Bridging the gap on Maize grain quality

Multi-stakeholder Platform meeting,
29th June 2017
Rwenzori International Hotel, Kasese

Presented by: Simon Etenu Obuya, UNBS
Outline

- What UNBS does
- Meaning of a standard
- Rationale for standards
- Current standards for grains
- Quality and safety requirements
- Implementation strategies
- Challenges
- Conclusion
What UNBS does

Mandated to undertake the following:

- Standardization
- Quality assurance
- Metrology
- Testing
Meaning of a standard

- A standard has to be
  - documented (Is a document)
  - Approved by a recognised body like UNBS
- A standard has to provide for common and repeated use by providing either
  - rules,
  - guidelines or
  - characteristics of products and their related processes or production methods
Who establishes a standard?

- A standard is established by a team of people normally known as experts within their field of operation.

- Examples of expert include Farmers, Processors, Academicians, Consumer Groups, Traders, farmers, exporters, importers etc.
Importance (aims) of food standardization

- Provision of the means of communication amongst stakeholders
- Protect safety, and health, environment from hazards
- Promotion of fair trade
- Protection of consumer interests
Rationale for Food Standards

- Based on best available science
- Reference is Codex and ISO
- Driven by demands in the sector
- Focus is **Quality** and **Safety**
- Detail production and processes
- Limits set are bare minimum and based on science and research
Standards for grains

- Have been with us since the early nineties
- The current standards for grains have been harmonized in the EAC region
- They were approved by the East African Standards Council in July 2013
- Harmonized standards were gazetted in the EAC in December 2013
Current standards for grains cont’d

- Harmonized standards were adopted by Uganda in December 2013 when the NSC approved them for application.
- They were gazetted in December 2014 in Uganda.
- Objective of harmonization is to ensure similar requirements in the EAC.
Maize standard

- US EAS 2, Maize grains – Specification
- Generally the standard stipulates quality and safety requirements for the fresh commodity.
- One of the most widely elaborated and contentious standard in the region
- Has been revised three times to take care of new information and advances in technology
US EAS 2 Maize grains – Specification

- Three grades now apply: Grade 1, 2 and 3 depending on the quality of the grain
- Grading parameters are generally sensory
- Training of graders necessary to meet the new requirements in the standards
### Quality requirements

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Grade 1</th>
<th>Grade 2</th>
<th>Grade 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Foreign matter, %, m/m</td>
<td>0.5%</td>
<td>1.0%</td>
<td>1.5%</td>
</tr>
<tr>
<td>Inorganic matter, %, m/m</td>
<td>0.25%</td>
<td>0.5%</td>
<td>0.75%</td>
</tr>
<tr>
<td>Broken kernels, %, m/m</td>
<td>2.0%</td>
<td>4.0%</td>
<td>6.0%</td>
</tr>
<tr>
<td>Pest damaged grains, %, m/m</td>
<td>1.0%</td>
<td>3.0%</td>
<td>5.0%</td>
</tr>
<tr>
<td>Rotten and diseased, %, m/m</td>
<td>2.0%</td>
<td>4.0%</td>
<td>5.0%</td>
</tr>
<tr>
<td>Discoloured grains, %, m/m</td>
<td>0.5%</td>
<td>1.0%</td>
<td>1.5%</td>
</tr>
</tbody>
</table>
Quality requirements

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<th>Parameter</th>
<th>Grade 1</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Immature/shrivelled grains, %, m/m</td>
<td>1.0%</td>
<td>2.0%</td>
<td>3.0%</td>
</tr>
<tr>
<td>Total defectives (disclored + Diseased + Immature + pest damaged) * 70%</td>
<td>3.2%</td>
<td>7.0%</td>
<td>8.5%</td>
</tr>
<tr>
<td>Filth</td>
<td></td>
<td>0.1%</td>
<td></td>
</tr>
<tr>
<td>Moisture content</td>
<td></td>
<td>13.5%</td>
<td></td>
</tr>
<tr>
<td>Parameter</td>
<td>Grade 1</td>
<td>Grade 2</td>
<td>Grade 3</td>
</tr>
<tr>
<td>---------------------------------</td>
<td>---------</td>
<td>---------</td>
<td>---------</td>
</tr>
<tr>
<td>Total Aflatoxin</td>
<td></td>
<td>10 µg/kg</td>
<td></td>
</tr>
<tr>
<td>Aflatoxin B1</td>
<td></td>
<td>5 µg/kg</td>
<td></td>
</tr>
<tr>
<td>Fumonisin</td>
<td></td>
<td>2 mg/kg</td>
<td></td>
</tr>
<tr>
<td>Yeasts and moulds</td>
<td></td>
<td>cfu per g, max: $10^4$</td>
<td></td>
</tr>
<tr>
<td><em>Staphylococcus aureus</em></td>
<td></td>
<td>cfu per g, max: $10^3$</td>
<td></td>
</tr>
<tr>
<td><em>Escherichia coli</em></td>
<td></td>
<td>per g: Absent</td>
<td></td>
</tr>
<tr>
<td><em>Salmonella</em></td>
<td></td>
<td>per 25 g: Absent</td>
<td></td>
</tr>
</tbody>
</table>
Have you seen this maize?
What could have happened?
Have you seen this insect damaged maize?
Good storage
Poor practices
Handling of maize is key
Is this quality?
Practices
Good storage
Is this appropriate?
Implementation strategies

- Enhanced availability of the standards for the end users and other stakeholders
- Undertaken awareness on the requirements of the standards
- Conducted targeted training along the entire value chain to ensure uniform application of the standards
Implementation cont’d

- Collaboration with Partners to undertake implementation of the harmonized standards for improving quality of the grains in Uganda – Easy to use materials
Implementation cont’d

- Holistic approach with all the key value chain actors on board since all have a role to play

- Targeted interventions to have maximum impact – focus on appropriate postharvest handling activities
Challenges in implementation

- Value chain actors still do not see the value of standards
- Lack of knowledge in the public about available standards
- Quality culture still lacking
- Enforcement still a challenge due to lack of capacity of regulators
Conclusion

- Everyone of us has a role to play in standards setting
- Farmers and Traders have a critical role in maintaining the quality of the produce
- Standards impact the health and safety of the people
- The quality and safety of the maize will change if we change our attitude and practices
The standards can be purchased at a modest price from the Documentation and Information Centre located at the UNBS Head Office in Bweyogerere.
Thank you for Listening