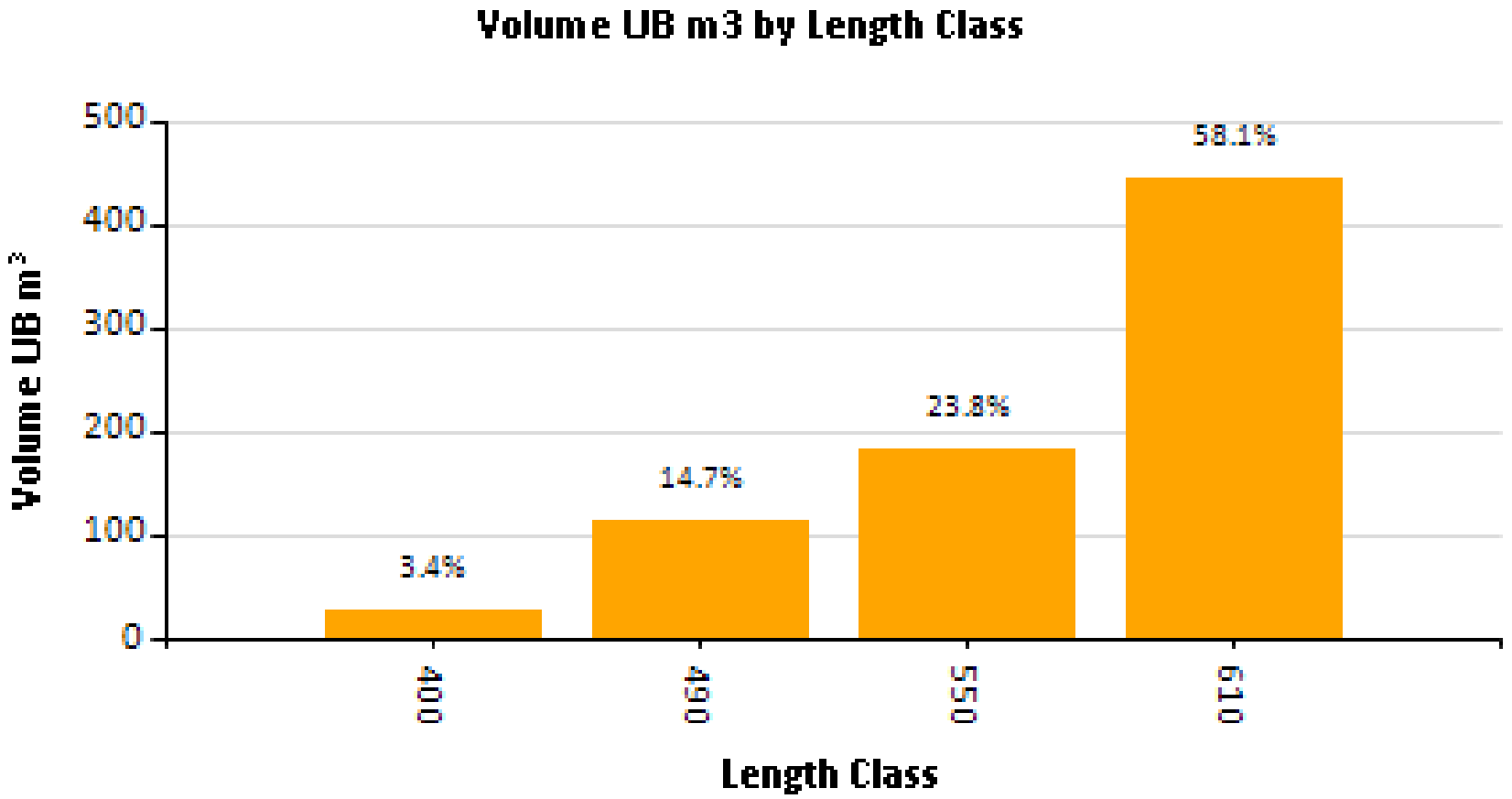
"monitoring length mix demands to a customer supply contract"



# case study: customer length mix

Weekly Production Summary

Classes Actual



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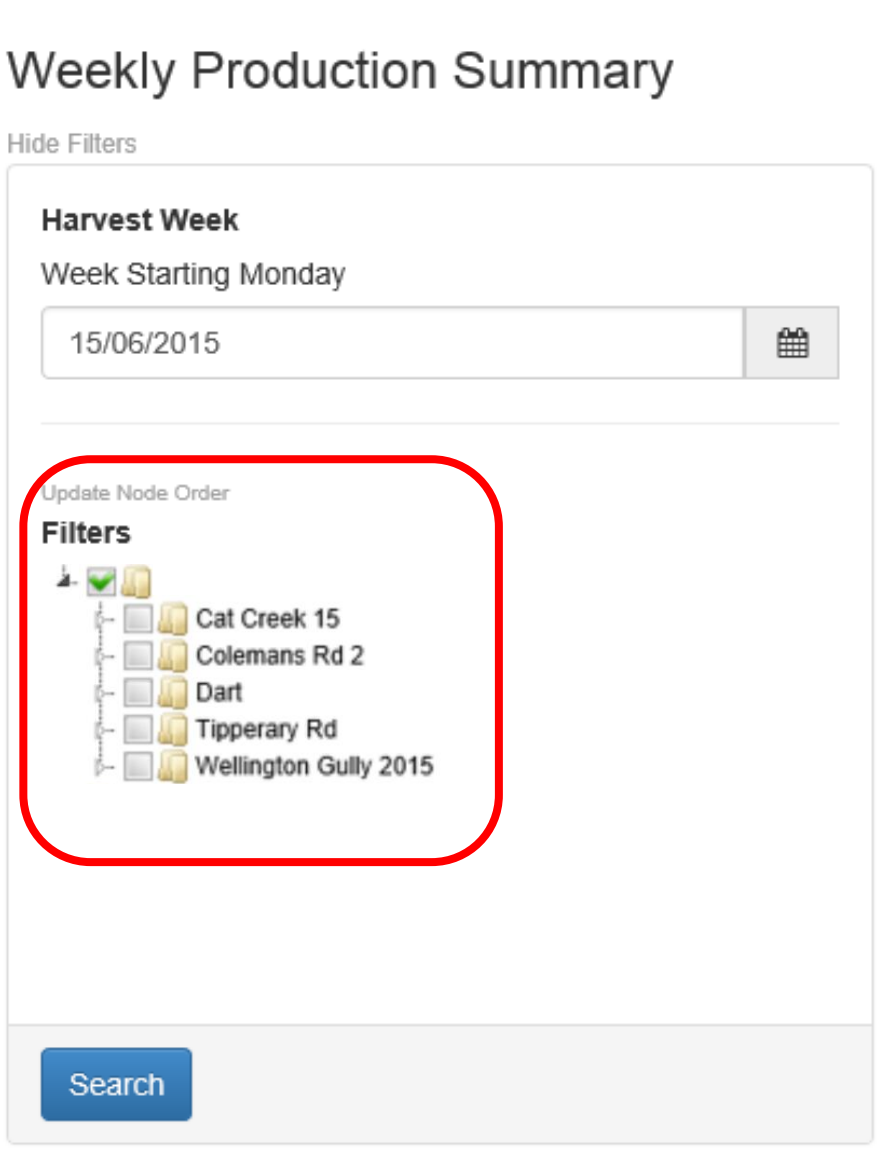


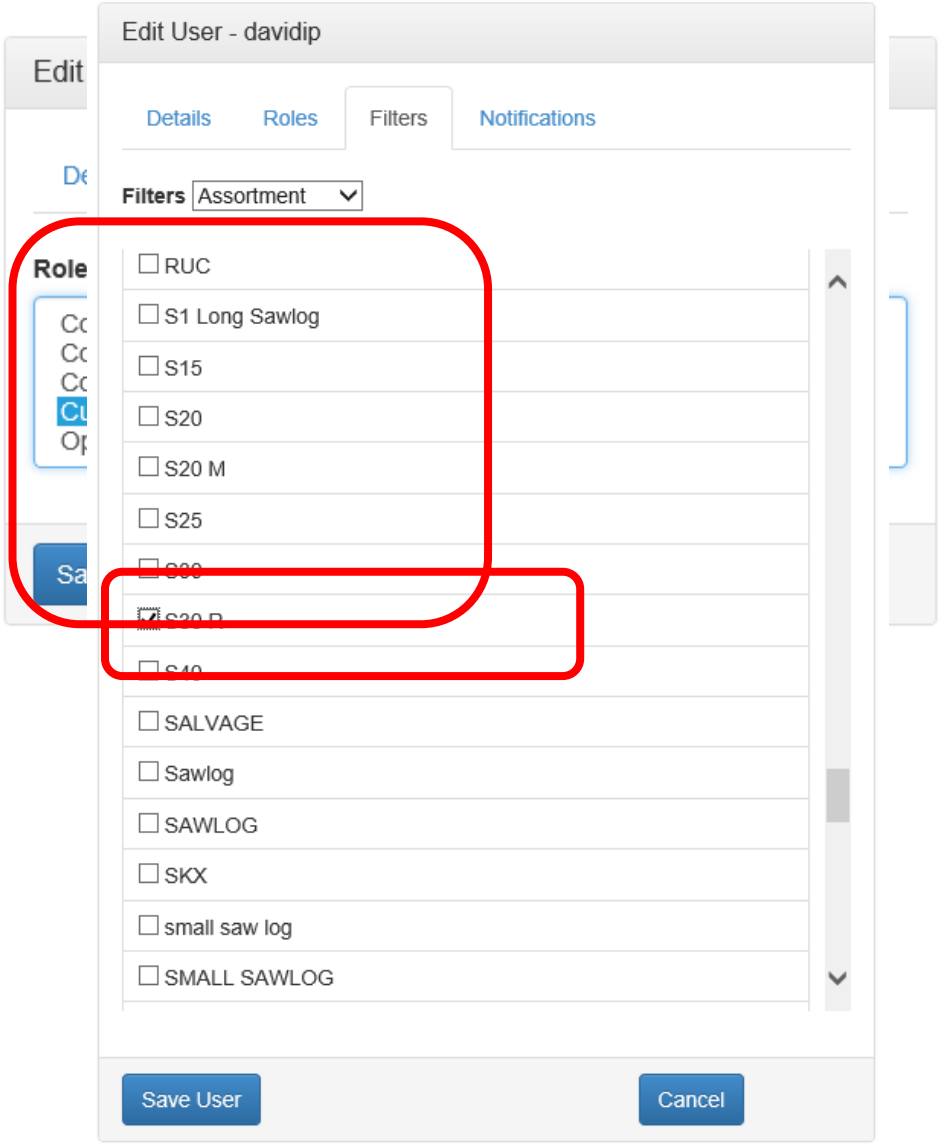

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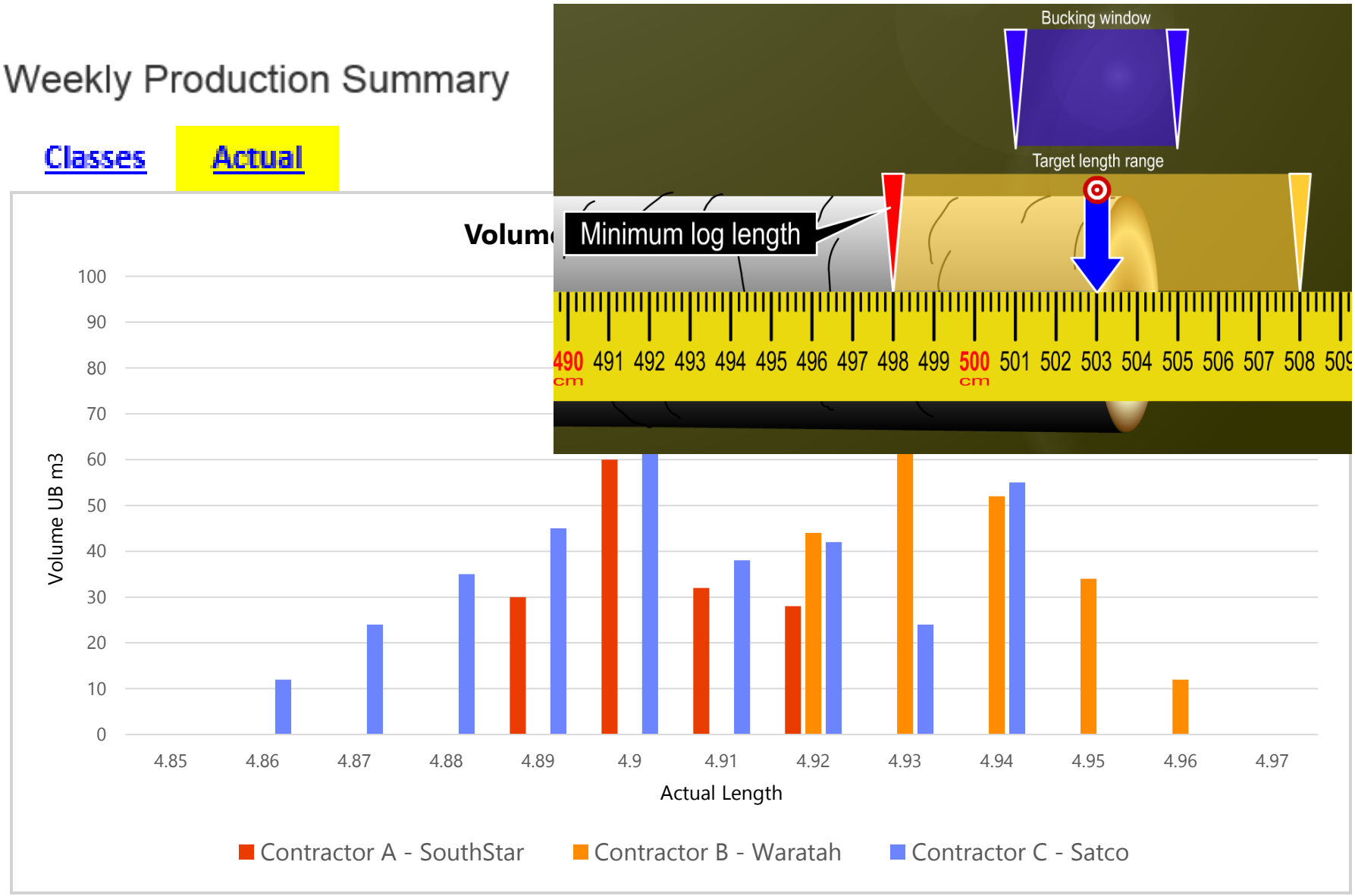

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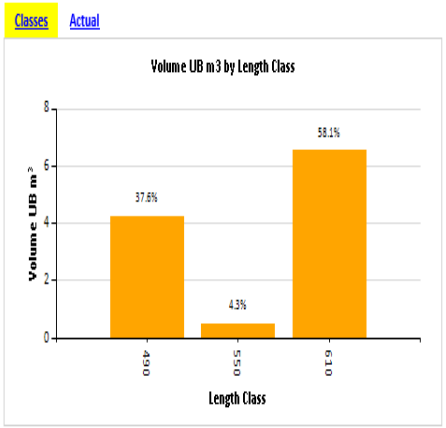
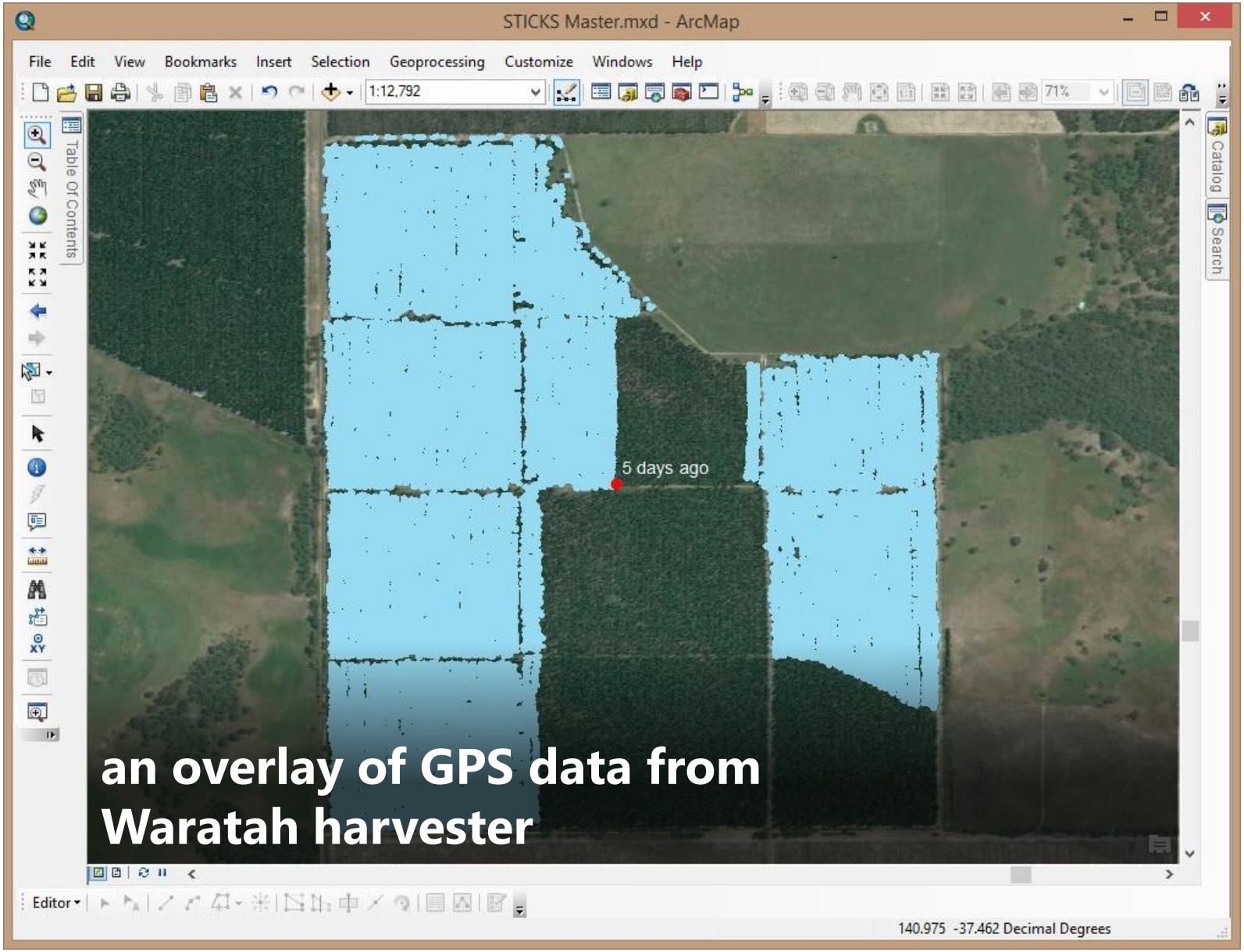



"monitoring area harvested in our thinning and clear-fell operations"

# case study: harvest area reconciliation



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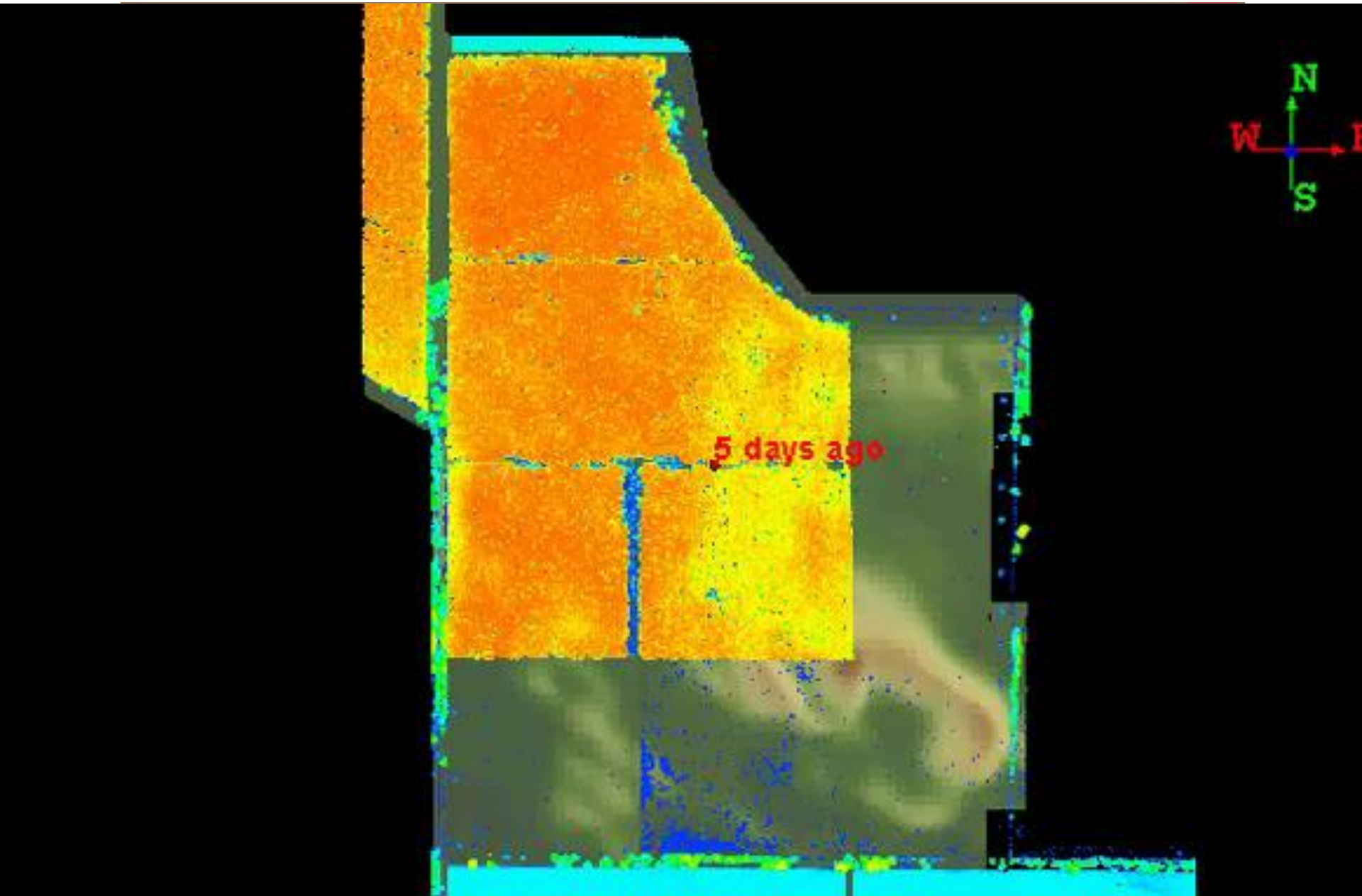
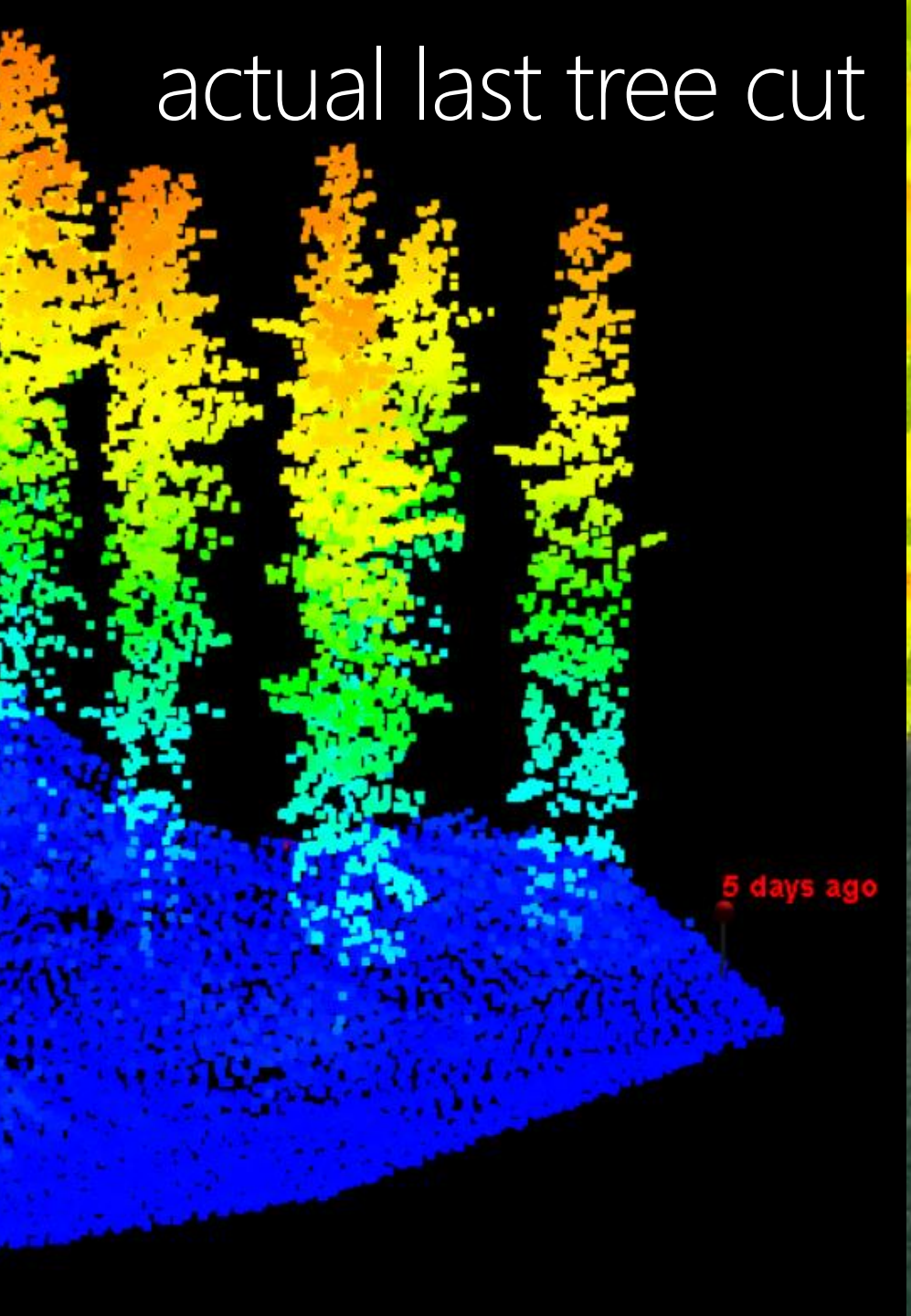


# harvester mean tree volume

# actual last tree cut

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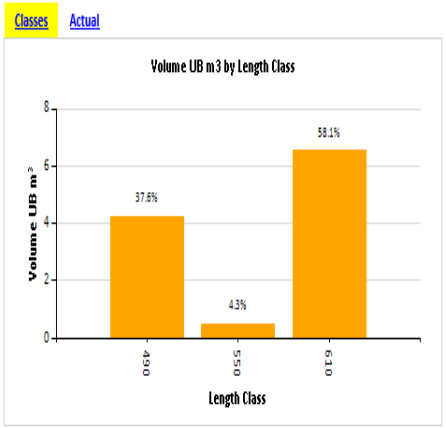
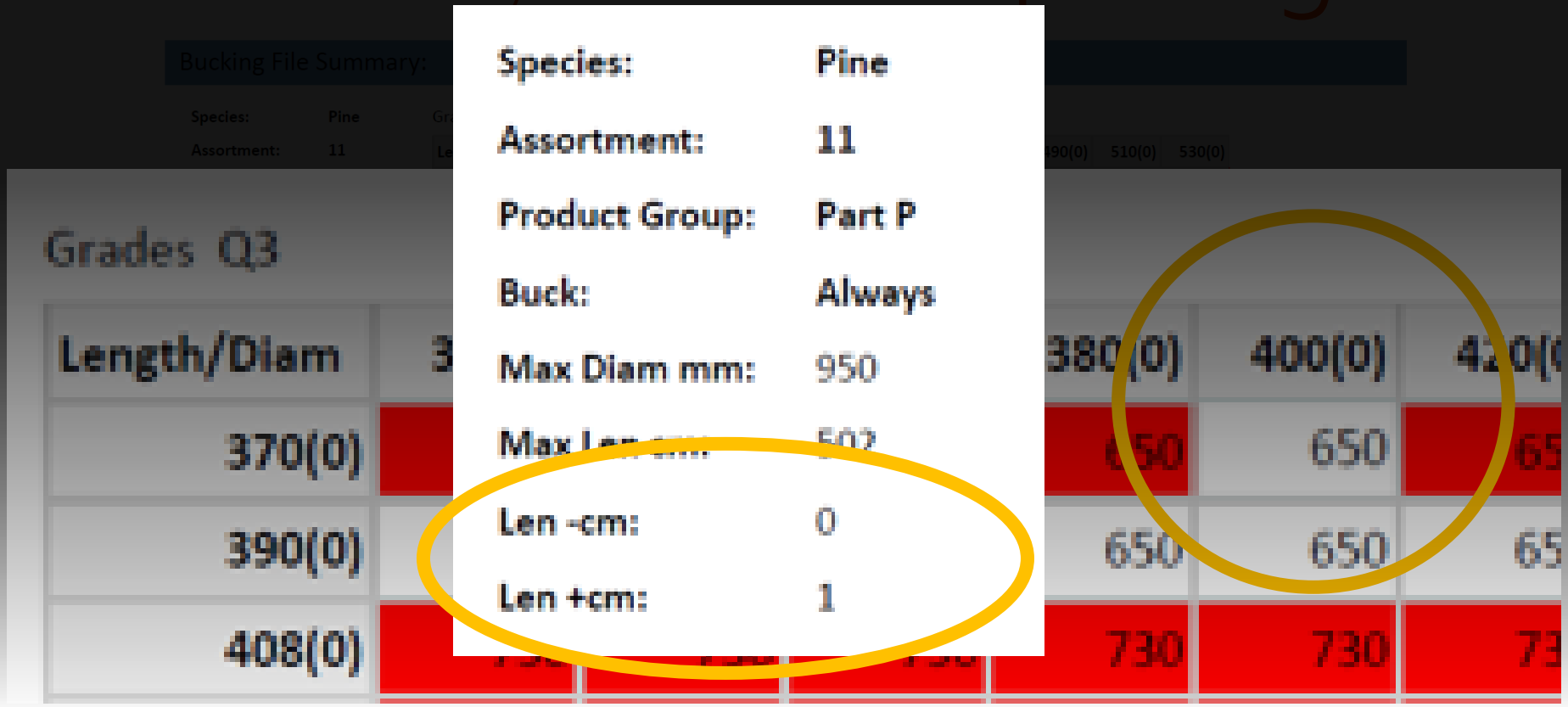



"monitoring area is harvested in our thinning and clear-fell operations"

| Diameter | 240 | 260 |
|---|---|---|
| 370 | 490 | 499 |
| 430 | 570 | 580 |
| 460 | 581 | 592 |
| 490 | 593 | 603 |
| 520 | 598 | 609 |
| 550 | 598 | 609 |

"monitoring and delivering cutting strategies"

# case study: APT file reporting




## Bucking (.apt) File Management

Hide Filters

Update Node Order

**Filters**

- Timberlands
  - WAKA
    - 034

Search

Showing 1 to 2 of 2 entries

Search:

| Report | Download | Organisation | Region | Logging Unit | Contractor | Machine | Operation | File Name | File Received |
|---|---|---|---|---|---|---|---|---|---|
| View Report | | Timberlands | WAKA | 034 | Jensen Logging | 625c-019 | CF | tauhara new1_IPF.apt | Wed 29/4/2015 9:44 |
| View Report | | Timberlands | WAKA | 034 | Jensen Logging | 625c-019 | CF | tauhara new1_IPF.apt | Tue 17/3/2015 14:52 |

← Previous 1 Next

20 records per page

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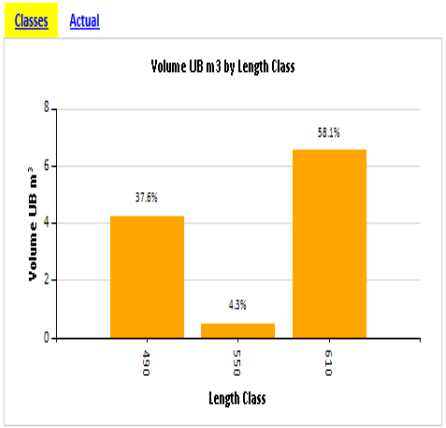


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"monitoring and delivering cutting strategies"

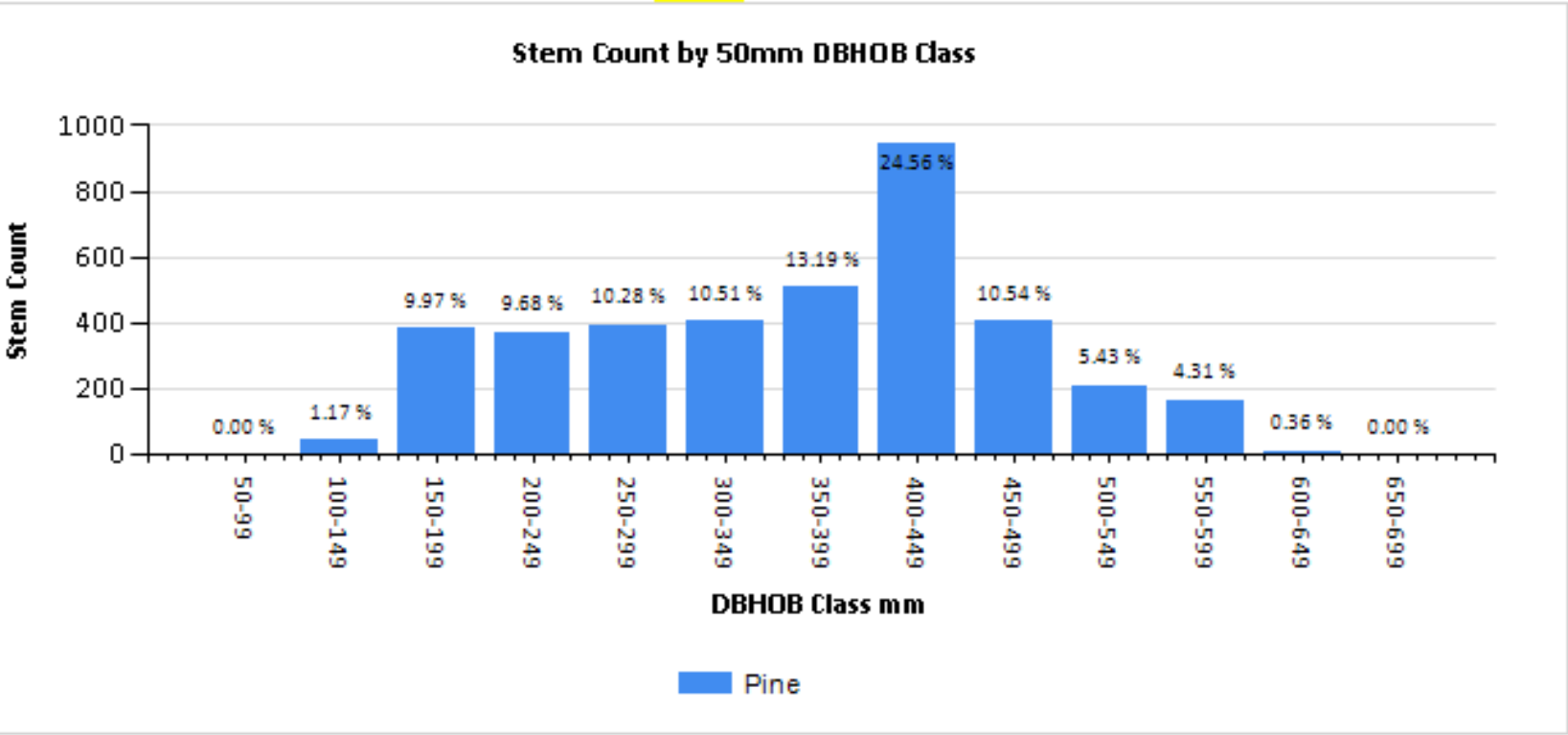
"monitoring production thinning targets"

# case study: production thinning target

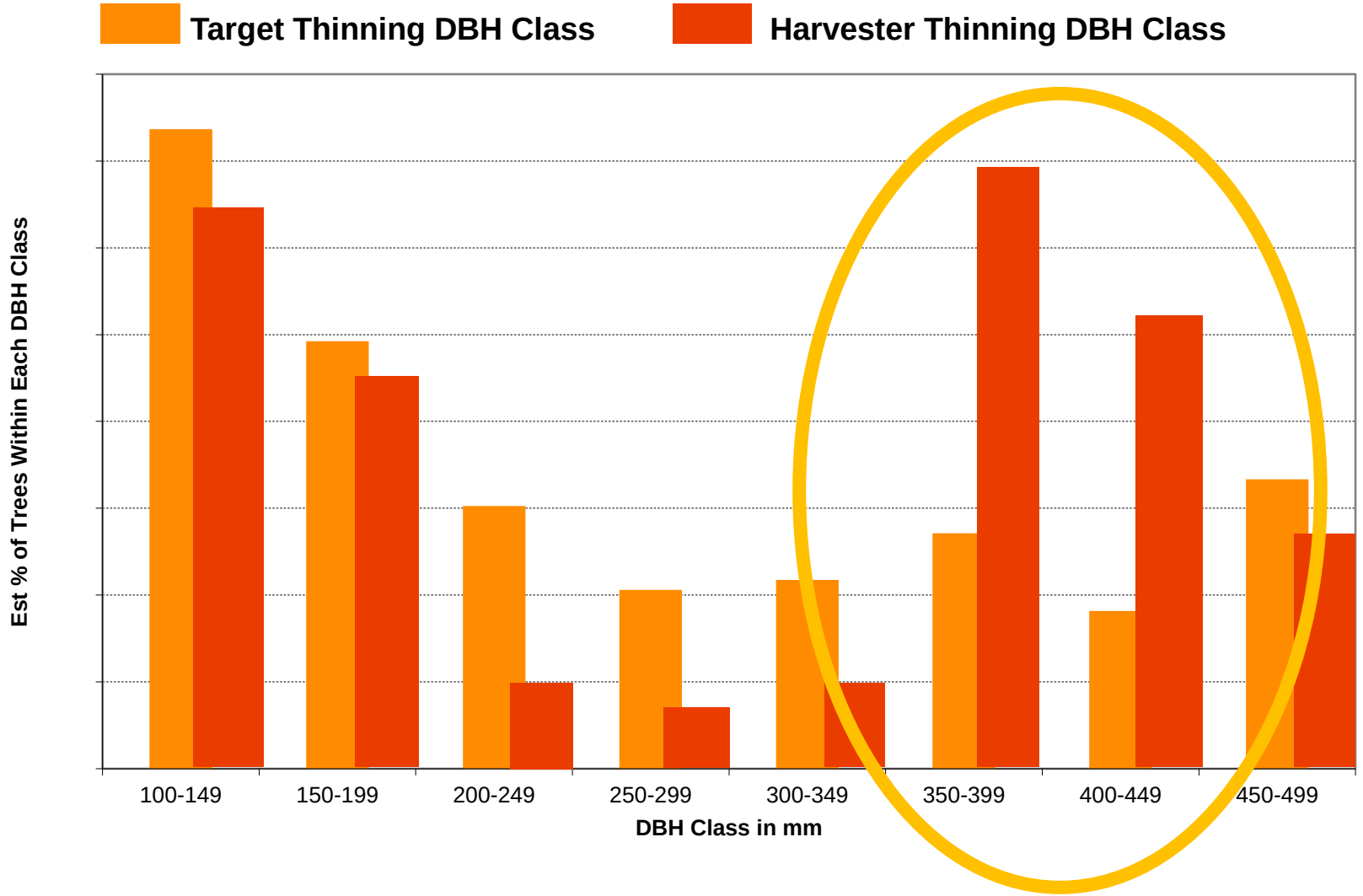
**Harvested Stand Table - All selections**

| Species | Stem Status | Stem Count | Min / Max DBHOB mm | Quadratic Mean DBHOB mm | Total Basal Area m² | Total Vol UB m³ | Harvested Vol per Stem m³ |
|---|---|---|---|---|---|---|---|
| Pine | Merchantable | 3,809 | 115 / 630 | 380 | 432.74 | 5,806.69 | 1.524 |
| | NonMerchantable | 43 | 140 / 443 | [illegible] | 2.72 | 12.83 | 0.298 |
| | All Stems | 3,852 | 115 / 630 | 379 | 435.45 | 5,819.52 | 1.511 |

**Select DBHOB Class Width mm:** 10 20 25 50 100



# case study: production thinning target

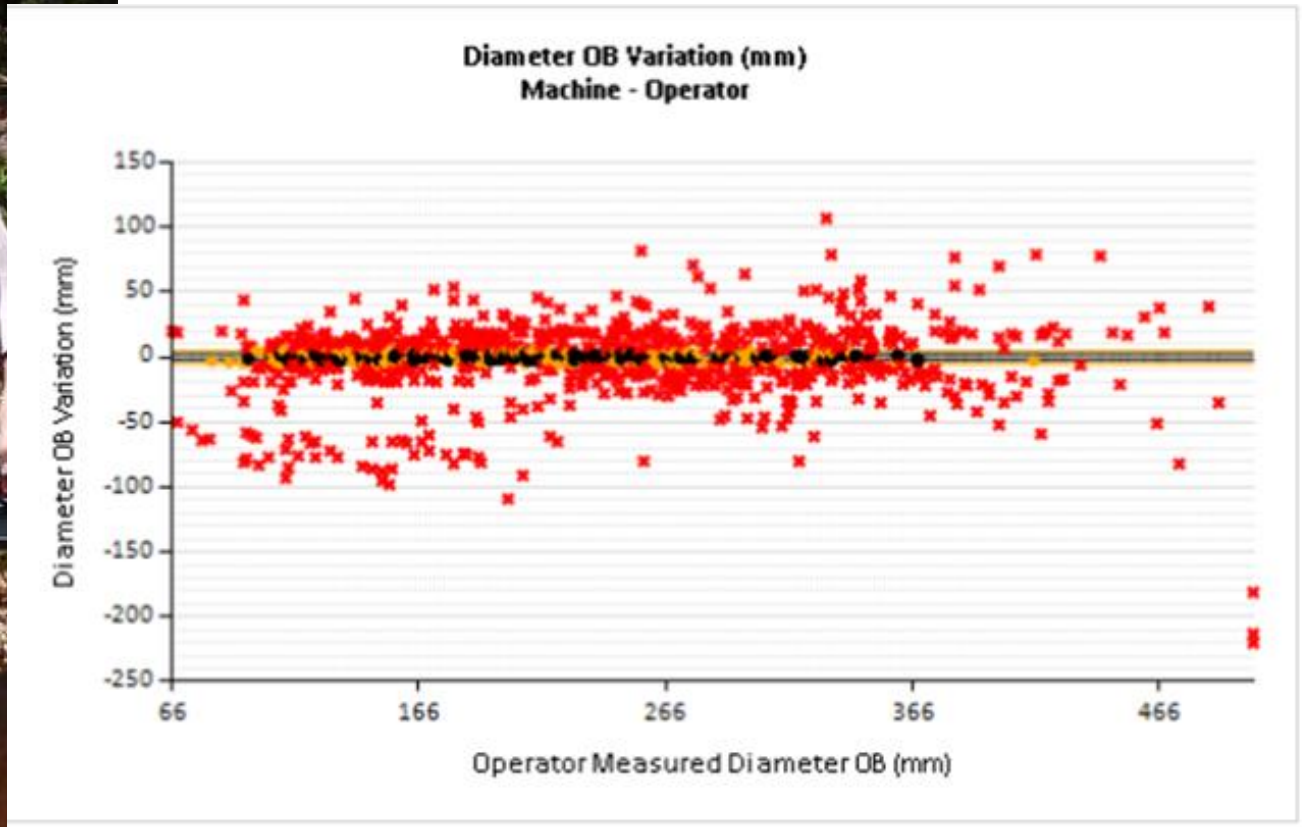


# case study: production thinning target

# case study: utilising harvester data

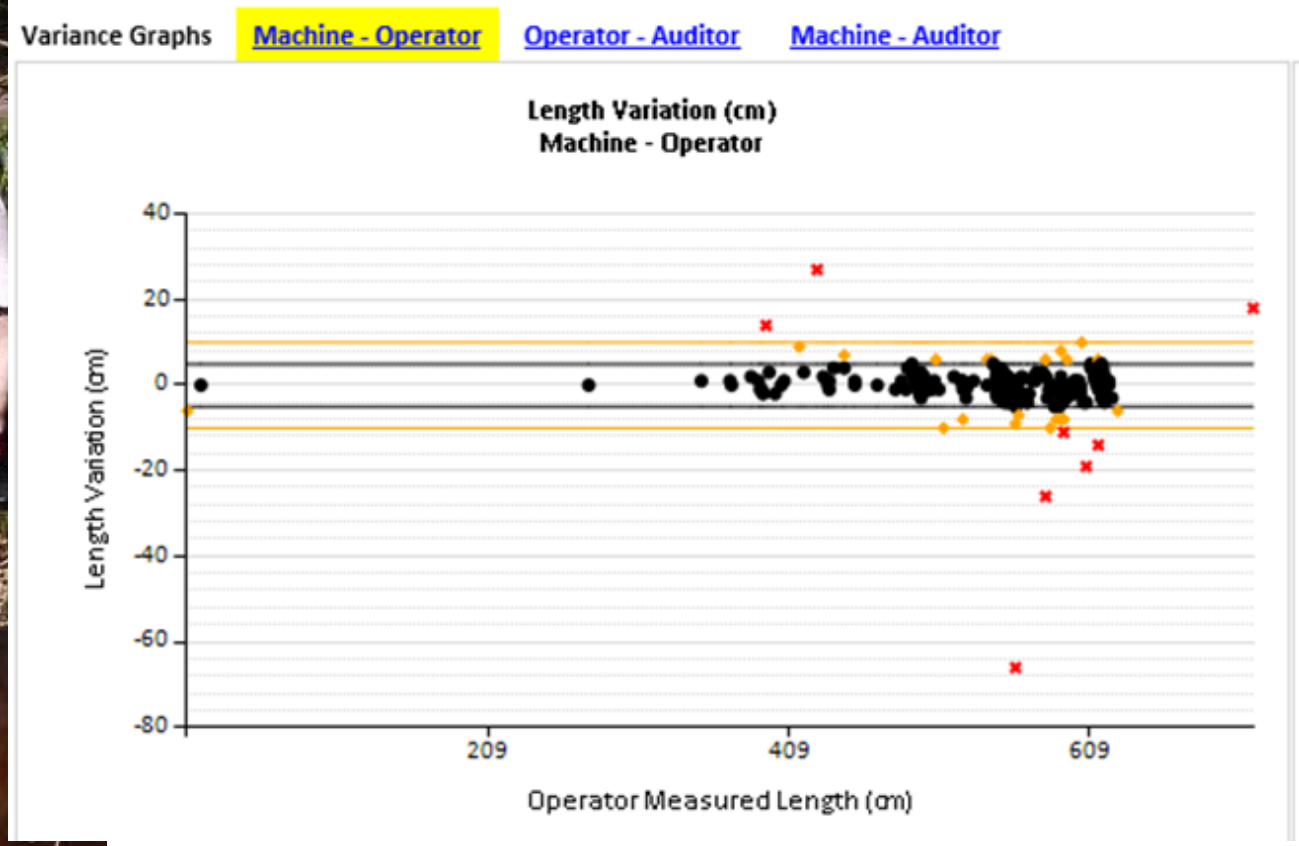
"monitoring machine calibration and control check precision"

# case study: harvester calibration and control checks




opportunity is reduce / elminate post bucking QA/QC to a proactive pre-control check at least 1 per shift

# case study: harvester calibration and control checks

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# case study: harvester calibration and control checks




opportunity is reduce / elminate post bucking QA/QC to a proactive pre-control check at least 1 per shift

# case study: utilising harvester data

"Monitoring machine calibration and control check precision"

"monitoring value recovery drivers"

# case study: operator value recovery

**Stem and Log List**

| Stem | Species | Operator | Log | Assortment | Length cm | Sed UB mm |
|---|---|---|---|---|---|---|
| 3057 | Pine | Olly | 1 | Port 17 Grade | 396.00 | 380 |
| | | | 2 | Port 17 Grade | 398.00 | 274 |
| 3058 | Pine | Olly | 1 | Port 17 Grade | 396.00 | 376 |
| | | | 2 | Port 17 Grade | 397.00 | 300 |
| | | | 3 | Port 17 Grade | 396.00 | 230 |
| 3059 | Pine | Olly | 1 | Waste | 171.00 | 404 |
| | | | 2 | Port 17 Grade | 398.00 | 308 |
| | | | 3 | Port 17 Grade | 396.00 | 231 |
| 3060 | Pine | Olly | 1 | Port 17 Grade | 398.00 | 367 |
| | | | 2 | Port 17 Grade | 396.00 | 303 |
| | | | 3 | Port 17 Grade | 397.00 | 232 |
| | | | 4 | Waste | 281.00 | 175 |
| 3061 | Pine | Olly | 1 | Waste | 83.00 | 433 |
| | | | 2 | Port 17 Grade | 398.00 | 348 |
| | | | 3 | Port 17 Grade | 396.00 | 273 |

# case study: operator value recovery


**First Log Volume**

■ Sawlog / Pulp ■ Waste

average butt waste length 68cm

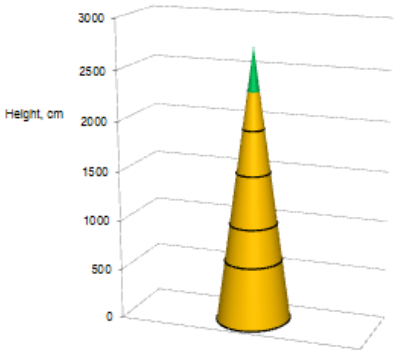
3% < 5cm

comparison to predicted?
between operators ?
between operator optimiser use or manual over-ride?

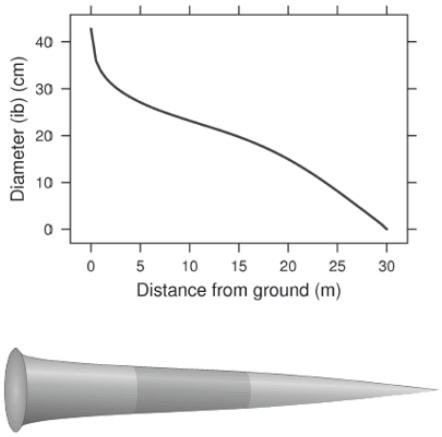
Simple EXCEL based SQL query

# case study: utilising harvester data

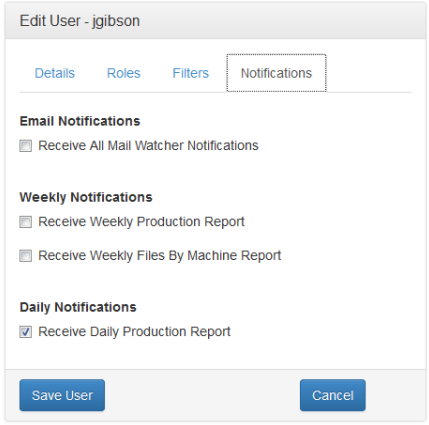
"are we maximizing stem volume to minimum target SED"




"breakage length analysis, extractable piece size analysis"



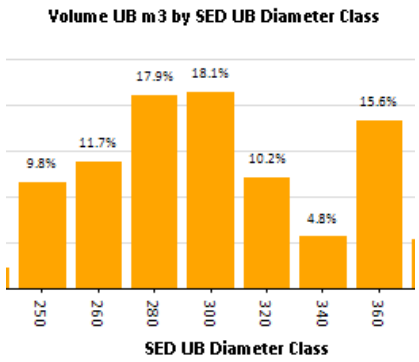

"not achieving volume of S40 expected. Is the taper higher than expected ?"




"reports delivered direct to the operator, contractor, supervisor ..."

# case study: utilising harvester data

"alter customer grade spec's to fit SED distributions rather than simple min/max constraints"




"combined log sort through transparent data supplied to customer"

"bush stocks, crew prompted validation of load out and production differences"

"long term simplification of supply chain: **measure it, tag it once**. Then just audit at ports / customer"

and more…


# defining forest value

**"value"**
is the maximum log value projected to exist in the standing forest

**"value recovery"**
is a measure of the efficiency of the subsequent operations, including harvesting and marketing, to realise that standing log value.

# Workshop Objectives

## Tomorrow 26 June 15

- Engage and Collaborate
  - Forest managers and harvester manufacturers to meet each other and to share experiences – good and bad around utilising harvester computer systems and data.
  - Sessions of practical insight and then sharing and discussion.
- Formulate an Industry Adoption Group
  - Formulate guidance on best practice and education.
  - Provide liaison with harvest manufacturers on the forest managers needs.
  - Connect with StanForD Committee.

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INTERPINE
Bringing innovation to the forest industry


# Questions

Not too many ☺

**STICKS Project Team**
Jeremy Gibson, Goetz Roth

**Value Recovery Auditors**
Chris Bridson, Ngarangi Mita