HAZARD MANAGEMENT FOR FOOD PRODUCTS

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Abstract: *A food safety management system is an intrinsic requirement of the notion of quality requirements to be respected so for small processors and processors of rural areas. The legal framework does not specify how food safety must be designed, but that it should be ensured. This means that every entrepreneur must find the tools and resources to ensure food safety. Designing food safety begins on the farm and ends at the consumer, and the exchange of information between them is essential.*

Key words*: Management Systems for Food Safety, hazard, food, rural space*

INTRODUCTION

Governments need to provide guidance to primary producers through out regular legislation, methodologies and specialised guides in order to help producers to ensure food safety and wholesomeness at the primary production level. Hazards associated with primary production are an important step during food chain production and help a lot to design a traceable food safety management system.

MATERIALS AND METHODS

Traditionally, industry and regulators have depended on spot-checks of manufacturing conditions of final products to ensure safe food. This approach, however, tends to be reactive, rather than preventive, and can be less efficient than the new Hazard Analysis and Critical Control Point (HACCP) system. This system was establish as the food safety standard throughout other areas of the food industry, including both domestic and imported food products [5,6,7].

RESEARCH RESULTS

Possible and frequently health risk is associated with raw materials and procreators are frequently applying specific procedures to avoid inappropriate raw materials. If primary producers would apply a food safety management system, they would help the whole food chain with important information on their food safety [1].

In many situations primary products are excessively contaminated with microorganisms or toxins that could affect the health of consumers or makes that raw material inappropriate for processing. It is important to understand how pathogens are introduced during primary production, how the agricultural techniques make their interventions in order to reduce the level of pathogenic microorganisms and how toxic substances could be applied without harming the product and in the same time to fulfil their role. It is very important that the farmer keeps an exact evidence of the type of chemical product used, doses, treatment period of time for each plant or animal. The possibility of tracking this information is important for clients, for administrative control bodies and for auditors [1].

Good husbandry practices could reduced the incidence of pathogens, preventing is more practical than applying a future chemical intervention. Some simple rule could be

applied: reducing the inappropriate moisture, plant rotation system, pests control in the proximity, avoiding fertilisation with manure containing viable pathogens or mud and faeces build-up on animal hide, all of these could reduce microbial levels.

Another type of health risk can occur if primary products are contaminated as a result of improper use of pesticides or veterinary drugs. Recommended doses are important to be respected; overdoses may generate a chemical hazard by unsafe residues microorganisms that would resists to future treatments. Only approved pesticides and veterinary drugs should be used. National legislation is specifying the maximum residue limits for pesticides in foods and animal feeds [2,3,4].

In order to ensure that the food is safe and suitable for its intended use, food safety management system is necessary to be applied alongside primary production.

Some important steps should be settled down [1]:

- avoiding the use of contaminated areas where is an historical contamination or where a cross contamination is possible;
- a programmed, specific and procedures plan has to be established to control pests and diseases of animals and plants;
- a hygiene procedure with proper practices and measures would help the producer to prevent and control chemical and biological hazard.

Producers should implement measures to [1]:

- control contamination from air, soil, water, feedstuffs, fertilizers (including natural fertilizers), pesticides, veterinary drugs or any other agent used in primary production;
- control actions for plant and animal health, that not generate a threat to human health through food consumption.

In farms a particular care should be taken for waste management and hazard chemical substances storage. A special designed space should be designated for these substances storage with a clear evidence of type and quantity that was used.

Specific procedures for handling, storage and transportation should be in place to [1]:

- sort food and food ingredients to segregate material which is evidently unfit for human consumption;
- dispose of any rejected material in a hygienic manner;
- protect food and food ingredients from contamination by pests, or by chemical, physical or microbiological contaminants;
- for materials that are going to be in contact with food, specific hygiene and temperature control should be taken in order to reduce cross contamination possibility.

A cross contamination or inappropriate technical conditions for food storage or conditioning is generated by the decision of where to locate food establishments. Establishments should not be located anywhere where a threat to food safety is probable.

Establishments should be not located in [1]:

- environmentally polluted areas and industrial activities;
- areas subject to flooding;
- areas prone to infestations of pests;
- areas where wastes cannot be removed effectively.

Equipment used for mechanical works, food conditioning or processing should permits adequate maintenance and cleaning, facilitates good hygiene practices and maintenance. All preventive or curative measures should easily remove harmful or undesirable microorganisms and their toxins, any physical or chemical contamination manifestation should be controlled, like oil leakage or mechanical parts inappropriate

removal on agricultural machine, all of them are eliminated or reduced to safe levels or their survival and growth are effectively controlled [1].

Depending on the nature of the food operations undertaken, adequate facilities should be available for heating, cooling, refrigerating and freezing food, for storing refrigerated or frozen foods, monitoring food temperatures, and when necessary, controlling ambient temperatures to ensure the safety and suitability of the food. Food storage facilities should permit adequate maintenance and hygiene measures to be taken. A specific programme for pests' access and control should be established. In the same time personnel and visitors access should be control and specific rules has to be settled down.

Where is necessary, adequate facilities for the storage of the food, ingredients and non-food chemicals (e.g. cleaning materials, lubricants, fuels) should be provided.

The potential effects of primary production activities upon food safety should be considered at all times. In practice this will includes identifying any specific points in such activities where a high probability of contamination may exist and specific measures will be taken in order to minimize that probability. The Hazard Analysis and Critical Control Point (HACCP) system will be used.

HACCP is designed for use in all segments of the food industry from growing, harvesting, processing, manufacturing, distributing and merchandising.

HACCP involves seven principles [5]:

- Analyze hazards like potential risks associated with a food and measures to control those riskss are identified. The risks could be biological such as a microbe; chemical such as a toxin; or physical such as ground glass or metal fragments.
- Identify critical control points. These are points in a food's production at which the potential risks can be controlled or eliminated
- Establishing preventive measures with critical limits for each control point. For a cooked food, for example, this might include setting the minimum cooking temperature and time required to ensure the elimination of any harmful microbes.
- Establishing procedures to monitor the critical control points. Such procedures might include determining how and by whom cooking time and temperature should be monitored.
- Establishing corrective actions to be taken when monitoring shows that a critical limit has not been met, for example, reprocessing or disposing of food if the minimum cooking temperature is not met.
- Establishing procedures to verify that the system is working properly--for example, testing time-and-temperature recording devices to verify that a cooking unit is working properly.
- Establishing effective recordkeeping to document the HACCP system**.** This would include records of risks and their control methods, the monitoring of safety requirements and action taken to correct potential problems. Each of these principles must be backed by sound scientific knowledge: for example, published microbiological studies on time and temperature factors for controlling food borne pathogens.

CONCLUSIONS

HACCP offers a number of advantages over the current system. Most importantly:

- focuses on identifying and preventing hazards from contaminating food
- is based on sound science
- permits more efficient and effective government oversight, primarily because the recordkeeping allows investigators to see how well a firm is complying with food safety laws over a period rather than how well it is done on a specific day,

- places responsibility for ensuring food safety appropriately on the food manufacturer or distributor,
- helps food companies compete more effectively in the market world,
- reduces barriers to international trade.

These systems should be applied to the food chain to control food hygiene throughout the all life of the product through a proper product and process design.

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