

# Inspection sampling for high quality processes in food industry

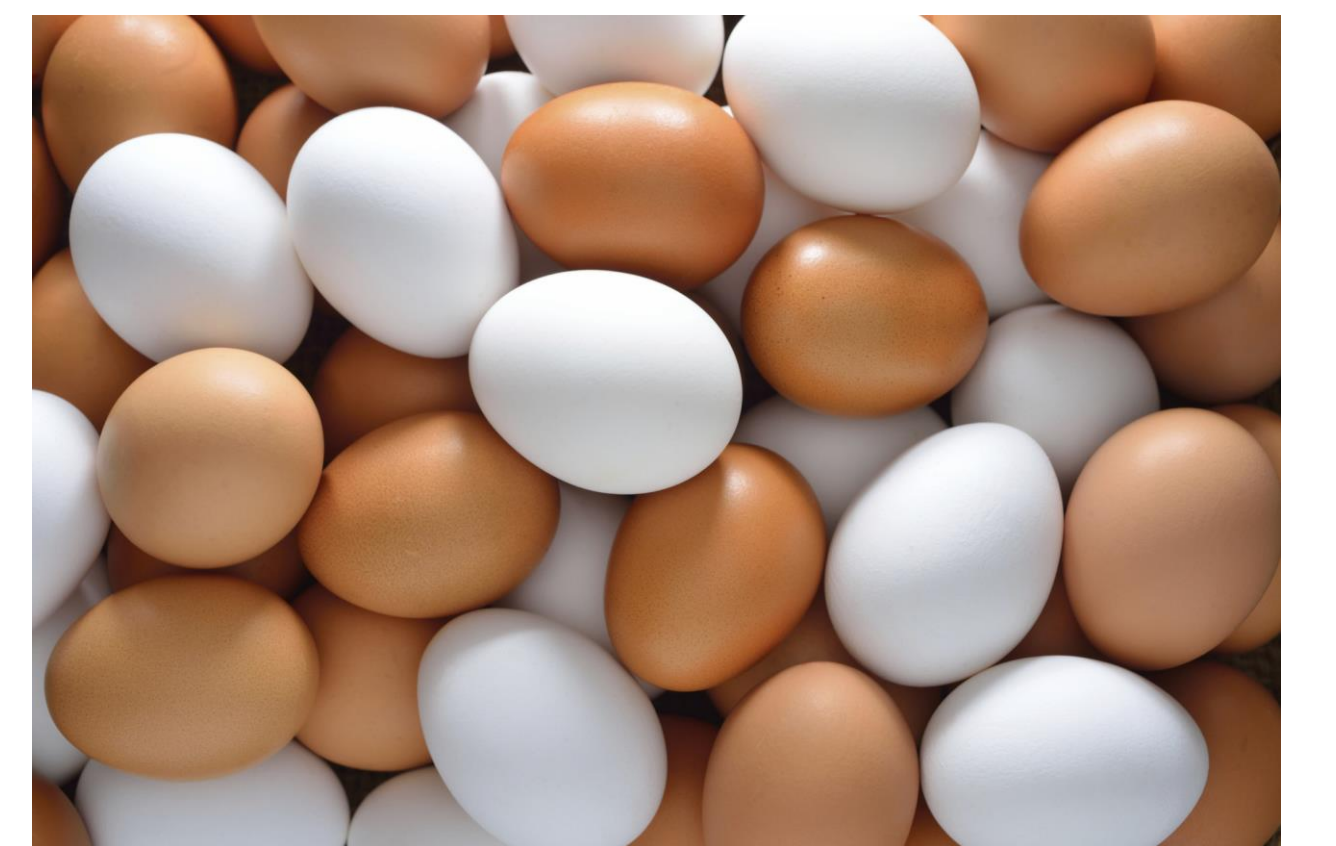
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## Introductory example

- A food company receives a shipment of 10800 eggs.
- Each egg should have a Haugh unit of at least 70.
- How should the company inspect the shipment?

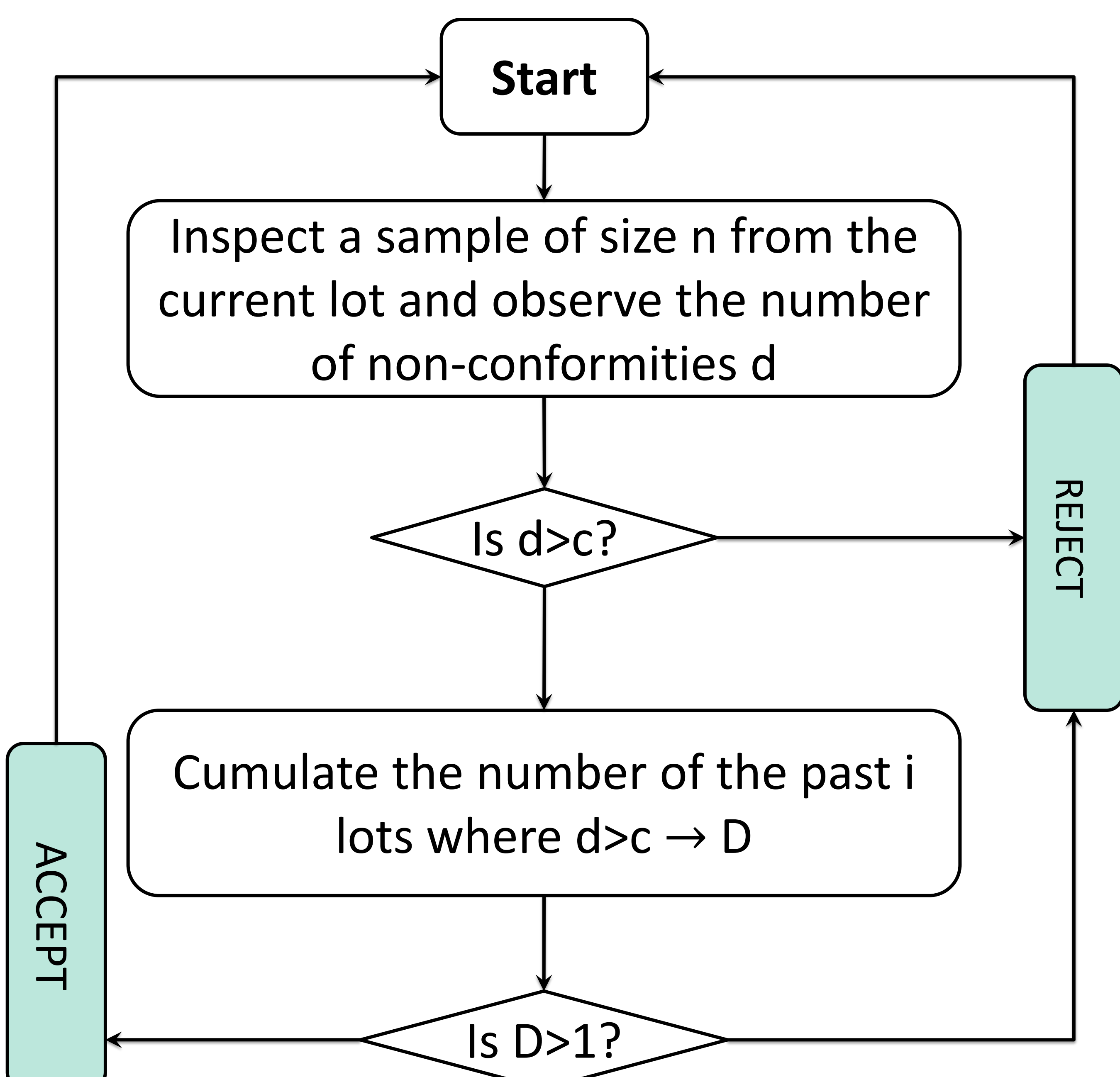


## Lot inspection in food industry

- Complete inspection is not possible as testing is often destructive.
- Lots have to be of high quality inducing impractical high sample sizes.

## Modified chain sampling

- $d$  : number of non-conformities in a lot. Reject, when  $d > c$ .
- $D$  : Number of the past  $i$  lots where  $d > c$ . Accept when  $D \leq 1$ .



## Case study results

- We allowed risks of 5%:
  - To reject a good lot with less than 1 non-conforming egg in a million.
  - To accept a bad lot with more than 5 non-conforming eggs in a million.

Single sampling plan	n=76
MIL – STD - 414	n=20
Modified chain sampling	n=12, i=30

## Conclusion

- Modified chain sampling allows to accumulate historical samples such that sample sizes can be reduced.
- Modified chain sampling allows larger discrimination power between good and bad lots.