CODEX ALIMENTARIUS COMMISSION

Food and Agriculture Organization of the United Nations

World Health Organization

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Agenda Item 9(b) **CX/FH 13/45/11**

JOINT FAO/WHO FOOD STANDARDS PROGRAMME

CODEX COMMITTEE ON FOOD HYGIENE

Forty-fourth Session

Ha Noi, Viet Nam, 11- 15, 2013

PROPOSALS FOR NEW WORK AND/OR REVISION OF EXISTING STANDARDS

Prepared by the United States of America

Background

1. The 44th Session of the Codex Committee on Food Hygiene (CCFH) considered the Report of the Working Group for Establishment of CCFH Work Priorities (*see* REP 12/FH, paragraphs 119 - 132) and agreed to re-establish the Working Group for Establishment of CCFH Work Priorities under the chairmanship of Viet Nam with assistance of the United States of America.
2. It was agreed that the revisions which the Working Group (chaired by the United States of America) recommended in regards to the Process by Which the Codex Committee on Food Hygiene will undertake its work, be used on an experimental basis for proposals submitted for consideration by the 45th session of CCFH.
3. The revision established:
    - preliminary criteria to be applied on an experimental basis to the new work proposals
    - weighting values for the criteria, and
    - a Forward Work Plan.
4. CL 2013/11-FH was sent out to all Members and Interested International Organisations in May 2013. Member Governments were invited to propose new work for consideration by the above working group and were asked to do so by 1 September 2013, in accordance with the Criteria for the Establishment of Work Priorities (see Codex Alimentarius Commission, Procedural Manual, 20th Edition) and in accordance with the process described in Appendix V of ALINORM 07/30/13.

Based on the above:

5. In response to the above mentioned Circular Letter, a proposal was submitted by the United States.

Proposals to prepare new standards and codes of hygienic practice

COMMENTS AND PROPOSALS SUBMITTED BY THE UNITED STATES OF AMERICA IN RESPONSE TO CL 2013/11-FH[1]

6. The United States of America is proposing that the CCFH develop guidelines for the control of nontyphphoidal *Salmonella* spp. in beef and pork meat.

[1] Proposal is attached as Appendix I

7. Salmonellosis is one of the most frequently reported foodborne diseases worldwide – more than 80 million cases of *Salmonella* gastroenteritis are estimated to occur each year – and one of the most complex in its epidemiology and control.

8. Drug resistant *Salmonella* has become an issue for food safety experts and antimicrobial resistance in nontyphoidal *Salmonella* serotypes is now a global problem. This provides additional impetus for control of this pathogen in food products to prevent illnesses and outbreaks associated with antimicrobial resistance.

9. The guidelines would not set quantitative limits for *Salmonella* in beef and pork meat, bur rather would follow the example of the overarching *Codex Code of Hygienic Practice for Meat* and provide a framework which countries can use to establish control measures appropriate to their national situation.

10. Representative flow charts for primary production, processing and distribution channels of beef and pork are included in the discussion paper. It is proposed that these flow diagrams can be further detailed as guidelines to include interventions at each step as appropriate. This guidance would be similar to and serve as a companion guideline to the existing *Guidelines for the Control of Campylobacter and Salmonella in Chicken Meat* (CAC/GL 78-2011).

PROPOSALS SUBMITTED BY THE ELECTRONIC WORKING GROUP ON DISCUSSION PAPER ON THE OCCURRENCE AND CONTROL OF PARASITES IN FOOD.

11. An electronic working group, led by Australia, prepared a discussion paper on the *Occurrence and Control of Parasites in Food* (*see* CX/FH 13/45/8) ftp://ftp.fao.org/codex/meetings/ccfh/ccfh45/fh45_08e.pdf

12. The paper states that foodborne parasites are a major health burden worldwide, but particularly in developing countries. It is estimated that over 2 billion people are currently infected by foodborne parasites.

13. Control of foodborne parasites can be achieved through good agricultural practices and good hygienic practices. The major food vehicles associated with parasites area meat (e.g. pork, beef, lamb), fish and crustaceans, fresh produce and fruit juices.

14. The FAO/WHO preliminary report *Multicriteria-Based Ranking for Risk Management of Foodborne Parasites* lists 24 parasites or parasite genera of public health concern. The rankings indicate that the foodborne parasites of greatest concern from a public health perspective are not limited to a single parasite group or a single food vehicle.

15. The working group presented two options for providing guidance on pre-and post harvest control measure for parasites: 1) amend the existing Codex codes or 2) develop a separate guideline covering parasites and commodities of concern.

16. After reviewing the pros and cons for each option, the working group recommended that guidance on the occurrence and control of parasites be developed in a stand-alone document to be followed with the development of annexes, similar to the *Guidelines on the Application of General Principles of Food Hygiene to the Control of Viruses in Food* (CAC/GL 79-2012).

17. The working group recommended that CCFH further consider the structure of annexes, e.g. based on food group or parasite group, or parasite/food combination. *The current work on the Draft Guidelines for Control of Specific Zoonotic Parasites in Meat: Trichinella spp*. and *Cysticercus bovis* be included as an annex to the Parasite document.

18. The working group also recommended that the document also include additional guidance on the prioritization of parasites for use by governments. This would include modifying the weighting and criteria used in the FAO/WHO report to reflect the conditions present in their countries.

Comments and proposals to revise existing standards and codes of hygienic practice

COMMENTS AND PROPOSALS SUBMITTED BY BRAZIL

19. Brazil has prepared a discussion paper on the need to revise the *Code of Hygienic Practice for Fresh Fruits and Vegetables* (CAC/RCP 53-2003) and all its annexes, specifically with regard to eliminating duplication and redundancies and to identify provisions that might be missing (*see* CX/FH 13/45/9) ftp://ftp.fao.org/codex/Meetings/ccfh/ccfh45/fh45_09e.pdf

20. A comprehensive comparison between the main document, *Code of Hygienic Practice for Fresh Fruits and Vegetables* with the annexes on Fresh Leafy Vegetables, Melons and Berries was prepared.

21. The comparison revealed duplications, inconsistencies and cases in which information in one annex could be extended to others.

22. The discussion paper suggests that the main code be revised to incorporate the updated provision that are included in all of the annexes and that the annexes be revised to eliminate some information and incorporate additional information. This would eliminate duplication in the annexes and improve the main code with consolidated and up-to-date information.

23. Undertaking revisions of these codes is editorial in nature, and it will not be necessary to discuss this under new work proposals. Conceivably the Committee could agree on the revisions put forth by Brazil and forward the revised documents to the Commission for adoption.

Recommendations:

24. In respect of proposals to prepare new standards and codes of hygienic practice, members may review the proposal as to their appropriateness and completeness and prioritize them.

25. In respect of proposals to revise existing standards and codes of hygienic practice, members may review the proposals to consider whether it is appropriate for CCFH to undertake the work and to prioritize them.

APPENDIX I

Discussion Paper:

Development of Guidelines for the Control of Nontyphoidal *Salmonella* spp. in Beef and Pork Meat

1. Salmonellosis is one of the most frequently reported foodborne diseases worldwide and also one of the most complex in its epidemiology and control. Globally, 80.3 million cases of foodborne *Salmonella* gastroenteritis are estimated to occur each year (Majowicz et al., 2010). *Salmonella* infection represents a considerable burden in both developing and developed countries. For example, the reported incidence of salmonellosis per 100,000 people generally varies between about 2 and 90 among some European countries and the United States (U.S.) (EFSA, 2010).

2. In most countries salmonellosis in humans is mainly a foodborne disease, with foods of animal origin being most often associated with transmitting the bacteria. Climate, human and animal densities, land use, farming practices, food harvesting and processing technologies and consumer habits are some of the factors resulting in different epidemiological patterns in different parts of the world.

3. Salmonellae can cause symptoms from mild diarrhea up to severe sepsis, but asymptomatic carriers are common. The principal symptoms in humans are diarrhea, abdominal pain, mild fever, chills, nausea and vomiting; prostration, anorexia, headaches and malaise may also occur. The incubation period is 5-72 hours. In general the course of disease is self-limiting and clinical recovery takes place in 2-5 days, though recovery to full strength may take an additional 1-2 weeks. Illness can be more severe in very young and elderly people and in immuno-compromised hosts. Complications like reactive arthritis can occur in direct relation to the acute phase or within a few months. High attack rates are generally observed with *Salmonella* outbreaks where the levels ingested are $\geq 10^6$ cells for healthy adults, however, a number of outbreaks involving doses of ≤ 100 cells have been documented (Fontaine et al., 1980; Greenwood and Hooper, 1983; Hennessy et al., 1996; Kasuga et al., 2004; Matsui et al., 2004; Vought and Tatini, 1998).

4. Factors such as variation between bacterial strains, age and health status of the host, portal of entry and chemical nature of the food-vehicle will influence the infectious dose. Meat and poultry products are common food vehicles of *Salmonella* in many countries. Most *Salmonella* serovars that are pathogenic to humans produce little clinical disease in animals used for meat and poultry production. Detection of infected herds and flocks must therefore be based on bacteriological or serological analyses. *Salmonella* contamination can pass from the colonized intestinal tracts of these animals into the human meat and poultry supply, exposing consumers to *Salmonella*.

5. The emergence of drug resistant *Salmonella* has also become an issue for food safety experts. Antimicrobial resistance in nontyphoid *Salmonella* serotypes is now a global problem. Surveillance data demonstrated an increase in overall antimicrobial resistance among salmonellae from 20%–30% in the early 1990s to as high as 70% in some countries at the turn of the century (Su et al., 2004). This provides additional impetus for control of this pathogen in food products to prevent illnesses and outbreaks associated with antimicrobial resistance. For example, in 2004, an outbreak of antimicrobial-resistant Typhimurium DT104 in the U.S. was associated with ground beef (Dechet et al., 2006).

6. Epidemiological evidence indicates that beef and pork are foodborne sources of human exposure to *Salmonella*. U.S. case-control studies identified consumption of undercooked ground beef as a risk factor for salmonellosis (Roels et al., 1997; Delarocque-Astagneau et al., 2000). Beef and pork have also been implicated in several outbreaks of salmonellosis in the U.S. (Painter et al., 2013). In 2010, Germany reported three *Salmonella* Typhimurium foodborne outbreaks involving 45 human cases with 10 hospitalizations and one death. In one outbreak, the food vehicle was pig meat and products thereof whereas buffet meals in which pork products or other food were served were the food vehicles in two outbreaks (EFSA, 2010). In 2010, the largest *Salmonella* foodborne outbreak ever

documented in a school setting occurred in France. Investigations identified frozen beef burger meat as the cause of the outbreak, resulting in 554 illnesses (EFSA, 2010). In the U.S., a multi-state outbreak linked to a multi-drug resistant strain of *Salmonella* in ground beef sickened 20 people in the Northeast U.S. in 2010 (CDC, 2010). In 2012, a cluster of *Salmonella* Enteritidis illnesses was linked to ground beef consumption with 46 case-patients across nine states (CDC, 2012). Furthermore, a total of 22 persons infected with *Salmonella* Typhimurium after consuming ground beef were reported from six states in 2013 (CDC, 2013). These outbreaks suggest that *Salmonella* in beef and pork is a continuing public health concern.

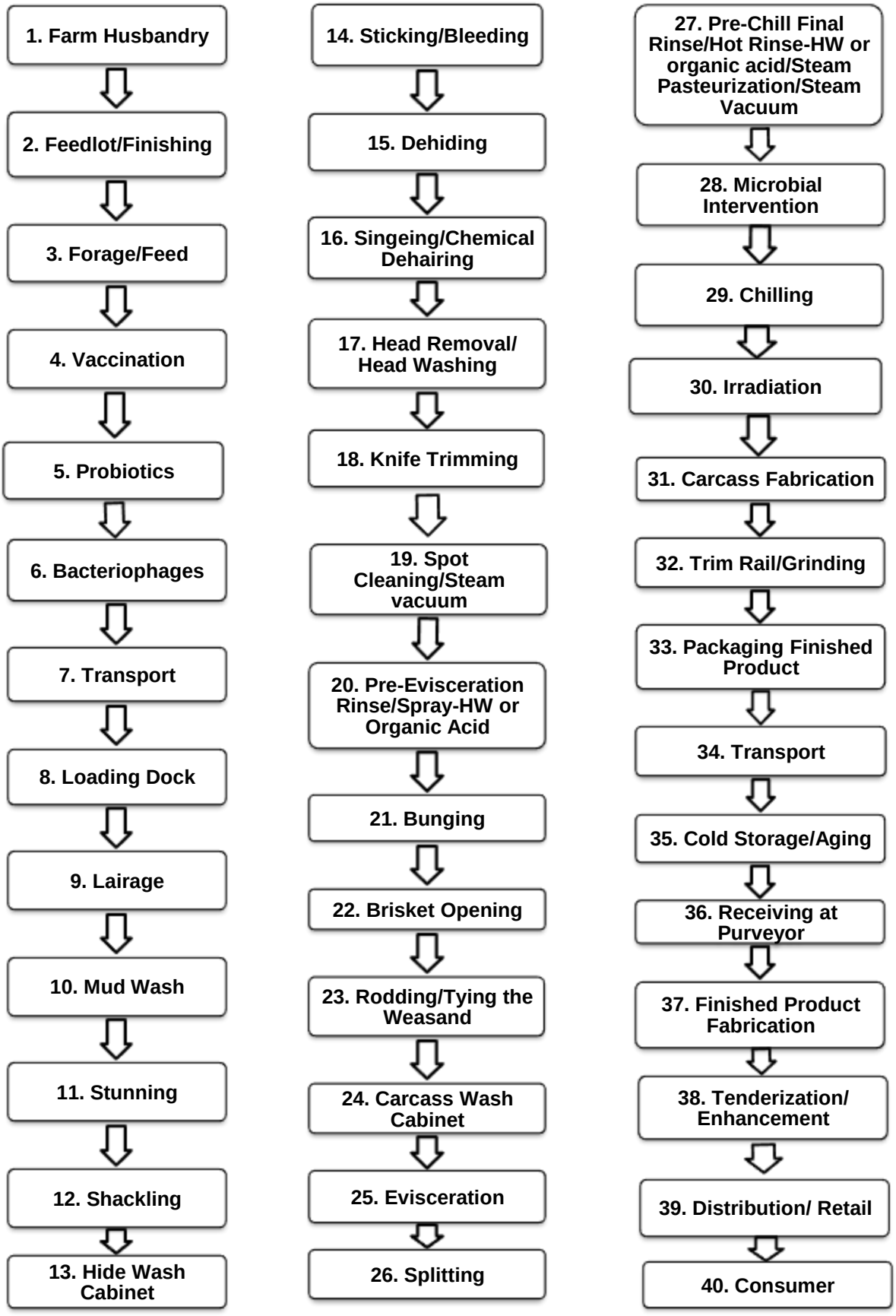
7. The processing of beef and pork, from live animal to the packaged product, requires multiple steps. Each step is a potential for colonization or contamination of *Salmonella* in the live animal or processed meat. Much research has been done for many of these steps that would have potential for the reduction of *Salmonella*. A representative flow chart of primary production, processing, and distribution channels of beef and pork are shown in flow charts in Annexes 1 and 2, respectively. Many of the steps have known interventions that are supported by scientific literature. These flow charts follow the format in the Codex *Guidelines for the Control of Campylobacter and Salmonella in Chicken Meat* (CAC/GL 78-2011).

8. If accepted as new work by CCFH, the beef flow chart in Annex I can be further detailed as guidelines to include interventions at each step. Intervention options are applicable to various establishments depending on size and production volume. An example of an intervention for Step 24 would be to use a hot water spray at 72°C for 15 seconds at 35 to 40 pounds per square inch, which showed a 3.43 log CFU/cm2 reduction of *Salmonella* after 35 days in storage at 4°C (Cutter et al., 2000). Another possible intervention at Step 32 would be to implement a 2% lactic acid wash as a 30 second dip, which when combined with a water wash dip at 43°C, reduces *Salmonella* by 2.3 log CFU/cm2 (Ellebracht et al., 2005). Alternatively, a 10 second spray of lactic acid alone, 15.2 cm away at 0.42 liters per minute reduced *Salmonella* 0.25 log CFU/cm2 (Harris et al., 2012).

9. Similarly the pork flow chart in Annex 2 can be further detailed to include interventions at each step. At the farm level, stress during farrowing and antibiotic usage affects the fecal shedding of *Salmonella* and can be considered when rearing market hogs (Callaway et al., 2005; Callaway et al., 2006; Edrington et al., 2006; Funk et al., 2006; Funk et al., 2007; Wilhelm et al., 2012). Optimal hot water and organic acid wash steps can be introduced at the processing level to reduce *Salmonella* (Choi et al., 2009; Fouladkhah et al., 2012; King et al., 2011; Piachin and Trachoo, 2011; Trivedi et al., 2007). High pressure treatment, proper refrigeration, and vacuum packaging at the storage and distribution level have been shown to reduce levels of *Salmonella* (Hugas et al., 2002; Porto-Fett et al., 2010; Wen et al., 2012; Wen et al., 2013).

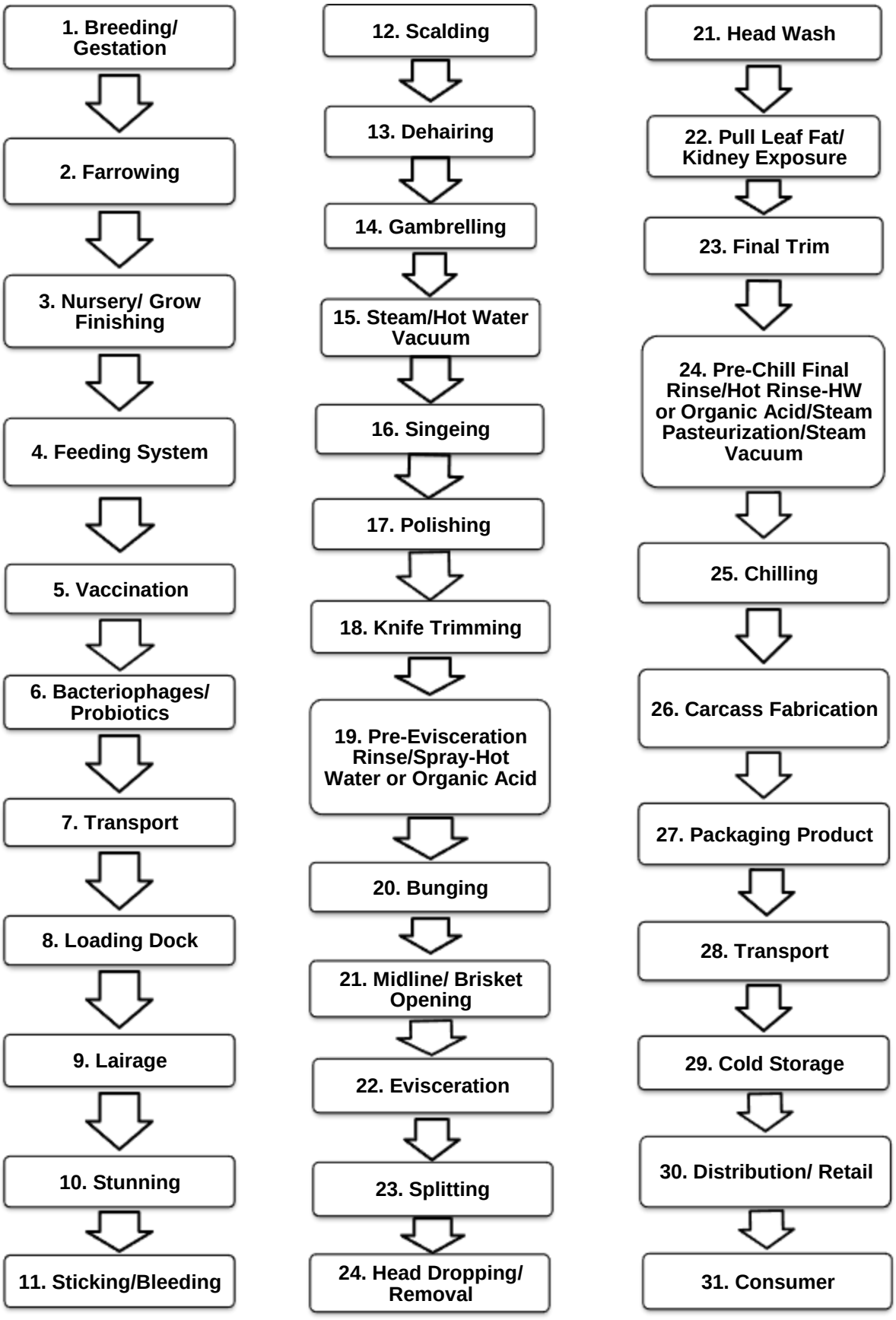
10. This discussion paper demonstrates the need for a new Codex guideline for the control of *Salmonella* in beef and pork. This would be a companion guideline to the existing Codex *Guidelines for the Control of Campylobacter and Salmonella in Chicken Meat* recently developed by CCFH. It is clear that reduction of salmonellosis in humans is a world-wide priority. CCFH would contribute greatly towards reducing this public health problem by continuing the work it started in controlling *Salmonella* in chicken meat by extending guidance for control in beef and pork as well. Attached in Annex 3 is a project document requesting CCFH to begin new work to develop *Guidelines for the Control of Nontyphoidal Salmonella spp. in Beef and Pork Meat*.

ANNEX 1. BEEF FLOW CHART



Draft flow diagram of beef farming, slaughter, processing, retail, and consumer preparation. Example details on interventions supported by scientific literature are provided in the discussion paper.

ANNEX 2. PORK FLOW CHART



Draft flow diagram of pork farming, slaughter, processing, retail, and consumer preparation. Example details on interventions supported by scientific literature are provided in the discussion paper.

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ANNEX 3

PROJECT DOCUMENT

Development of Guidelines for the Control of Nontyphoidal *Salmonella* spp. in Beef and Pork Meat

1. The purposes and scope of the Standard

The purpose and scope of the work is to draft guidelines for the control of nontyphoidal *Salmonella* spp.[2] in beef and pork meat.

2. Its relevance and timeliness

Salmonellosis is one of the most frequently reported foodborne diseases worldwide and also one of the most complex in its epidemiology and control. The reported incidence of salmonellosis per 100,000 people generally varies between about 2 and 90 in different countries[3].

In the United States (U.S.) the Centers for Disease Control and Prevention (CDC) estimate domestically acquired foodborne nontyphoidal salmonellosis burden to be 1,027,561 (90% Credible Interval: 644,786 – 1,679,667) estimated annual illnesses, 19,336 (90% Credible Interval: 8,545 – 37,490) estimated annual hospitalizations and 378 (90% Credible Interval: 0 – 1,011) estimated annual deaths[4]. *Salmonella* is the leading pathogen causing domestically acquired foodborne illnesses resulting in death. For 2012, approximately 16.4 cases of salmonellosis per 100,000 persons were identified through the U.S. FoodNet surveillance system[5]. *Salmonella* had the largest number of hospitalizations (2,284) and deaths (33) among other reportable foodborne diseases[4]. In 2012, among laboratory-confirmed bacterial and parasitic infections, salmonellosis incidence was highest in children aged <5 years (63.5 infections per 100,000) followed by children aged 5-9 at 19.3 infections per 100,000[4]. The overall incidence of *Salmonella* infection in 2012 was not significantly different than during 1996—1998, the start of the FoodNet surveillance system, nor the more recent time period of 2006—2008[4]. In addition, the CDC recently recommended that "*Salmonella* infection should be targeted because it has not declined significantly in more than a decade, and other data indicate that it is one of the most common foodborne infections, resulting in an estimated $365 million in direct medical costs annually.[6]"

In the European Union (E.U.) a total of 99,020 confirmed cases of human salmonellosis were reported by 27 E.U. member states in 2010[2]. The rate for confirmed cases was 21.5 cases per 100,000 people. This was an 8.8 % (9,598 cases) reduction in 2010, which is about half of the reported reduction rate in 2009 (17.4 % and 22,854 cases). In 2010, 62 deaths were reported - the case fatality rate of human salmonellosis was 0.13 %. The reported incidence of salmonellosis among the 27 member states varies widely. Per 100,000 people the case rate varies between 1.9 and 91.1 in different countries[7].

Review of the literature reveals that *Salmonella* can be found in beef and pork products at slaughter, processing, and retail. In the U.S., the most recent data in 2010 suggest that *Salmonella* are present on about 0.5% of cow/bull and 0.1% of steer/heifer swab sample tests on carcasses at the processing

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[2] The genus *Salmonella* belongs to the family *Enterobacteriaceae.* The bacterium is a facultative anaerobic, gram-negative rod. The genus consists of two species, *Salmonella enterica* and *Salmonella bongori. Salmonella enterica* includes both typhoidal and nontyphoidal *Salmonella*. This document only addresses nontyphoidal *Salmonella* and all nontyphoidal *Salmonella* spp. are referred to as *Salmonella*. More than 2,400 *Salmonella* serotypes have been identified.

[3] http://www.efsa.europa.eu/en/efsajournal/doc/2597.pdf

[4] http://wwwnc.cdc.gov/eid/article/17/1/p1-1101-t2.htm

[5] http://www.cdc.gov/mmwr/pdf/wk/mm6215.pdf

[6] http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6022a5.htm?s_cid=mm6022a5_w

[7] http://www.efsa.europa.eu/en/efsajournal/doc/2597.pdf

establishment. For raw ground beef about 2.4% of samples contained *Salmonella* in 2011.[8] For pork carcasses, a 2011 baseline[9] estimated the national prevalence to be about 1.7% for *Salmonella* using carcass swabs. At retail, the 2011 percent positive rate for this pathogen in ground beef was 0.7% and on pork chops, 2.1%[10]. In the E.U. reporting member states, 0.9% of tested samples at various points during processing were found positive for *Salmonella* in fresh pork. The proportion of *Salmonella*-positive samples taken at different establishments ranged from 0.3% to 8.9%. The overall percentage of positive samples at retail was 1.0%. In the case of fresh beef, 0.2 % of samples were positive at various points during processing[6].

Salmonella spp. have been reported to be associated with foodborne disease outbreaks attributed to both beef and pork consumption. In the U.S., between the years 1998-2008, 877 outbreaks that had a simple or complex food vehicle were caused by *Salmonella enterica*. Of those, 128 were associated with beef, while 115 were associated with pork.[11] Of all the illnesses caused by these outbreaks, 7.3% are attributed to beef and 6.2% from pork. The remaining 86.5% of *Salmonella* illnesses are caused by other foods. Beef represents approximately 75,000 (36,000-153,000) and pork represents approximately 64,000 (37,000-117,000) illnesses. In the E.U., of all the illnesses caused by these outbreaks, 4.7% are attributed to beef and 5.3% from pork[6].

The World Organisation for Animal Health (OIE) also recognizes the importance of examining *Salmonella* in food-producing animals other than poultry. Since 2010, OIE's Working Group on Animal Production Food Safety discussed the need for and feasibility of developing OIE advice on the control of *Salmonella* spp. in food-producing animals other than poultry (i.e., pigs, cattle, small ruminants) with the purpose of reducing foodborne illness. They worked on a paper on the feasibility of applying measures at the production level (farm-level) to reduce the incidence of *Salmonella* spp. in intensive pigs (i.e., pigs raised in feed lots up to slaughter), to assess likely public health outcomes of applying such measures, and to provide more information on the prevalence of foodborne salmonellosis in humans from food-producing animals other than poultry. Though OIE felt this initiative important, at their November 2012 meeting[12], they felt unilateral advancement of this work in OIE alone is unlikely to significantly improve *Salmonella* risk management in animals other than poultry. Rather, they agreed that should Codex initiate new work on *Salmonella* spp. in food-producing animals other than poultry, then the Working Group would encourage OIE participation to ensure a whole food chain approach. This project document for new work by CCFH is consistent with the OIE's focus on *Salmonella* in animals other than poultry.

3. The main aspects to be covered

It is not the intention of the Guidelines to set quantitative limits for *Salmonella* in beef and pork meat in international trade. Rather, the Guidelines will follow the example of the overarching Codex *Code of Hygienic Practice for Meat* (CAC/RCP 58-2005) and provide an "enabling" framework which countries can utilize to establish control measures appropriate to their national situation.

The projected format will follow the Codex *Guidelines for the Control of Campylobacter and Salmonella in Chicken Meat* (CAC/GL 78-2011) and include only provisions of particular importance for the safety

[8] FSIS Verification Data http://www.fsis.usda.gov/PDF/Progress_Report_Salmonella_Testing_1998-2011.pdf
[9] http://www.fsis.usda.gov/PDF/Baseline_Data_Market_Hogs_2010-2011.pdf
[10] NARMS Retail Data, http://www.fda.gov/downloads/AnimalVeterinary/SafetyHealth/AntimicrobialResistance/NationalAntimicrobialResistanceMonitoringSystem/UCM334834.pdf
[11] Painter et al., 2013; http://wwwnc.cdc.gov/eid/article/19/3/pdfs/11-1866.pdf
[12] OIE Working Group on Animal Production Food Safety, Report of the Meeting of the OIE Animal Production Food Safety Working Group, Paris, 20–22 November 2012; http://www.oie.int/fileadmin/Home/eng/Food_Safety/docs/pdf/A_APFSWG_Nov__2012.pdf

of beef and pork meat. It would include (similar to the chicken meat guidelines), but not necessarily be limited to:

- Control measures for primary production (reference and work with OIE, *e.g.*, their Working Group on Animal Production Food Safety)
- Control measures for processing
- Control measures for distribution channels
- Validation of control measures
- Verification of control measures
- Monitoring and review

4. An assessment against the *Criteria for establishment of work priorities*

- The Guidelines need to be developed in order to meet the General criterion: Consumer protection from the point of view of health, food safety, ensuring fair practices in the food trade and taking into account the identified needs of developing countries.

  The proposed work is directed primarily at the control of *Salmonella*, a microbial hazard that is a common public health problem world-wide. This document will provide guidance to all countries on the hygienic production of beef and pork meat.
- Also under the Criteria applicable to general subjects, the Guidelines are needed in consideration of the global magnitude of the problem or issue.

  Salmonellosis is of global concern. Codex guidelines now exist for control of *Salmonella* in chicken meat, but beef and pork meat are also recognized as contributing to global salmonellosis. Similar Codex guidance is therefore relevant for beef and pork meat.

5. Relevance to the Codex strategic objectives

The proposed work directly relates to several Codex strategic goals from the Draft Codex Strategic Plan: 2014-2019.

- Strategic Goal 1: Establish international food standards that address current and emerging food issues

  These Guidelines would establish a new Codex standard in response to needs identified by Members and in response to factors that affect food safety and fair practices in the foods trade. As noted previously, control of *Salmonella* is currently an issue world-wide.
- Strategic Goal 2: Ensure the application of risk analysis principles in the development of Codex standards

  The development of the Guidelines will be consistent with the use of scientific advice and risk analysis principles in the articulation of the control measures. Scientific advice from the FAO/WHO expert bodies, particularly JEMRA, and scientific input from all countries will be solicited.
- Strategic Goal 3: Facilitate the effective participation of all Codex Members

  The development of these Guidelines will be open to all Codex Members to participate and provide useful and meaningful contributions.
- Strategic Goal 4: Implement effective and efficient work management systems and practices

  It is expected that the working group efforts will be effective, efficient, transparent, and consensus-based for a timely adoption of these Guidelines. The process would likely begin with initial discussions at the ad hoc working group on new work at CCFH, followed by an electronic working group (eWG) to establish the initial framework. CCFH could then explore whether having a physical working group (with translation) would be useful, perhaps in conjunction with the next year's meeting of the CCFH. This would encourage more participation.

6. Information on the relation between the proposal and other existing Codex documents

The proposed Guidelines will follow the example of the overarching Codex *Code of Hygienic Practice for Meat* (CAC/RCP 58-2005) and provide an "enabling" framework which countries can utilize to establish control measures appropriate to their national situation.

The projected format will follow the Codex *Guidelines for the Control of Campylobacter and Salmonella in Chicken Meat* (CAC/GL 78-2011) and include only provisions of particular importance for the safety of beef and pork meat.

7. Identification of any requirement for and availability of expert scientific advice

We anticipate that there may be a need for scientific advice from FAO/WHO's expert body JEMRA on the scientific and practical soundness of the proposed control measures and their validation, verification, and review activities. This activity would likely be similar to the expert panel review JEMRA provided for the Codex *Guidelines for the Control of Campylobacter and Salmonella in Chicken Meat* when those Guidelines were being developed.

8. Identification of any need for technical input to the standard from external bodies so that this can be planned for

Since the OIE's Working Group on Animal Production Food Safety has been discussing the issue of *Salmonella* in food-producing animals other than poultry, particularly for pre-harvest (production level, farm level) controls, the body should be notified and cooperation encouraged.

9. The proposed time-line for completion of the new work, including the start date, the proposed date for adoption at Step 5, and the proposed date for adoption by the Commission

A three-to-five year timeline is proposed for the completion of the Guidelines. The shorter timeframe may be applicable, as this effort will closely follow the format of the existing Codex *Guidelines for the Control of Campylobacter and Salmonella in Chicken Meat*, thus facilitating the development of this proposed document. The longer timeframe may be applicable if data are needed to address the multiple control measures and since work is proposed on two documents or annexes, one for beef and one for pork, where control measures for these products are likely to differ.

Assuming approval of this new work by the Codex Alimentarius Commission (CAC) in the summer of 2014, a proposed draft document would be projected for initial discussion by CCFH in 2014, with a projected date for adoption at Step 5 either in 2016 or 2017. Adoption by the CAC could follow in 2017 or 2018.