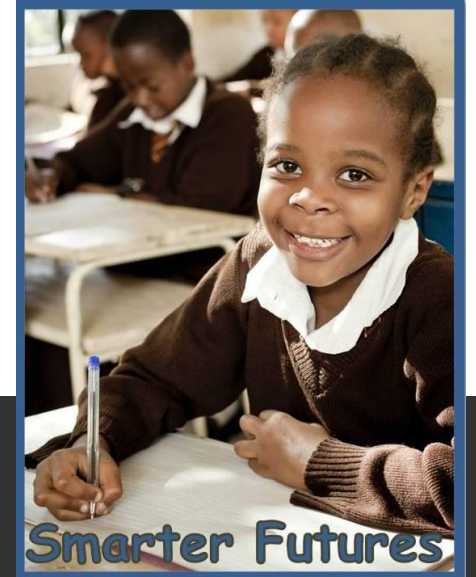


Smarter Futures



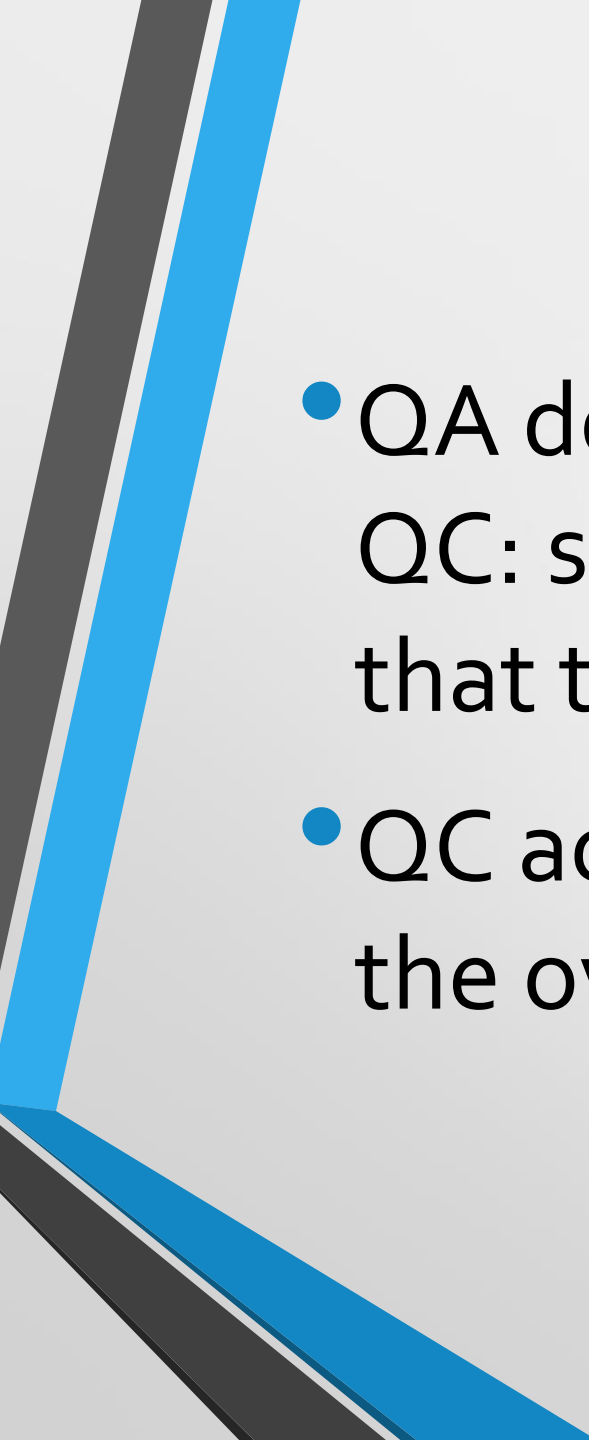
QA/QC Principles and Practices

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QC vs QA (extract from Wikipedia)

- **Quality control** emphasises testing of products to uncover defects, and reporting to management who make the decision to allow or deny the release.
- **Quality Assurance** attempts to improve and stabilise production, and associated processes, to avoid, or at least minimise, issues that led to the defects in the first place. To prevent mistakes from arising, several QA methodologies are used.

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- QA does not necessarily eliminate the need for QC: some product parameters are so critical that testing is still necessary.
 - QC activities are treated as an integral part of the overall QA processes.

www.diffen.com/difference/quality_assurance_vs_quality_control

- **Quality Assurance** is process orientated and focuses on defect prevention
- **Quality Control** is product orientated and focuses on defect identification

Basic Principles

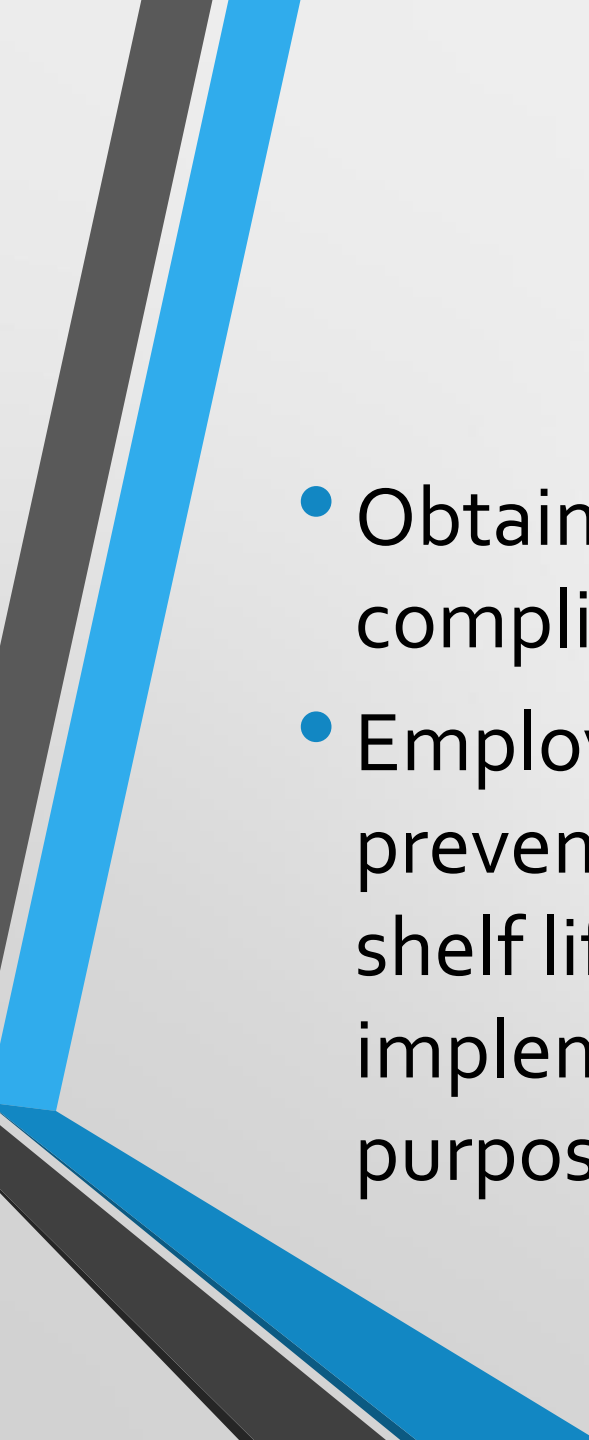
- Get the raw material (s) right
- Look after the critical parts of the process
- The finished product look after itself

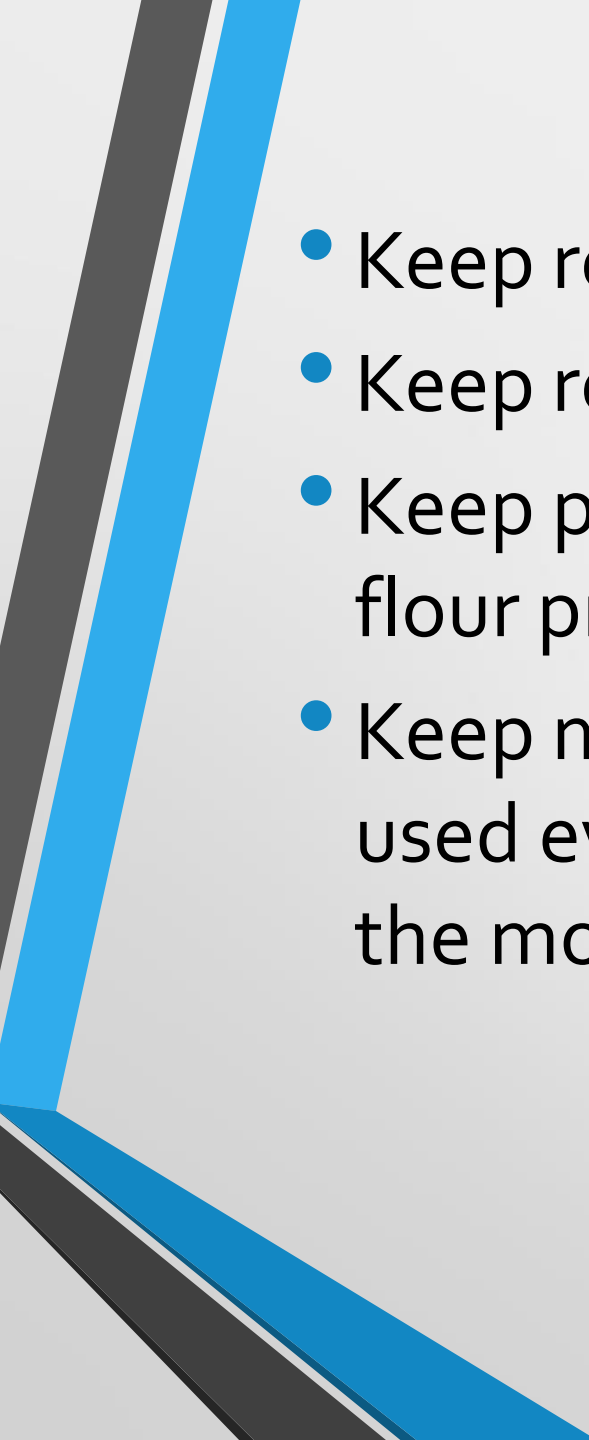
OBJECTIVES

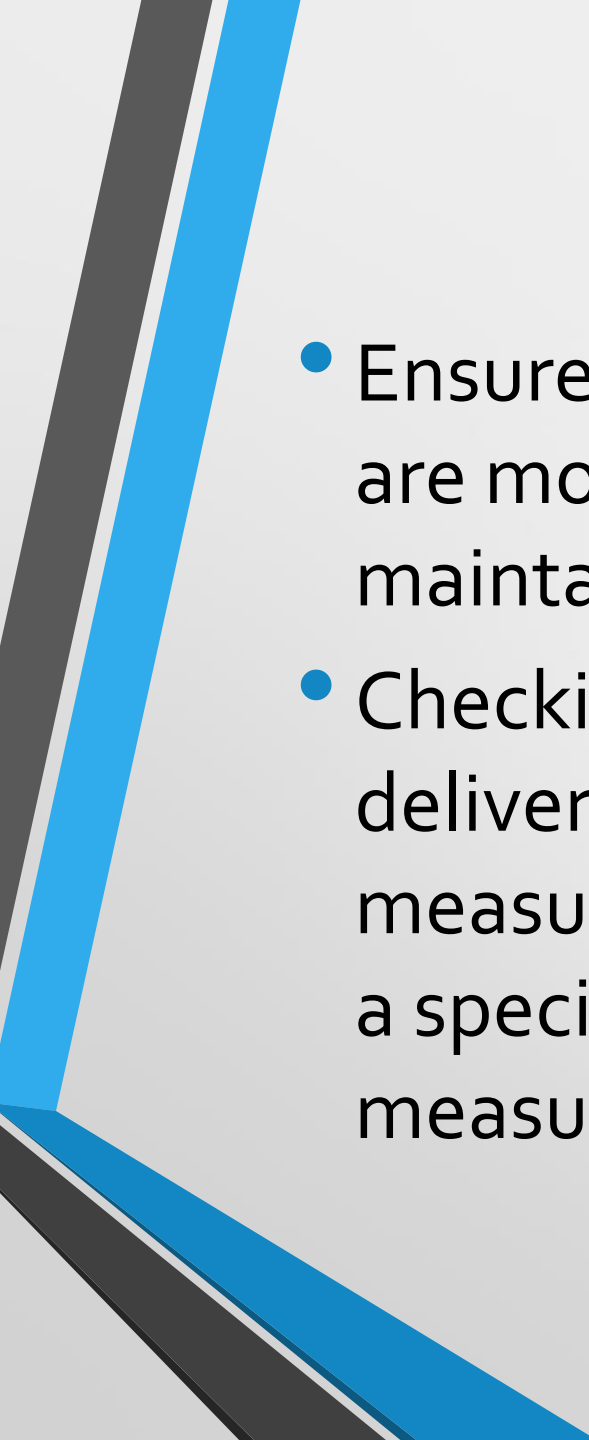
- Provide information on what needs to be done to ensure that regulatory and consumer requirements are met.
- Improve knowledge regarding record-keeping and monitoring procedures that have to be instituted to be compliant with the quality assurance scheme.
- Improve understanding of different elements of the inspection procedure to be followed.

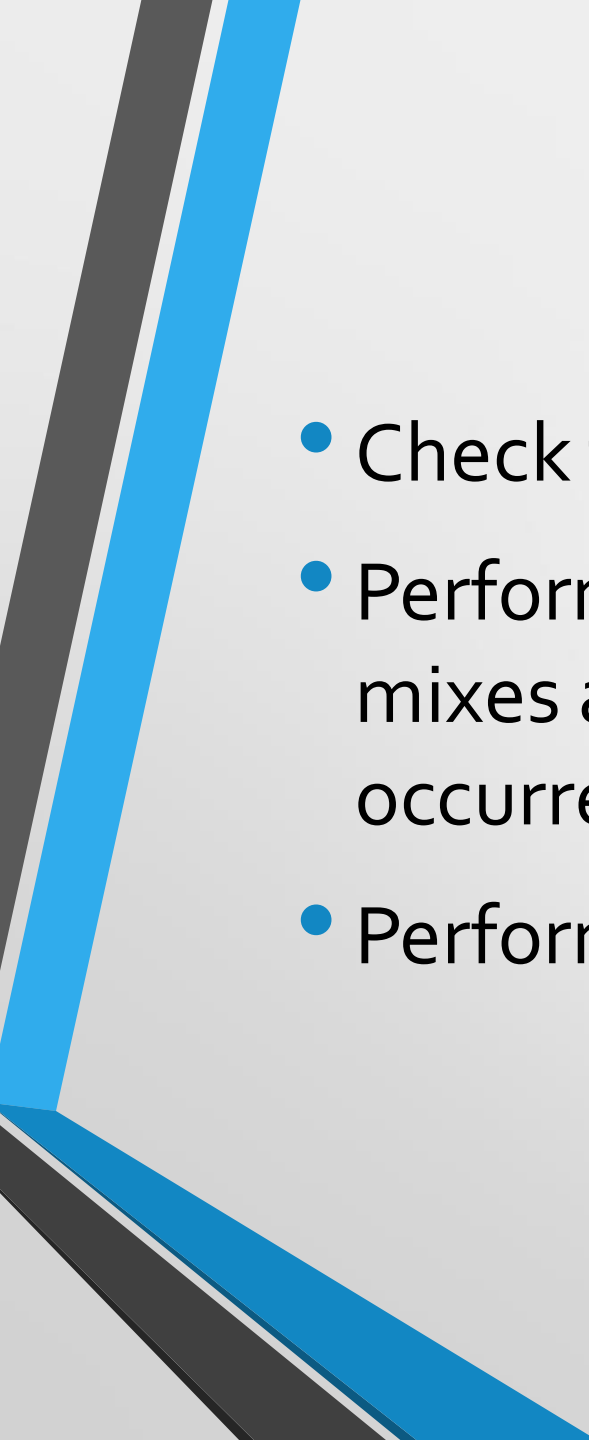
MAIN ELEMENTS

- Purchase appropriate blending equipment and / or feeder(s), weighing scales, and learn how to use the equipment properly
- Purchase fortification mix from reputable and/or registered suppliers
- Store fortification well protected from exposure to light or under the conditions laid down by the manufacturer. It is ideal to keep fortification mixes in their original containers. Once opened, exposure to the light and air should be minimised to prevent product degradation.

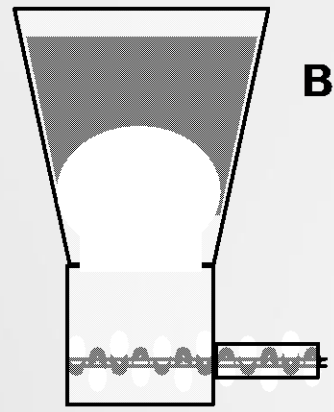
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- Obtain and keep on record a certificate of analysis or compliance (CoA) for every batch of fortification mix.
 - Employ, and adhere to, strict stock rotation procedures to prevent old stock losing potency and to comply with the shelf life expiry date. It is recommended you employ and implement the first in, first out (FIFO) system for this purpose.

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- Keep records of grain procurement;
 - Keep records of fortification mix inventory and usage;
 - Keep production records of the amount of fortified bread flour produced;
 - Keep monthly records of the amount of fortification mixes used every month. These records should correspond with the monthly production records;

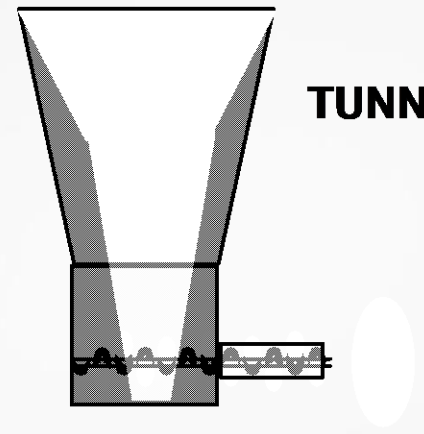
- 
- Ensure that all critical stages of the manufacturing process are monitored to ensure the correct dosage levels are maintained through the following measures:
 - Checking of fortification mix feeders to ensure they are delivering the correct dosage levels. This can be done by measuring the weight of fortification mix discharged over a specific time (1 or 2 minutes) and comparing the measurements with the target weight of fortification mix.

- 
- Check the flow of flour is according to expectations
 - Performing frequent visual checks to ensure fortification mixes are being used and that no blockages have occurred, and keeping a record of this.
 - Performing regular iron spot tests on the bread flour.

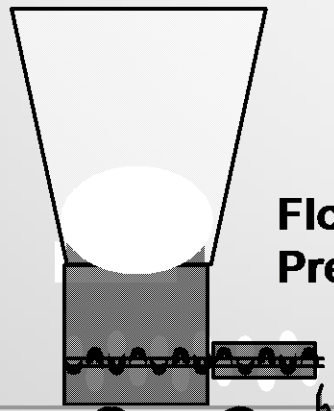
Premix Feeding Problems



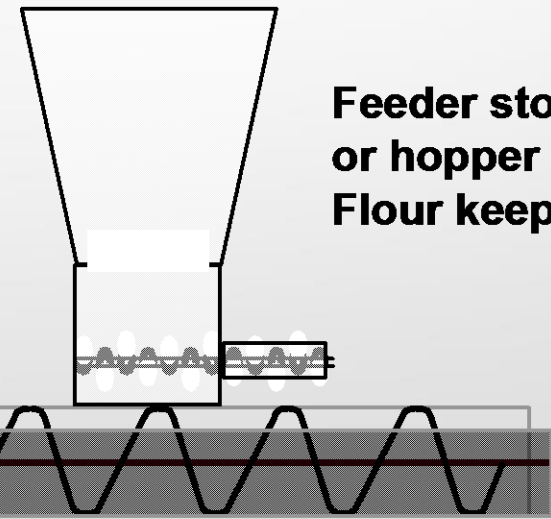
BRIDGING



TUNNELING



**Flour stops
Premix keeps feeding**



**Feeder stops
or hopper empty.
Flour keeps flowing**




Example of iron spot test on flour with different levels of added iron.

No added iron

30 ppm

50 ppm





- If you can't measure it you can't control it

- Just because you can measure it doesn't mean you have to



Making Life Easier







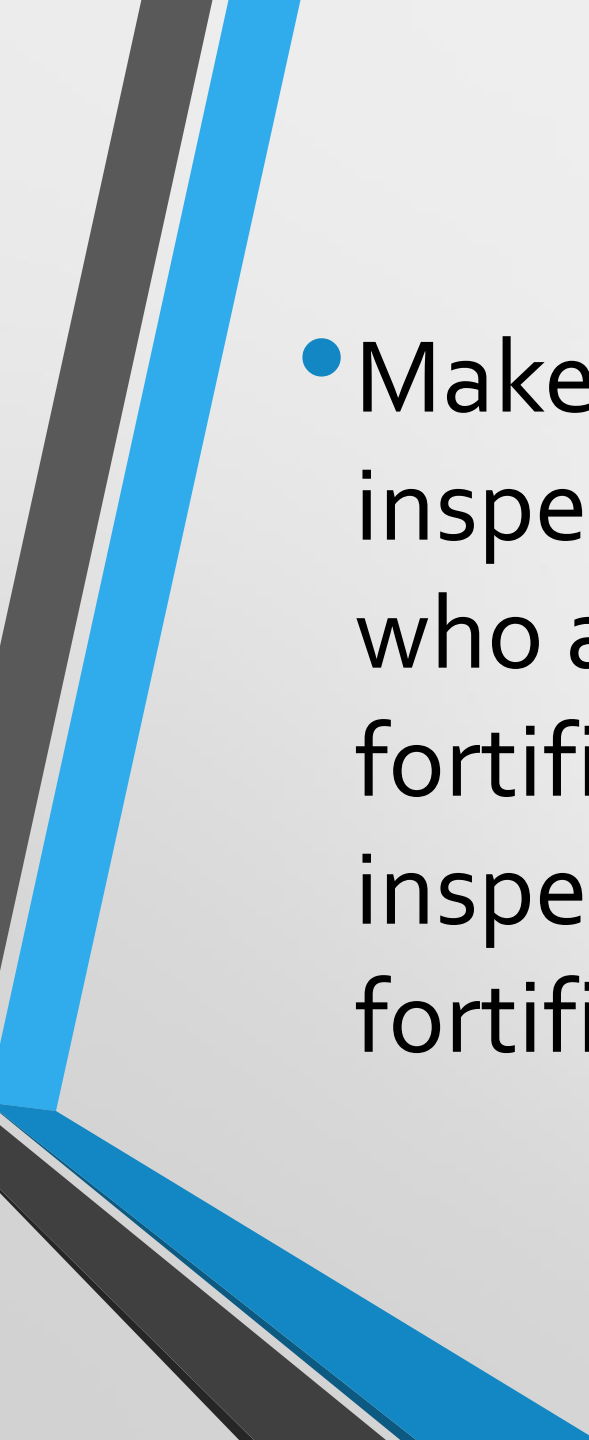


What Have We Forgotten?

Hint: Is the requirement only to add?

Left Hand Side Mixes – Right Hand Side Pushes

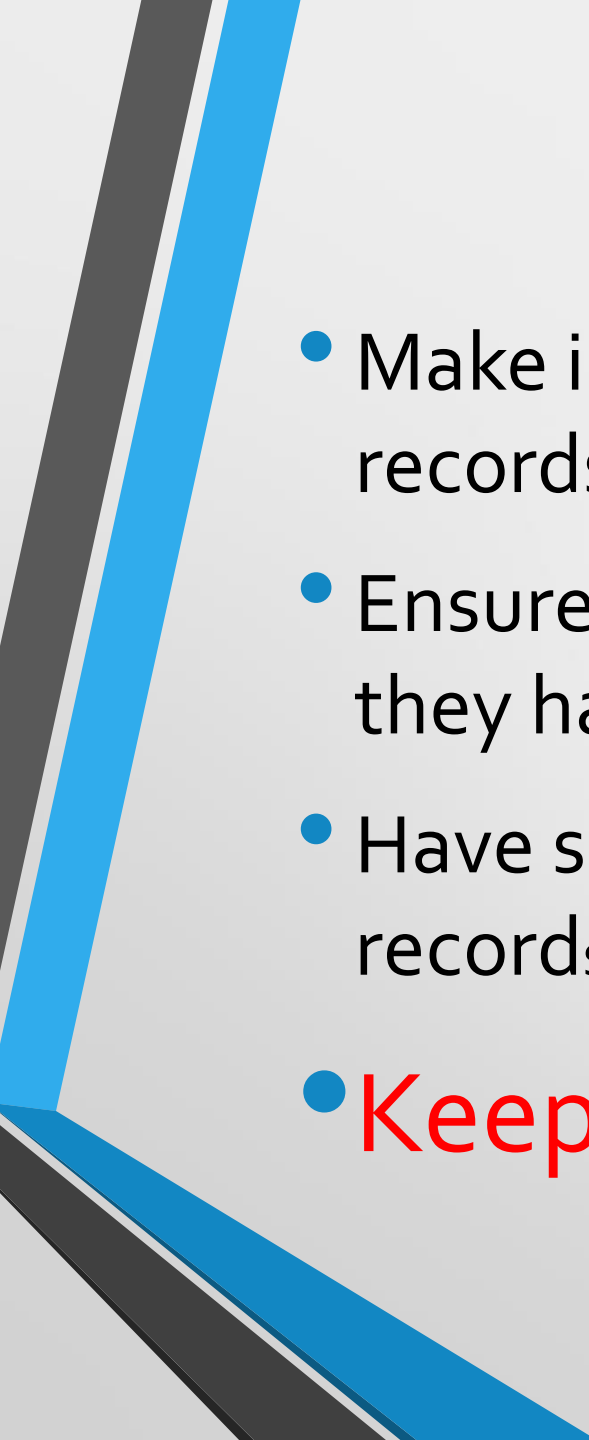


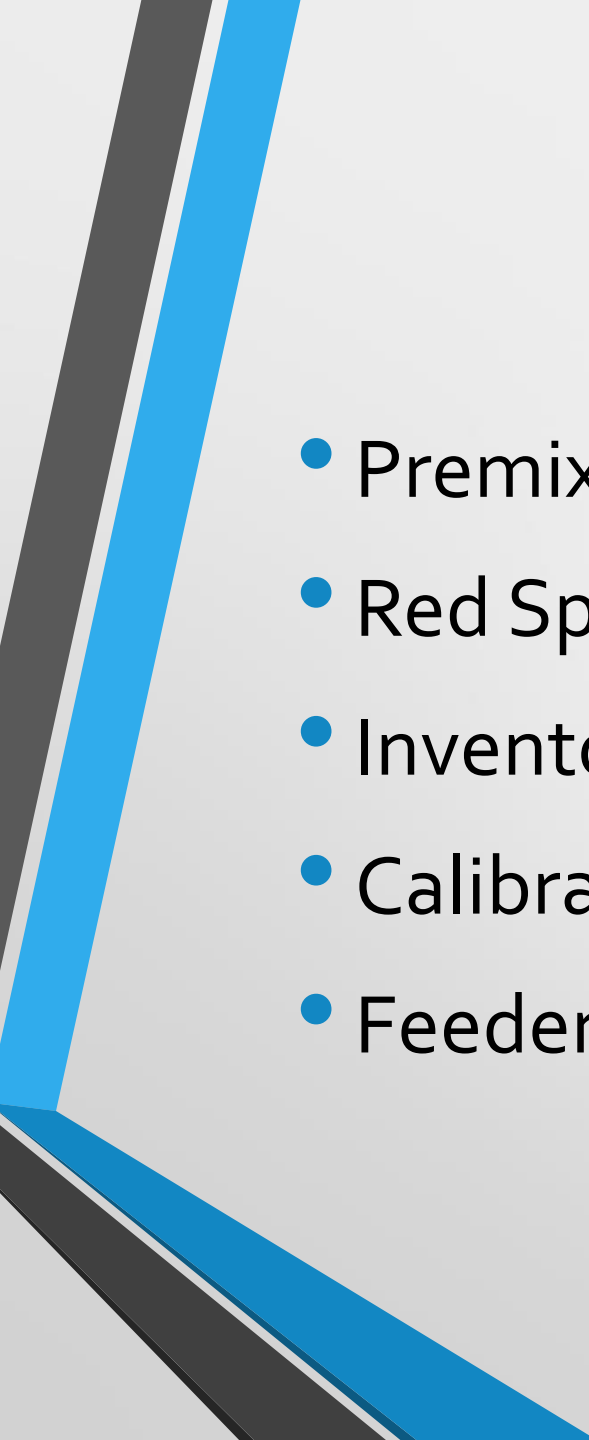
- 
- Make all of these records available for inspection when required by the authorities who are responsible for monitoring the fortification programme and in implementing inspection or monitoring systems for all fortified food products.



Examples of Records

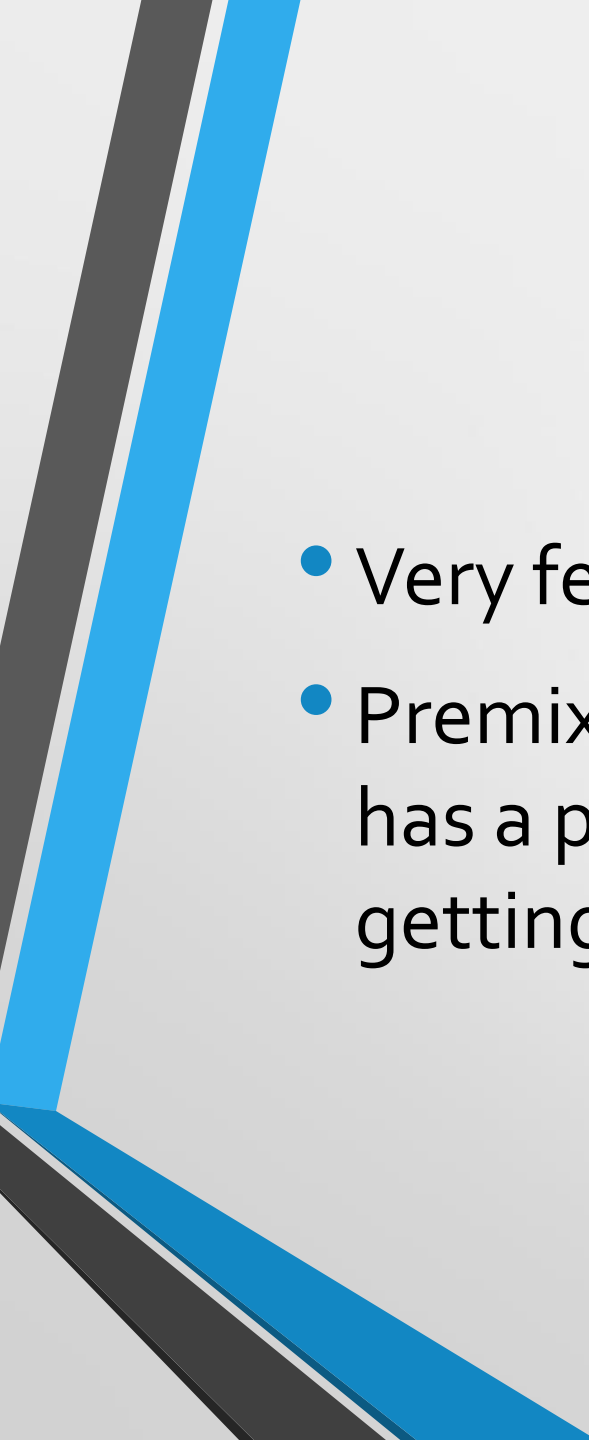
Good record keeping equates
to “due diligence”


- 
- Make individuals not “departments” responsible for the records
 - Ensure they are adequately trained – and you can prove they have been trained
 - Have someone who understands the process check all the records
 - **Keep it SIMPLE**


- 
- Premix receipt and movement
 - Red Spot Test results
 - Inventory control
 - Calibration
 - Feeder checks

Fitness for Purpose

- Under QA we mentioned “fitness for purpose” as a prime tenant of QA
- Checking premix as “fit for purpose” is a classic example.
- Vitamin A (and other vitamins) vary in price and that price difference has a hidden cost (fitness for use)

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- Very few buyers ask themselves – why is this so cheap?
 - Premix suppliers are very price competitive so when one has a premix significantly cheaper why do we think we are getting a bargain instead of being suspicious?

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- We check the premix and we find it “conforms to specification” so we assume everything is OK
 - We said before in QA: *“Provide information on what needs to be done to ensure that regulatory and consumer requirements are met”*
 - Have we checked consumer requirements?

- 
- Consumer is expecting product to be true to label up to time of consumption (so is the regulator in many countries)
 - We know we will get some losses during distribution and cooking chain but that is a factor we need to build in to our premix formulation and addition rate
 - Losses could be 20% depending on conditions