

**Millwide**

# INSIDER

THE MAGAZINE FROM USNR | NOVEMBER 2010



## SPECIAL TECHNOLOGY ISSUE

*The wait is over as USNR reveals its latest innovations*

### TECHNOLOGY IN PRACTICE

*BioVision Edger takes its place at H.G. Toler & Son*

### WHAT'S NEW WITH LHG?

*Update on the latest advancements with this proven winner*

**USNR**

# Our vision for the future



## INNOVATIONS THAT ARE SMARTER, SIMPLER, BETTER

USNR is very pleased to introduce six exciting advancements in technology. We believe these innovations are things you've been hoping for and waiting for – the next generation of scanning and optimization for the sawmill and planer mill.

USNR's new BioLuma 2900 transverse sensor family is stocked with today's best innovations to overcome tough challenges. The high density, high resolution, precise measurement accuracy, and faster scan rates these products offer are not just buzz words. These are some of the key features that will sustain your process through the next market evolution.

Our new Transverse High Grader (THG) puts our proven grade scanning capability into a transverse package to suit traditional mill layouts. Compared with other transverse grade scanners on the market, the THG is smarter, simpler and better.

We realize that not everyone will be ready for new technology at this time. We assure you that we are committed to continue to support your existing USNR technology. And when the time is right for you, we're ready to help you make the next step.

Our new products are smarter, simpler and better than competitive products available today. We invite you to contact us for more information. We'll help you evaluate the impact these advances in technology can have for your business.

Sincerely,  
Chris Blomquist  
Vice President

*Millwide*  
**INSIDER**

NOVEMBER 2010

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**NEW**

# Introducing: BioLuma Integrated Transverse Sensors



*Next-generation sensor family:*

- ▶ *GrainMap™ laser grain angle mapping*
- ▶ *Sharp HD color images to 0.01" / 0.25 mm resolution*
- ▶ *Ultra-accurate HD laser profile measurements every 0.3" / 8 mm*
- ▶ *2500 Hz – fastest scan rate*

## ALL THE HORSEPOWER YOU NEED IN EACH PACKAGE

USNR has designed a family of sensors that meet all the requirements for dynamic, fast-paced mill environments where speed, accuracy and durability are essential to achieve the performance and recovery demands of the marketplace. These sensors are offered in a variety of technology combinations to meet your specific processing applications.

### The very best technology available

The utilization of vision technology is revolutionizing wood processing. Advances in laser profile scanning have shown continuous progress, and new technologies are advancing our capability to achieve higher recoveries from the same raw material.

The BioLuma sensor family offers integrated GrainMap™ (grain angle mapping), HD color vision and HD laser profile technologies to overcome your toughest wood processing challenges. GrainMap technology combined with high resolution color images allows your optimizer to identify and classify the most minute defects for accurate grade

classification. HD laser profile measurements and the fastest data capture available let your system collect and analyze more complete data. That translates to smarter decision processing and more value and recovery for your products.

### Based on experience, built for the future

An integrated package combines cutting-edge GrainMap, XHD / HD color vision and HD laser profiling for lightning-fast responses and the highest resolution available. The BioLuma family also includes a bolt-on version to add vision to existing laser profile scanning. BioLuma is today's best choice featuring the latest advances that technology has to offer for speed, accuracy, and reliability.

BioLuma sensors are a culmination of decades of expertise and experience in the development and design of systems for processing logs into finished lumber.

### Applications

- ▶ High speed HD laser profiling – applications that don't require grade classification  
**BioLuma 2900L**
- ▶ Grade classification with integrated HD color vision and HD laser profiling  
**BioLuma 2900LV**
- ▶ Add grade classification to existing transverse scanning systems with HD color vision  
**BioLuma 2900V**
- ▶ Advanced sawmill grade scanning with integrated GrainMap, HD color vision and HD laser profiling  
**BioLuma 2900LVG**
- ▶ Advanced transverse planer mill grade scanning with integrated GrainMap, XHD color vision and HD laser profiling  
**BioLuma 2900LVG+**

We've based our designs on three principles: to make them smarter, simpler and better.

## The BioLuma 2900 sensor family – for transverse applications

Model	Available Applications			Sensor Technology			Applications
	Edger	Trimmer	Planer	Profile	Vision	GrainMap	
<b>BioLuma 2900L</b>	•	•		•			High density laser profile scanning
<b>BioLuma 2900V</b>	•	•			•		Bolt-on vision-based sensor
<b>BioLuma 2900LV</b>	•	•		•	•		Integrated laser+vision
<b>BioLuma 2900LVG</b>	•	•		•	•	•	Full featured laser profile+defect scanning
<b>BioLuma 2900LVG+</b>			•	•	•	•	Full featured automated grade scanning



# Superior Technology, Superior Results



## Laser Profile

Above: HD laser profiles at 0.3" / 8 mm. True differential measurements are achieved through opposed alignment of laser points as each piece is scanned transversely. You get maximum density and accuracy for minimum risk!

## Color Vision

Right: BioLuma color vision is the industry's highest resolution for grade classification. XHD/HD data collection (from 0.01 to 0.02" / 0.25 to 0.5 mm) ensures nothing gets missed when your boards are scanned for visual defects.



HD: 0.02" / 0.5 mm vision density

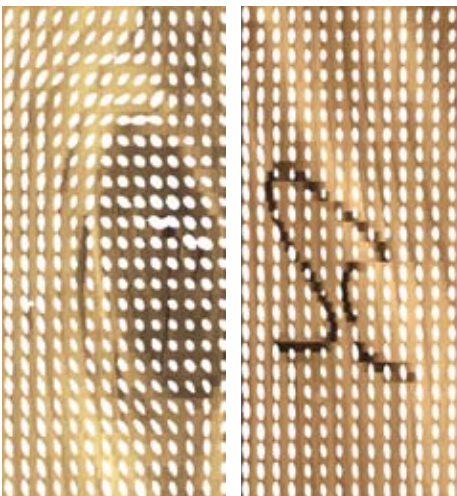


XHD: 0.01" / 0.25 mm vision density

## GrainMap

Below: Our new GrainMap technology seamlessly detects and measures the unique angles of the surface grain in wood. Even minute defects can't hide. With integrated GrainMap capability, your system can differentiate between manufacturing marks such as grease, and real defects that affect the grade. It can also identify low contrast defects such as blonde knots that can be difficult to differentiate with vision alone.

The data capture at bottom left demonstrates



how GrainMap measures the wood's grain angles around a knot. At the bottom right capture, GrainMap measurements indicate the wood's grain is not affected by crayon marks on the board. Similarly, a grease mark that could be mistaken for a knot or other defect through vision alone will not be incorrectly identified.

## State-of-the-art, long-life design

BioLuma sensors use modern componentry and system architecture, taking advantage of recent advances in the speed and reliability of electronics hardware.

## Features and Benefits

- ▶ Fastest scan rate and best overall performance in the industry
- ▶ The only sensor series on the market to integrate profile, vision and GrainMap
- ▶ Higher density data collection and faster speeds allow more value and recovery through optimization
- ▶ Precise, true differential measurements ensure accurate data for optimization analysis
- ▶ Dense, high quality color images ensure accurate visual data for defect recognition and optimization
- ▶ Gig-E (Gigabit Ethernet) interface is 10x to 100x

faster than conventional networking

- ▶ Flexible configurations: bolt-on, new, or upgrade
- ▶ Supports USNR's MillExpert and Newnes software platforms
- ▶ Rugged, fully sealed aluminum housing protects the high definition components against vibration, dust and grime, ensuring long operational life
- ▶ Simple one-step calibration

## Specifications

Scan rate .....	2500 Hz
Measurement field .....	8" / 200 mm
GrainMap density .....	0.3" (8mm) x 500 Hz
Vision resolution .....	0.01-0.02" / 0.25-0.5 mm
Profile spacing .....	0.3" / 8 mm
Accuracy .....	±0.15" / 0.38 mm
Laser class .....	IIIb - visible laser
Interface .....	Gig-E (Gigabit Ethernet)
Temperature ..	32-120° F / 0-50° C, non-condensing
Input power .....	48 VDC, 0.5A

Designed to be smarter, simpler and better, USNR's new sensor family can help you prosper today and prepare for tomorrow.

# What's in it for you?

Suppliers often tout features, but how do you know if those features will make a real difference to performance? We'll explain what the features mean and how they impact performance in a mill environment such as yours.

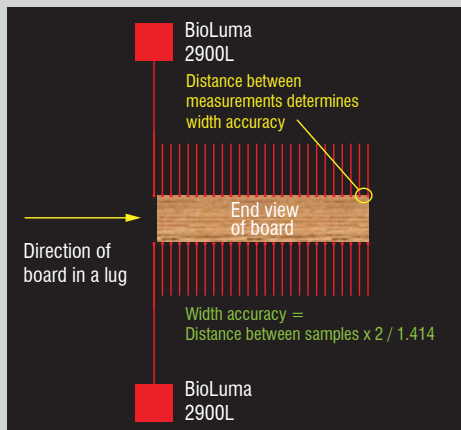
## BIOLUMA 2900L

This is the highest performance transverse laser sensor in the industry today. It's the fastest scanner available at 2500 Hz, plus it offers 0.3" laser profiling at an 8" depth of field.

### 0.3" / 8mm laser profiling

- ▶ 0.3" laser spacing delivers a more accurate picture of the board allowing us to find more defects like holes where knots have fallen out

Measurements every 0.3" (8 mm) is its worst-case resolution – as the distance from the sensor to the board gets closer, the resolution gets even better. We can interpolate resolution to 0.2", which allows us to measure the surface of the board much more precisely. We can detect and measure holes caused by knots that have fallen out. It allows us to find defects we wouldn't previously have been able to find.

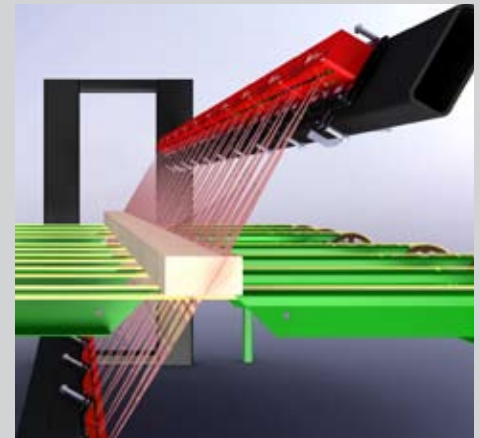
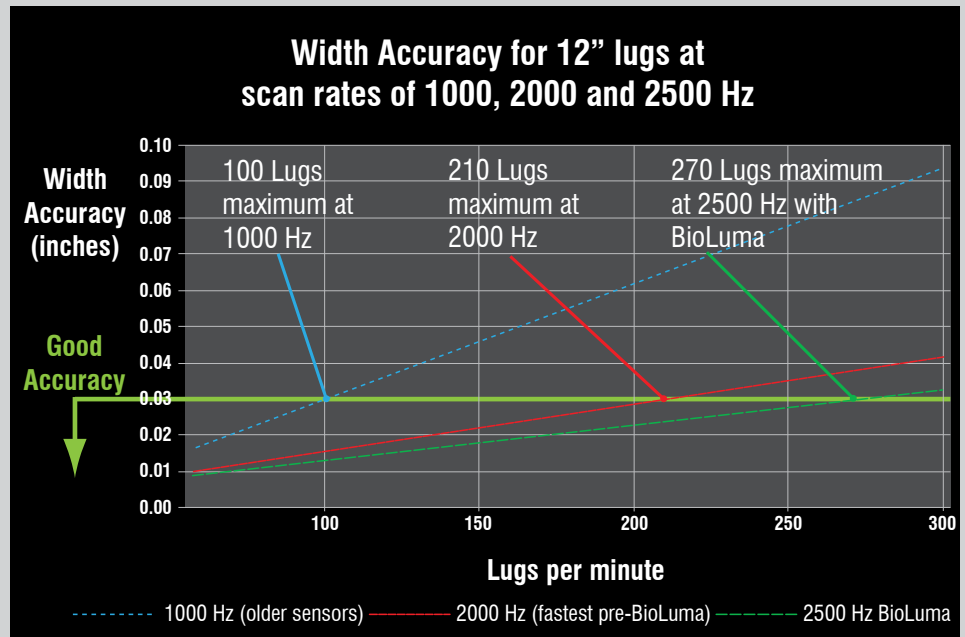


### 2500 Hz scan rate

- ▶ 2500 Hz scan rate delivers more accurate width measurements
- ▶ 2500 Hz scan rate allows mills to run faster without sacrificing optimization accuracy, or
- ▶ design machines with wider lugs that are easier to load, for more reliable systems

Scan rate or scan speed is very important in sensor design because it affects the accuracy of the width measurement of the board.

As demands of the market increase production, we need to make machinery that goes faster and



faster with higher and higher lug rates. The faster we have to move the boards for a given scan rate, the greater the distance between each scan and the lower the width accuracy. It's become one of the major challenges in high speed lumber handling applications. Typically, as lug speed is increased optimization accuracy begins to degrade because the sensors can't scan fast enough to get an accurate measurement.

Let's put what this means into perspective. A scan rate of 2500 Hz is 25% faster than 2000 Hz. If a mill is running at 200 lpm with a scanner capable of 2000 Hz, by upgrading to 2900L sensors it can increase lug speed by 25%. That's 50 more lugs per minute in many applications, which is a significant increase while maintaining scanning accuracy. In other applications it means the lugs can be wider, making it easier to load boards with less stress on

the equipment for more reliable operation. Hence scan speed is one of the major attributes in the performance of this sensor.

### 8" / 200 mm depth of field

- ▶ 8" depth of field accommodates scanning a wider range of products and more accurate width measurements
- ▶ 8" depth of field allows the sensors to be tipped off axis to directly measure the nailing edge of a board, which is much more accurate than top and bottom configurations that use scan frequency to determine board width

This is a fairly large depth of field for this type of scanner while still maintaining the high accuracy measurement capability. The bigger the field, the bigger the objects that can be scanned. An 8" depth

of field allows scanning 8" cants, or 6" products with lots of bow. This also allows (for 2x4, 2x6, 2" and 4" products) the scanners to be tipped off axis to measure the width of the board directly. This is a big advantage. It allows increased width accuracy by directly measuring the edge of the board – the nailing edges – by sampling as opposed to using the scan frequency to determine the width of the board.

The 2900L sensor is ideal for transverse edger, cant and trimmer applications where high resolution, dense scanning is required.

## BIOLUMA 2900LV

- ▶ Designed for grading in the sawmill
- ▶ Very high definition color vision is necessary to see fine defects
- ▶ Illumination is key to vision scanning. We've chosen not to integrate the lighting into the sensor, allowing us to move it off axis and with multiple light sources to achieve better illumination of fine defects
- ▶ LED lighting is uniform, reliable, and cool
- ▶ 8" depth of field allows us to tip the sensors off axis and directly measure the nailing edge. Adding vision enables 4-sided color vision scanning
- ▶ Sawmill grading enables the system to shift saw lines to avoid defects and make better quality boards
- ▶ BioLuma is more cost effective than the competition – its integrated technology reduces the number of sensors required for effective grading
- ▶ Increasing the capability of the sensor and keeping the sensor count low makes it economically viable for sawmill grade scanning

The BioLuma 2900LV combines all the features of the 2900L – 0.3" laser spacing, 2500 Hz, 8" depth of field – with high definition color vision. This is a sensor designed for grading in the sawmill.

The 2900LV has very high definition color vision at 1 x 0.5 mm resolution. That degree of resolution is required to accurately detect fine defects such as small knots, small cracks, shake, rot, pith, etc.

For these vision sensors we've chosen not to integrate illumination into the housing, allowing us to move the lighting off-axis. One light source directed straight down at a piece can obscure defects because the light floods into the small cracks and fine defects. Off-axis illumination helps to expose fine defects.

We've chosen LED lighting because it is solid state and provides much more uniform illumination, which is key in vision scanning. LED is also reliable

in that it doesn't burn out quickly, with fewer bulbs to change. It is also cool, reducing fire hazards.

Unique to these sensors is the ability to tip the sensors off axis combined with the 8" field of view. When you add vision to the laser profiling component you have a system capable of full 4-sided scanning with only two rows of sensors.

That may not be important in edgers but it's very important in trimmers, because some of those defects that you want to find are on the edge of the board. Other systems that have tried to do this either couldn't do it because they only looked at the top and the bottom, or they required too many additional sensors. Only two rows of BioLuma 2900LV sensors are needed for full 4-sided scanning – a more cost-effective solution.

Why is grading in the sawmill such an advancement? Grading in the sawmill allows for better decisions upstream at an earlier stage in the process. Planer mill scanning has come a long way, but a lot of products need the grade to be determined earlier in the process. Without sawmill grading capability we cut a flitch based on its shape, but are essentially blind about the location, size and shape of the knots. By adding color vision we can see the knots and other defects. In many cases we can shift the saw lines to avoid those defects and make better quality boards. If we cut that flitch without seeing the defects, we won't discover the board's grade until it enters the planer mill. By then it's too late to recover its full potential value.

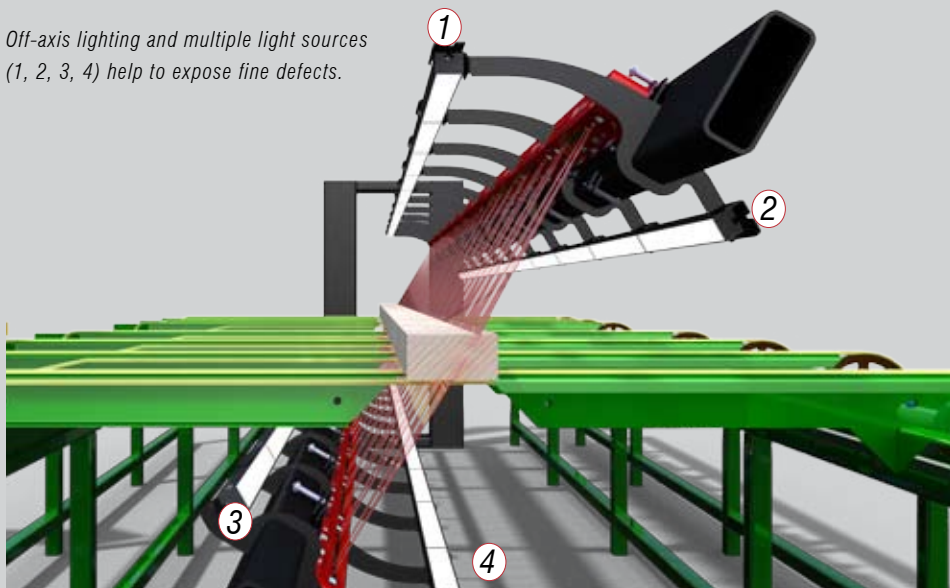
There is also a benefit to mills that have production limitations at the kilns or planer. By pre-grading at the sawmill we can remove defect material at that stage and reduce the volume going into the kilns or the planer.

We're driving this technology by reducing the sensor count, increasing the sensor capability, and putting it into a unified package. Vision technology has progressed to the point where implementing it in the sawmill is now viable. It has been built on the progress we've made with automated grading in the planer mill, and now we're moving that technology upstream. Today we can offer this capability at a price point where it'll derive a payback in the sawmill. Grading for the sawmill is coming of age and this is the device that's going to take us there.

This sensor is ideal for customers that are replacing their entire optimization system, or those that already have MillExpert or Newnes optimization but want to replace the scanning systems. Upgrading to vision as part of a scanner replacement project is a minor increase in overall investment, and an ideal opportunity to maintain a competitive edge.

This laser-with-vision technology is particularly well-suited for mills that have a varied product mix based on grade – export, sap wood, rough-clears, flitches, boards and decking. It enables the mill to edge, trim, sort and dry the wood in a method best suited for the final product.

Off-axis lighting and multiple light sources (1, 2, 3, 4) help to expose fine defects.





## BIOLUMA 2900V

- ▶ BioLuma 2900V is a bolt-on vision component to be added with existing laser-based optimization systems
- ▶ LED lighting is integrated into this sensor making it easier to retrofit onto existing scanning systems

The BioLuma 2900V is a vision-only sensor. It is designed for the many customers who have existing scanning systems in their sawmill today that are doing a good job finding the dimensional shape of products, but don't have the capability to find defects. We created this sensor as a bolt-on vision component that works in combination with existing laser profile-based optimization systems.

BioLuma 2900V lets you add grading to your existing investment; it's a more cost effective alternative to implementing a complete new system, and gives you the benefit of grade classification capability. We're trying to give customers as many choices as possible given what they already have and what they need to do to stay competitive. If you're buying a whole new trim line and you want to include vision and grading, your best option would be the BioLuma 2900LV. But if you have an existing trimmer and you want to add grading capability, you could go with the BioLuma 2900V.

One other difference that's significant is lighting. With the BioLuma 2900LV we use stand-alone lighting in the form of LED light bars that are separate from the sensor. The primary reason we integrated lighting in the BioLuma 2900V is to make the installation simpler when retrofitting onto existing scan frames that are not designed to allow mounting off-axis lighting. It also makes it more affordable because we can integrate all the electronics into one housing. In applications where splits are an issue, external off-axis lighting can be accommodated.

Most of the customers who want to add vision

in a bolt-on configuration are looking to extract the balance of their original investment out of their existing optimizer and laser scanners. This offers a stepping stone. The BioLuma 2900V allows those customers to get into grading with a simple, cost-effective solution.

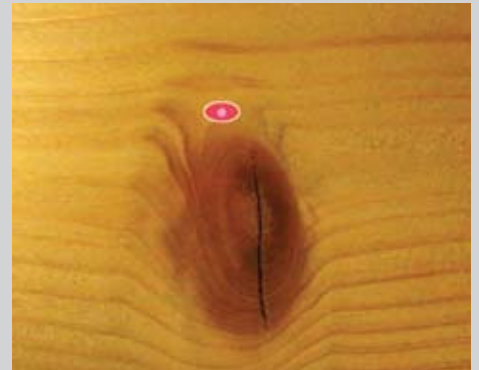
USNR has installed a number of these bolt-on systems, called BioVision, that are operating today and producing good results. Further on in this issue you can read about one installation on a transverse edger system. In subsequent issues we'll bring you more stories of the success this innovation is yielding for other lumber producers. Next issue we hope to tell you about the first BioVision trimmer system, installed at Scotch Gulf Lumber at Fulton, AL. At that site the M6 laser profile sensors are reused, allowing the mill to extend the useful life of its existing scanning system while taking advantage of the latest advances in optimization technology by way of the new BioLuma 2900V sensors. The BioVision bolt-on addition allows the mill to trim and sort an increasing variety of specialty products at even higher process rates, improving the mill's profitability.

USNR's BioVision with BioLuma 2900V sensors accommodates existing edger and trimmer scanners using USNR V6, GEO1 or 2, SmartTriCam, all DynaVision sensors including M6 and B800, Newnes vision sensors, and others.

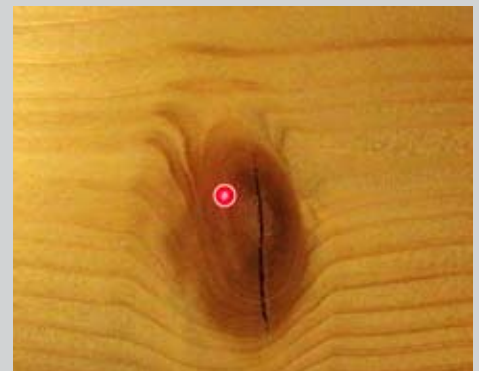
## BIOLUMA 2900LVG

- ▶ GrainMap is an additional channel of information that ensures we find the knots correctly
- ▶ It helps us correctly identify knots and avoid false-positives caused by vision-only scanning

The G stands for GrainMap, and is the additional technology we're bringing to this sensor. GrainMap offers the capability to map and measure the actual grain structure of the wood. It adds an entirely new channel of information. GrainMap utilizes the principle of dot vector laser tracheid imaging. What does that mean and how does it work?

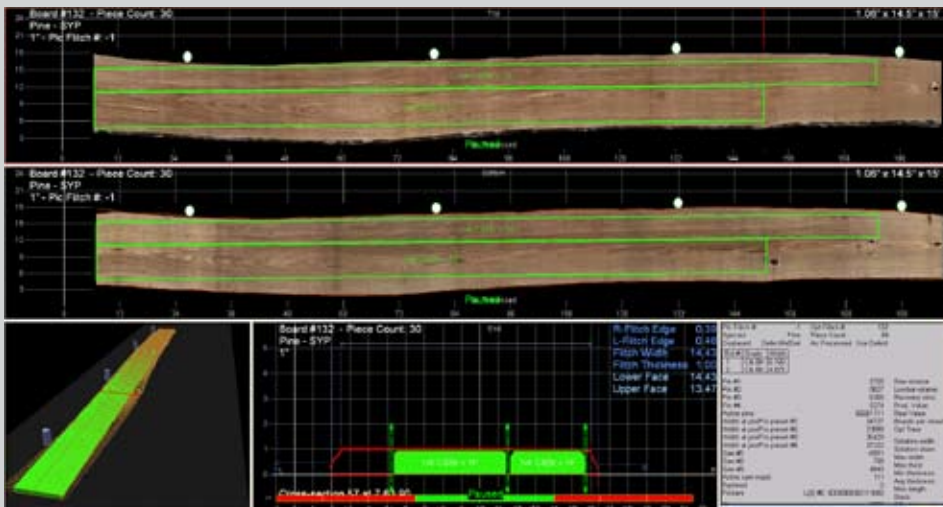


Laser light becomes elongated as it "wicks" along the grain structure (above), however when it is projected on a knot it retains its round shape (below).



When we project a laser spot onto wood fiber (above) the laser light is distorted by the grain structure. It "wicks" along the grain structure but not across the grain structure. This causes the laser spot to become elongated along the axis of the grain. Laser light elongates on healthy wood fibers resulting in an oval shape. When we project the laser spot onto a knot, we see that the laser spot retains its uniform, round shape. The differing shapes of the laser spots allow us to map the board's grain structure. Looking at a GrainMap map, we can see how the grain is distorted around a knot. It gives us a clear indication that there is a knot present.

GrainMap technology allows us to very reliably and accurately locate and measure knots. One of the biggest challenges in vision-based imaging of boards is correctly identifying anomalies such as



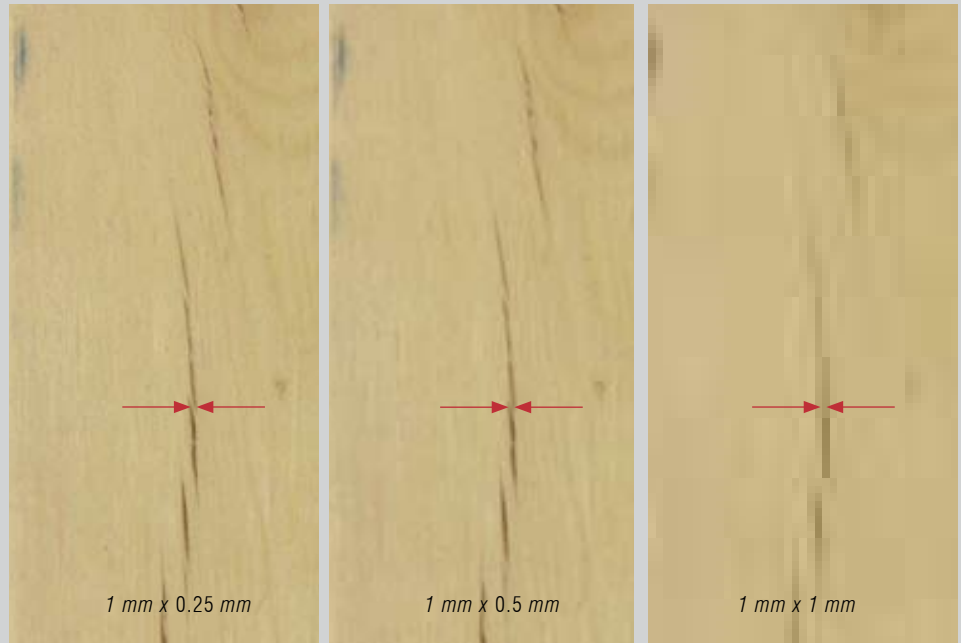
The BioLuma 2900V sensor combines HD color vision data with laser profile measurements to add grade classification in an existing sawmill transverse edger system.

grease marks, chain marks and even shoe prints that are not knots. Vision technology alone is not very reliable for detecting that those marks are not really defects. That causes false-positives; the system thinks there is a knot or other defect where there really isn't one. A board can be edged or trimmed incorrectly, resulting in lost opportunity and revenue. With GrainMap technology the system is immune to false-positives. If the grain structure doesn't change the system will not register a defect.

We've been using GrainMap technology in the Lineal High Grader (LHG) for many years and it's one of the strongest tools that allows us to accurately detect and classify real defects.

There are lots of applications that don't require GrainMap technology. These include operations with relatively clean boards, species where defects are large and easily differentiated by color, or where cracks and splits are the more predominant defects. In higher-end applications GrainMap is a great additional tool. Adding GrainMap is key for those mills processing wood with defects that have muted color variations like darker woods or blonde knots, where grain angle or density is important, or where the accuracy in finding certain challenging defects is critical.

BioLuma 2900LVG is the most sophisticated, capable sensor available for transverse edging and trimming. It uses vision, color, laser scanning and GrainMap capabilities in combination. In a single package, it offers the pinnacle of technology that can be brought to bear on these types of challenges in the green mill.



XHD color vision resolution (1 mm X 0.25 mm) provides the extra-fine image data required for measuring a very minute shake separation, which can affect the grade of the piece. Lower resolution does not allow this fine image data to be captured for precise and accurate measurement.


## BIOLUMA 2900LVG +

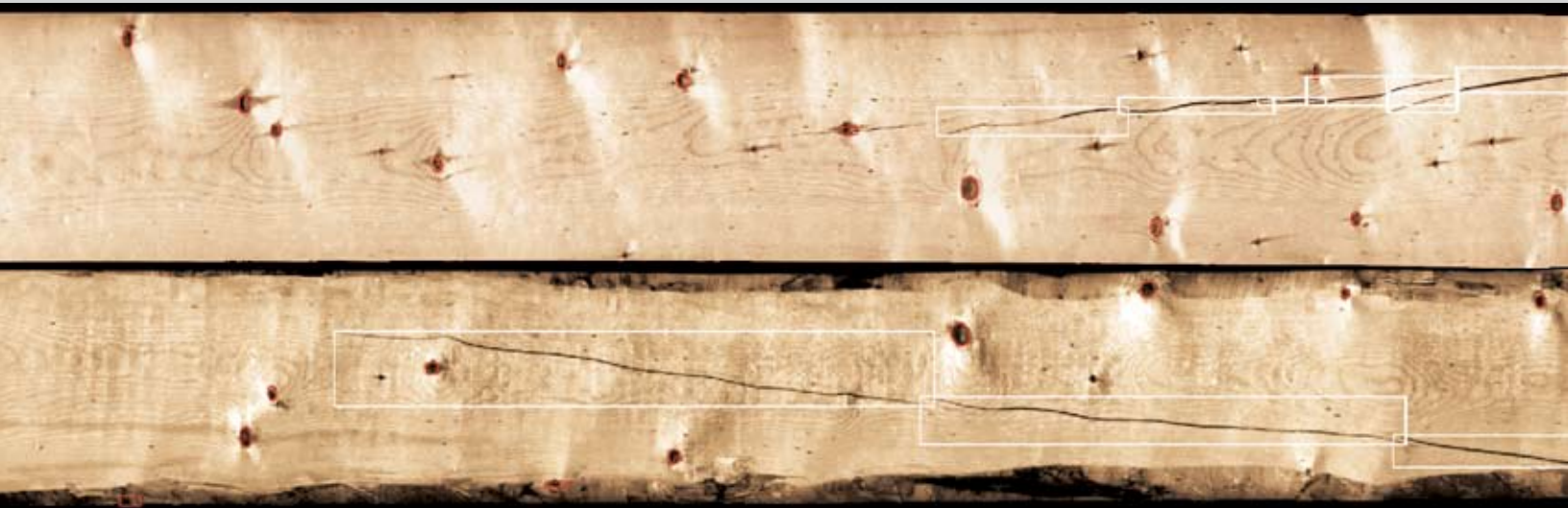
The + means twice as much high definition color vision resolution. We've doubled the resolution from 1 mm x 0.5 mm to 1 mm x 0.25 mm. This sensor collects twice as much high definition color vision data about the board.

This is a key feature for planer mill grading applications. To detect and precisely measure defects such as shake, splits, white speck and pin knots reliably and accurately, this higher resolution is required. With lower color vision resolution the data is less accurate, which can result in problems achieving reliable on-grade packs. This symptom typically shows up by being able to meet the below-grade requirement, but ending up with too much above-grade in the pack. That equates to lost revenue for the mill.

To demonstrate the importance of higher resolution color vision let's look at an example (above). In this image we have the same defect shown at three different resolutions. On the left we have the highest resolution, in the middle is one-half the resolution, and on the right is one-quarter the resolution. As you can see it would be much harder to precisely measure the defects in either of the lower resolution images.

When we combine this XHG color vision with 0.3" laser profiling and GrainMap technology you get the BioLuma 2900LVG+. This is a superior sensor for planer mill grading applications. The LVG+ completes the family of BioLuma 2900 sensors.

The BioLuma 2900 platform covers all the transverse applications in the sawmill and planer mill, with the highest resolution and fastest scanning technology available today. 





# BIOLUMA SENSORS

## Revolutionizing Recovery



### New BioLuma sensor family integrates next-generation technologies

It's the only sensor on the market to integrate HD laser profile, HD color vision and the new **GrainMap™** laser mapping technology. The **BioLuma 2900** delivers lightning-fast response, highest resolutions and flexible technology configurations. It outperforms its competition for:

- ▶ Sawmill geometric scanning
- ▶ Defect detection
- ▶ Transverse planer mill grade scanning

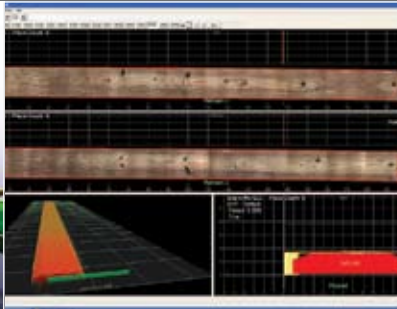
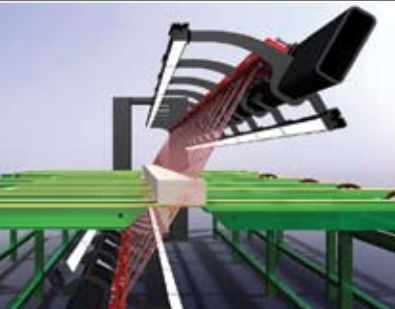
### BioLuma 2900 delivers advanced benefits for transverse applications

- ▶ Highest density laser profiling sensor
- ▶ Finds more defects with 1/3 inch laser profile density
- ▶ 8 inch field of view allows it to scan a wider variety of products
- ▶ Unique sensor arrangement delivers more accurate width measurements
- ▶ 2500 Hz is the fastest scan rate in the industry allowing you to run faster without sacrificing accuracy

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BioLuma sensors deliver the next generation of integrated technology.



Millwide. Worldwide.

**USNR**

**NEW**

*Smarter, simpler, better than the competition, the Transverse High Grader (THG) puts USNR's proven grade scanning technology into a transverse package.*

# Introducing: Transverse High Grader with DataFusion™

USNR is pleased to announce the new Transverse High Grader (THG) system for planer mill grade optimization. This new system uses the proven grading technology from our Lineal High Grader (LHG) product and combines it with USNR's new state-of-the-art BioLuma 2900LVG+ sensors to create a system that is smarter, simpler and better than any other transverse system available today.

THG offers the industry the same high value and recovery performance that is proven in the LHG.

**Now you have a choice: lineal or transverse configuration.** Either way, you get the same great support and the same great results.

## Advanced technology, proven experience

THG utilizes the time-tested technology derived from the LHG's image analysis and optimization software and combines it with the best sensor available today. BioLuma 2900LVG+ integrates GrainMap technology, XHD color vision and HD laser profiles. It collects ultra-high resolution images and precise geometric and grain angle measurements along the entire four surfaces of the boards – the highest resolution and fastest sampling rate of any transverse sensor available today. Cool, clean and reliable LED lighting illuminates the most minute defects for detection and classification.

## What's included?

The new THG system comprises the following.

- ▶ A high speed lumber transport system
- ▶ BioLuma 2900LVG+ sensors

- ▶ LED lighting modules for top, bottom and off-axis illumination of boards for our vision system
- ▶ A computer system running proven LHG software to process the scanned images and optimize the solutions

## Transport system

The USNR design has several critical attributes. It provides for stable transport through the scan zone to facilitate a good scan of the piece. Narrow belts produce minimal obscuration of the bottom of the board by the transport system – the sensors see as much of the bottom of the board, and the defects, as possible. THG's level transport system is designed for the high piece rates required in a modern planer mill, and allows it to easily retrofit into existing production lines with minimal modifications. This is a smarter, simpler and better way to transport boards through a transverse grading system.

## BioLuma 2900LVG+ scanning system

A THG system scanning 20' long lumber requires 10 sensors each on the top and bottom. Each of these sensors incorporates three key scanning technologies. Advanced-capability transverse grade scanning requires high density laser profiles, extra-high density color vision and GrainMap technology. USNR chose to combine these three technologies into an integrated package to provide the ability to turn the sensors off-axis and scan two faces of the board with each row of sensors. This scanning system accomplishes **full 4-face scanning** with

fewer sensors than competing systems that require sensors and cameras in multiple locations. This is one of the key attributes of a simple design, making the scanning system easier to calibrate and easier to maintain.

## LED lighting system

The quality of light in any scanning system is key to its accuracy. Light must be even across the scan zone and devoid of any hot spots that require shielding. It must cover all 4 faces of the piece evenly and consistently, and it must be as white as possible to accurately image the colors of the board for color vision scanning. It must also be reliable over a long period of time and not degrade over its life. When the light source degrades it creates inconsistencies in the accuracy, reliability and operation of the system. It should be simple to maintain and calibrate, and easily accessible to keep clean. USNR chose an LED lighting system for THG that meets all of these criteria.

LED provides a very clean, stable light source that has a long functioning life and is easy to maintain. THG utilizes four separate light bars in 2' segments to ensure even coverage over each face of the board, and also to allow off-axis illumination for highlighting cracks and splits. Unlike other light sources such as halogen, LEDs don't degrade over time. LEDs also run relatively cool in comparison to halogen lighting – they pose a much reduced fire hazard if not kept clean. LED lighting is smarter, simpler and better for transverse grade scanning.

## THG computer platform

We've redesigned our LHG computer platform to accept scan data from our BioLuma 2900LVG+ sensors resulting in a very powerful system with a very wide range of capabilities and functions. Following are some of the smarter and simpler capabilities that it provides.

### DataFusion

One of the ways LHG and THG are smarter is DataFusion. USNR pioneered the DataFusion concept in LHG. With DataFusion, all of the data collected from scanning - the laser profile data, color vision imagery and GrainMap laser mapping - is correlated and verified from one to another to improve the accuracy and reliability of the data. This allows the optimizer to confirm the accuracy, and guard against misinterpretation of the data collected from any one technology source.

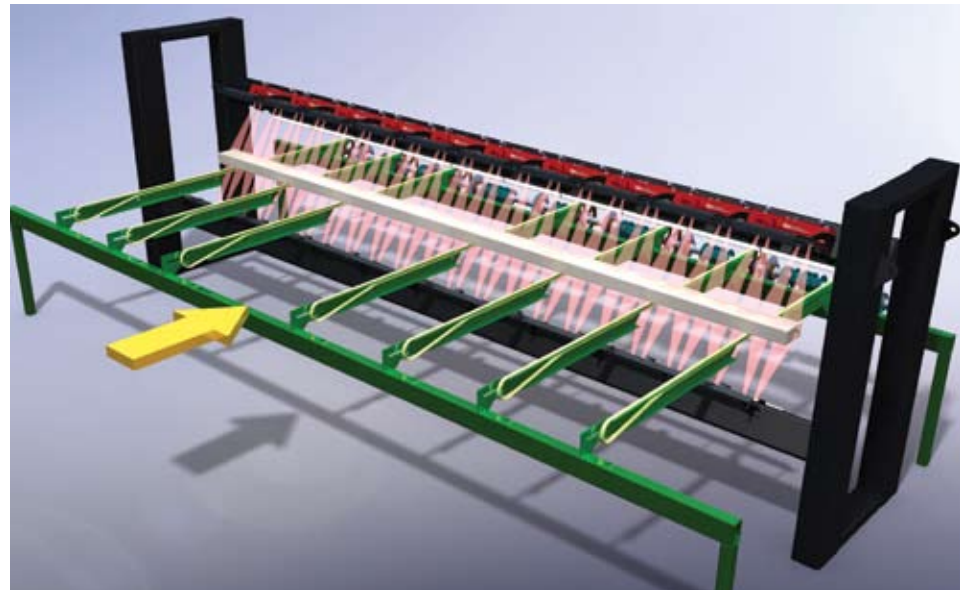
### Functionality

Another way the LHG/THG platform is smarter is its decision capabilities; the rules and functions that it employs to analyze and classify the data. Some examples are functionalities like cut-n-2/3, sophisticated wane rules, knot combination logic, shake separation, etc. These functionalities allow you to define the proprietary grades you need to supply to your customers.

SimulSim (simultaneous simulation) capability allows you to do on-line simulation analysis with a different setup than your production, in a side-by-side mode. You can examine the solutions on a board-by-board basis as they are processed through the system, and evaluate whether the new setup would improve the outcome. This allows you to make changes in mid-stream, test variables and retune the system while it is running. This is unlike competitive systems that require you to collect a number of images to run in an off-line mode. The LHG/THG platform provides a much smarter method for simulation.

### Accuracy

One of the primary ways the LHG/THG platform is simpler for the user is the tremendous amount of effort that has gone on behind the scenes



(manpower, engineering power, algorithm development, etc.) over several years to find defects accurately. When the system finds defects accurately it is not necessary to modify product parameters and grade rules to produce the output you desire. You set up your products with the correct grade rule parameters, and because the system has found the defects correctly you get the right output. In other systems that don't find the defects correctly, you must spend a lot of time tweaking and tuning your product parameters and product rules to get the output you want, and then they don't match. For example, if you want to produce products that have only 1" or smaller knots, other systems may require you to trim that parameter to 3/4" because that's the only way you can get it to produce products with 1" or smaller knots.

### Advanced diagnostics and monitoring

Advanced diagnostics and monitoring capabilities also make the system simpler to use. The LHG and THG are sophisticated systems and it is important to keep them tuned and not let them get out of control. Background processes continually monitor the system and the output, and alarm the user when inconsistencies occur. This makes it simpler for users to catch a problem before it can

cause the mill to lose a lot of production and a lot of money.

### WinTally integration

Integration with our WinTally product also makes the system simpler. USNR's WinTally sorter management system is operating in a vast number of softwood lumber mills. WinTally is very simple to integrate with the LHG or THG, and provides a wide range of additional quality control capability when they are combined.

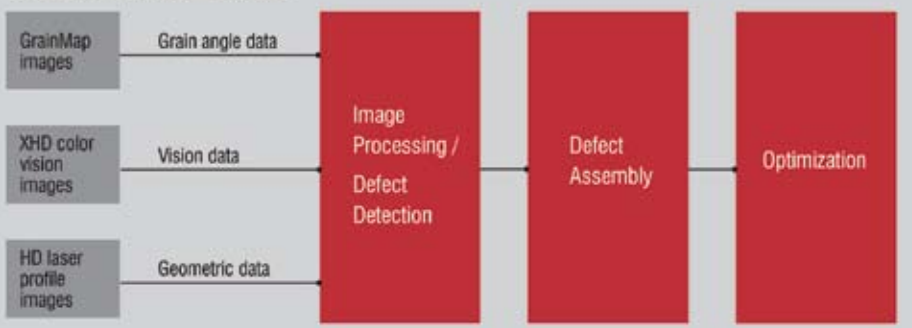
The LHG/THG platform is very powerful when it comes to finding and classifying defects. These include the following.

- ▶ sound knots
- ▶ unsound knots
- ▶ blonde knots
- ▶ knots in stain
- ▶ bark-encased knots
- ▶ spike knots
- ▶ 3-/4-face knots
- ▶ edge knots
- ▶ splits
- ▶ 1-/2-/3-face shake
- ▶ shake in wane and through eased edges
- ▶ sapstain
- ▶ bluestain
- ▶ heartwood
- ▶ pitch pockets
- ▶ rot
- ▶ slope of grain
- ▶ grain distortion
- ▶ planed bark
- ▶ bow
- ▶ twist
- ▶ crook
- ▶ tear outs
- ▶ holes
- ▶ cup
- ▶ face and edge skip
- ▶ shallow-face wane
- ▶ edge wane
- ▶ single-sided wane
- ▶ compound wane
- ▶ equivalent wane
- ▶ independent board ends

The LHG and THG are smarter because they find all these types of defects, and simpler because you don't have to have someone downstream to find them for you.

Combining the LHG/THG computer platform with BioLuma 2900LVG+ scanning system, LED lighting and a simple, flat transport system, results in the most simple, sophisticated and capable transverse planer mill grade optimization system today.

### How DataFusion™ works:





## Smarter

- ▶ Proven defect analysis based on LHG algorithms
- ▶ DataFusion ensures accuracy; two or more technologies confirm the defects
- ▶ Only sensor available that integrates GrainMap, XHD color vision and HD laser profiles
- ▶ Unlimited piece history
- ▶ Ugly board logic
- ▶ Remanufacture or rip for value
- ▶ Cut-n-2, 3 or 4
- ▶ Six-core and dual quad-core processors; accommodate multithreaded applications

## Simpler

- ▶ Fewer sensors required
- ▶ Bright, white and cool LEDs; less energy, fewer bulbs to change, reduced fire hazards
- ▶ Intelligent white balance
- ▶ Ethernet communications
- ▶ Easy access scan frame
- ▶ One-step calibration
- ▶ Level scanner transfer, drops into existing flow
- ▶ Minimum transport occlusion on bottom face
- ▶ No board tracking required

## Better

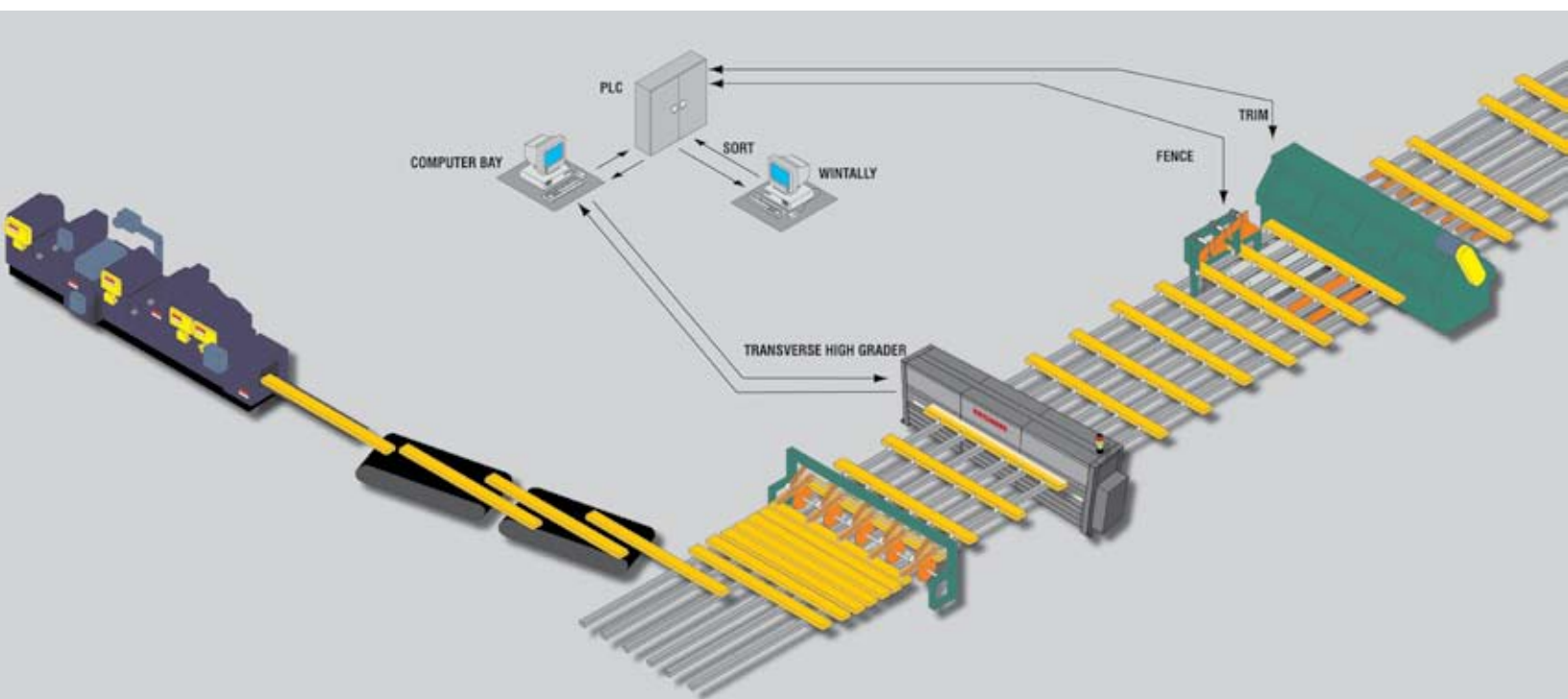
- ▶ Highest profile scan resolution
- ▶ Highest color vision resolution
- ▶ Fastest scan rate
- ▶ Tighter control over your grades



BioLuma 2900LVG+ gives THG the dense GrainMap, visual and laser profile defect data required for accurate transverse automated planer mill grading. The interface provides a similar look and feel to our proven LHG.

## Partnership opportunities

When you're ready for the most advanced, high speed system for transverse grading in the planer mill, THG can deliver. Our THG with integrated GrainMap, XHD color vision and HD laser profile technologies is now available. We're excited about this new platform for planer mill grading, and we are looking for customers to partner with us on the early installation and adoption of THG systems. Please contact your USNR sales representative if you are interested in this opportunity. Please contact us at 800.BUY.USNR or info@usnr.com. 🌐





*What is the future of the LHG, and how does it factor into the new BioLuma and THG innovations?*

With the launch of the new Transverse High Grader you may be asking, "Where does this leave the Lineal High Grader?" USNR's Scott Norton, operations manager for Optimization and Controls, weighs in on the latest features our LHG designers have come up with. "Our optimization engineers are continuing to make progress broadening LHG's range of capabilities. In December 2010 we will launch V6.1 with new features that are designed to more closely mimic human grading capability. This is something customers have been asking for. While the LHG is very highly accurate in establishing high-value products and making sure boards and packs meet the grade rule allowances, it can result in boards in a pack or grade classification not meeting the appearance expectations of the end user. These latest features will expand the mills' flexibility for managing their grading process."

### Latest features for V6.1

- ▶ **Board tracking capability will increase to 250,000 boards.** This allows mills more time to do random quality control checks. Mill personnel can pull a pack directly from the sorter, or take a finished pack apart to check it.
- ▶ **Marginal grade logic, per board.** Each grade classification allows a certain amount of defect on a single board. The LHG is so spot-on accurate that this can result in some boards that have just under the allowable limit of defect. While this is advantageous for the value of the piece, it may have a negative impact when considering the appearance of the board and the expectations of customers. The marginal grade logic feature allows the mill to manage the appearance of the boards in each pack.
- ▶ **Hi/Low grade, per pack.** Grading agencies allow a certain number of lower grade boards in

each pack, but customers expect all boards in the pack to be the same or similar grade. This feature allows the mill to manage the percentage of low grade boards in each pack to meet the expectations of the mill's customers and end users of the products.

- ▶ **Interface with an external moisture meter.** The LHG allows the mill to manage the percentage of moisture in each pack. Grading agencies allow 5% of the boards in each pack to be higher than 21% moisture content. With this feature the mill can have greater control over the number of wets in each pack, and balance allowable moisture content with the needs and wants of its customers.
- ▶ **Split/shake merging, per grade.** This feature allows mills to configure, per grade, the amount of fiber between shakes. Again, this feature helps mills to manage the appearance of the board to meet customers' expectations.

USNR is leveraging the expertise gained from our proven LHG as a springboard to now offer transverse automated grade classification in the sawmill

and planer mill. Lessons learned utilizing LHG technology allowed USNR to develop the scope of functionality required for the new BioLuma sensors to meet current and future demands of automated grade classification in demanding, high speed processing for both green and dry mill applications. LHG continues to break new ground with an expanding repertoire of features and functions for the most advanced lineal planer mill grading available.

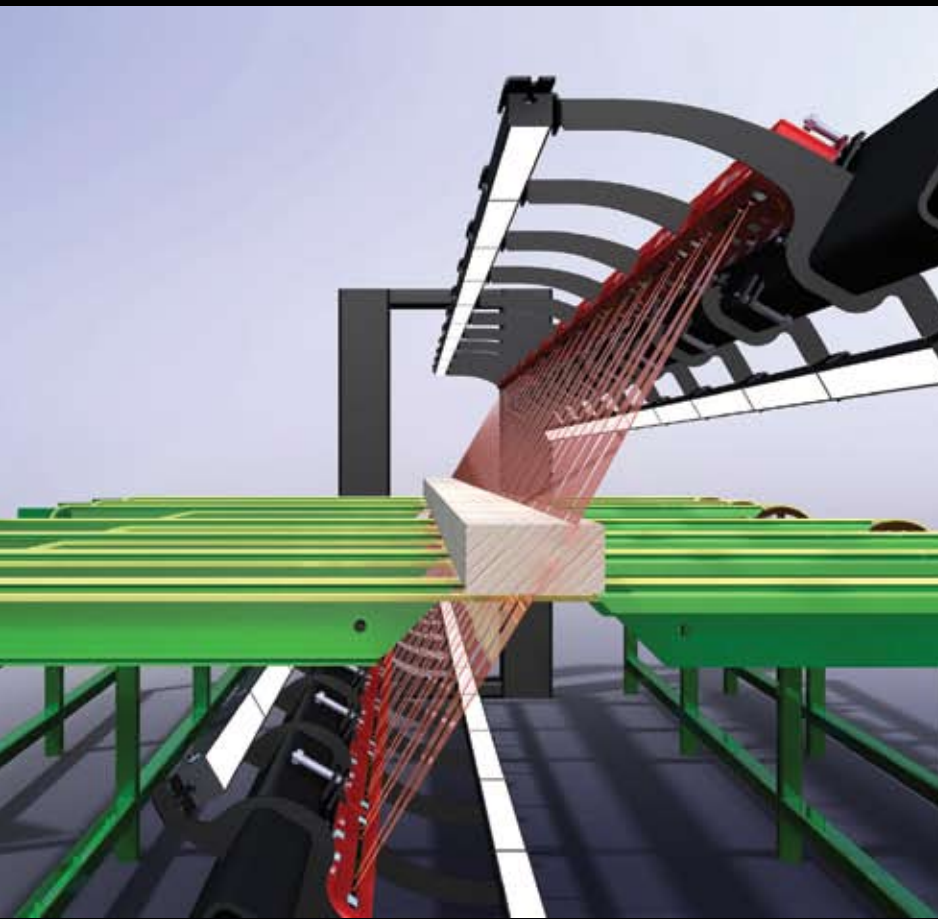
Scott also announced another benefit as a result of the expansion of USNR's automated planer mill grading offerings. "Whenever we roll out a new product it means a lot of work behind the scenes not only to support the product going forward, but also to maintain it and keep it healthy from a market perspective. With the addition of another product to meet the challenges of planer mill grading, we recently expanded our engineering personnel resources to accommodate the growing demand for technology solutions. USNR is committed to our ongoing partnership with our customers to help them compete in the ever-changing global marketplace." 





# TRANSVERSE HIGH GRADER

## Smarter, Simpler *and Better* Transverse Planer Mill Grading



**The Transverse High Grader (THG) delivers proven planer mill grade scanning in a transverse package**

Unlike other systems, THG's single-sensor design does it all, only better. The system uses the industry's most advanced sensor, the **BioLuma 2900LVG+** which integrates HD laser profile, the highest density XHD color vision and the new **GrainMap™** laser mapping technology. The Transverse High Grader delivers lightning-fast response at the highest resolutions for automated planer mill grading.

### **THG outperforms the competition**

- ▶ Single-sensor design offers less maintenance, less downtime and fewer spare parts
- ▶ Flat transport design minimizes defect occlusions, handles high lug speeds with no elevation changes and no hills to climb
- ▶ Easy to install
- ▶ LED lighting for long lasting, low-temp, uniform illumination
- ▶ Proven defect detection based on years of success with LHG and DataFusion

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[www.usnr.com](http://www.usnr.com)

[info@usnr.com](mailto:info@usnr.com)



GrainMap™ laser mapping technology accurately maps grain angles to find defects such as knots.



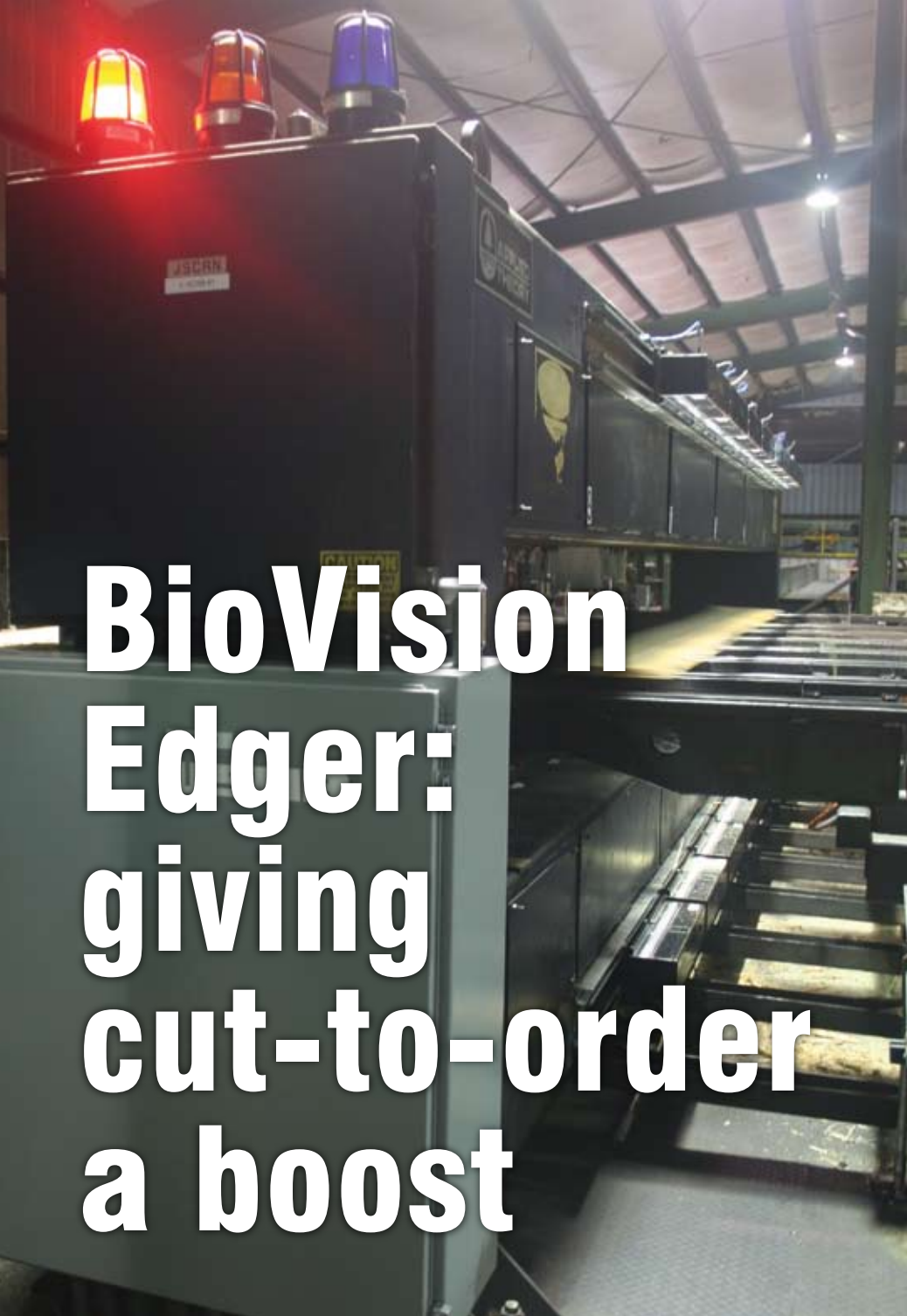
BioLuma 2900LVG+ delivers the next generation of integrated technology.



Millwide. Worldwide.

**USNR**





# BioVision Edger: giving cut-to-order a boost

## H.G. TOLER & SON GETS 'A LEG UP' WITH BOLT-ON SAWMILL GRADE SCANNING

*This new tool demands new thinking about how we saw a piece of lumber to make the most of its available wood fiber. Now with knot grading in the mix, we are embarking on a new frontier.*

Sawmill BioVision scanning is getting its true value test with the first production installation on a transverse edger system. To date, the results are "two thumbs up".

H.G. Toler & Son Lumber Company is an independent, family owned and operated mill located in Leola, AR. Started in 1936, today the operation comprises a sawmill, three dry kilns and a planer mill. General Manager John Grigsby is a great grandson of the founder, and his uncle, David Toler, is in charge of quality control of the log stock.

The Toler mill has its own timberland and processes its SYP logs into mostly 4/4 boards S4S (surfaced four sides) that are sold to treating or retail yards and to remanufacturers to be made into pattern stock for siding, fencing, building materials, etc. A small amount of 5/4 decking is also produced. The mill currently runs one shift with a capacity of 30mmbf annually.

### Eyeing technology

The mill has invested in a lot of equipment from USNR over the years including its bandmill, horizontal resaw, gang, edger, and most of the equipment in its planer mill. The Geo2 optimized edger line was installed in 1993, and as the oldest scanning system remaining at Toler, obsolescence of its VAX platform necessitated upgrading. The Toler team had been keeping an eye on developments in the industry for sawmill visual grading technology, so when it was time to update the edger optimizer the time was ripe to include vision scanning in the mix. Though they viewed competitive offerings, confidence in USNR and satisfaction in the MillExpert™ optimization suite swung the decision to USNR and the BioVision solution.

When asked about the selection of USNR for this project, John Grigsby commented, "We like the MillExpert platform and we thought the greatest uplift would be through better geometric optimization. We've also been thinking about grade optimization for a long time and just waiting for the right product. With BioVision we would also be able to pick out grades, and even though BioVision isn't proven yet we felt it was ready for the mill floor. Also, we have lots of USNR equipment and we've always received good support from sales to service."

### A phased approach

The project scope included a couple of phases; first was an upgrade to the latest MillExpert platform for geometric scanning, followed by the BioVision bolt-on option to add visual grading technology. The MillExpert edger optimizer supports almost any machine type including traditional side-loading edgers to high-speed lineal systems with multiple scan zones. With the switch to MillExpert optimization, the existing Geo2 scan frame and scan heads remain and continue to be used. As a part of the project, the existing scanner hardware was



*BioLuma 2900V sensors can be used in a bolt-on configuration. Combined with your existing laser profile sensors you can edge or trim for the greatest value or recovery – you decide.*

thoroughly checked for proper operation.

USNR's MillExpert analyzes scanned flitch images in 3-D, accepting data from the Geo2 laser scanners. The optimizer evaluates all allowable products and combinations of those products that can be made from each flitch. Optimum recovery is calculated based on dollar value and volume recovery. The optimizer considers product fits (fitting 3-D products into a 3-D flitch) based on the user's inputs (individual species, shape, grade, value, wane, priorities, and dimensional requirements) to find the most profitable solution. The software allows for board products manufactured downstream to be fit into the flitch in real time, proven on virtually every type of edger machine configuration including 2-saw and multi-saw edgers, chipping edgers with or without reman heads. Unique in the industry, no lookup tables, patterns, profiles or matrixes are used to ensure the absolute highest value edger solutions possible.

The second phase saw the installation of the BioVision grade scanning system. USNR's BioVision solution is the only system on the market to offer the addition of sawmill visual grade scanning in one of two ways; it can be incorporated into a new scan frame or added to an existing transverse scan frame via a bolt-on housing that accommodates the vision sensors. USNR has combined the proven Linear High Grader (LHG) classification system developed for planer mills with new high resolution BioLuma 2900 color sensors for transverse scanning of lumber.

Scanned images are fed to the defect classification engine where characteristics are extracted based on visual properties and defect shape data. These characteristics are type-classified (for example; knots) according to proprietary classification rules, then overlaid on the geometric profile model. Optimization software selects the most valuable solution available according to the

product parameters, grade rules and prices entered. BioVision benefits include:

- ▶ Maximize volume for lower grade flitches
- ▶ Maximize value by cutting around defects to produce clearer, higher grade boards
- ▶ Smart reman decisions based on defects and geometric shape
- ▶ Fiber classification based on grade (combined vision and geometric data) vs geometry only
- ▶ Confidence algorithms compare solutions with and without grade input

The original controls system (installed in 1993) was upgraded from an Allen Bradley PLC 5/40 to the ControlLogix platform which was installed by a third party electrical contractor, T&L Enterprising of Post Falls, ID, with programming and start-up performed by USNR engineers and technicians.

### Challenges

Over and above the fact that this is the first BioVision production unit, this project presented a couple of other challenges. At the Toler mill, large logs are not debarked which tends to smear bark from the flitch edge across the face making it more difficult for the vision system to find knots. The solution is a simple parameter change that can allow MillExpert to ignore BioVision data so the wide, clear flitches can run without being downgraded due to smudging on the faces of the flitches.

Another challenge was the close-coupled aspect of this system that necessitated it to get a solution to the PLC for actuation in a very tight timeframe. Precise tuning helps alleviate this issue and ensures the system has all the data at hand to deliver optimum solutions.

USNR's Bob Arnold led the team responsible for development of the BioVision system and was intimately involved with this crucial project in

the system's evolution. Bob made the following comments about this application, "The BioVision system was configured to bias towards cutting higher valued clear boards out of a flitch by avoiding the inclusion of knots when possible." He went on to explain, "John Grigsby brought a batch of flitches from the Leola mill to USNR's Eugene, OR facility to run them through the test scanner. This allowed pre-tuning of the BioVision system to achieve the results he desired prior to the startup."

### Smooth start-up

The installation got underway in January 2010, with a return visit for final tuning of the BioVision system in April. Installation was overseen by USNR's Gilbert Aponte. Gilbert is no stranger to many of the Toler personnel, in fact he was on hand when the edger system was first installed in 1993.

John Grigsby was pleased with the way the start-up progressed. "It started up well right out of the box. It's probably one of the smoothest electronic start-ups I've ever been through."

### Results are in!

John is also more than pleased with the results he is seeing from the system. "We're noticing an uplift in the amount of C and D (grade) lumber. It really excels when we cut wides, we can cut 70-80% C and D. That's a real good judge because we cut for grade only (cut to order), so the BioVision has to sort out what is grade and what isn't, and when to make wides."

He went on to say, "In terms of knot size classification it's doing real well. It allows us to cut for specific lengths and specific grades, of specific widths. It can pinpoint exactly what we want to produce. If all we need to make is 1x12, C&better 16' long, and if we set that as priority it won't cut anything but."

"Each grade class has a different wane class, so as knot defects drop the piece down in appearance grade it can stand more wane. That is how we gain in volume, by edging for the grade that is in the flitch. We used to saw for a medium grade, and it ended up being over sawn for low grade and under sawn for higher grades. Now we're more on-grade. BioVision allows us to maximize both volume and value. If it's a higher value piece we can cut for value, but if it's lower value we can cut for volume. By producing lumber at the mill that is on-grade, the final grading process is streamlined, requiring less trim. The graders can often simply verify grade instead of having to trim to get it."

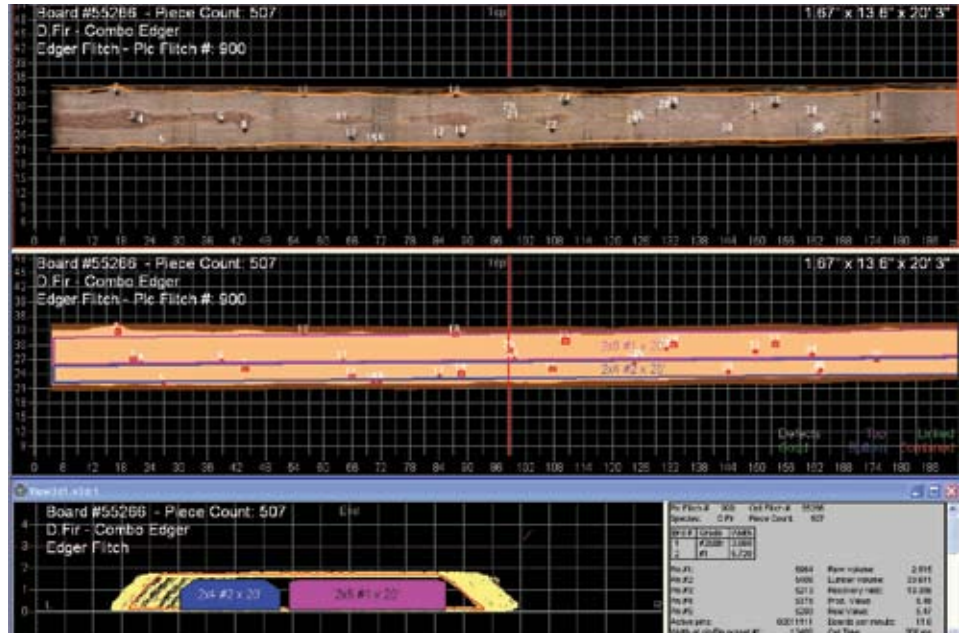
### Team work

Key Toler personnel for this project included Paul Baker, mill foreman, Larry Dial, grader supervisor and planer mill foreman, and Tim Caudell, mill electrician. Larry assisted the process by helping set up the grade parameters for the BioVision to work in conjunction with planer mill grade parameters.

Training was delivered on site by USNR's Bob Arnold, Gilbert Aponte and Gary Middleton, regional sales manager and long-time ally to the Toler operation. Ken Lafayette of Lafayette Services aided on the coordination and installation of the upgrades, both mechanical and electrical.

### Process evolution

According to USNR's Gary Middleton, "This new tool demands a new way to think about how we saw a piece of lumber to make the most of the available wood fiber. Since the development of geometric scanning we learned how to set up the optimizer to recover as much volume as possible from a flitch. Then when the piece got to the planer mill the result could be beautiful clear wood but with wane all over it. The solution could have resulted in a piece that was worth so much more. Now with knot grading thrown into the mix we are embarking on a new frontier." We are particularly appreciative of those processors, like H.G. Toler & Son, who through their confidence and trust help USNR to take the next evolutionary step forward. 🌐



BioVision's user interface features both a camera image of the board as well as a computer-generated image that displays the defects and the optimizer's solution. This feature aids in tuning and troubleshooting, as well as off-line rerun simulation.

## Did you know...

### USNR offers the widest range of wood processing machinery in North America.

In business for over 150 years, our product line includes dry kilns, machinery, 3D scanning, optimization, PLC controls and comprehensive mill services. From grade hardwood mills to high production pine mills, USNR has a solution for you. USNR also leverages its enormous buying power to guarantee customers the best prices on maintenance parts like bearings, chain, valves and cylinders.

Call **800.BUY.USNR** and ask for your sales representative.



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COASTAL

APPLIED THEORY

Schurman





# Upgrades and Parts

Once you've decided to consider upgrading to new BioLuma sensors for your sawmill system, what are some of the questions you'll want to ask, and what do you need to know before you proceed further?

## ► Does USNR still sell older sensors?

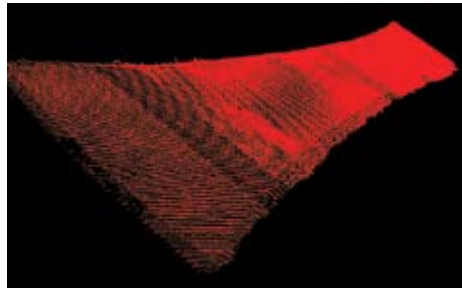
BioLuma is our new sensor line going forward, but our other sensors are still available. Our SmartTriCam and Newnes LPS3 sensors are still viable and may be an excellent solution for some applications. Older sensors such as the USNR V6, GE01(b)/2, Newnes LPS2/HDPV, and older DynaVision M6 and B800 sensors are still fully supported.

## ► Does this product family replace Transverse TriCam?

Yes, although transverse SmartTriCam sensors are still an excellent solution in certain applications.

## ► Can I upgrade my existing MillExpert or Newnes Optimizer to use these sensors?

Yes you can. The BioLuma 2900 series sensors are plug-n-play with these optimization packages. Upgrading requires only that the sensors be installed and some minor changes to the sensor interface software.



## ► Do I have to modify my scan frame to install these sensors?

Perhaps. Your USNR account representative can help you determine if your scan frame needs modification to accept the new BioLuma sensors.

## ► What sensor should I use for transverse edging, dimensional only?

USNR offers three choices – SmartTriCam, Newnes LPS3 or BioLuma 2900L. If you anticipate ever wanting to add vision technology for grade classification capability that should be discussed with your USNR account representative to help you make the best choice.

## ► I have an existing edger that has scanning from USNR. What are my upgrade options and where will I get the most payback?

You have several options to improve the value recovery at your edger, but this completely depends on your product mix. If you're running only one wane rule, say 30% wane, with flat pricing for all products, your opportunities to add more value with improved wane modeling or defect detection are limited.

What are the limitations of your current system? Do you foresee opportunity to improve what you are doing today? Would improving the scan density to 0.3" help? Would you use multiple grade rules and pricing if you could see the defects? Is detecting blond knots, splits, grain angle or heart wood critical to how you would edge?

## ► Why should I switch out anything that I currently have?

That depends on your current system. What are the limitations? Do you see any opportunity to improve what you're doing today? What's that costing you? What would you do differently if you had improved scanning capability? Defect detection?

## ► If I decide to upgrade to the new BioLuma sensors, how many spares will I have to stock? Are the spares interchangeable between my edger and trimmer?

The number of spares you should stock depends on the length of your scan frame, the material you are processing, and your comfort level. For example, if you have a 24' frame and are processing dimensions from 8' to 24', you can run without a couple of sensors on the end temporarily and process shorter material until spares arrive. We would recommend you stock 2 spares of each type of sensor (2900L, 2900LV, etc.) you are using.

Spares are interchangeable between an edger and a trimmer if they are of the same type – 2900L, 2900LV, 2900LVG, etc.

## ► Where can I get spare sensors when I need them?

Just call 800.BUY.USNR. We'll process and ship your order, usually the same day.

## ► How long will the upgrade take, and what do I need to prepare for?

Upgrading a system typically takes about 3 days (Friday, Saturday, Sunday) with limited operation on the first day running the new system. What you need to prepare depends on the upgrade – what type of system you have now and what you are upgrading to. Your USNR account representative will be able to give you all the details.

## ► Will the interface look and operate the same, or will my operators need additional training? If so, how will that be handled?

If you are upgrading an existing MillExpert or Newnes system, likely the interface will look very similar to what you have now. In that case training can easily be handled on site during implementation.

If you are upgrading another system the difference will be more substantial. Remember, the system you are getting is the most advanced in the industry today, so there are bound to be differences. We recommend you send your personnel to one of our training facilities initially to learn all the capabilities of the new system so you get the best return on your investment. We can, however, provide on-site training as well. 🌐



# NEW PROJECTS



**Armstrong Hardwood Flooring** at Vicksburg, MS has ordered a controls upgrade for its lathe deck equipment. The lathe line, supplied by Coe, was installed in the early 1990's. The lathe peels 6' hardwood veneer to be used for hardwood flooring. The new LCS-4000 controls system will bring this line up to today's requirements for speed and efficiency, and improve maintenance and ongoing supportability.

The sharp chain system at the **Canfor-New South** mill at Darlington, SC will be upgraded with the latest version release of the Newnes software suite, V7.1 in conjunction with installation of new LPL sensors to replace the existing hydra heads that are now obsolete. The old VME system will be replaced by the Intel processing platform for further improvement. Once complete, this combination will allow much higher data collection and faster decision processing resulting in increased throughput and recovery.

The **Coastal Lumber** mill at Hopwood, PA was recently damaged by a fire that started in the filing room and then spread into the mill, with damage estimated at over \$1 million. USNR will be supplying a YieldMaster G3 carriage optimizer, a LineMaster G3 lineal edger optimizer and MillExpert B800 cant optimizer, plus controls, to restart these processes.

In preparation for a second BioVision system, this time on the Trimmer optimizer, **H.G. Toler & Son** at Leola, AR is upgrading its optimizer to the MillExpert platform. The scan frame is fitted with M6 sensors. When the mill is ready to add the BioVision component the new BioLuma 2900V sensors will be added via a bolt-on configuration. The MillExpert optimizer platform will utilize laser profile measurement data from the M6 sensors and HD vision data from the BioLuma sensors to provide grade classification at this machine center. To make the most of this new capability, the mill is also implementing a WinTally sorter management system. In 2009 the Toler mill installed a BioVision system on its transverse edger.

**Jordan Lumber** has ordered a second LHG for its planer mill at Mount Gilead, NC. This new scanner will automate the mill's second grading line and is capable of grading 1x4 to 6x6 material.

The LHG system at **Langdale Forest Products**, Valdosta, GA is being upgraded with vision capability to fully automate its grading process. The LHG was installed in 2002 with geometric-only capability. As well, the Langdale mill will receive a new WinTally sorter management system that is integrated with the LHG system to add a wide range of management and quality control processes.

USNR will also supply an electric drive upgrade for the mill's Newman 990 planer, bridge and feed table. This upgrade will allow the mill to increase planer speeds and improve efficiency and throughput in the planer mill

The **Rosboro** plywood plant at Springfield, OR is updating its veneer dryers with a number of new components including panels and doors. These two dryers – one from Coe and one from Moore – were originally installed in the late 1950's, a testament to their longevity. With these improvements the plant expects to improve productivity, improve operational efficiency, and eliminate fugitive emissions.

**Saiki Koiki Forest Association** at Saiki City, Japan has ordered a new combination bin/tray sorter and Lunden-style stacker for its cedar sawmill. The order is being handled in conjunction with Japanese agents Hirota and Ohmori Shouki.

This order follows previous USNR projects comprising a sharp chain reducer twin primary breakdown line, a lineal 8" horizontal shape sawing gang system, and a high speed transverse 2-saw board edger line processing 42 pieces/minute.

With this new order, the 2 existing pull chains will be replaced with the combination bin/tray sorter to accommodate the mill's wide variety of products ranging from 12 mm to 135 mm thick. The Lunden-style stacker is very precise with its stick placement, which is critical to maintain the utmost quality of this mill's high value products. This new project will increase the efficiency and production of this mill.

USNR has received an order to upgrade the PH700 slabber head on the headrig carriage at the **Tenon** mill in Taupo, New Zealand. The upgrade replaces the existing PH700 slabber head with a new design that includes bolt-in replaceable gullets. The mill has had issues with a great deal of wear on the head due to the abrasive properties of Radiata Pine. The bolt-in gullets on the new slabber head provide a replaceable wear piece that will increase the slabber head life.



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**PROFILE**

*Scott Norton is Operations  
Manager in charge of USNR  
Optimization and Controls,  
based in Woodland, WA.*

Scott's career began in 1993 when he started at CSMI in Hot Springs, AR, prior to its acquisition by USNR in 1996. This followed his formal education which includes Bachelor of Science, Computer

Science/Business at the University of Puget Sound, Tacoma, WA, and Master of Science, Sawmill Optimization and Process Control at the University of British Columbia, Vancouver, BC.

His first role was software engineer for edger systems. Over the ensuing years he worked his way through the optimization realm to his present appointment in 2008.

Among developments he is most proud of are the first hardwood edger optimizers,

yielding significant recovery gains for hardwood customers.

Scott says, "I most enjoy synchronizing the needs of our customers with the talents of our staff. Continuous improvement of our product lines is a key element of my role, always with a view toward providing unique opportunities for new and existing systems."

Scott's 2-year-old son is one of his passions, as well as reading and playing piano.

**UPCOMING  
EVENTS**

**MAR. 14-16**  
**HMA**  
Charleston, SC

**MAR. 23-25**  
**Small Log Conference**  
Coeur d'Alene, ID

**MAY 30-JUNE 3**  
**Ligna**  
Hannover, Germany

**JULY 7-10**  
**MLMA**  
Biloxi, MS

**AUG. 11-12**  
**SFPA Expo**  
Atlanta, Georgia