Food Safety and Traceability in Food Services Sector. Case Study: Restaurant

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Abstract

Dining establishments have always been an essential element of travel and tourism because the earliest inns provided both lodging and food to weary travelers. In Europa and America the roots of modern gastronomy and dining away from home is associated with its development in France. The term restaurant itself was originality a French word that described food thought to have restorative or healing properties like chocolate, soups and broths, and red meat. Cooking shops prepared such items solely for takeout customers to eat at tables outside, but eventually tables and bench were provided for patrons to sit down and eat within the confines of the establishment. As new dishes were introduced and dining rooms grew in size, the term restaurant was affixed to these establishments.

Consumers have two basic options when purchasing and consuming food and drink. One is to eat and drink outside the home in a hospitality operation. The other is to purchase food and drink from food retailers, which is fresh or partially prepared, for consumption in or away from the home, but outside a hospitality operation. The boundary between catering and food and drink retail is therefore fuzzy and the division between the tho industries is becoming increasingly blurred as a result of technological developments and the activities of operators.

The catering industry is simply considered it cover all undertakings concerned with the provision of prepared food and drink ready for consumption away from home. It also includes establishments that provide a take-away and/or delivery service where the food and/or drink are prepared within the establishment but consumed elsewhere. In the last time convenience stores, major retailers and independent retailers increasingly provide a similar service. The former catering outlets includes such: 1. profit-orientated establishments as restaurants, fast-food chain outlets, cafes/takeaways, pubs, leisure and travel catering outlets while 2. the second sector (cost outlets) includes catering for business, education and health care.

Key Words: *catering industry, food services, restaurant, food safety, beef traceability, risk management, supply chain*

To succeed in the current business challenges, restaurant operators must understand what leads customers to choose a restaurant instead of another. Food safety is a major factor in choosing the location of the restaurant in which you want to eat on the spot or catering.

The Up Town restaurant operator of SC. MONDIAL SRL. is aware that food and services must adapt, depending on the type of consumer that wants to attract.

Table 1. Chemical composition of beef

Species meat	Status fattening	Water %	Protide %	Lipids %	Mineral salts, vitamins %	Kcal 100 g
Meet beef	weak	74	21	3.5	1,5	118
	medium	71	20	8	1,0	158
	high	64,3	18,3	16,3	1,1	226

Source: Diaconescu, Ardelean, Diaconescu, 2007

The beef - its structure and chemical composition (Table 1) - is a food "problem" in terms of handling, storage, packaging and delivery (Appendix 1). All these processes depend on the distribution of the beef available until the company (Appendix 2).

1. Control of nonconforming product "beef" (Food Safety)

Fresh beef must meet sensory characteristic quality requirements of food safety. The flesh should be firm and elastic, pink available until the red (depending on the muscle region), fragrant and special features.
At the launch spoilage, beef undergoes changes regarding:
- *Appearance* - surface may be dry or wet and sticky, often covered with mold spots; fat becomes a dirty gray matte finish and color; reduced consistency, smell and bad taste; tendons are soft, gray, wet and covered by mucus, articular surfaces are covered by abundant mucus etc .;
- *Colour* - Surface color is gray or greenish-section is wet and very sticky; sometimes faded, gray or greenish sometimes is;
- *Consistency* - so surface, and section that forms the pressing finger are persistent;
- *Smell* - rot, so the surface and deeper layers ;
- *Bones* - not fill the medullary canal; consistency much reduced; dirty gray;
- After boiling broth and sedimentation - *muddy, dirty, with floaters; unconform odor and mold.*
Therefore, control of nonconforming product procedure (beef altered) includes:
1) Detection of nonconformities:
a) can be found either on receipt of product or in the process of manufacturing control or control the final stages (Appendix 3);
b) *products found to be non-compliant* are immediately removed from the production flow by staff production unit, labeled and isolated (label reads' Product not in conformity "with the analysis stating this) - Table 2;

Table 2. Characteristics of physico-chemical quality fresh meat and beef altered

Characteristics	Beef meat	
	fresh	Altered
pH	≤ 6.2	>6.4
Nitrogen readily hydrolysed Mg NH_3/100 g	≤35	>35
Identification of hydrogen sulfide	No stained brown paper soaked in ethyl lead	Colour intense Pb paper soaked in ethyl
Kreiss reaction	Negative	pozitive
The test of reduction of methylene blue	Unreduction of (discoloration) in one hour	reduction of (coloration) in one hour
The sample for nitrate reduction	Nitrates have been reduced, staining blue	Do not give positive staining; No blue color gives
Amino acids, nitrogen mg amino acid / 100 g	<300	>300-500

Source: Diaconescu, Ardeleanu, Diaconescu, 2007

c) *Depending on the type of non-conformity:*
- There are *products that can be used* in further manufacture, without affecting the characteristics of the finished product;
- *To be reworked* - corrected by repeating that caused non-compliance or non-compliance by equivalent operations is removed;
- *To be remedied* - by applying technological operations, these can be

brought into a position to submit only event which does not influence final product characteristics;
- *Declared scrap* - the Umrah Compliance products are declared non-compliant, can't be remedied (labeled and stored separately).
d) After the decision on non-compliance, approved by management, the manufacturing take necessary measures to fulfill its measures to prevent recurrence of such nonconformities;
e) products found to be non-compliant, are thus handled (transport, storage, etc.) to prevent their deterioration.
2) Storage and resolve non-conforming products:
a) non-compliant products are retained and kept in production, in facilities at warehouse when available until the final decision is taken on them;
b) For products reshuffled and a report will go to the recovery in their production, the production unit staff; recontrol then retry staff and testing laboratory in accordance with specifications;
c) Remediation will be performed by the staff of the production unit, to be submitted again following control compliance at the lab. If the check shows non-conformity are declared scrap;
d) Rejected produce removed from the technological and stored in specially designated areas.

Responsibilities

1) The responsibilities of production units:
a) Notices of detecting non-compliant products superior staff, and following the decisions taken, undertake necessary measures to resolve nonconformities identified and their prevention;
b) Ensure proper storage of non-compliant products available until the establishment of the decision relating to them, resolute leadership.
2) The responsibilities Laboratory tests:
- Identify nonconformities and they kept records (records, test reports etc.);
- reworked and repaired products;
- Discusses the causes that have generated nonconformities (together with the Department of Quality Assurance - AQ) and propose the necessary measures for removal and prevention;
3) The AQ department responsibilities:
- Analyzes and evaluates non-compliance;
- Report findings to management problems, propose and submit for approval the necessary measures to remedy the non-conforming product or reshuffle etc.

2. Handling, storage, packaging and delivery
All these processes are carried out according to the principles and actions set by the SC. MONDIAL SRL, applied to all products, from their entry into society and available until the dispatch of finished goods in society.

Manipulation

1) transport of raw materials and products from the supplier are performed according to established contractual clauses;
2) Download raw materials and products is performed by SC manufacturing plant personnel. Mondial S.R.L .;
3) Reception of products supplied are conducted in accordance with the general procedures described in "Control of nonconforming product", "supply control" and "Control of customer supplied product."
4) In handling take into account the following factors:
- The type of products to be moved from one place to another;
- Type of packaging that is necessary to transport that product to avoid damaging;
- The route which carriage of products;
- The frequency of movement of the product type in question under the same conditions;
- The distance of the product (and the climate of that area);
- Permissible speed to move the product;
- Persons who transports;
- With which carriage equipment products.
For your quality on safe handling wards (laboratories) production are taken into account the following *principles*:

a) providing corridors wide enough to allow handling of mobile handling equipment;
b) tracking production keeping pace at a convenient;
c) the products will not ever put on the floor (only if absolutely necessary);
d) the location of the reception point of the first material in the vicinity of manufacturing operations;
e) in the first point of reception is determined whether or not the material can be used;
f) ensure a flow of materials from a work point to another without intermediate stops;
g) the flow of manufacturing quality control points are provided to prevent further movements of material processes.

Storing

1) the products received are stored in groups and types in the appropriate spaces, such to achieve optimal conditions for the receipt, storage, preservation and delivery of their
Beef is kept at -10 ° C, 80-90% relative humidity, air circulation and moderate shelf life 21 days.
2) storage can be temporary or permanent;
3) throughout the production flow will comply with the requirements of handling and storage of products, in order to avoid damage, loss or misuse etc .;
4) The tag attached to the product batch specified quality control results of tests performed by the laboratory staff at the reception thereof;
5) to detect any damage, the condition of stored considering the appropriate times set by directives for storage products;
6) storage products whose term has expired, runs through appropriate investigations Reassignment their quality and prolong this term with or without additional operations.

Conservation, packaging and delivery

1) production plant personnel sustaining the conservation of products in accordance with the provisions / instructions regulating these activities, and according to the technical documentation of the product;
2) after implementing conservation and packaging operations (when appliable), check compliance of such products and any contractual specification through testing and analysis;
3) delivery of the products manufactured in our own production units is done with own transport (which ensures a low temperature 1-70C) so marketing the units of the company, and third parties, such to avoid loss or damage.

Responsibilities

a) The responsibilities handlers (the executive staff or drivers);
- They are required to assume all the instructions on the handling, storage, packaging and delivery subject to their activity;
- To know and to use the means necessary to conduct activities devices handling products, etc.
b) Responsibilities of human resources production units:
- They has the obligation to acquire the instructions / procedures for handling, storage, packaging and delivery of all processes responsible;
- To keep clear records of all existing products in the storage unit to notify the testing laboratory degradation occurring or on products for which the expired shelf life (storage), etc.
c) The responsibilities of the testing laboratory
- Check periodically the stored products;
- Verify compliance with conservation, packaging, delivery contained in the instructions / procedures, etc.
d) The responsibilities of the department AQ:
- Examines and approves all procedures / work instructions on the handling, storage, packaging and transport mode;
- Performs quality assurance review;
- Check compliance with specific conservation actions, packaging and marking procedures / specific instructions, etc.

3. Identification and traceability

The traceability system is the ability to trace the history of the application or

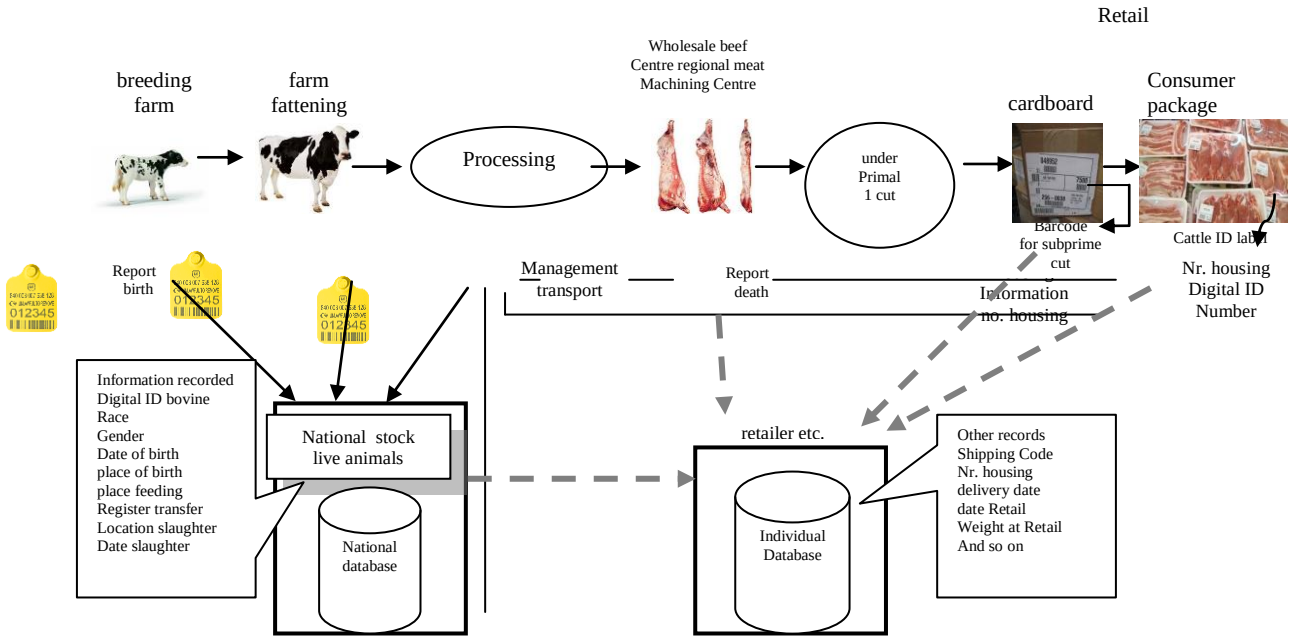
location of an entity by means records on the identification data.
The procedure for identifying beef SC.MONDIAL SRL. involves the following steps:
a) Identification of the product stocked
At the reception, the production unit personnel check the identification marks of the product stocked in accordance with specifications or terms of orders / contracts, specifications etc. Then check for accompanying documents and the identification of the product mentioned on it.
In order to identify the product received the following data are required:
-product name;
- manufacturer name;
-date of manufacture;
- validity term;
- storage conditions;
- analysis bulletin, reference documents STAS.
b) Identification Laboratory tests and checks
The results of such testing and verification laboratory analysis reports are highlighted in / test. This is achieved by registering the register of specific.

c) Identification of the product during storage
The product received is stored in warehouses at -10 ° C, relative humidity 80-90%, according to the product type, marked by the label stating the product identification data.
Records storage control, product perishability and storage is running according to procedure "handling, packaging, storage and delivery."
d) Identification of nonconforming product and its containment
Said the reception nonconforming product or exceeded the term perishable product is stored separately compliant, the huts; and identification labeling of this product is under the 'control of nonconforming product ".

4. Beef Traceability

It provides the identification and reception records kept available until the delivery (record production, record sampling, analysis reports, records of the checks and tests performed, testing and inspections on stream, etc.). Figure 1 shows the structure of a traceability system for beef:

Figure 1. Beef traceability system



Source: adapted on http://www.gs1jp.org/2008/solutions/04_2.html

5. Conclusions

Ensuring food safety largely depends on the implementation of a traceability system, which helps efficiently manage the information in the food supply chain. Traceability allows tracking so quality (product) and quantitative (logistics); both depend on a good recording information comprising product details, location, setting destinations and origins. Also through ensures traceability and effective management of the links throughout the supply chain, and communication between actors of the chain.

Failure HACCP good practices and lack of risk management in the supply chain can lead to food crises, which affects not only consumers but also food companies by deteriorating image by lowering consumer confidence in their products.

The conclusions drawn from this paper can show that to ensure food safety and therefore public health, it is necessary to identify risks in the supply chain, their careful selection and detailing and risk response planning.

Consumer safety and product awareness beyond the legal aspect, it is mainly a matter of responsibility and ethical business organization. For a restaurant to show that takes seriously product quality and consumer safety, must develop and implement numerous voluntary best practices regarding:

I. more risk management, including risk management plan well thought in the supply chain;

II. Ideal for crisis response process;

III. A crisis communication plan.

6. Proposals

From all these points of view make the following proposals in an attempt to carry out an activity adapted to current changes in diet.

I. Risk Management Plan in the supply chain

In Figure 10 Detail interactions and information flows general risk factors section.

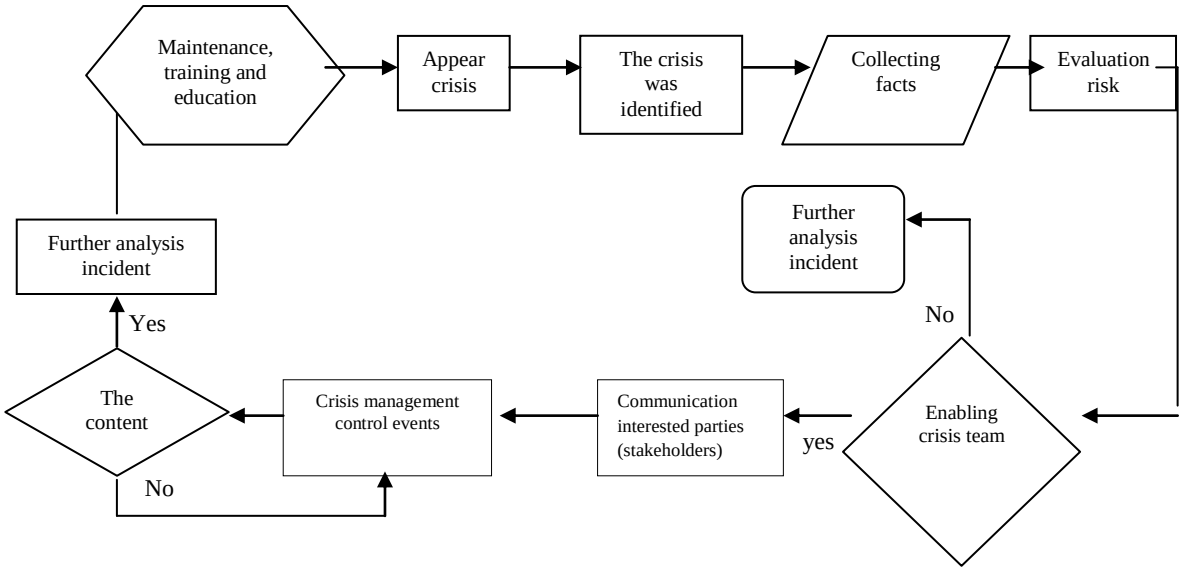
Figure 2. Risk Management Plan in the supply chain

Risk is a combination of interactions with external and internal environment. Therefore, information flows are divided into two groups: external and internal.
The purpose of risk factors are:
1. assessment of external and internal environment;
2. Understanding the likelihood and potential impact of the events;
3. sensitivity understanding of the supply chain for these events;
4. Develop mitigation plans for the supply chain;
5. aligning these plans with the general management of business risk;
6. communication of these plans and responsibilities and
7. monitoring internal and external environment in order to detect indicators of risk events.

II. The process for crisis response

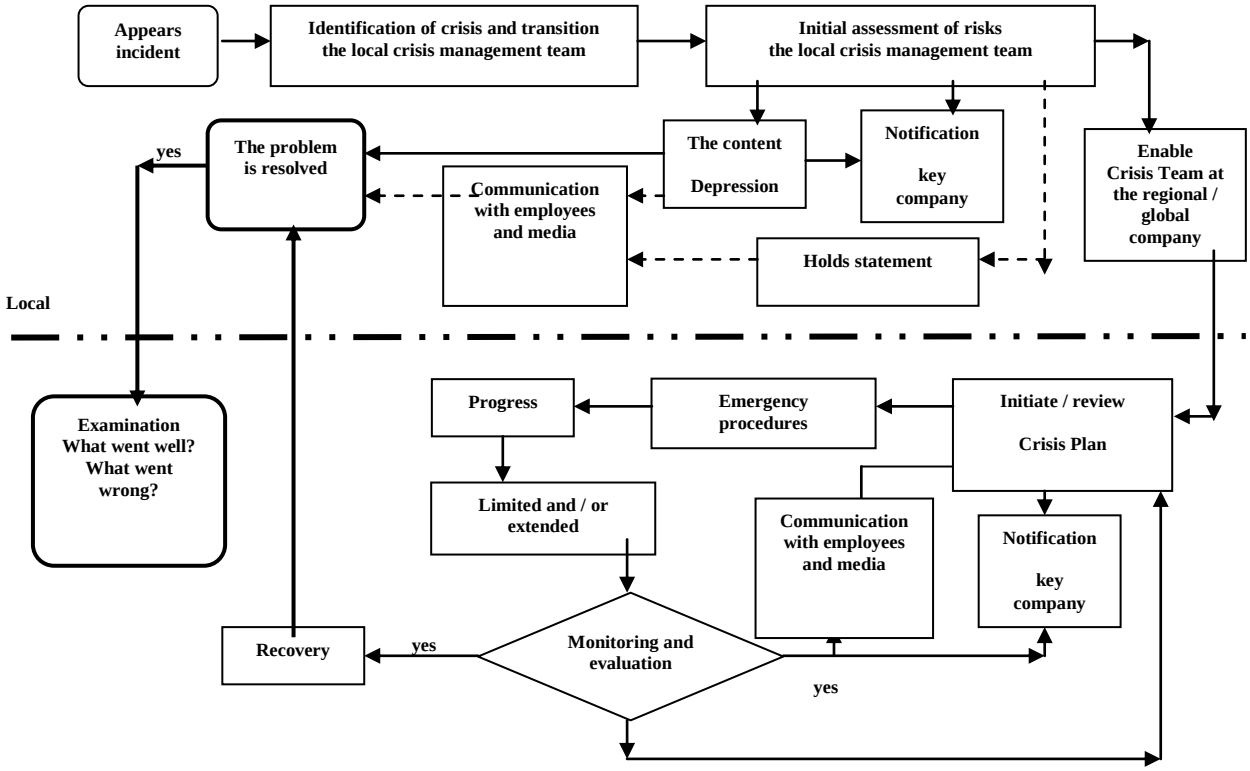
An ideal crisis response process should include the following steps, as described in Figure 3:
1. Identification of the crisis - the recognition that the incident could significantly affect the organization and requires additional resources to support local efforts.
2. Declare that - gathers sufficient factual information to prepare a risk assessment.
3. Risk assessment - to assess the potential severity and impact of the event.
4. Activation of Crisis Team and critical incident planning - gathers appropriate internal and external team to provide strategic and tactical support to alleviate or solve the case. Now, the team may decide that the event can be adequately addressed with local resources and control, event returning to the local emergency response team.
5. Communication of interested parties - if the event can not be resolved locally crisis team will then set a program to provide periodic communications to employees, customers, suppliers, financial organizations, shareholders and media news .
6. Control event and decision - crisis team, using local resources, will regularly assess the risk remains, provide the necessary resources and communicate with stakeholders until the crisis is handled. This phase involves business recovery and resumption.
7. Further analysis of the incident - once the crisis is handled, crisis team will review and analyze the organization's response to the event. Participants crisis team should be prepared to assess in detail the response of the organization to determine what was done well and opportunities for improvement. It should then schedule tasks and actions for improvement.

Figure 3. The process for crisis response



8. Plan maintenance, training and education - the organization should incorporate lessons learned from crisis management plan and updated crisis plan to distribute to team members and stakeholders. It should provide also training on the plan and regularly tested to ensure that the organization is prepared for future events.
If the incident is severe enough, the public institution (primary) will be active and take control of the situation, define risk and develop appropriate response. The team can manage the response through information and communication with senior management, staff, customers, etc. The team solves the incident once has a clear path to recover operations back to normal capacity. Recovery can take weeks clenched for a few hours or more.

Figure 4. Crisis Communication Plan



Source: Supply Chain Risk Leadership Council, 2011

III. Crisis communication plan

When crisis calls, as in other situations, crisis team leader should alert the crisis of the appropriated companies (Figure 4).

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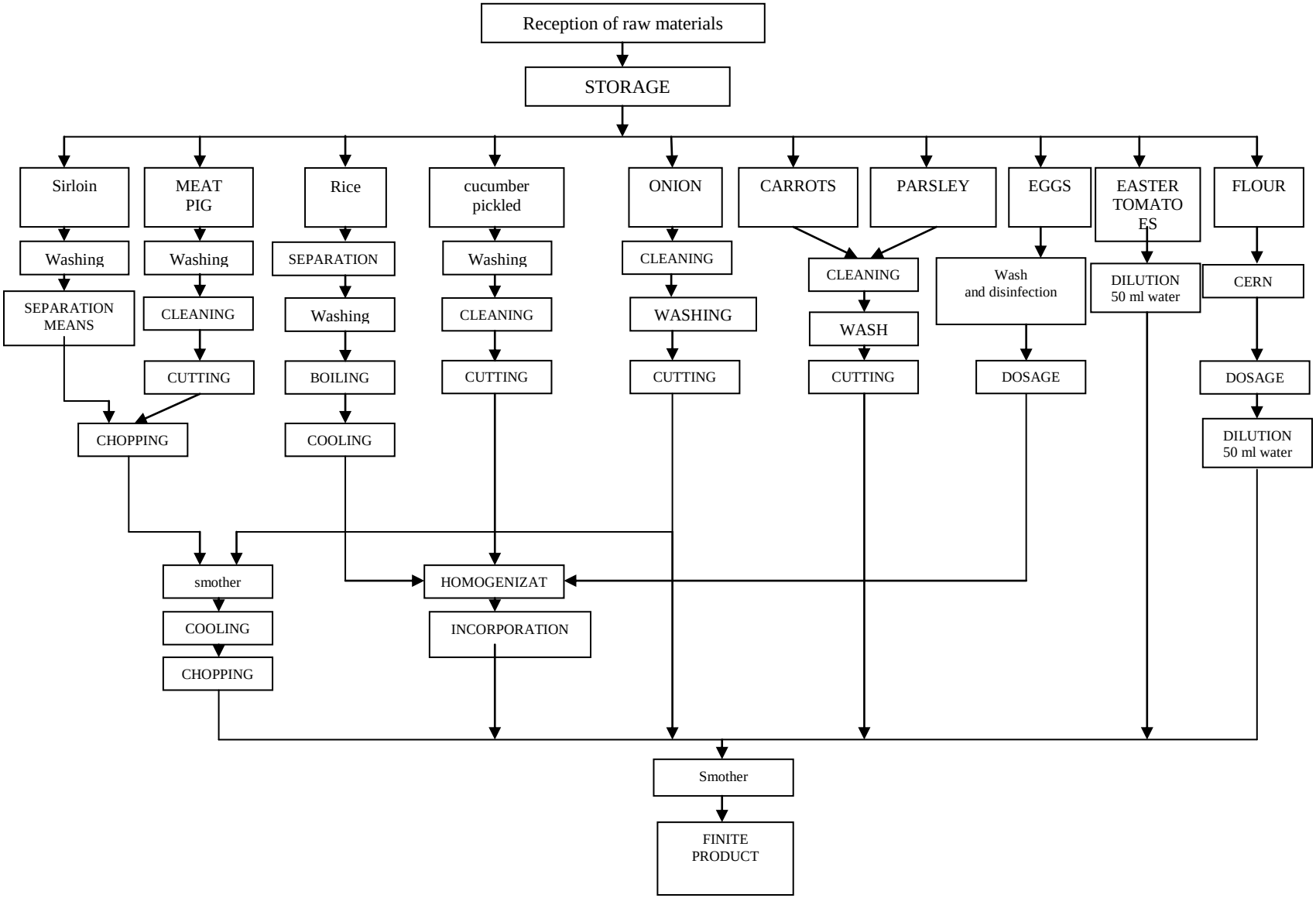
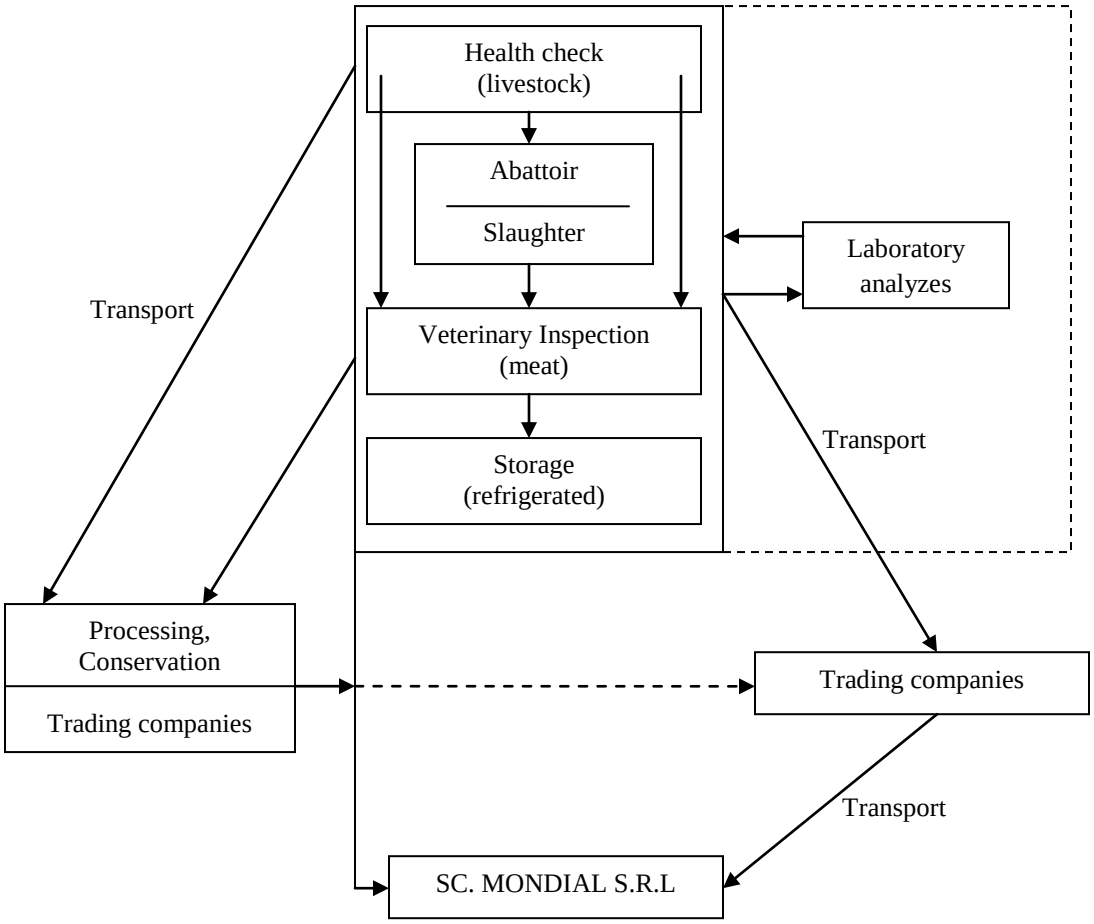
http://www.gs1jp.org/2008/solutions/04_2.html

Appendix 1. Process flow diagram "sirloin filled"



Appendix 2. Scheme internal processes beef



Source: adapted on Diaconescu, Ardelean, Diaconescu, 2007

Appendix 3. Screening compliant nonconformities and storage (beef)