CREATING AND RETURNING VALUE TO GROWERS

FOSS

# IMPLEMENTATION OF IMAGE ANALYSIS FOR GRAIN TESTING

CBH GROUP

# THE CBH EYEFOSS JOURNEY

- ***Our vision was to take the Eyes and Hands out of sampling***
- A nine year journey with ***FOSS***
- The journey has been slow but building accuracy is important

- ***Long Term Vision:*** Customers can see directly their analysis live

# WHY CHANGE FROM SUBJECTIVE MEASUREMENT ?

- Faster more consistent grain analysis time
- Simplify staff training
- Simplify the grading process
- Free up staff to do other tasks
- Reduce our costs
- Improve our accuracy


# WHY CHANGE FROM SUBJECTIVE MEASUREMENT ?

- Too many instruments required for full testing
- Accuracy and reliability
- Customer complaints - inconsistency
- On-line analysis – alignment with data management systems required
- Our operating vision is to have quality control our decisions through integration into the control systems

# WHEAT & BARLEY - BASIC PARAMETERS

| Wheat Parameters |
| --- |
| Field Fungi 50% |
| Stained |
| Pink Grains |
| Sprouted |
| Frost Distorted |
| Screenings |
| Type 7B (Wild oats, spear grass, Barley) |
| Unmillable material – whiteheads, radish pods, chaff, backbone, straw |
| Small Foreign Seeds (Ryegrass only) |

| Barley Parameters |
| --- |
| Spotted mould |
| Germ end Stained |
| Skinned |
| Frost Distorted |
| Screenings |
| Type 7A (Wild oats, spear grass |
| Type 6 (Wheat) |
| Small Foreign Seeds (Ryegrass only) |
| radish pods |

# NEW CHALLENGES / CALIBRATIONS

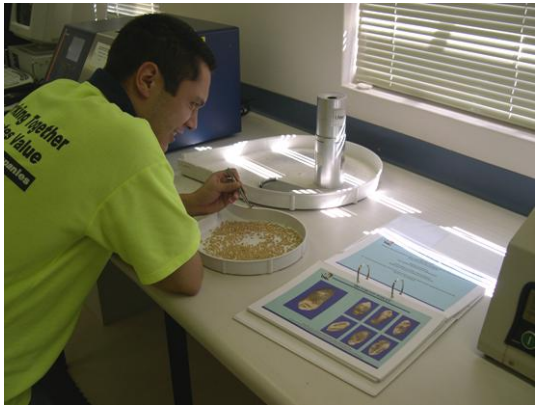
| New Wheat parameters to be added to existing for 2014/15 |
| --- |
| Type 7a Lupins & Field peas |
| Small Foreign seeds<br>Canola & turnip |
| Headscab/white grain disorder |
| Dry Green and Sappy Green |
| Type 7B Common oats |

| New Barley Parameters to be added to existing |
| --- |
| Cleaved |
| Pink stained |
| Dry Green and Sappy |
| Common Oats |
| Rye grass ergot |

# Q. WHAT DO WE NEED IMAGE ANALYSIS TO DO?

A. Replace all mechanical and quality assessment in grain sampling

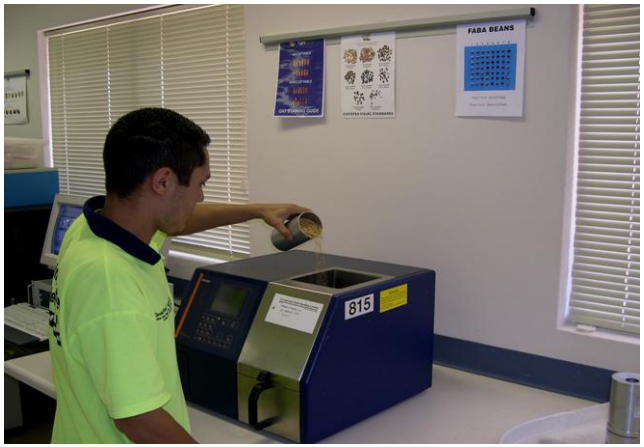
Visual Inspection





Screenings (Plumpness, small broken etc. )

NIR

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# CHALLENGES / CALIBRATIONS

Width, length and height measurement facilitates size analysis such as “screenings”

# GRAIN TYPE DETERMINATION

## IDENTIFY GRAIN TYPES IN RELATION TO EACH OTHER AND TELL THEM APART FROM OTHER MATERIAL

# DEFECTS OF GRAIN (SHAPE/TEXTURE)

DISTORTED

SPROUTED

INSECT DAMAGED

# COMMISSIONING THE FLEET OF EYEFOSS

## Implementation

- 2013/14 harvest at seven sites
- Manual system still used for payment - but results excellent
- Growers accepting of methodology

## Calibration

- Limited parameters and immature
- Accuracy pleasing show results
- Extremely consistent

## Next steps 12 months

- Develop calibration further
- Extend to other sites
- Extend to other grain and parameters

# THE FUTURE

Extend application to additional sites

Marketers grower education

Adjust standards due to its accuracy

Apply in line at terminals

Joint Infratec and Eyefoss together one machine, one test approach

Link directly to buyers

Provide access to growers and customers